

DEFINITIONS

G1.1 [Professional engineer](#)

G1.1(1) [Resource Roads](#)

Guidelines - Part 1 - Definitions

G1.1 "Professional engineer"

Issued August 1, 1999; Editorial Revision October 14, 2004; Editorial Revision January 1, 2009; Revised November 21, 2017

Regulatory excerpt

Section 1.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"professional engineer" means a person who is registered or licensed to practice engineering under the provisions of the *Engineers and Geoscientists Act*.

Purpose of guideline

The purpose of this guideline is to provide additional information about WorkSafeBC's practices for engineering certificates.

Engineering certificate

WorkSafeBC prevention officers will treat as unacceptable any engineering certificate, approval, or design that does not comply with the regulations or an order or direction of WorkSafeBC, or a variance granted by WorkSafeBC.

The situation may arise where there appears to be compliance with the *Regulation*, or with a variance granted by WorkSafeBC, but a prevention officer feels the engineering is inadequate and could endanger a worker. In such cases, the prevention officer will not reject the engineering certification, approval, or design without authorization from his or her manager, and upon the recommendation of an engineer from the Engineering Section of WorkSafeBC.

The Engineering Section should be contacted for assistance in reviewing unclear, vague, and generally unprofessional engineering documents left on job sites for the purpose of compliance with the *Regulation*. The Engineering Section may initiate a formal complaint to Engineers & Geoscientists British Columbia (EGBC). Each potential complaint will be assessed on an individual basis. Before a complaint is made, a member of the Engineering Section will review the letter and attachments for each complaint. The reviewer will be an engineer who has had no direct dealings with the person named in the complaint on the matter at issue. The reviewer will comment on the content, completeness, and apparent reasonableness of the complaint.

As an engineer is generally working in and contributing to the production of an industry, a prevention officer may write orders on the engineer, and his or her firm, if the documents provided are inadequate and/or do not meet the requirements of the *Regulation*. See also OHS Guideline [G20.78](#) regarding qualified registered professional's certificates, which may include an engineer's certificate for excavations.

G1.1(1) [Resource Roads](#)

Issued November 29, 2012; Editorial Revision April 6, 2020; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 1.1(1) of the *OHS Regulation* ("*Regulation*") states, in part:

"resource road" means a road or portion of a road on Crown land, and includes a bridge, culvert, ford or other structure or work associated with the road, but does not include a highway within the meaning of the Transportation Act,

Sections 1.1(2) – (4) of the *Regulation* state:

(2) Subject to subsection (3), in this Regulation, "*workplace*" does not include a resource road.

(3) A portion of a resource road is a workplace during any period within which the portion is being built, maintained, repaired, rehabilitated, stabilized, upgraded, removed or deactivated.

(4) Although a resource road does not constitute a workplace for the purposes of this Regulation, other than in one of the limited circumstances referred to in subsection (3), a reference to a workplace in this Regulation continues to include a thing or place that constitutes a workplace even though that thing, or an activity or the result of an activity initiated or carried out at that place, is in whole or in part on a resource road.

Purpose of guideline

The purpose of this guideline is to set out the circumstances under which a resource road is a workplace for the purposes of the *Regulation*.

Resource roads - What are they?

Resource roads are defined for the purposes of the *Regulation* as follows:

a road or portion of a road on Crown land, and includes a bridge, culvert, ford or other structure or work associated with the road, but does not include a highway within the meaning of the *Transportation Act*;

Many industrial activities, in particular the development, management, and transportation of natural resources, are accessed through the use of resource roads. Resource roads are non-highway roads on Crown land constructed and maintained under a variety of legislation. These roads include forest service roads, forest roads, petroleum development roads, mineral exploration roads, and some industrial roads. Private roads are not considered resource roads.

Resource road not a workplace

Section 1.1(2) states that, except in specific circumstances, a resource road is not a "workplace" for the purposes of the *Regulation*. The intent of this section is to clarify that resource roads are not to be treated as single workplaces giving rise to the obligations of a prime contractor or owner under [sections 24 and 25](#) of the *Workers Compensation Act* ("Act"), and sections [26.1.1](#) (Prime contractor requirements for forestry operations) and [26.1.2](#) (Multiple-employer workplace) of the *Regulation*. That is, the activities of employers, workers, and others over the entire area of a resource road need not be coordinated by a prime contractor, nor does a prime contractor have to be designated to establish and maintain a system or process that will ensure compliance with the OHS provisions of the *Act* and the *Regulation* for activities occurring over the entire road. Similarly, the requirements in sections [26.1.1](#) and [26.1.2](#) of the *Regulation* relating to coordination of multiple-employer workplaces in forestry operations will not apply with respect to resource roads.

In addition, requirements that would otherwise relate to resource roads as a "workplace" will not apply. These requirements include a number of sections in part 26 relating to roads and road maintenance, notably sections [26.79](#), 26.81, 26.82, 26.83, as well as more general obligations relating to the workplace.

As noted above, while resource roads on Crown lands are not "workplaces," private roads that are used for an industrial purpose continue to be considered "workplaces." An example of private roads would be roads used to access private managed forest land.

While section 1.1(1) exempts resource roads from the definition of workplace for the purposes of the *Regulation*, this exemption is not relevant to determining whether an injury, fatality, or illness incurred on a resource road or in connection to an activity on a resource road gives rise to a claim for compensation.

Portion of resource road as a workplace

Section 1.1(3) states that a portion of a resource road is a workplace during any period within which that portion is being built, maintained, repaired, rehabilitated, stabilized, upgraded, removed or deactivated. Where resource roads contain these smaller construction and maintenance workplaces, all relevant obligations in the *Act* and *Regulation* will apply to that workplace and any workplace party connected with the work. For clarity, these smaller construction or maintenance workplaces may give rise to the prime contractor obligations in section 24 of the *Act* with respect to that specific workplace, provided there are workers of more than one employer present. The prime contractor obligations will apply only to the smaller multiple-employer workplace within the resource road where the activities described in section 1.1(3) are taking place. In addition, [section 26.80](#) of the *Regulation*, which states road construction must be carried out in a manner that does not create hazards from hung up or broken trees or limbs, will also apply.

Workplaces on a resource road

In addition to the exception in section 1.1(3), section 1.1(4) confirms that there may also be other work activities or workplaces that happen to occur on resource roads, but which do not render the whole resource road a workplace.

The primary example of this type of work is the normal work related to the use of the resource road itself. The definition of "workplace" in section 13 of the *Act* includes in part, any "vessel, vehicle or mobile equipment used by a worker in work." Accordingly, though an entire resource road is not a single workplace, employers and workers who are travelling on the road (accessing workplaces, or engaging in hauling goods or equipment, etc.) or engaging in work activities relating to travel on the road (performing vehicle maintenance, securing loads, etc.) in the course of their work will be subject to the requirements of the *Act* and the *Regulation* to carry out that work safely.

Other workplaces covered by section 1.1(4) include work that is undertaken on or near the resource road that incidentally occurs on or intersects with the resource road. This could include, for example, forestry yarding operations that use a resource road or a landing, and construction of works unrelated to the resource road, like buildings, hydro lines, or sewers and similar activities. As with the exception in section 1.1(3), these smaller workplaces may be multiple-employer workplaces if there are workers of more than one employer present, however the road itself will not be a single workplace.

Obligations relating to the use of resource roads

1. Employer obligations relating to road use

While resource roads are not "workplaces," as noted above, vehicles or mobile equipment operated or occupied by workers on resource roads will be workplaces. Employers therefore have an obligation to ensure the health and safety of their workers using resource roads. This obligation entails a number of activities.

a. Planning the use of the resource road

Employers have an obligation under [section 21](#) of the *Act* to generally ensure the health and safety of their workers, including ensuring those

workers, among other things, are made aware of known or foreseeable hazards and receive appropriate training and supervision. In addition, [section 26.2](#) of the *Regulation* requires that all activities in a forestry operation be planned and conducted in a manner acceptable to WorkSafeBC.

Employers intending to have their workers use a resource road should, as far as is practicable, obtain current and detailed information about the road and conditions that will impact the safe use by the employers' workers. The information the employer should obtain includes the following:

- The presence of other users of the road, their planned activities (to the extent known), and work locations
- Adequacy of the road infrastructure for the planned use, including verifying the load rating of bridges
- The condition of the road, and any hazards or other conditions that would impact use, such as steep slopes, sharp curves, areas prone to washout, sections that are too narrow to allow two-way traffic, etc.
- Traffic control systems, including any road use rules agreed to by existing users, radio calling protocols, etc.

The means by which employers may exercise due diligence by obtaining this information could include the following:

- Contacting the Ministry of Forests, Lands, and Natural Resources Operations responsible for permitting use on the resource road, to identify the maintaining permittee, other users of the road and anticipated levels and types of traffic
- Contacting the maintaining permittee to determine the planned level of maintenance and its impact on the anticipated road use
- Contacting the road user group (if one exists) to coordinate with other users, identify any road use protocols, and learn of any existing hazards
- Considering what types of hazards can be anticipated during the use of the road (e.g., other road users such as hunters; seasonal road conditions such as snow and dust)
- Physically driving the road to see what types of hazards are and may be present prior to and during their employees using the road system; this could include things like road and bridge conditions, hazard trees, other users, existing systems that may be in place, etc.

Employers must ensure that workers are trained and provided instruction about safe use of the road and that information necessary to safely use the road is shared with workers using the road.

The obligation to plan road use activities extends to ensuring that vehicles and mobile equipment are adequate for the conditions, and that any required maintenance has been performed. Work activities should be planned and structured so that use of the road does not result in workers operating vehicles at speeds excessive for the conditions or when workers are fatigued.

b. Addressing ongoing road use issues

Employers will continue to have obligations to their workers while the road use activity is underway.

Employers should monitor and supervise worker activity to ensure that workers continue to use the road safely. Employers should ensure that workers do not speed or drive unsafely, and that they do not operate vehicles while impaired by drugs, alcohol, or fatigue. Employers are responsible to ensure workers are meeting the obligations described in section 3 below.

Where an employer learns of a hazardous condition or maintenance issue on the road, such as washouts, excessive dust, dangerous trees, or brush encroaching sight lines of the road, the employer should bring these conditions to the attention of the maintaining permittee of the road so that these conditions are addressed.

Employers will also have to be responsive to changing weather conditions and instruct their workers accordingly.

2. Supervisor obligations

Workers using resource roads must also be adequately supervised. [Section 23](#) of the *Act* requires supervisors to ensure the health and safety of workers under their supervision and make those workers aware of foreseeable hazards.

This obligation would include a number of the activities described above, such as providing adequate information on road conditions and hazards and monitoring worker activity and behaviour in using the roads.

3. Worker obligations

Workers also have obligations to use roads safely. Primarily, workers must take reasonable care under [section 22](#) of the *Act* to ensure their own safety and carry out their work in accordance with safe work procedures. "Safe work procedures" would include the instruction provided by the employer and/or supervisor for safe use of the road, as well as any traffic control procedures established for the particular road.

In addition to the general obligation in the *Act*, there are specific requirements in the *Regulation* relating to operating vehicles, log transporters, and mobile equipment that will apply. Primarily, section 26.71.1 states that the operator of a log transporter must follow safe operating procedures, including the following:

- Not overtaking another moving industrial vehicle, except on a signal from the other vehicle operator
- Using extreme caution when approaching vehicles coming from the opposite direction
- Keeping a safe distance when following crew transportation vehicles; having due regard for road and grade conditions and visibility

- Driving at a speed appropriate to the log transporter's capabilities, the road design and condition, the traffic, the visibility, and the weather conditions
- Not operating the log transporter while impaired by fatigue, or any other cause, substance, or matter that could prevent the operator from operating the log transporter safely

In addition to section 26.71.1, the *Regulation* contains the following obligations that workers must comply with:

- Section 17.1.1 states that vehicles used to transport workers must be operated in a safe manner.
- [Section 26.83.1](#) states that vehicles must use a traffic control system when the road is too narrow to permit 2 vehicles to pass.
- [Section 26.83\(2\)](#) states that vehicles must operate with headlights and (if they are fitted) flashing beacons turned on.

Contents

APPLICATION

G2.1-2 [Homeowners as "employers"](#)

G2.2 [General duty to work without undue risk](#) [Retired]

G2.4 [Prompt compliance](#) [Retired]

Guidelines - Part 2 - Application

G2.1-2 Homeowners as "employers"

Issued September 22, 2006; Editorial Revision June 26, 2014; Editorial Revision April 6, 2020

Regulatory excerpt

Section 2.1 of the *OHS Regulation* ("*Regulation*") states:

This Occupational Health and Safety Regulation applies to all employers, workers and all other persons working in or contributing to the production of any industry within the scope of the OHS provisions of the *Workers Compensation Act*.

Purpose of guideline

The purpose of this guideline is to clarify the application of the OHS provisions of the *Workers Compensation Act* ("*Act*") to homeowners who hire individuals to perform work around their private residence.

Workplace status

The owner or occupier of a private residence may contract with various individuals to perform work in and around their homes. These work arrangements may be short term or casual, and the nature of the employment relationship may be unclear. Such uncertainty may arise in the context of renovations or roofing work where homeowners contract with individuals to work for a temporary period of time.

The key policies relevant to status determination are found in the *Assessment Manual* in *AP1-1-1* to *AP1-1-7*. Recognizing the challenge of making an individual determination of the workplace status of each individual performing work in or around a private residence, WorkSafeBC has developed criteria by which such individuals may be exempted from coverage. These exemption criteria are set out in *Assessment Manual AP1-4-1*.

Assessment Manual AP1-4-1(c)(1) states:

(1) An individual employed by the owner or occupier in or around a private residence, other than for the purpose of the owner's or occupier's trade or business, or employed in serving the personal needs of the owner or occupier or the owner's or occupier's family is exempt where:

(i) the individual is regularly employed for a definite or indefinite period on a weekly, monthly or similar basis for an average of less than

- 8 working hours per week; or
- 15 working hours per week, and the individual is employed caring for children in the period immediately preceding and following school; or

(ii) the individual is employed to do a specific job or jobs and the total cumulative hours to be worked by all individuals employed on the job or jobs involve a temporary period of less than 24 working hours. (emphasis added)

In determining whether a job lasts more than 24 hours, it is the **total cumulative hours for the job** that is relevant. For example, if three workers work for nine hours, the total cumulative hours worked would be 27 hours and these individuals would not be subject to the exemption.

In summary, the homeowner who hires individuals for a job less than 24 hours in duration in total does not need to register as an employer, and the individual doing the work is exempted from registration and from the application of the compensation provisions of the *Act*. To promote consistency and predictability in the exemption process, and to avoid unnecessary intrusion into private homes, WorkSafeBC generally accepts such an exemption as determinative of workplace status for the purposes of the OHS provisions of the *Act* and the *Regulation*. A WorkSafeBC prevention officer should not write orders against the homeowner for violations as an employer.

For jobs exceeding 24 working hours, a homeowner is required to register with WorkSafeBC as an employer, and must pay assessments for his or her workers. In such instances both the homeowners and workers must meet their respective obligations as employers and workers under the OHS provisions of the *Act* and the *Regulation*, and prevention officers may write orders against the homeowner and the workers.

It should be noted that if a homeowner is not exempt from registration but has failed to register with WorkSafeBC, the homeowner is still an employer. Failure to register does not negate the homeowner's responsibilities as an employer under the *Act* and the *Regulation*.

Homeowners are not required or eligible to register with WorkSafeBC when they have contracted with an independent business to perform work around their home. A homeowner may obtain a clearance letter from WorkSafeBC to ensure the independent business is registered and in good standing.

For more information, or to request a clearance letter, visit:

<https://www.worksafebc.com/en/insurance/why-clearance-letter>

[Section 25](#) of the *Act* establishes general duties of the owner of a workplace. A homeowner may be subject to obligations in relation to more than one role, including the roles of owner, prime contractor, or employer.

G2.2 General duty to work without undue risk

Issued August 1, 1999; Retired July 23, 2014

G2.4 Prompt compliance

Issued August 1999; Revised October 27, 2004; Retired September 19, 2014

Contents

OCCUPATIONAL HEALTH AND SAFETY PROGRAMS

G3.1 [Occupational health and safety program](#)

G3.1-2 [Farm labour contractors and growers](#)

G3.2 [Less formal occupational health and safety \(OHS\) programs](#)

G3.3 [Written instructions, training, and supervision: COVID-19 Safety Plan](#) [retired]

CORRECTION OF UNSAFE CONDITIONS

G3.11 [Emergency circumstances](#) [retired]

REFUSAL OF UNSAFE WORK

G3.12 [Refusal of unsafe work](#)

OCCUPATIONAL FIRST AID

G3.14 to G3.21 [First aid guidelines for employers](#) [retired]

G3.14 [First aid attendant certification, qualifications and general responsibilities](#) [retired]

G3.15(b)-1 [Health care facilities](#)

G3.15(b)-2 [Municipal fire departments](#)

G3.15(b)-3 [EMA licence holders](#)

G3.15(c) [Proof of certification](#)

G3.16 [First aid assessment](#)

G3.16(1.1) [Basic requirements to meet schedule 3-A](#)

G3.16(1.2) [Acceptable first aid facility](#)

G3.16(2)-2 [Automated external defibrillator \(AED\)](#)

G3.17 [Developing and implementing first aid procedures](#)

G3.17(1)-1 [Implementing an early defibrillation program in the workplace](#) [Withdrawn]

G3.17.1 [Air transportation](#)

G3.18(1) [Communications](#)

G3.18(2) [Availability of first aid attendant](#)

G3.19 [First aid records](#)

G3.20 [Multiple employer workplaces](#)

G3.21 [Suspension and cancellation of first aid certificates](#)

G3.21(2) [Medical prerequisites](#)

FIRST AID SUPPLEMENTARY MATERIALS

YOUNG OR NEW WORKERS

G3.23 [Young or new worker orientation and training](#)

JOINT OCCUPATIONAL HEALTH AND SAFETY COMMITTEES

G3.26 [Evaluation of joint committees](#)

G3.27 [Minimum training requirements for new joint committee members or worker health and safety representatives](#)

PARTICIPATION IN INVESTIGATIONS

G3.28 [Participation in employer incident investigations](#)

Guidelines - Part 3 - Occupational Health and Safety Programs

G3.1 Occupational health and safety program

Issued March 30, 2004; Revised October 26, 2005; Revised May 17, 2006; Editorial Revision February 1, 2008; Editorial Revision February 12, 2009; Revised May 29, 2018; Editorial Revision April 6, 2020

Regulatory excerpt

Section 3.1 of the *OHS Regulation* ("*Regulation*") states:

3.1 (1) An occupational health and safety program as outlined in section 3.3 must be initiated and maintained

(a) by each employer that has

(i) a workforce of 20 or more workers, and

(ii) at least one workplace that is determined under section 3.16(2)(b) to create a moderate or high risk of injury, or

(b) by each employer that has a workforce of 50 or more workers.

(1.1) If subsection (1)(a) or (b) applies to the employer, the occupational health and safety program applies to the whole of the employer's operations.

(2) Despite subsection (1) an occupational health and safety program may be required in any workplace when, in the opinion of an officer, such a program is necessary.

Purpose of guideline

The purpose of this guideline is to:

1. Provide criteria for counting workers in an employer's workforce for considering whether an occupational health and safety ("OHS") program is required under section 3.1(1) of the *Regulation*
2. Provide WorkSafeBC prevention officers with factors to consider when exercising their discretion under section 3.1(2)
3. Discuss benefits of OHS programs
4. Provide additional information on occupational health and safety management systems (OHSMSs).

Criteria for counting workers for the purpose of section 3.1(1)

In determining the number of workers for the purpose of section 3.1(1), the following workers should be considered part of the employer's workforce, regardless of how they or their employers define their status:

- Workers employed for more than one month
- Workers who are employed for less than one month, but have worked for the employer periodically.

Note: Other sections of the *Regulation* and *Workers Compensation Act* ("*Act*") also have requirements that relate to the number of workers. For criteria for counting workers for other requirements, refer to the following:

- OHS Guideline [G3.16 First aid assessment](#)
- *Prevention Manual* [Policy Item P2-31-1: Joint Committees - When a Committee is Required](#)

Considerations for prevention officers when exercising their discretion under section 3.1(2)

In addition to those employers who are required to initiate and maintain an OHS program under section 3.1(1), some other types of employers should also initiate and maintain health and safety programs. Section 3.1(2) provides that an OHS program may be required in any workplace when, in the opinion of a prevention officer, such a program is necessary.

A prevention officer who encounters a situation where all of the following conditions are present should consider requiring the employer to initiate and maintain an OHS program pursuant to section 3.1(2) of the *Regulation*:

- The employer has a workforce of less than 20 workers
- Those workers are exposed to high risks
- An OHS program is essential to the health and safety of workers.

In deciding whether to require an OHS program in the above situation, the prevention officer should consider whether such a program could be effectively initiated and maintained by the employer for each workplace where work is being performed for the benefit of that employer.

Benefits of an OHS program for all workplaces

Even though an employer may not be required to initiate and maintain an OHS program, OHS programs can provide a number of benefits. For example, OHS programs enable an employer to control its occupational health and safety risks, improve health and safety performance, communicate its health and safety commitments and policies to staff, and provide a framework for attaining its health and safety goals and objectives. Further, OHS programs assist with implementation by delineating roles, responsibilities, and accountability for tasks, including checking and corrective action as the program evolves. A properly implemented OHS program can be expected to reduce injuries and the associated costs of disability and lost production hours.

Occupational health and safety management systems

Whether for a small or large employer, occupational health and safety can be managed in the same way that the employer manages other facets of the organization's activities (e.g., quality, production, environment, finances, customer service, etc.). An OHSMS can help organizations reduce or prevent injuries, illnesses, and fatalities in the workplace by providing a framework for corporate behaviour in OHS management. An OHSMS relies on commitment, leadership, and worker participation to achieve its outcomes.

The Canadian Standards Association (CSA), the International Organization for Standardization (ISO), and other standard setting agencies have developed standards establishing minimum requirements and good practices for OHSMSs.

G3.1-2 Farm labour contractors and growers - Responsibilities and OHS programs

Issued July 5, 2007; Editorial Revision February 1, 2008; Editorial Revision January 1, 2009; Editorial Revision consequential to August 4, 2015 Regulatory Amendments; Editorial Revision April 6, 2020

Regulatory excerpt

Responsibilities for worker health and safety are established by the *Workers Compensation Act* ("*Act*") and the *OHS Regulation* ("*Regulation*"). Farm labour contractors are considered to be the employers of the farm workers they provide to agricultural operations. As such they have responsibilities under the *Act*, for example in section 21. They also have responsibilities under the *Regulation*, for example for occupational health and safety programs under section 3.1.

Section 21 of the *Act* states:

21 General duties of employers

(1) Every employer must:

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), an employer must

(a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,

(b) ensure that the employer's workers

(i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,

(ii) comply with the OHS provisions, the regulations and any applicable orders, and

(iii) are made aware of their rights and duties under the OHS provisions and the regulations,

(c) establish occupational health and safety policies and programs in accordance with the regulations,

(d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,

- (e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,
- (f) make a copy of this Act and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,
- (g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and
- (h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

Section 3.1 of the *Regulation* states:

3.1 When program required

- (1) An occupational health and safety program as outlined in section 3.3 must be initiated and maintained
 - (a) by each employer that has
 - (i) a workforce of 20 or more workers, and
 - (ii) at least one workplace that is determined under section 3.16 (2) (b) to create a moderate or high risk of injury, or
 - (b) by each employer that has a workforce of 50 or more workers.
- (1.1) If subsection (1)(a) or (b) applies to the employer, the occupational health and safety program applies to the whole of the employer's operations.
- (2) Despite subsection (1) an occupational health and safety program may be required in any workplace when, in the opinion of an officer, such a program is necessary.

Purpose of guideline

The purpose of this guideline is to

- Provide background information on farm labour contractors (FLCs) and their role as employers of farm workers
- Describe circumstances in which the contractor has an obligation to establish a formal occupational health and safety program, and lists the elements that would typically be covered in the programs
- Describe circumstances in which informal programs are required, and what they would include
- Discuss the occupational health and safety responsibilities of growers who use contractors to provide services of farm workers in their operations
- Provide five examples of how the responsibilities of FLCs apply to the protection of farm workers, in comparison to the responsibilities of the grower: worker transport vehicles, personal protective equipment, first aid, protection from hazardous materials, and training

Farm labour contractors and their responsibilities as employers

Farm labour contractors are licensed under the *Employment Standards Act*. Lists of licensed FLCs are maintained by the Employment Standards Branch at <http://www.labour.gov.bc.ca/esb/agriculture/flclist.htm>, along with information on the crops serviced and the number of workers for which the FLCs are bonded. In April 2007, about 100 FLCs were listed, bonded for approximately 6,900 workers.

Most FLCs provide services to the vegetable, berry, nursery, and greenhouse sectors, but some deal in other sectors such as poultry, tree fruits, and vineyards. Most are based in the Lower Mainland and Fraser Valley, but a number operate elsewhere, particularly in the Okanagan region.

FLCs are considered employers because of the nature of their contractual arrangements with farm workers. As such they have all the responsibilities of employers under the *Act* and the *Regulation*.

When do requirements for formal OHS programs apply?

OHS Guideline G3.1 (Occupational health and safety program) provides detailed information on the application of section 3.1 of the *Regulation*. It discusses how to count workers for the purposes of determining whether a formal occupational health and safety (OHS) program is required, and outlines considerations that will be used by WorkSafeBC prevention officers when exercising their discretion to require a formal OHS program under [section 3.2](#) of the *Regulation*. A brief summary of the main points from the guideline is provided below.

Workers are included in the count if they are employed for more than a month. In addition they are included if they have currently worked for less than a month but have previously worked periodically for the employer. As noted in section 3.1(1.1) of the *Regulation* the count of workers covers all the operations of the employer. This is particularly important to an FLC who provides workers to a number of different farming operations. The count is to include *all* workers who work for the FLC, not just to those assigned to a particular farming operation.

As noted in section 3.1(1) of the *Regulation*, if an employer employs workers in at least one moderate or high risk operation there must be a formal OHS program if the total workforce in all operations is 20 workers or more. For all other situations there must be at least 50 workers in the count before a formal OHS program is required. (*Most FLCs are bonded for workforces of 20 or more workers and are likely to be*

involved in at least one moderate risk operation.)

The hazard rating for a farm labour contractor is based on the hazard rating for the farming operations to which the FLC provides the workers. Unless a hazard assessment demonstrates otherwise, most of the operations typically serviced by FLCs are moderate risk. Examples include: berry farms, greenhouse operations, vegetable farms, and orchards. In any case where an FLC provides workers to at least one moderate risk operation, the FLC must provide a formal OHS program for all their workers if they have a total workforce of 20 or more workers, regardless of whether the FLC's other workers are engaged in low risk work.

Under section 3.1(2) of the *Regulation* a prevention officer may require a formal OHS program even if it is not required under section 3.1(1). This may apply where the workforce is less than 20 workers, but the workers are exposed to high risk and it is considered that an OHS program is essential to the health and safety of workers.

(Note that for a grower, the obligations to provide a formal OHS program will also apply at the workplace(s) operated by the grower, depending on the level of risk in the workplace(s) and the total number of workers working in the workplace(s) for the periods of time outlined above.)

What do formal OHS programs include?

Under section 3.3 of the *Regulation* (Contents of program) the occupational health and safety program must be designed to prevent injuries and occupational diseases, and must include *at least* the following elements:

1. A statement of the employer's aims, and of the responsibilities of the employer, supervisors, and workers.
2. Provision for regular inspection of premises, equipment, work methods, and work practices, at appropriate intervals, to ensure that prompt action is undertaken to correct any hazardous conditions found.
3. Appropriate written instructions, available for reference by all workers, to supplement the *Regulation*.
4. Provision for the prompt investigation of incidents to determine the action necessary to prevent their recurrence.
5. The maintenance of records and statistics, including reports of inspections and incident investigations, with provision for making this information available to the joint committee or worker health and safety representative, as applicable and, on request, to a prevention officer, the union representing the workers at the workplace or, if there is no union, the workers at the workplace.
6. Provision by the employer for the instruction and supervision of workers in the safe performance of their work.
7. Provision for holding periodic management meetings for the purpose of reviewing health and safety activities and incident trends, and for the determination of necessary courses of action.

An effective program will

- Identify hazards in the workplace
- Control the hazards and eliminate or minimize the potential for workplace injuries or illness
- Be monitored to ensure the program meets its goals and WorkSafeBC requirements under the *Act* and *Regulation*

To achieve these objectives the program may need to include additional elements.

What are the requirements for less formal OHS programs in small operations?

These requirements are established by section 3.2 of the *Regulation*. Such programs must be implemented in *all* workplaces where formal OHS programs are not required.

The employer has the following three basic responsibilities when implementing and maintaining a less formal program:

- Hold regular monthly meetings with workers for discussion of health and safety matters
- Ensure meetings deal with correction of unsafe conditions and practices and the maintenance of cooperative interest in the health and safety of the workforce
- Maintain a record of the meetings and the matters discussed. *This does not mean that formal minutes have to be kept. It is sufficient that a record is kept of when meetings were held, who attended, and the general nature of what was discussed. The record should mention any specific concerns raised by persons attending, and it must be available for inspection by prevention officers*

Responsibilities of growers in relation to FLCs

FLCs provide contract labour services to growers. Growers who receive their services also have responsibilities for those workers, typically as employers under section 21(1)(a)(i) & (ii) of the *Act* and the provisions of the *Regulation*.

Under section 21 of the *Act* the grower is responsible for the health and safety of all workers at the grower's workplace, including those of any other employer. Also, depending on the situation, growers may have responsibilities as prime contractors or owners under sections 24 and 25 of the *Act* respectively.

A prime contractor must

- Ensure that the activities of employers, workers, and other persons at the workplace relating to occupational health and safety are coordinated
- Do everything that is reasonably practicable to establish and maintain a system or process in the workplace that will ensure compliance with the OHS provisions of the *Act* and the *Regulation*

An owner must

- Provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace
- Give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace
- Comply with the OHS provisions of the *Act*, the *Regulation*, and any applicable orders

(Note: Under section 13 of the *Act* an owner includes not only a person who owns land outright, but also one who is a tenant, lessee, or occupier of the land or premises.)

Examples of the application of OHS requirements to FLCs and growers

The following examples will assist with an understanding of the application of occupational health and safety requirements to FLCs, and growers who contract for their services.

1. Worker transport vehicles: These are typically owned and operated by FLCs. As such FLCs are responsible for all aspects of safety of the vehicle including condition, maintenance, operation, and use. Requirements apply under provisions such as [Part 17 \(Worker transportation\)](#) of the *Regulation*, and those under the [Motor Vehicle Act](#).

Growers who contract with FLCs are expected to exercise an oversight function when the vehicle arrives on site. Should they observe any faulty condition of the vehicle or unsafe operation they should draw it to the attention of the FLC to ensure it is corrected. In addition, as owners, the growers have a responsibility to make sure that the site is safe, including any roadway to be used by the worker transport vehicle operated by the FLC.

2. Personal protective equipment (PPE): Part 8 (Personal Protective Clothing and Equipment) of the *Regulation* provides the applicable requirements. Section 8.2 outlines the obligations of workers and employers. Generally, workers are expected to provide clothing for protection against the natural elements such as weather, and general purpose work gloves, footwear, and safety headgear if needed. However, the *Regulation* also recognizes that an employer may provide any or all of these items.

An employer must provide any other PPE required for the protection of workers. This might include protective gloves, clothing, or respirators if workers may be exposed to pesticides or other harmful materials, and hearing protection if workers will be working near noisy equipment. Typically, the grower controls the circumstances where workers may be at risk on the worksite and would have the expertise on appropriate PPE. In such cases, the grower would have a primary responsibility for provision of such equipment, but the FLC shares in that responsibility.

3. First aid: Under the requirements for first aid in Part 3 (Rights and Responsibilities) of the *Regulation*, the FLC is responsible for the provision of first aid for farm workers in their employ. First aid equipment must be provided on worker transport vehicles as required by [section 17.10](#) (Vehicle design), as well as appropriate fire extinguishers. Typically the equipment required will be a Level 1 first aid kit, except where a very small number of workers are transported, in which case a basic kit may be sufficient.

Once workers have been transported to a worksite, the hazard assessment is likely to change, as many agricultural worksites are at least moderate risk. First aid for the FLC's workers would have to be adjusted accordingly. In addition, if the grower employs workers other than those provided by the FLC, then the first aid for the site needs to take account of the total number of workers on site.

As previously mentioned, the grower typically has employer responsibilities on site for workers provided by the farm labour contractor. If in a particular situation the grower is a prime contractor (refer to section 24 of the *Act*), then section 3.20 of the *Regulation* requires the grower to do everything that is reasonably practicable to establish and maintain the necessary first aid capability on the site. Unless there is an unusual circumstance, such as a short term situation in which the FLC provides more workers than was originally requested, it will be considered practicable for the grower to provide first aid that covers all workers on site.

4. Protection from hazardous materials: Typically workers employed by FLCs carry out activities such as pruning, thinning, and harvesting. In most cases, if there are hazardous materials present in a workplace, then they are likely to be under the control of the grower.

Under their responsibilities as both owners and employers, growers are required to maintain a safe site, and ensure that FLCs are given the information needed to ensure the safety of the FLC's workers.

Information requirements on hazardous materials are covered primarily in [Part 5 \(Chemical Agents and Biological Agents\)](#) of the *Regulation*. Most substances to which a worker might be exposed in an agricultural operation (such as many pesticides, corrosive cleaning agents, and fertilizers) are covered by the Workplace Hazardous Materials Information System (WHMIS), which is addressed in sections [5.3 to 5.18](#). For hazardous substances not covered by WHMIS, such as decomposition gases from silos and manure pits, [section 5.2](#) will apply. Other provisions in Part 5 cover issues such as storage, exposure limits, ventilation, and hazardous wastes. [Part 6 \(Substance Specific Requirements\)](#) of the *Regulation* covers requirements for specific groups of substances; for example, pesticides. Among other things, the employer must ensure that pesticides are stored and used safely, are applied by a qualified person, that restricted entry intervals are established after application of a pesticide and appropriate warning signs are posted, and that proper hygiene facilities are provided. In most cases these measures will be the responsibility of the grower.

Restricted entry intervals prohibit entry by a worker into an area in which pesticides are applied unless a worker is properly protected before he/she enters the area. Workers must be protected both before and after the expiry of the entry intervals. The party that controls the use of pesticides on site, typically the grower, has responsibilities to protect workers under these provisions. In addition they have the responsibility to

communicate to the FLC all information needed to ensure the safety of the FLC's workers. Depending on the arrangements made between the grower and the FLC, one or both of the parties will be responsible for providing necessary information to workers, and any necessary personal protective equipment that is not the responsibility of the worker under [section 8.2](#) of the *Regulation*.

5. Training: Under section 21(2) of the *Act*, an employer has the responsibility to ensure workers are made aware of all known or reasonably foreseeable hazards, as well as their rights and duties under the *Act* and *Regulation*, and are provided with the information, instruction, training, and supervision to ensure their health and safety. A number of specific training requirements are covered in the *Regulation*. Three examples are provided below.

5.1 Orientation: Effective July 26, 2007 under sections [3.22 to 3.25](#) of the *Regulation* all young and new workers must receive orientation and training specific to the workplace. New workers include workers who are relocated to a new workplace if the hazards in that workplace are different from the hazards in their previous workplace. These provisions will have substantial application to FLCs in the agriculture sector given that their workers are often assigned to new workplaces. Again, responsibilities may be shared between the grower and FLC on how the various specified training and orientation elements are addressed. It may, for example, be reasonable to expect that the FLC take the lead on providing generic instruction on topics that are not site-specific, with the grower taking responsibility for site specific topics. Records must be kept of the orientation and training provided.

5.2 WHMIS: For hazardous substances covered by WHMIS, the worker must receive the education and training required by sections 5.6 and 5.7 of the *Regulation*. Section 5.6 deals with general (generic) requirements to ensure workers know among other things the elements of the WHMIS program, and the content required on labels and safety data sheets (SDS). Section 5.7 addresses site-specific requirements for training in the safe procedures for hazardous products in the workplace.

Again, the FLC and grower may, depending on the arrangements between them, share in the responsibilities for both generic instruction and site-specific training. It may be a typical scenario for the FLC to ensure generic instruction is given, and the grower to cover site-specific training. In the final analysis, the worker must be able to answer the following four questions:

- What are the hazards of the materials to which I may be exposed?
- How am I protected from those hazards?
- What do I do in the event of an emergency?
- Where do I get more detailed information?

5.3 Forklifts and other on-site equipment: Typically any such equipment is under the control of the grower. Therefore, it will be the grower who has the basic responsibility to ensure workers are trained in the use of the equipment should they be required to operate it, and in the safe procedures to follow for workers who are working in the vicinity of the equipment. The FLC has a responsibility to ensure that adequate training has been provided.

5.4 FLC vehicles: The FLC is responsible for instruction of workers in the use of FLC vehicles used for transporting farm workers to and from the grower's operation. This would include, for example, instruction for the operator in the requirements of the pre-shift vehicle inspection, and for the operator and workers being transported, instruction in the proper procedures to follow in the vehicle, such as the procedures for the transport of materials and tools, and the use of seat belts.

G3.2 Less formal occupational health and safety (OHS) programs

Issued October 26, 2005; Revised May 17, 2006; Editorial Revision February 1, 2008; Revised May 29, 2018; Editorial Revision April 6, 2020

Regulatory excerpt

Section 3.1 of the *OHS Regulation* ("*Regulation*") states:

- (1) An occupational health and safety program as outlined in section 3.3 must be initiated and maintained
 - (a) by each employer that has
 - (i) a workforce of 20 or more workers, and
 - (ii) at least one workplace that is determined under section 3.16 (2)(b) to create a moderate or high risk of injury, or
 - (b) by each employer that has a workforce of 50 or more workers.
- (1.1) If subsection (1)(a) or (b) applies to the employer, the occupational health and safety program applies to the whole of the employer's operations.
- (2) Despite subsection (1) an occupational health and safety program may be required in any workplace when, in the opinion of an officer, such a program is necessary.

Section 3.2 of the *Regulation* states:

In any operation where the workforce is less than that referred to in section 3.1(1) the employer must

- (a) initiate and maintain a less formal program based on regular monthly meetings with workers for discussion of health and safety matters,
- (b) ensure that meetings are directed to matters concerning the correction of unsafe conditions and practices and the maintenance of cooperative interest in the health and safety of the workforce, and
- (c) maintain a record of the meetings and the matters discussed.

Purpose of guideline

The purpose of this guideline is to provide guidance around the following:

1. Record keeping requirements for less formal occupational health and safety programs (OHS programs)
2. Situations where employers are required to implement a less formal program under section 3.2, and to establish and maintain a joint health and safety committee pursuant to section 31 of the *Workers Compensation Act ("Act")*

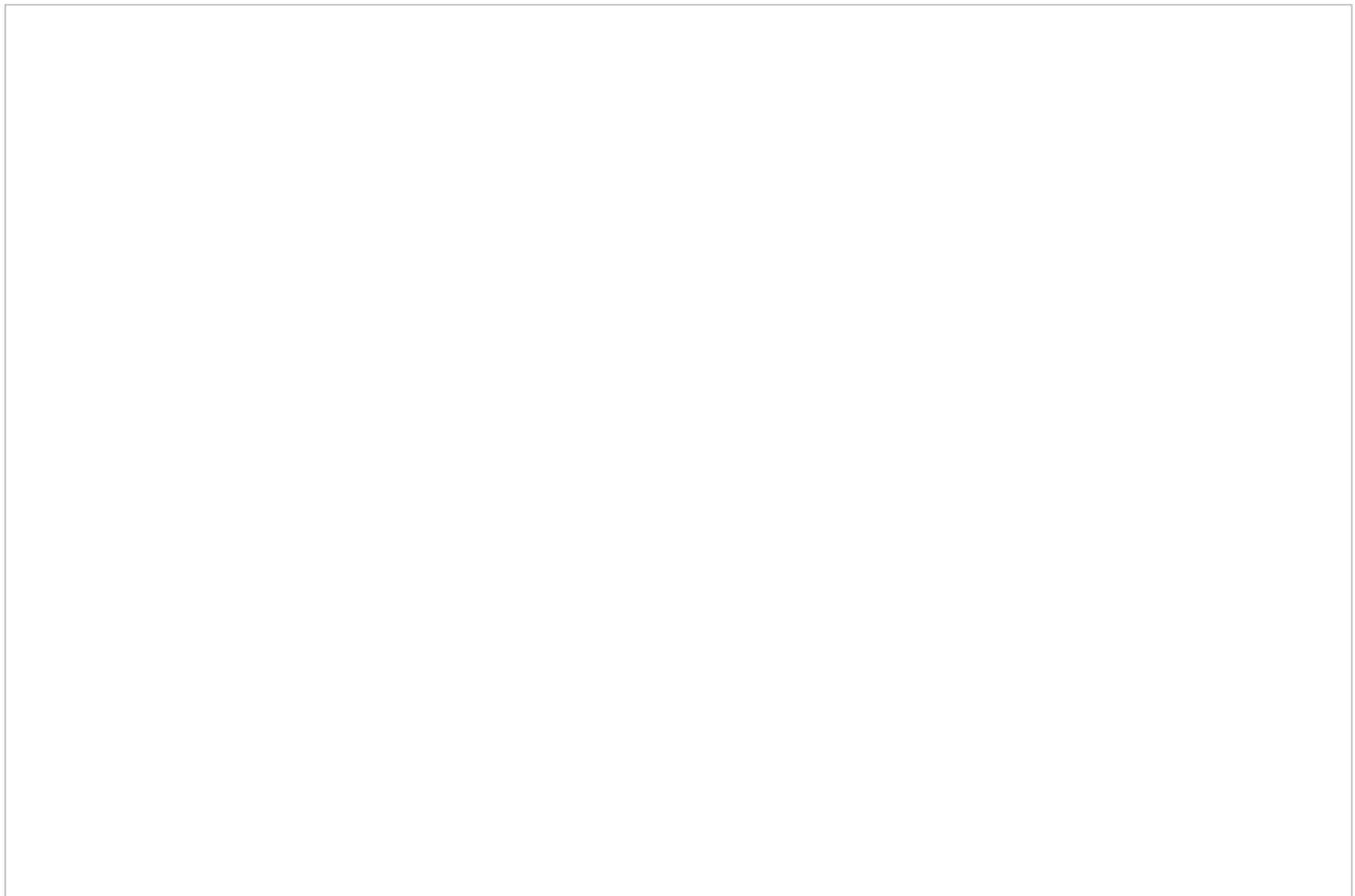
Requirement for less formal programs

Section 3.2(a) requires that the employer or a person delegated by the employer calls, at least once a month, a meeting of workers present at that time. The employer's obligation under section 3.2(c) to maintain a "record of the meetings" does not mean that formal minutes have to be kept. It is sufficient that a record is kept of when meetings were held, who attended and the general nature of what was discussed. The record should mention any specific concerns raised by persons attending. The record must be available for inspection by WorkSafeBC prevention officers.

OHS programs, less formal programs, and joint health and safety committees

Section 3.2 of the *Regulation* requires that a less formal program be initiated and maintained in any operation where the workforce is less than that referred to in section 3.1(1) of the *Regulation*. In such situations, an employer may also be required to establish and maintain a joint health and safety committee under [section 31](#) of the *Act*.

The following diagram sets out the requirements for OHS programs, joint health and safety committees and worker health and safety representatives. Additional requirements around joint health and safety committees and worker health and safety representatives are set out in Division 4 of the *Act*.



Guidelines - Part 3 - Correction of Unsafe Conditions

G3.11 Emergency circumstances

Issued August 1, 1999; Retired November 13, 2020

This guideline has been retired as it contained outdated or redundant material.

Guidelines - Part 3 - Refusal of Unsafe Work

G3.12 Refusal of unsafe work

Issued August 1, 1999; Revised September 21, 2011; Editorial Revision December 15, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

Section 3.12 of the *OHS Regulation* ("*Regulation*") states:

- (1) A person must not carry out or cause to be carried out any work process or operate or cause to be operated any tool, appliance or equipment if that person has reasonable cause to believe that to do so would create an undue hazard to the health and safety of any person.
- (2) A worker who refuses to carry out a work process or operate a tool, appliance or equipment pursuant to subsection (1) must immediately report the circumstances of the unsafe condition to his or her supervisor or employer.
- (3) A supervisor or employer receiving a report made under subsection (2) must immediately investigate the matter and
 - (a) ensure that any unsafe condition is remedied without delay, or
 - (b) if in his or her opinion the report is not valid, must so inform the person who made the report.
- (4) If the procedure under subsection (3) does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, the supervisor or employer must investigate the matter in the presence of the worker who made the report and in the presence of
 - (a) a worker member of the joint committee,
 - (b) a worker who is selected by a trade union representing the worker, or
 - (c) if there is no joint committee or the worker is not represented by a trade union, any other reasonably available worker selected by the worker.
- (5) If the investigation under subsection (4) does not resolve the matter and the worker continues to refuse to carry out the work process or operate the tool, appliance or equipment, both the supervisor, or the employer, and the worker must immediately notify an officer, who must investigate the matter without undue delay and issue whatever orders are deemed necessary.

Section 3.13 of the *Regulation* states:

- (1) A worker must not be subject to prohibited action as defined in section 47 of the OHS provisions of the *Workers Compensation Act* because the worker has acted in compliance with section 3.12 or with an order made by an officer.
- (2) Temporary assignment to alternative work at no loss in pay to the worker until the matter in section 3.12 is resolved is deemed not to constitute prohibited action.

Section 4.19 of the *Regulation* states:

- (1) A worker with a physical or mental impairment which may affect the worker's ability to safely perform assigned work must inform his or her supervisor or employer of the impairment, and must not knowingly do work where the impairment may create an undue risk to the worker or anyone else.
- (2) A worker must not be assigned to activities where a reported or observed impairment may create an undue risk to the worker or anyone else.

Purpose of guideline

This guideline explains the test for determining whether a worker has a "reasonable cause to believe" that an undue hazard exists or would be created, and what constitutes an "undue hazard." It also provides guidance on the process for the investigation into a work refusal, where completion of the procedure under section 3.12(3) of the *Regulation* has not resolved the work stoppage.

The right to refuse unsafe work

The refusal of unsafe work is both a fundamental right and a responsibility held by workers. A worker's refusal of unsafe work is an integral

element in ensuring work is carried out safely. Workers who reasonably believe work is unsafe must refuse to perform that work and are entitled to have their employer investigate and, where necessary, correct the hazard.

Elements of the right to refuse

Section 3.12(1) states that "A person must not carry out or cause to be carried out any work process or operate or cause to be operated any tool, appliance or equipment if that person has reasonable cause to believe that to do so would create an undue hazard to the health and safety of any person." In many situations, the "reasonable cause" and "undue hazard" can be straightforward.

However, in some situations it can be more difficult to determine that the worker has reasonable cause to believe there is an undue hazard. These terms are discussed below.

"Undue hazard"

A "hazard" is identified in Part 1 of the *Regulation* as "a thing or condition that may expose a person to a risk of injury or occupational disease." Further, "undue" is defined by the Oxford dictionary as "unwarranted, inappropriate, excessive or disproportionate." Therefore, a thing or condition that may expose a worker to an excessive or unwarranted risk of injury or occupational disease represents an undue hazard for the purposes of section 3.12 of the *Regulation*.

"Reasonable cause to believe"

The use of the term "reasonable" in "reasonable cause to believe" means that the worker must assess the situation as a reasonable person, taking into account relevant and available information and exercising good faith judgment with respect to the hazard with due regard to the worker's training and experience.

For example, a worker is assigned to work in the shipping and receiving area, covering the duties of another worker who is absent due to illness. Some supplies are delivered that require the use of a forklift to unload the delivery truck. The worker normally works in the warehouse in an area other than shipping and receiving, and has no prior experience or training in forklift operation. The worker believes that his lack of training and experience in operating a forklift would expose him to an undue hazard. In this situation, this worker has reasonable cause to believe that undertaking this work, for which he has not been trained, would create an undue hazard for himself and possibly other workers.

Ultimately there must be an objective basis for a continued refusal for unsafe work. The goal of the process set out in sections 3.12(2) through (5) is to establish whether there is an objective, or reasonable, basis for the refusal and if so, to determine how to remedy the situation.

WorkSafeBC prevention officers investigating work refusals under s. 3.12(5) will deal with each refusal on a case by case basis, and will undertake a full assessment of the situation in order to conclude whether the worker had reasonable cause to believe an undue hazard existed.

"Reasonable cause to believe" and the susceptible worker

Some workers may have an underlying condition which would lead them to suffer an illness or sustain an injury, even though others would not be affected in the same way. In this so-called "susceptible worker" situation, the "objective" test of whether the worker has reasonable cause to believe the work presents an undue hazard is to be applied in the context of the person's specific health condition.

To uphold a work refusal, there needs to be a clear connection between the undue hazard asserted by the susceptible worker, and his or her health condition. As part of the investigation into the refusal, the employer may ask for confirming evidence of the effect of the hazard on the person's condition. While the evidence is being obtained, the worker should be removed from the condition that the worker asserts is an undue hazard.

As an example, an offensive odor is present and apparent to all the workers in an office. One of the workers refuses to continue to work, saying that he suffers from a respiratory ailment and the odor is exacerbating his condition. He reports to the supervisor that he is suffering ill health effects from the odor, including difficulty breathing. The worker is acting reasonably in refusing to continue working, and is reassigned pending the employer's investigation into the refusal. As part of the investigation into the refusal, the employer asks for documentation of the condition, and the worker provides a note from his doctor confirming that the exposure to odors can exacerbate the worker's medical condition.

Application of procedure

To facilitate a timely resolution to a work refusal and ensure that work activities can return to normal as soon as possible, it is important that each step described in the *Regulation* is followed in an expedited manner. If the process outlined in section 3.12(3) fails to bring resolution to the matter, the investigation would continue as described by section 3.12(4). A person identified by section 3.12(4) who is available to participate in the investigation would be chosen without delay, so the investigation can continue.

To illustrate the application of section 3.12, consider the scenario described in the first example above.

The worker who has been directed to unload the truck immediately reports the work refusal to his supervisor, as required by section 3.12(2). The supervisor who receives the report immediately investigates the matter, per section 3.12(3). Through the investigation, it is established that this worker is not qualified to perform the work, and therefore the work presents an undue hazard for that worker. The supervisor locates another worker who possesses the necessary training and experience to perform this work safely, and reassigns the worker who refused the work to other job tasks. These actions satisfy the work refusal by removing the undue hazard to the inadequately trained worker.

However, if in the opinion of the supervisor the initial report of the unsafe condition is not valid, the supervisor is required to inform the worker of that opinion. If no resolution to the work refusal is found following this report, the supervisor needs to immediately contact an available party identified in section 3.12(4) to continue the investigation. If a resolution is found after the matter is investigated in the presence of this person, the work refusal is satisfied at this stage. If no resolution is found to the work refusal, both the supervisor, or the employer, and the worker must immediately notify a prevention officer.

A prevention officer investigating a work refusal under section 3.12(5) of the *Regulation* will conduct the following:

1. Ensure that the worker(s) refusing to work and the employer's representative both understand the procedure described under section 3.12. If the parties have not followed the procedure set out in section 3.12(4), the prevention officer will review the procedure with the parties, and direct them to continue their inquiries into the work refusal until such time as the parties have exhausted their efforts to resolve the matter.
2. Should the parties be unable to resolve the matter themselves, the prevention officer will inspect the work areas, processes, equipment, and practices associated with the work refusal. If the prevention officer finds that an undue hazard is present, the prevention officer will issue an inspection report addressing the violations that apply to the undue hazard. This may include compliance orders as well as a stop use or stop work order, if the circumstances meet the criteria for such orders, as described in the applicable guideline, [G-P2-89](#).
3. Where the prevention officer identifies violations that are not related to the inquiry into the work refusal, the prevention officer will address them in a separate inspection report.
4. If an undue hazard is not identified, the prevention officer will inform the parties of this finding, and include the following statement in the inspection text of the inspection report: "An investigation into a work refusal under section 3.12 has not identified an undue hazard."
5. The prevention officer will advise the parties of the requirement of section 3.13 of the *Regulation* that "A worker must not be subject to prohibited action as defined in [section 47 of the OHS provisions of the Workers Compensation Act](#) because the worker has acted in compliance with section 3.12 or with an order made by an officer."

Note: Where a prevention officer has made a finding that the investigation into a work refusal under section 3.12 has not identified an undue hazard, and the worker refuses to return to work, the worker is no longer protected by the provisions of section 3.13 of the *Regulation*.

Right to refuse vs. physical or mental impairment (section 4.19)

Section 4.19 states that where a worker alleges that due to a physical or mental impairment his or her ability to safely perform the assigned work is affected, the worker must inform his or her supervisor or employer of the impairment. Further, the worker must not perform the work if to do so would create an undue risk to the worker or anyone else. An employer must not assign work where impairment may create such an undue risk to the worker or anyone else.

A worker's reporting of a physical or mental impairment under section 4.19 does not trigger a work refusal under section 3.12 or require the employer investigate it under sections 3.12(3) and (4). However, if an employer continues to instruct the worker to perform the assigned work, and the worker has reasonable grounds to believe his or her impairment will create an undue hazard, the worker must refuse to perform that work. At this point, the refusal does constitute a work refusal under section 3.12.

Flowchart for Guideline G3.12

Guidelines - Part 3 - Occupational First Aid

G3.14 to G3.21 First aid guidelines for employers

Issued March 30, 2004; Revised November 1, 2004; Editorial Revision February 1, 2008; Retired September 6, 2018

The introduction to the Occupational First Aid guidelines is being retired as a result of retiring the WCB Standard OFA1 and the supplementary materials — which have been revised into guidelines to the Regulation (G3.15-G3.21).

G3.14 First aid attendant certification, qualifications, and general responsibilities

Issued November 1, 2004; Revised September 30, 2009; Retired September 6, 2018

This guideline is not required as it is covered in course material and available on the [first aid certification webpage](#).

G3.15(b)-1 Health care facilities

Issued September 6, 2018

Regulatory excerpt

Section 3.15 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that a person who is designated as a first aid attendant

- (a) is at least 16 years old,
- (b) has successfully completed the first aid training course or first aid examination developed or approved by the Board,
- (c) has a first aid certificate in good standing at the required level issued by the Board or a person recognized by the Board, and
- (d) meets any other requirements determined by the Board for designation as a first aid attendant.

Purpose of guideline

This guideline is to outline the requirements that will allow an Occupational First Aid (OFA) Level 2 Certificate to be issued to a physician or registered nurse.

Requirement

On written request to an approved First Aid Training Provider from the employer at a health care facility, an OFA Level 2 Certificate may be issued to a physician (registered with the College of Physicians and Surgeons of British Columbia) or registered nurse (registered with the College of Registered Nurses of British Columbia) who has met either of the following

- (a) At least six (6) months working in an emergency department of an acute care facility or
- (b) Successfully completed a recognized course of training in emergency procedures

The experience or training required must have been completed not more than 24 months before the request for certification. A "recognized course of training in emergency procedures" for physicians includes advanced trauma life support. For registered nurses, it includes post-graduate emergency nursing and critical care nursing. The OFA Level 2 Certificate issued is restricted for use in health care facilities and is not transferable to other industries.

G3.15(b)-2 Municipal fire departments

Issued September 6, 2018

Regulatory excerpt

Section 3.15 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that a person who is designated as a first aid attendant

- (a) is at least 16 years old,
- (b) has successfully completed the first aid training course or first aid examination developed or approved by the Board,
- (c) has a first aid certificate in good standing at the required level issued by the Board or a person recognized by the Board, and
- (d) meets any other requirements determined by the Board for designation as a first aid attendant.

Purpose of guideline

This guideline is to outline the requirements that will allow an Occupational First Aid (OFA) Certificate to be issued to a firefighter in a municipal fire department.

Requirement

On written request to the Fire Chiefs' Association of British Columbia (FCABC) from the employer at a municipal fire department, an OFA Certificate may be issued as follows:

- (a) Emergency Medical Assistant First Responder (EMA FR) Schedule 1 – OFA Level 1 Certificate
- (b) Emergency Medical Assistant First Responder (EMA FR) Schedule 2 – OFA Level 2 Certificate

The OFA Level 2 Certificate issued by the FCABC is restricted for use in municipal fire departments and is not transferable to other industries.

G3.15(b)-3 EMA licence holders

Issued September 6, 2018

Regulatory excerpt

Section 3.15 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that a person who is designated as a first aid attendant

- (a) is at least 16 years old,
- (b) has successfully completed the first aid training course or first aid examination developed or approved by the Board,

- (c) has a first aid certificate in good standing at the required level issued by the Board or a person recognized by the Board, and
- (d) meets any other requirements determined by the Board for designation as a first aid attendant.

Purpose of guideline

This guideline is to outline the requirements that will allow an Occupational First Aid (OFA) Certificate to be issued to Emergency Medical Assistants (EMA) license holders for use in various workplaces.

Requirement

On written request to a first aid training provider registered with WorkSafeBC, an EMA license holder may be issued an OFA Certificate as follows:

- (a) First Responder (EMA FR) Schedule 1 – OFA Level 1 Certificate
- (b) First Responder (EMA FR) Schedule 2 – OFA Level 2 Certificate
- (c) Emergency Medical Responder (EMR) – OFA Level 3 Certificate
- (d) Primary Care Paramedic (PCP) – OFA Level 3 Certificate
- (e) Advanced Care Paramedic (ACP) – OFA Level 3 Certificate
- (f) Critical Care Paramedic (CCP) – OFA Level 3 Certificate

When acting as a designated first aid attendant in industry it is expected the license holder will limit scope of practice to his or her OFA Certificate, unless medical oversight is in place and the EMA scope of practice is consistent with the license terms and conditions.

G3.15(c) Proof of certification

Issued September 6, 2018

Regulatory excerpt

Section 3.15 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that a person who is designated as a first aid attendant

- (a) is at least 16 years old,
- (b) has successfully completed the first aid training course or first aid examination developed or approved by the Board,
- (c) has a first aid certificate in good standing at the required level issued by the Board or a person recognized by the Board, and
- (d) meets any other requirements determined by the Board for designation as a first aid attendant.

Purpose of guideline

This guideline is to outline the requirements for proof of certification at the workplace.

Requirement

The first aid attendant is expected to show his or her current certificate to the employer or employer's representative before the first aid attendant begins first aid duties.

The first aid attendant is expected to have his or her original certificate at the workplace and to produce the certificate for inspection at the request of a WorkSafeBC prevention officer.

G3.16 First aid assessment

Issued March 30, 2004; Revised February 1, 2008; Editorial Revision September 6, 2018; Editorial revision October 30, 2018; Editorial Revision January 17, 2022

Regulatory excerpt

Section 3.16 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must provide for each workplace such equipment, supplies, facilities, first aid attendants and services as are adequate and appropriate for
 - (a) promptly rendering first aid to workers if they suffer an injury at work, and
 - (b) transporting injured workers to medical treatment.
- (1.1) The type and quantity of equipment, supplies, facilities, first aid attendants and services referred to in subsection (1) must be no

less than is required by Schedule 3-A.

(1.2) The quality, maintenance and use of equipment, facilities and methods of transportation referred to in this section must be acceptable to the Board.

(2) For the purpose of complying with subsection (1), the employer must conduct an assessment of the circumstances of the workplace, including

(a) the number of workers who may require first aid at any time,

(b) the nature and extent of the risks and hazards in the workplace, including whether or not the workplace as a whole creates a low, moderate or high risk of injury,

(c) the types of injuries likely to occur,

(d) any barriers to first aid being provided to an injured worker, and

(e) the time that may be required to obtain transportation and to transport an injured worker to medical treatment.

(3) The employer must review the assessment under subsection (2)

(a) within 12 months after the previous assessment or review, and

(b) whenever a significant change affecting the assessment occurs in the employer's operations.

(4) First aid equipment, supplies and facilities must be kept clean, dry and ready for use, and be readily accessible at any time a worker works in the workplace.

Purpose of guideline

The purpose of this guideline is to set out a step-by-step method for employers to follow when conducting an assessment of the workplace to determine an adequate and appropriate level of first aid coverage. These steps cover the requirements listed in sections 3.16(2) and (3). The steps are designed to help employers determine which table applies to their workplace and what the required levels of first aid service mean. (Refer to [Schedule 3-A Minimum Levels of First Aid](#) Tables 1-6 ("Schedule 3-A") in the *Regulation*.) Also refer to, in OHS Guideline G3.16(1.1): [First Aid Kits: Recommended Contents](#), [First Aid Facilities: Recommended Criteria](#), and [Emergency Vehicles and Equipment](#).

Most employers may not need all the information provided in this guideline and can defer to Schedule 3-A.

Employer's responsibility to conduct an assessment

Schedule 3-A in the *Regulation* specifies mandatory minimum levels of first aid, including what type of first aid kits, facilities, and equipment are required. Schedule 3-A does not specify required contents or criteria for the first aid kits, facilities, and equipment. The content and criteria of first aid kits, facilities, and equipment should be based on the assessment performed under section 3.16(2). This recognizes that persons working in the workplace will generally have a greater awareness of its circumstances and needs than WorkSafeBC. Employers are expected to exercise good judgment in performing the assessment.

Once employers have identified the required minimum levels of first aid in Schedule 3-A, they should consult the appropriate table in *First Aid Kits: Recommended Minimum Contents*, *First Aid Facilities: Recommended Minimum Criteria*, and *Emergency Vehicles and Equipment*, found in OHS Guideline G3.16(1.1). Typically, employers would be expected to approximate the recommendations in the appropriate tables. However, after conducting an assessment, the employer may legitimately conclude that the nature of the necessary first aid kit, facility, or equipment is different from that which is recommended in the appropriate table. If the recommendations in the tables are not followed, employers are expected to demonstrate that the assessment was conducted diligently and led to a reasonable conclusion about the content or nature of first aid kit, facility, and equipment required at the workplace. If their assessment results in levels different from those suggested in the tables, given the circumstances at the workplace, the employer is expected to explain and provide a rationale for the differences. An assessment must not result in levels lower than the mandatory minimums required by Schedule 3-A.

If workers of two or more employers are working at the same workplace at the same time, the prime contractor is responsible for conducting the assessment and providing the first aid services identified by the assessment. Refer to [OHS Guideline G3.20](#).

Conducting the assessment

Step 1:

Identify the workplace.

First identify the workplace for which first aid is required. As a result of this step, you may determine that you have more than one workplace. An assessment of the first aid requirements for *each* workplace must be done.

Is the workplace at one location only?

For most workplaces with one location, there is one workplace. However, if there is more than one location or if there are lodgings, there may be more than one workplace.

Consider the factors in the following table to see if they apply to the workplace. In any situation, the factors may point to different conclusions. It is

then necessary to weigh those factors indicating one workplace against those indicating separate workplaces. After considering all the factors, the option that provides the greatest level of first aid service should be chosen.

Location factors:

Factor No.	Factor	Indication of one workplace	Indication of separate workplaces
1	Location or locations are under the control of one employer.	Yes	
2	Location leased by one employer is part of a larger property which may be leased to others		Yes
3	Locations controlled by one employer are separated by locations controlled by other employers.		Generally yes, but depends on circumstances. Refer to 6.
4	Locations of one employer are more than 20 minutes apart from each other.		Yes
5	A public roadway separates locations of one employer from each other in an urban area.		Yes
6	Though adjoining, locations of one employer are separated by physical barriers.		Yes
7	Though controlled by one employer, the locations are under separate administrative structures.		Yes

Lodgings

Lodgings at or near the workplace, generally within 10 minutes, should be considered part of the workplace. First aid service should be based on the total workforce present at the place of work and in the lodgings at any time. This does not apply to a company town or to motels or hotels where workers have lodgings in a nearby town.

The employer providing lodgings may allow other employers on the site to accommodate their workers there. The employer providing the lodgings is responsible for ensuring that first aid service is provided for all workers in the lodgings, unless other arrangements are made.

Lodgings that are not at or near the workplace may be considered a separate workplace. The level of first aid service must be determined by conducting an assessment based on the number of workers in the lodgings. This includes workers such as cooks and cleaners who perform their daily work there as well as others who work elsewhere but spend free time there.

The employer may be able to provide the required first aid services for the lodgings and the workplace by moving the same first aid personnel and equipment from one place to the other as the workers move.

Multiple employer workplaces

Refer to OHS Guideline G3.20 for more information on multiple employer workplaces where there is a prime contractor.

At the end of Step 1

An assessment is required for each workplace identified in Step 1. The requirements for each workplace may differ depending on the assessment.

Step 2:

Determine the hazard rating as low (L), moderate (M), or high (H).

All classification units (CU's) are assigned a hazard rating for the purpose of the first aid assessment. Hazard ratings can be found on the classification unit description sent out every year or they can be accessed at worksafebc.com/find-your-rate.

At the end of Step 2

Record the hazard rating (L, M, or H) in the assessment and use it in the next step.

Step 3:

Consider surface travel time to hospital.

Tables 1-6 in "[Schedule 3-A: Minimum Levels of First Aid](#)" in the *Regulation* have different levels of first aid service that are based on how long it takes to transport an injured person to a hospital and the number of workers per shift.

The definition of "hospital" for the purpose of the assessment is "a hospital or diagnostic and treatment centre that has an emergency department or resuscitation area and a physician on duty, or immediately available on call, during the hours when workers might need these services."

(a) Does it take more than 20 minutes to travel to hospital (by road or water) during working hours?

The calculation of time is based on the normal time to safely transport an injured worker on a stretcher by land or water, having consideration for the weather, road conditions, traffic patterns, and other factors that may affect travel and are likely to prevail during working hours.

Check that the hospital or treatment facility

- Has an emergency department or resuscitation area

- Has a physician on duty or immediately available on call
- Is open during the employer's working hours

Facilities with the designation *hospital, health care centre, clinic, diagnostic and treatment centre, first aid post, and diagnostic facility* offer different levels of patient care and various hours of operation. Some of these facilities have B.C. Ambulance bypass protocols in place. Bypass protocols are put in place if the local clinics or hospitals are unable to receive trauma patients during certain hours. The same "bypass" rules may apply to accepting the employer's emergency transportation vehicle or industrial ambulance.

As a result of the hours of service at the nearest treatment facility, it may be that the hospital for the day shift is closer than the hospital available for the night shift, and therefore a different table with different required first aid services would be used for the different shifts.

At the end of Step 3

In the assessment, record the distance from the hospital and the table for your workplace:

- Travel time of more than 20 minutes: Use Table 1 for L rating, Table 3 for M rating, or Table 5 for H rating.
- Travel time of 20 minutes or less: Use Table 2 for L rating, Table 4 for M rating, or Table 6 for H rating.

Step 4:

Determine the number of workers on a shift.

For each workplace, the assessment must include the number of workers who may require first aid at any given time. The term "workers" includes managers and supervisors.

(a) Are all the workers at one location during the shift?

If yes, this is the number of workers (including managers and supervisors) to count.

If there are workers who are dispatched from a central workplace or workers in lodgings, they may need to be included in the first aid requirements for the central workplace. The following method to count these workers can be used.

Dispatched workers

Include dispatched workers within 20 minutes' surface travel time from the central workplace

- Count as one worker each dispatched worker who stays within 20 minutes' surface travel time from the central workplace for more than 50% of the shift.
- Count one-quarter of the number of workers who stay within 20 minutes' surface travel time from the central workplace for 10% to 50% of the shift (but are farther away for the rest of the shift).

It is required that dispatched workers who work alone and travel more than 20 minutes from the central workplace carry their own first aid personal kit. Refer to "First Aid Kits: Recommended Minimum Contents."

Workers in lodgings provided by the employer

- Include workers in lodgings at or near the workplace (within 10 minutes' travel time). The number of workers per shift should include all workers on shift and those in the lodgings.
- As determined in Step 1, if the lodgings are more than 10 minutes from the workplace, the lodgings should be considered a separate workplace and have a separate first aid assessment.

(b) How many workers per shift are there?

Count the number of workers for each shift. Use the table you identified in Step 3 and find the number of workers per shift in Column 1.

At the end of Step 4

It has now been determined which row in the table to use for each shift. The next step provides guidance through the remaining columns corresponding to the row that has just been identified for the number of workers on a shift in the employer's workplace. If there is more than one shift with different requirements, complete the information for each shift.

Step 5:

Find the required first aid services for the workplace.

Step 5 looks at the required level of first aid coverage needed for the workplace by looking at each column of the row that has been selected in the table in the previous step.

(a) Look at Column 2 of the table from Step 3. What supplies, equipment, and facilities are needed?

Column 1 lists the following:

- The level of first aid kit required, and its recommended contents (refer to "First Aid Kits: Recommended Minimum Contents")
- Emergency transportation vehicle (ETV) equipment and industrial ambulance equipment, if required (refer to "Emergency Vehicles and Equipment")
- Dressing station or first aid room and equipment, if required (refer to "First Aid Facilities: Recommended Minimum Criteria")

(b) Is this adequate for the type of injuries expected and the distance to medical treatment?

Consider the past need for first aid services and the type of injuries that are likely to occur in the workplace. If necessary upgrade the facility from

that given in the table. Refer to Step 5(f) below for examples.

(c) Look at column 3 of the table. What level of first aid attendant is needed?

Column 3 lists the level of first aid attendant and the number of attendants if more than one is required for the workplace.

Is this adequate for the type of injuries expected and the distance to medical treatment?

Consider the past need for first aid services and the type of injuries that are likely to occur in the workplace. If necessary, upgrade the level or number of attendants from that given in the table. Refer to Step 5(e) below for examples.

(d) Look at Column 4 of the table. What transportation is needed?

Column 4 lists whether an emergency vehicle is required. For recommendations on ETVs and industrial ambulances (and on a mobile treatment centre as an alternative), refer to OHS Guideline 3.16(1.1).

(e) Are there any barriers to reaching medical treatment?

This question helps to consider whether there is any potential delay in transporting an injured worker to medical treatment. These include the ambulance response time and remote locations.

Consider the factors that affect the response time of the ambulance service

- Distance from the workplace to the ambulance centre
- Availability of a full-time crew or a part-time crew on call
- Obstructions on the access route to the workplace or other barrier likely to delay the arrival of an ambulance service. For example:
 - Regularly recurring temporary obstructions or barriers, such as railway lines used on a daily basis with railcars blocking access at some point in the day
 - Temporary obstructions or barriers of an isolated nature, such as long-term road closure
 - Permanent obstructions or barriers on the access road, such as cross ditching
- Areas in the workplace that are not safely accessible to the ambulance service, such as access which requires specialized training to effect rescue
- Rough terrain or other similar circumstances that prevent the ambulance from accessing the workplace

If an ambulance is not able to access the workplace, appropriate upgrading includes replacing a Level 2 attendant with a Level 3 attendant and supplying ETV equipment to facilitate preparing a patient for transport. Refer to OHS Guideline 3.16(1.1) for more information on ETVs. The ETV should be appropriate for the terrain to be traversed and the injured or ill worker's condition. The situations for upgrading are listed in the tables in Column 5 (Other Considerations).

Consider the types of potential injuries that have been identified. Make sure that the level of attendant and the supplies and equipment are sufficient to deal with any identified delays in reaching medical treatment.

At the end of Step 5

The first aid services appropriate for the workplace have now been identified. Add this information to the assessment. First aid services must meet or exceed the minimum levels required in Schedule 3A.

Step 6:

Review the assessment.

The first aid assessment must be reviewed annually or whenever a significant change in operations occurs. Keep written records of the results of the review.

G3.16(1.1) Basic requirements to meet schedule 3-A

Issued September 6, 2018; Revised June 3, 2020; Editorial Revision May 31, 2021

Regulatory excerpt

Section 3.16(1.1) and (2) of the *OHS Regulation* ("*Regulation*") state:

If air transportation is the primary or only method for transporting an injured worker, all of the following requirements must be met:

(1.1) The type and quantity of equipment, supplies, facilities, first aid attendants and services referred to in subsection (1) must be no less than is required by Schedule 3-A.

...

(2) For the purpose of complying with subsection (1), the employer must conduct an assessment of the circumstances of the workplace, including

(a) the number of workers who may require first aid at any time,

(b) the nature and extent of the risks and hazards in the workplace, including whether or not the workplace as a whole creates a low, moderate or high risk of injury,

- (c) the types of injuries likely to occur,
- (d) any barriers to first aid being provided to an injured worker, and
- (e) the time that may be required to obtain transportation and to transport an injured worker to medical treatment.

Purpose of guideline

The purpose of this guideline is to outline the recommended type and quantity of equipment, supplies, and facilities as required by [Schedule 3-A](#). An assessment under section 3.16(2) of the *Regulation* may indicate consideration of additional equipment. This may also involve ensuring additional training for the designated first aid attendant.

Personal first aid kit

- 1 10 cm X 16.5 cm sterile pressure dressings with crepe ties
- 6 Sterile adhesive dressings, assorted sizes, individually packaged
- 6 14 cm X 19 cm wound cleansing towelettes, individually packaged
- 1 Waterproof waste bag

Note: any kit that exceeds these requirements would be deemed acceptable.

Basic First Aid Kit

- 6 14 cm x 19 cm wound cleansing towelettes, individually packaged
- 10 Sterile adhesive dressings, assorted sizes, individually packaged
- 6 10 cm x 10 cm sterile gauze dressings, individually packaged
- 1 10 cm x 16.5 cm sterile pressure dressings with crepe ties
- 1 Cotton triangular bandage, minimum length of base 1.25 m
- 1 14 cm stainless steel bandage scissors or universal scissors
- 1 2.5 cm x 4.5 m adhesive tape
- 1 7.5 cm x 4.5 m crepe roller bandage
- 3 Pairs of medical gloves (preferably non-latex)
- 3 Medical masks (also known as procedure or surgical masks)

- 1 Face shield (or safety eyewear)
- 1 Waterproof waste bag

Note: A kit that meets the requirements for an Alberta Type P first aid kit is acceptable as a basic kit in B.C. A kit that meets the CSA Z1220-17 Personal kit with the addition of medical masks and face shield is acceptable as a basic kit in B.C.

Level 1 First Aid Kit

- 1 Blanket
- 24 14 cm x 19 cm wound cleansing towelettes, individually packaged
- 50 Sterile adhesive dressings, assorted sizes, individually packaged
- 10 10 cm x 10 cm sterile gauze dressings, individually packaged
- 4 10 cm x 16.5 cm sterile pressure dressings with crepe ties
- 2 7.5 cm x 4.5 m crepe roller bandages
- 2 7.5 cm conforming gauze bandages
- 1 2.5 cm x 4.5 m adhesive tape
- 2 Cotton triangular bandages, minimum length of base 1.25 m
- 2 Quick straps (a.k.a. fracture straps or zap straps)
- 1 Windlass style tourniquet
- 1 14 cm stainless steel bandage scissors or universal scissors

1	11.5 cm stainless steel sliver forceps
1	Pocket mask with a one-way valve and oxygen inlet
6	Pairs of medical gloves (preferably non-latex)
6	Medical masks (also known as procedure or surgical masks)
2	Face shields (or safety eyewear)
1	Waterproof waste bag
	First aid records

Note: A kit that meets the requirements for an Alberta Number 1 first aid kit is acceptable as a Level 1 first aid kit in B.C. (with the addition of a tourniquet, medical masks, and face shields). A kit that meets the CSA Z1220-17 Type 2 Basic kit (any size) with the addition of a tourniquet, medical masks, and face shield is acceptable as a Level 1 kit in B.C.

Level 2 First Aid Kit

1	Blanket
24	14 cm x 19 cm wound cleansing towelettes, individually packaged
50	Sterile adhesive dressings, assorted sizes, individually packaged
20	10 cm x 10 cm sterile gauze dressings, individually packaged
4	10 cm x 16.5 cm sterile pressure dressings with crepe ties
4	20 cm x 25 cm sterile abdominal dressings, individually packaged
4	Cotton triangular bandages, minimum length of base 1.25 m
2	5 cm x 4.5 m rolls of adhesive tape
2	7.5 cm X 4 m conforming gauze bandages
2	7.5 cm x 4.5 m crepe roller bandages
1	14 cm stainless steel bandage scissors or universal scissors
1	11.5 cm stainless steel sliver forceps
2	Quick straps (a.k.a. fracture straps or zap straps)
1	Windlass style tourniquet
1	Pocket mask with a one-way valve and oxygen inlet
6	Pairs of medical gloves (preferably non-latex)
6	Medical masks (also known as procedure or surgical masks)
2	Face shields (or safety eyewear)
1	Waterproof waste bag
	First aid records

Note: A kit that meets the requirements for an Alberta Number 2 first aid kit is acceptable as a Level 2 first aid kit in B.C. (with the addition of a tourniquet, medical masks, and face shields). A kit that meets the CSA Z1220-17 Type 3 Intermediate kit (medium or large) with the addition of medical masks and face shield is acceptable as a Level 2 kit in B.C.

Level 3 First Aid Kit

1	Blanket
24	14 cm x 19 cm wound cleansing towelettes, individually packaged
50	Sterile adhesive dressings, assorted sizes, individually packaged
20	10 cm x 10 cm sterile gauze dressings, individually packaged
4	10 cm x 16.5 cm sterile pressure dressings with crepe ties
4	20 cm x 25 cm sterile abdominal dressings, individually packaged
6	Cotton triangular bandages, minimum length of base 1.25 m
2	5 cm x 4.5 m rolls of adhesive tape
4	7.5 cm X 4 m conforming gauze bandages
4	7.5 cm x 4.5 m crepe roller bandages

- 1 14 cm stainless steel bandage scissors or universal scissors
- 1 11.5 cm stainless steel sliver forceps
- 4 Quick straps (a.k.a. fracture straps or zap straps)
- 1 Windlass style tourniquet
- 1 Pocket mask with a one-way valve and oxygen inlet
- 6 Pairs of medical gloves (preferably non-latex)
- 6 Medical masks (also known as procedure or surgical masks)
- 2 Face shields (or safety eyewear)
- 1 Waterproof waste bag
- 1 Penlight or flashlight
- Patient assessment charts
- First aid records

A Level 3 first aid kit includes an Oxygen Kit with the following contents:

- 1 Portable oxygen therapy unit consisting of a cylinder of compressed oxygen, a pressure regulator, a pressure gauge, a flow meter, non-rebreathing mask, and nasal cannula
- 1 Oropharyngeal airway kit
- 1 Manually operated self-inflating bag-valve mask with an oxygen reservoir
- 1 Digital pulse oximeter
- 1 Portable suction unit

Note: A kit that meets the requirements for an Alberta Number 3 first aid kit is acceptable as a Level 3 first aid kit in B.C. (with the addition of a tourniquet, medical masks, face shields, and Oxygen Kit as described above). A kit that meets the CSA Z1220-17 Type 3 Intermediate kit (large) and all contents of the standard's Table A.1 with the addition of medical masks and face shields is acceptable as a Level 3 kit in B.C.

Both Level 2 and Level 3 first aid kits may be supplemented in the workplace by the requirement for a dressing station or first aid room facility with the following additional equipment.

Dressing station - a dressing station should be at least 4.2 square metres (48 sq. ft.), and have the following dressing station equipment:

- 3 Blankets
- 1 Refuse pail with lid
- 1 Package of paper towels
- 1 Bifocal magnifier with head strap, 12.5 cm focus
- 1 Eye cup
- 1 14 cm stainless steel bandage scissors or universal scissors
- 1 11.5 cm stainless steel sliver forceps
- 1 Penlight or flashlight
- 24 14 cm X 19 cm wound cleansing towelettes, individually packaged
- 1 150 ml liquid antibacterial soap
- 4 Cold packs
- 100 Sterile adhesive dressings, assorted sizes, individually packaged
- 24 Sterile skin closures, individually packaged
- 6 20 cm x 25 cm sterile abdominal dressings, individually packaged
- 3 30 cm x 40 cm sterile abdominal dressings, individually packaged
- 100 7.5 cm x 7.5 cm gauze sponges
- 24 7.5 cm x 7.5 cm sterile gauze dressings, individually packaged
- 24 10 cm x 10 cm sterile gauze dressings, individually packaged
- 4 7.5 cm x 4.5 m crepe roller bandages
- 2 10 cm x 16.5 cm sterile pressure dressings with crepe ties
- 1 7.5 cm x 4.5 m adhesive crepe bandage

2	2.5 cm x 4.5 m rolls of adhesive tape
2	5 cm x 4.5 m rolls of adhesive tape
2	5 cm x 1.8 m conforming gauze bandages
2	7.5 cm x 4 m conforming gauze bandages
6	Cotton triangular bandages, minimum length of base 1.25 m
2	SAM splints or quick splint equivalent
1	#01 4.5 m tubular finger bandage with applicator
1	Kidney basin
1	Wash basin
1	Cold instrument sterilizer with supply of non-rusting germicidal solution
1	Chair suitable for treating injured worker (with a non-porous surface or covered with non-porous material)
	Patient assessment charts
	First aid records
*	Optional consideration of an Automatic External Defibrillator - refer to OHS Guideline G3.16(2)-2

First Aid Room - a first aid room should be at least 9.3 square metres (100 sq. ft.). It should have the following:

- Storage cupboards
- A counter
- A toilet, or have a toilet facility as near as practicable
- The following first aid room equipment

3	Blankets
1	refuse pail with lid
1	Package of paper towels
1	Eye lamp, self-illuminating, magnifying
1	Eye cup
1	14 cm stainless steel bandage scissors
1	11.5 cm stainless steel sliver forceps
1	15 cm stainless steel thin nosed plier-type forceps
1	Universal scissors
1	Penlight or flashlight
36	14 cm x 19 cm wound cleansing towelettes, individually packaged
1	150 ml liquid antibacterial soap
6	Cold packs
100	Sterile adhesive dressings, assorted sizes, individually packaged
48	Sterile skin closures, individually packaged
6	20 cm x 25 cm sterile abdominal dressings, individually packaged
3	30 cm x 40 cm sterile abdominal dressings, individually packaged
6	Sterile eye pads, individually packaged
200	7.5 cm x 7.5 cm gauze sponges
72	7.5 cm x 7.5 cm sterile gauze dressings, individually packaged
72	10 cm x 10 cm sterile gauze dressings, individually packaged
6	7.5 cm x 4.5 m crepe roller bandages
4	10 cm x 16.5 cm sterile pressure dressings with crepe ties
2	7.5 cm x 4.5 m adhesive crepe bandages
2	2.5 cm x 4.5 m rolls of adhesive tape
2	5 cm x 4.5 m rolls of adhesive tape
4	5 cm x 1.8 m conforming gauze bandages
4	7.5 cm x 4 m conforming gauze bandages
6	Cotton triangular bandages, minimum length of base 1.25 m

4	SAM splints or quick splint equivalent
1	#01 4.5 m tubular finger bandage with applicator
1	Kidney basin
1	Wash basin
1	Cold instrument sterilizer with supply of non-rusting germicidal solution
1	Chair suitable for treating injured worker with a non-porous surface or covered with a non-porous material
1	Bed approximately 2 m long X 75 cm wide, with a mattress having a non-porous surface or covered with a non-porous material
2	Pillows with a non-porous surface or covered with a non-porous material
4	Sheets
1	Portable urinal, if overnight care may be required
1	Bedpan, if overnight care may be required
	Patient assessment charts
	First aid records
*	Optional consideration of an Automatic External Defibrillator - refer to OHS Guideline G3.16(2)-2

Note: At a remote workplace (more than 2 hours' surface travel time to a hospital), a first aid room should be equipped to provide reasonable overnight care for two injured workers and be used exclusively for first aid purposes.

First aid facilities general requirements

Schedule 3–A, Minimum Levels of First Aid in the *Regulation*, contains the minimum levels of first aid required for various workplaces. Tables 1-6 indicate in column 2 whether or not a first aid facility is required, and, if a facility is required, what type (dressing station or first aid room). The list above specifies the equipment required in each facility. Below gives guidance on how to set up a first aid facility and some specific recommendations for dressing stations and first aid rooms.

Under section 3.16(4) of the Regulation, a first aid facility must be kept clean, dry, ready for use, and must be readily accessible at any time a worker works in the workplace.

General recommendations for all first aid facilities

Location and access

A first aid facility should be located as near as practicable to the work area or areas it is to serve. It should be a room within a building or, if this is not practicable, a tent, vehicle, or other suitable structure.

The first aid facility should be designed and located for easy entrance to and exit from the facility for a worker requiring stretcher transport. A stretcher should not have to be tipped or turned to enter or exit the first aid facility.

In remote areas, building a first aid facility may not be practicable. However, the facility should be at least of the same design and construction as workers' lodgings. If trailers are provided for workers' lodgings, a trailer should be provided for the first aid facility.

When a tent is used, it should adhere to the following:

- Be of the same size and have the same equipment as a first aid room or dressing station, as appropriate
- Be fitted with a non-porous floor that can be cleaned with soap and water
- Have a source of heat that will not be a hazard when oxygen is in use and will provide sufficient warmth for good patient care (maintaining body temperature)

A first aid facility may be locked to prevent theft and vandalism or for other appropriate reasons. If so, there must be effective means of immediate access during all working hours.

Utilities

The facility should be adequately illuminated, heated, and ventilated. It should have a sink plumbed with hot and cold running water or, if this is not practicable, an alternative system for supplying fresh, potable water. If showering may be a required treatment for chemical exposure, the facility should have a shower or have a shower facility as near as practicable. It may be impracticable to plumb a first aid facility in certain situations, such as where the facility is a trailer on a construction site or the work is at a remote location. In these cases, one of the following alternative sources of water, with means to heat it, may be considered until a permanent source of water can be connected:

- The facility has an internal tank able to hold a minimum of 45 litres (10 gallons) of fresh potable water which can be pumped into the facility's sink. The water in this tank must be changed daily, or changed weekly if treated for the prevention of contamination.
- The facility is connected to a hose or water line from a fresh potable water outlet that can be pumped into the facility's sink.
- The facility has an insulated container able to hold about 20 litres (5 gallons) of fresh potable water changed daily to prevent contamination.

- A fresh water supply company provides fresh water in a bottle or jug attached to a hot and cold dispenser.

Other recommendations

Since the facility must be kept clean and sanitary, a non-porous floor covering is recommended. The facility should have a notice conspicuously displayed outside the door or in the area, indicating how to call and where to find the first aid attendant, and if necessary how to unlock and access the facility.

The first aid facility is also subject to the general requirements relating to workplace premises in the Regulation; for example, sections 6.33 to 6.41 (biological agents) and sections 4.81 to 4.83 (environmental tobacco smoke).

Smoking is not permitted in a first aid facility, and "No Smoking" signs should be conspicuously posted.

Using a first aid facility for purposes other than first aid

A first aid facility may be used for purposes other than first aid if the following exists:

- It is immediately available for first aid treatment
- The facility is not at a remote workplace (more than 2 hours' surface travel from a hospital)
- The minimum floor area needed for first aid is maintained
- Such use will neither impede the treatment of an injured worker nor pose a hazard to workers

Emergency vehicles and equipment

Schedule 3–A, Minimum Levels of First Aid in the Regulation, contains the minimum levels of first aid required for various workplaces. Tables 1-6 indicate in column 4 whether or not an emergency vehicle is required, and, if an emergency vehicle is required, what type (emergency transportation vehicle or industrial ambulance) is to be available at the workplace. This guideline gives guidance on the use of emergency vehicles and the equipment needed and suggests when a mobile treatment centre might be used in place of a first aid facility and emergency vehicle. It also provides recommendations for air transport when that is the primary means to getting an injured worker to medical treatment.

Note that WorkSafeBC does not endorse or approve of any particular makes or models of emergency vehicles and does not register vehicles.

General guidelines for emergency vehicles

Emergency vehicles must be maintained and operated in accordance with the general requirements relating to vehicles in the Regulation and with any other applicable statutes and regulations.

Smoking is not permitted in emergency vehicles and a plainly visible "No Smoking" sign should be posted in the vehicle.

Location and access

Where a vehicle is needed to transport an injured worker, the vehicle should be immediately available for use and capable of being dispatched to the accident scene within 3 to 5 minutes of being required. It should be located where it will best serve the workers who are most likely to need an emergency vehicle.

The first aid attendant should not operate the vehicle when an injured worker is being transported.

Vehicle requirements

The vehicle should be capable of traversing the area it is intended to serve.

- It should have a minimum headroom of 1 metre (3.3 feet).
- It should provide protection from the natural elements and dust.
- It should provide warmth sufficient for good care for the injured worker, with the patient compartment heated enough to maintain normal body temperature.
- The source of heat must not be a hazard to the occupants of the vehicle when oxygen is in use.
- It should have effective voice communication between the operator and the attendant in the treatment area of the vehicle.
- It should have a means of effective communication with the scene of an accident. For example:
 - The driver has a two-way radio that has a direct link with another two-way radio at the scene of the injured or ill worker.
 - The driver has a two-way radio that has a link with the employer's central dispatch centre, which has voice communication via a radio or radiotelephone with workers at the scene.
- In areas with good coverage cell phones may be used.
- It should have effective communication with the hospital. For example:
 - The driver has a two-way radio that has a direct link with the hospital.
 - A radiotelephone in the vehicle can contact the hospital directly.
 - A two-way radio or radiotelephone in the vehicle has a link with the employer's central dispatch centre, which has voice communication via a telephone or radiotelephone with the hospital.
 - The emergency vehicle is accompanied to the hospital by another vehicle that is equipped with a radiotelephone or two-way radio that can contact the hospital directly and its driver can communicate with the emergency vehicle.
- In areas with good coverage cell phones may be used.

Additional recommendations for an emergency transport vehicle (ETV)

In addition to the general recommendations for emergency vehicles, an ETV should be capable of transporting at least one worker on a stretcher. It should have a means of restraining a stretcher and have enough padding to prevent excessive jarring of the injured worker.

An ETV should contain the following equipment:

- 1 Set of hard cervical collars covering all adult sizes (or 2 adjustable hard cervical collars), plus a head immobilizer
- 1 Lifting device with handholds, acceptable to WorkSafeBC, and securing straps to secure an injured worker
- 1 Stretcher to transport an injured worker. The stretcher must have retainer straps and a suitable mattress or padding
- 6 Blankets
- 2 Lower limb splints, minimum 1 m in length with suitable padding
- 2 Vomitus bags

Additional recommendations for an industrial ambulance

In addition to the general recommendations for an ETV, an industrial ambulance should also have the following:

- Contain the same equipment as an ETV
- Be used only for first aid treatment and transportation of injured workers, under the direction of the first aid attendant
- Be capable of accommodating at least two workers on stretchers
- Have adequate lighting in the patient compartment, allowing the first aid attendant to see and assess the injured or ill worker and complete documentation, without the use of a flashlight
- Contain a roll cot properly secured and cushioned against excessive jarring

Mobile treatment centre (MTC)

An MTC is an industrial ambulance that also has the following:

- A sink with running water or, if this is not practicable, an alternative system for supplying fresh, potable water
- Minimum headroom of 1.8 metres (6 feet) in the treatment area, sufficient for the first aid attendant to treat the injured or ill worker
- Dressing station equipment

As a result of an employer's first aid assessment an MTC, may be used in place of a first aid facility and emergency vehicle (industrial ambulance). When using an MTC in place of a dressing station or first aid room, the MTC should contain the same first aid equipment as outlined for those facilities. Where the workplace is more than 2 hours' surface travel time from a hospital, another vehicle suitable for transporting an injured worker (ETV or industrial ambulance) should also be provided.

It is not recommended to use an MTC as a first aid facility when the workplace provides overnight accommodation.

G3.16(1.2) Acceptable first aid facility

Issued December 15, 2017

Regulatory excerpt

Section 3.16 of the *OHS Regulation* ("Regulation") states:

(1) The employer must provide for each workplace such equipment, supplies, facilities, first aid attendants and services as are adequate and appropriate for

- (a) promptly rendering first aid to workers if they suffer an injury at work, and
- (b) transporting injured workers to medical treatment.

(1.1) The type and quantity of equipment, supplies, facilities, first aid attendants and services referred to in subsection (1) must be no less than is required by Schedule 3-A.

(1.2) The quality, maintenance and use of equipment, facilities and methods of transportation referred to in this section must be acceptable to the Board.

(2) For the purpose of complying with subsection (1), the employer must conduct an assessment of the circumstances of the workplace, including

- (a) the number of workers who may require first aid at any time,
- (b) the nature and extent of the risks and hazards in the workplace, including whether or not the workplace as a whole creates a low,

moderate or high risk of injury,

(c) the types of injuries likely to occur,

(d) any barriers to first aid being provided to an injured worker, and

(e) the time that may be required to obtain transportation and to transport an injured worker to medical treatment.

(3) The employer must review the assessment under subsection (2)

(a) within 12 months after the previous assessment or review, and

(b) whenever a significant change affecting the assessment occurs in the employer's operations.

(4) First aid equipment, supplies and facilities must be kept clean, dry and ready for use, and be readily accessible at any time a worker works in the workplace.

Purpose of guideline

This guideline is to outline the requirements that will allow an acute care facility to use the emergency department area or, in the case of a diagnostic and treatment centre, the emergency resuscitation area as a workplace first aid facility acceptable to WorkSafeBC.

Requirements

An acute care health facility with an emergency department area or, in the case of a diagnostic and treatment centre, the emergency resuscitation area, may designate that area as the workplace first aid facility (dressing station or first aid room as required), provided that an assessment is conducted and recorded to ensure the following:

(a) Prompt access is available to all workers during working hours (regardless of public wait times or triage issues)

(b) Confidentiality of the first aid records is maintained

(c) The emergency area has at least one sink plumbed with hot and cold water within easy access of the patient care area

(d) Toilet facilities are located in or close to the emergency area for quick and easy access

(e) The area has a counter area and storage for all the supplies as required in a first aid facility (first aid room or dressing station as required)

(f) Written procedures are developed for moving a worker requiring stretcher transport from any area of the worksite to the designated treatment area. This may involve any of the following:

1. Contacting the BC Ambulance Service for transport on the worksite

2. Ensuring the occupational first aid (OFA) attendant has the necessary level of training and appropriate transportation equipment; either OFA Level 3, or OFA Level 1 or 2 with the Transportation Endorsement, or

3. Internal training that covers patient handling and transport, with appropriate equipment

(g) A first aid kit appropriate for the level of attendant required is available to be taken to the scene of an injury.

G3.16(2)-2 Automated external defibrillator (AED)

Issued September 6, 2018

Regulatory excerpt

Section 3.16(2) of the *OHS Regulation* ("*Regulation*") states, in part:

(2) For the purpose of complying with subsection (1), the employer must conduct an assessment of the circumstances of the workplace...

Purpose of guideline

The purpose of this guideline is to outline circumstances that might indicate an employer should consider choosing to provide an automated external defibrillator (AED) in the workplace.

Risk for cardiac arrest — which occurs when the heart fails to circulate blood — increases during intense physical activity, especially in people with underlying cardiovascular risk factors.

AED's are small portable machines that can perform the following:

- Analyze the person's heart rhythm
- Determine whether a shock is needed
- Use voice or screen prompts to guide the rescuer through the process

AED's are not a required piece of equipment under the Regulation, however all levels of occupational first aid training include instruction on the care and use of AEDs.

Circumstances to consider:

- Size of workforce at one site
- Average age and health of workers
- Types of hazards present in the workplace
- Access to BC Emergency Health Service resources
- Employers may want to consider whether large numbers of the public are present in their worksite, and if the employer generally provides first aid to the public when in their workplace

G3.17 Developing and implementing first aid procedures

Issued March 30, 2004; Editorial Revision September 6, 2018

Section 3.17 of the *Occupational Health and Safety Regulation* ("Regulation") states:

- (1) The employer must keep up-to-date written procedures for providing first aid at the worksite including
 - (a) the equipment, supplies, facilities, first aid attendants and services available,
 - (b) the location of, and how to call for, first aid,
 - (c) how the first aid attendant is to respond to a call for first aid,
 - (d) the authority of the first aid attendant over the treatment of injured workers and the responsibility of the employer to report injuries to the Board,
 - (e) who is to call for transportation for the injured worker, and the method of transportation and calling, and
 - (f) prearranged routes in and out of the workplace and to medical treatment.
- (2) The employer must post the procedures conspicuously in suitable locations throughout the workplace or, if posting is not practicable, the employer must adopt other measures to ensure that the information is effectively communicated to workers.
- (3) The first aid attendant and all other persons authorized to call for transportation for injured workers must be trained in the procedures.

Purpose of guideline

The purpose of this guideline is to provide additional information on the provision, implementation and overall functioning of the procedures.

Drills

To ensure the effectiveness of the employer's first aid procedures, a drill should be held at least once each year to test the following:

- Workers' awareness of the way to summon first aid, the effectiveness of the communication system, and the ability of the first aid attendant to respond to being summoned
- The capacity of the first aid service to treat injuries or illnesses of the type likely to occur in the workplace

Maintaining the system

The employer should also have a procedure to maintain the first aid service at the workplace, including assigning personnel. That person's duties should include ensuring that the required first aid attendants, supplies, facilities, and equipment are always available. This would include ensuring that first aid attendants are re-trained when required, replaced when they are absent or leave the employ of the employer and that supplies are replenished as they are used.

G3.17(1)-1 Implementing an early defibrillation program in the workplace

Withdrawn November 1, 2010

G3.17.1 Air transportation

Issued September 6, 2018

Regulatory excerpt

Section 3.17.1 of the *OHS Regulation* ("Regulation") states:

If air transportation is the primary or only method for transporting an injured worker, all of the following requirements must be met:

- (a) before the start of operations in a workplace, arrangements must be made with an air service to ensure that an appropriate aircraft

is reasonably available to the workplace during those operations;

(b) the arrangements in paragraph (a) must include procedures for

(i) the employer to determine the availability of appropriate aircraft before the start of each work day, and

(ii) the air service to notify the employer if an appropriate aircraft ceases to be available;

(c) a system must be provided that enables the pilot of the aircraft and the first aid attendant attending to an injured worker to communicate at all times when the aircraft is in transit to the location of the injured worker and during transport of the injured worker to medical treatment.

Purpose of guideline

The purpose of this guideline is to outline the arrangements required for air transport of injured or ill workers.

Air transport

If air transport is the primary or only means of transporting an injured worker to medical treatment, the following arrangements and equipment are recommended:

- Make arrangements with an air service, before the start of work, to ensure that an appropriate aircraft will be reasonably available during operations.
- The aircraft should be capable of transporting a stretcher patient and a first aid attendant, allowing the first aid attendant sufficient room to provide emergency treatment during flight, if required.
- A list of radio frequencies to be used between the air carrier and the workplace should be included in the written procedures required by section 3.17(1) of the Regulation. The coordinates of the workplace should be included in the written procedures.
- First aid equipment should be suitable for the aircraft to be used, including a stretcher or lifting device that will fit in the aircraft and that does not allow movement or excessive jarring of the injured or ill worker during air transport. Employers are responsible for ensuring that first aid attendants are properly trained in the use of the equipment.
- If weather or other factors could unreasonably delay the use of aircraft, alternative transportation options should be provided, where practicable.

The first aid attendant has training to decide whether air or surface transportation is most appropriate for the injured or ill worker.

G3.18(1) Communications

Issued March 30, 2004; Editorial Revision September 6, 2018

Section 3.18(1) of the *Occupational Health and Safety Regulation* ("Regulation") states:

(1) The employer must provide an effective means for

(a) communication between the first aid attendant and the workers served, and

(b) the first aid attendant to call for assistance.

Purpose of guideline

The purpose of this guideline is to outline suitable means of communication between the first aid attendant and workers.

Effective communication

There is an "effective means" of communication if workers throughout the workplace know how to alert the first aid attendant that service is required. That system could consist of a whistle, siren, series of lights, pager, two-way radios, or portable phones that the first aid attendant would see or hear and that would enable the first aid attendant to know where to respond.

Assistance

"Assistance" in section 3.18(1)(b) may include assistance from other workers, the BC Ambulance Service, or another ambulance service acceptable to WorkSafeBC.

G3.18(2) Availability of first aid attendant

Issued March 30, 2004; Editorial Revision September 6, 2018

Section 3.18(2) of the *Occupational Health and Safety Regulation* ("Regulation") states:

The employer must not assign, and the first aid attendant must not undertake, employment activities that will interfere with the attendant's ability to receive and respond to a request for first aid.

Purpose of guideline

This guideline discusses how to ensure that the first aid attendant is available to render first aid promptly, as required by sections 3.16(1) and

3.18(2) of the *Regulation*.

Availability

In order to provide effective treatment, the equipment, facilities, and attendant must be accessible and first aid must be administered to the worker as soon as practicable after the injury or illness, in accordance with the practices and standards found in the first aid attendant's training program.

The following principles apply in determining whether the first aid service has been properly provided:

- A first aid attendant should actually be present in the area served, during all working hours. This includes periods such as lunch or coffee breaks when workers are on shift and at the workplace but not actually working.
- The first aid attendant, equipment, and facilities must be ready to receive the injured worker or to depart to where the worker is situated without delay, usually within 3 to 5 minutes of being summoned. (This allows the first aid attendant time to clean up as needed, either take off coveralls or put on clean coveralls, and obtain the first aid kit.)
- The location of the central first aid service should be readily accessible. A service will be readily accessible where it is within 10 minutes' walking time (or driving time, where vehicles are normally used for general movement within the workplace) for all workers in a workplace. Alternatively, the service is readily accessible where the first aid attendant can reach injured workers within 10 minutes' walking time (or driving time) to render first aid.

Backup for absent first aid attendant

Absences from the workplace by first aid attendants may be planned (such as vacations or medical appointments) or unplanned (such as travelling with an injured worker to hospital or being absent because of sickness). Since it is foreseeable that planned and unplanned absences will occur, the employer will be expected to have a procedure for dealing with them.

Where planned absences may leave on duty fewer than the required number of first aid attendants, the employer should have a substitute first aid attendant available as soon as the absence commences. With regard to unplanned absences, an absence of up to approximately half a shift is permissible until a replacement first aid attendant is in place.

G3.19 First aid records

Issued March 30, 2004; Revised March 5, 2013; Editorial Revision September 6, 2018

Regulatory excerpt

Section 3.19 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must maintain at the workplace, in a form acceptable to the Board, a record of all injuries and exposures to contaminants covered by this Regulation that are reported or treated.
- (2) First aid records must be kept for at least 3 years.
- (3) First aid records are to be kept confidential and may not be disclosed except as permitted by this Regulation or otherwise permitted by law.
- (4) First aid records must be available for inspection by an officer of the Board.
- (5) Workers may request or authorize access to their first aid records for any treatment or report about themselves.

Purpose of guideline

This guideline outlines what form of record-keeping is acceptable to WorkSafeBC and what access to records is needed.

Acceptable record-keeping

Records containing the following information are acceptable to WorkSafeBC:

- The full name and occupation of the worker
- The date and time of injury or report of exposure or illness
- The date and time the injury, exposure, disease, or illness was reported to the employer or employer's representative
- The names of witnesses
- A description of how the injury, exposure, disease, or illness occurred
- A description of the nature of the injury, exposure, disease, or illness
- A description of the treatment given and any arrangements made relating to the worker (return to work/medical aid/ambulance/follow-up)
- A description of any subsequent treatment given for the same injury, exposure, disease, or illness
- The signature or equivalent of the attendant or person giving first aid, and if possible, the signature of the worker receiving treatment
- If records are kept and stored electronically, they must be stored within Canada

Access to records

Only people who have a need to review first aid records may have access. For example this may include the following:

- A worker's direct supervisor
- The worker (his or her own records)

- A person designated by the employer to manage health & safety and/or compensation claims and/or return to work programs at the workplace
- First aid attendants at the workplace
- A WorkSafeBC prevention officer

Joint committee members and worker health and safety representatives do not have a need for full access. A report containing a summary of the records is sufficient for committee purposes.

In a multi-employer worksite first aid records are owned by the employer of the injured worker. During the course of the project records may be maintained by the employer providing the first aid services. Access is as listed above, but may also include the prime contractor if required for purposes of coordination of health and safety of the worksite. Once the project is complete, or if an individual employer's work on that site is complete, the records must be retained by the individual employer for at least three years.

Where a person is entitled to have access under section 3.19, the access may not extend to all of the records. It is limited to the minimum necessary to satisfy the purpose for which the access is required. If, for instance, access is required to investigate a claim for compensation, it would be limited to the records of the individual making the claim.

G3.20 Multiple employer workplaces

Issued March 30, 2004; Editorial Revision February 1, 2008

Regulatory excerpt

Section 3.20 of the *OHS Regulation* ("Regulation") states:

If workers of 2 or more employers are working at a workplace at the same time, the prime contractor must

- (a) conduct an assessment of the circumstances of the workplace under section 3.16(2) in relation to all the workers in the workplace, and
- (b) do everything that is reasonably practicable to establish and maintain the first aid equipment, supplies, facilities, first aid attendants and services required under section 3.16.

Purpose of guideline

The purpose of this guideline is to discuss the role of the prime contractor in providing first aid services. It also considers situations where a group of employers with adjacent workplaces provide a common first aid service.

Role of the prime contractor

The prime contractor will normally set up a central first aid service for the whole workplace or arrange for a subcontractor to do this. The prime contractor is the person defined under the *Workers Compensation Act* ("Act") as the owner of the workplace unless the owner enters into a written agreement with another party to assume the responsibilities of the prime contractor.

Where the first aid service is provided by agreement with another person or persons, the following guidelines are recommended:

- The service should meet the requirements as to hazard classification, distance from hospital, and number of workers per shift of each workplace using it.
- In considering the accessibility of the service, the demands on it by all workplaces using it must be considered. The number of workers per shift used to determine the level of service is the total number of workers in all these workplaces. In addition, consider any use of the service by members of the public visiting these workplaces.
- In determining the location of the service, consider the need to provide first aid promptly. Also consider whether any workplaces are likely to create greater hazards and therefore make more use of the service.
- The level and location of the service must allow for any restrictions on access that may occur at peak work periods.
- Each employer participating in the service must separately comply with the obligation in section 3.19(1) to maintain records of all injuries and manifestations of disease at their own workplace. The service may also keep central records.
- The service and each employer must restrict access to any first aid records to the persons authorized by section 3.19(3). Any person who has access to the records must under section 3.19(5) keep them confidential except as required for the legitimate purpose of their access.

The employer retains full legal responsibility for providing all first aid services for the workplace as required by [Part 3](#) of the *Regulation*. If the service does not meet an obligation imposed on the employer, WorkSafeBC will hold the employer responsible, not the person agreeing to supply the service.

G3.21 Suspension and cancellation of first aid certificates

Issued August 31, 2007; Editorial Revision September 6, 2018; Editorial Revision April 6, 2020

Regulatory excerpt

Section 3.21 of the *OHS Regulation* ("Regulation") states:

- (1) The first aid attendant must

- (a) promptly provide injured workers with a level of care within the scope of the attendant's training and this Part,
 - (b) objectively record observed or reported signs and symptoms of injuries and exposures to contaminants covered by this Regulation, and
 - (c) refer for medical treatment workers with injuries considered by the first aid attendant as being serious or beyond the scope of the attendant's training.
- (2) A first aid attendant must be physically and mentally capable of safely and effectively performing the required duties, and the Board may at any time require the attendant to provide a medical certificate.
- (3) The first aid attendant is responsible, and has full authority, for all first aid treatment of an injured worker until responsibility for treatment is accepted
- (a) at a place of medical treatment,
 - (b) by an ambulance service acceptable to the Board, or
 - (c) by a person with higher or equivalent first aid certification.

Section 96 of the *Workers Compensation Act* ("Act") provides:

- (1) If the Board has reasonable grounds for believing that a person who holds a certificate issued under the OHS provisions or the regulations has breached a term or condition of the certificate or has otherwise contravened an OHS provision or a provision of the regulations, the Board may, by order,
- (a) cancel or suspend the certificate, or
 - (b) place a condition on the use of that certificate that the Board considers necessary in the circumstances.
- (2) An order under this section suspending a certificate must specify the length of time that the suspension is in effect or the condition that must be met before the suspension is no longer in effect.

Purpose of guideline

This guideline sets out the circumstances in which WorkSafeBC will consider suspending or cancelling a first aid certificate, and discusses the process by which first aid certificates are suspended or cancelled.

Background

Occupational first aid certificates are issued to first aid attendants by first aid agencies on behalf of WorkSafeBC. These agencies enter into an agreement with WorkSafeBC that permits them to issue first aid certificates to individuals.

WorkSafeBC has the authority to suspend or cancel these first aid certificates under section 96 of the *Act*.

Where a WorkSafeBC certification or prevention officer (officer) learns of circumstances that may indicate a lack of competence or misconduct on the part of a first aid attendant, the officer may consider suspending the first aid attendant's certificate. The Manager of Certification Services may then consider further action, which could involve cancellation of the certificate.

When may a first aid certificate be suspended or cancelled?

Under section 96 of the *Act*, WorkSafeBC may cancel or suspend a first aid certificate where it has "*reasonable grounds for believing*" that the holder has

- Breached a term or condition of the certificate
- Contravened an OHS provision of the *Act* or the *Regulation*

Section 3.21 of the *Regulation* sets out the requirements for the first aid attendant. The failure of a first aid attendant to meet these obligations would be a contravention of the *Regulation* for the purposes of section 96 and may provide grounds for the suspension or cancellation of the certificate. Such circumstances would include failing to

- Promptly provide injured workers with a level of care within the scope of the first aid attendant's training and in accordance with sections [3.14 through 3.21](#) of the *Regulation*
- Objectively record observed or reported signs and symptoms of injuries and exposures to contaminants
- Refer for medical treatment workers with injuries considered by the first aid attendant as being serious or beyond the scope of the first aid attendant's training
- Be physically and mentally capable of safely and effectively performing the required duties

Policy [P2-96-1](#) sets out an additional list of inappropriate conduct for first aid attendants, which may be considered to be failing to provide workers with an appropriate level of care under section 3.21, including the following:

- Smoking while assessing or treating an injured worker and/or while handling oxygen therapy equipment, or permitting others to do so

- Failing to use the assessment and injury treatment techniques outlined in first aid training courses unless conditions precluded them
- Conduct that poses an unreasonable threat to the safety and well-being of other workers or the public
- Removing themselves from being able to see or hear any summons for first aid at a workplace
- Abandoning an injured worker after beginning assessment or treatment
- Refusing to treat an injured worker when acting as a designated first aid attendant
- Treating or transporting an injured worker while impaired or under the influence of drugs or alcohol

Failing to provide competent care, failing to ensure first aid records are kept, and using intoxicants while on duty are common grounds for suspending and/or cancelling of certificates.

Process for suspending or cancelling a first aid certificate

There are two stages to suspending and/or cancelling of an occupational first aid certificate. The first stage, a temporary suspension, involves an officer seizing the certificate from the first aid attendant and forwarding it to the Manager of Certification Services. The second stage involves the Manager of Certification Services reviewing the circumstances leading to the suspension and making a determination on what further action should be taken. The Manager of Certification Services may cancel the certificate, return it to the first aid attendant, or place conditions based on the review.

Stage 1: Officer's Interim Suspension

Before a first aid certificate may be suspended or cancelled, WorkSafeBC must have "reasonable grounds for believing" that a contravention of the *Act* or *Regulation* or a breach of the terms of the first aid attendant's certificate has occurred. While a finding of "reasonable grounds" does not require absolute proof that circumstances amounting to non-compliance have occurred, it does require that the officer undertake an investigation of the circumstances in question to ensure the suspension or cancellation is reasonable.

The officer's investigation should include the following:

1. Review the employer's incident investigation document
2. Review the worksite written procedures to ensure there is clear direction for attendant response
3. Inspect attendant training and orientation records
4. Provide the attendant an opportunity to offer his/her account of the circumstances
5. Interview all persons who may have relevant information before making the decision to suspend the certificate

Once the investigation is complete, and the officer thinks there are reasonable grounds for concluding that the first aid attendant has failed to comply with the *Act*, *Regulation*, or the terms of the certificate, the officer will conduct the following:

1. Issue an Order to Worker suspending the first aid certificate

This order must specify the length of time that the suspension is in effect (as required by section 96(2) of the *Act*). The duration of the suspension may be up to seven days pending review by the Manager of Certification Services.

Note: The officer may also consider issuing orders to the employer or other workplace parties in connection with the circumstances, as appropriate.

2. Notify the employer of the suspension of the certificate.
3. Forward evidence supporting the suspension, any evidence offered by the attendant in his/her defense, and the outcome of the employer's investigation to Certification Services

Stage 2: Cancellation or Other Action

Once the officer's evidence is forwarded to Certification Services, the Manager of Certification Services will undertake a review of the circumstances and make a final determination with respect to the first aid certificate. This may include issuing a warning, placing a condition on the certificate, further suspension, or cancellation of the certificate.

The type of action the Manager of Certification Services takes will depend on the circumstances of each case. Factors that will be considered include the following:

- The risk of harm to workers caused by the breach, the potential severity of that harm, and the number of workers put at risk
- The potential for future risk to workers should the attendant be allowed to continue to provide services
- Whether the breach was caused by carelessness, recklessness, willful blindness, or intentional
- The need to maintain public or stakeholder confidence in first aid services in general

Once the Manager of Certification Services has made a determination, a letter is forwarded to the first aid attendant notifying him or her of the Manager's decision and specifying the conditions under which reinstatement may occur. The letter also advises of the right to appeal. A "Request for Review" form is included with the letter.

The employer is notified if the first aid attendant's certificate is cancelled. The training agency that issued the certificate is also notified of the cancellation.

Review and Appeal

[Section 268\(1\)\(a\)](#) of the *Act* provides that a person may request a review officer to review "a Board order respecting an occupational health or safety matter under the OHS provisions, a refusal to make such an order, or a variation or cancellation of such an order."

G3.21(2) Medical prerequisites

Issued September 6, 2018

Regulatory excerpt

Section 3.21(2) of the *OHS Regulation* ("*Regulation*") states:

A first aid attendant must be physically and mentally capable of safely and effectively performing the required duties, and the Board may at any time require the attendant to provide a medical certificate.

Purpose of guideline

The purpose of this guideline is to outline the arrangements required for air transport of injured or ill workers. This guideline is to outline the medical prerequisites for designated first aid attendants.

Medical prerequisites

A first aid attendant must be physically and mentally capable of safely and effectively performing the required duties. A self-disclosure declaration, the "Occupational First Aid Statement of Fitness" must be completed by all candidates for Level 2 and Level 3 Certification.

Certification of medical fitness may be required by WorkSafeBC. If required, a medical certificate of the first aid attendant's or candidate's fitness must be submitted from a physician on a form acceptable to WorkSafeBC. The certificate must not be older than six (6) months prior to the date submitted.

Payment for the medical examination is the responsibility of the first aid attendant or candidate.

Conditions evaluated for the purpose of considering a first aid attendant's or candidate's fitness include, but are not limited to, the following:

- Disease conditions*
- Psychological and/or emotional illness
- Visual acuity
- Hearing acuity
- Fine motor skills
- Physical fitness
- Drug and alcohol abuse
- Lifting ability
- Use of medications that could affect ability to perform first aid

*Disease conditions evaluated include insulin dependent diabetes, respiratory disease, heart disease, epilepsy, multiple sclerosis, and communicable diseases.

Guidelines - Part 3 - First Aid Supplementary Materials

The first aid supplementary information is now contained in the following guidelines:

- G3.16 – [assigned hazard rating](#)
- G3.16(1.1) – [first aid kits: recommended contents](#), [first aid facilities: recommended criteria](#), and [emergency vehicles and equipment](#)

Guidelines - Part 3 - Young or New Workers

G3.23 Young or new worker orientation and training

Issued July 26, 2007; Revised July 9, 2009; Editorial Revision consequential to August 4, 2015 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Section 3.23 (Young or new worker orientation and training) of the *OHS Regulation* ("*Regulation*") states:

3.23 Young or new worker orientation and training

(1) An employer must ensure that before a young or new worker begins work in a workplace, the young or new worker is given health and safety orientation and training specific to that young or new worker's workplace.

(2) The following topics must be included in the young or new worker's orientation and training:

(a) the name and contact information for the young or new worker's supervisor;

(b) the employer's and young or new worker's rights and responsibilities under the *Workers Compensation Act* and this *Regulation*

including the reporting of unsafe conditions and the right to refuse to perform unsafe work;

(c) workplace health and safety rules;

(d) hazards to which the young or new worker may be exposed, including risks from robbery, assault or confrontation;

(e) working alone or in isolation;

(f) violence in the workplace;

(g) personal protective equipment;

(h) location of first aid facilities and means of summoning first aid and reporting illnesses and injuries;

(i) emergency procedures;

(j) instruction and demonstration of the young or new worker's work task or work process;

(k) the employer's health and safety program, if required under section 3.1 of this *Regulation*;

(l) WHMIS information requirements set out in Part 5, as applicable to the young or new worker's workplace;

(m) contact information for the occupational health and safety committee or the worker health and safety representative, as applicable to the workplace.

Purpose of guideline

This guideline is to assist employers and workers in implementing the requirements of section 3.23. It provides information on

- The objectives of the orientation and training requirements listed in section 3.23
- Possible means of delivery of these requirements
- Where to get further information to assist with the orientation

The guideline also provides an overview of age-related requirements regarding children in the workplace under the BC *Employment Standards Act*, for information only, should this issue arise at a workplace.

Objectives of the orientation topics

Under section 3.23 employers will be required to provide young and new workers with orientation and training about safe work procedures and how to recognize hazards on the job. It lists a number of topics that must be addressed.

In many workplaces some of the requirements in section 3.23 will already be in place as part of the general safety measures in the workplace. To conduct proper orientation, the topics must be provided to young and new workers.

There may be topics beyond those listed in section 3.23 that an employer would wish to include in the orientation. The *Regulation* sets a minimum standard, which employers may exceed. In some cases, one or more of the topics may not be applicable in a given workplace and would not need to be included.

In the discussion below any reference to "worker" means "young or new worker."

(a) Name and contact information for the worker's supervisor

The worker must know the identity of the individual(s) responsible for providing work direction to him/her, and how to contact him/her if they are not immediately available. This can be particularly helpful to ensure any ongoing questions in the early period of time on the job are addressed.

(b) The employer's and worker's rights and responsibilities

The worker must be informed about his/her rights and responsibilities and those of the employer under the *Workers Compensation Act* ("Act") and the *Regulation*. For example, the worker has the right to be informed about workplace hazards (including WHMIS), the duty to report hazards, the duty to refuse unsafe work, and the right to participate in workplace health and safety activities. The worker should also be advised of the protection from prohibited action provisions in the *Act*, and provisions related to first aid and reporting any injuries and diseases.

(c) Workplace health and safety rules

The worker must be trained in the workplace health and safety rules applicable to the workplace and the tasks the worker will perform. The rules are expected to address any hazards that the worker may encounter, including various types of controls, such as work procedures, use of personal protective equipment, and the safe means of operating equipment.

(d) Hazards to which the worker may be exposed

The worker must be informed about the hazards he/she could encounter while performing assigned work tasks. Depending on the work setting, these hazards may be physical in nature and involve a risk of injury, or may pose a risk of disease (e.g., when handling a hazardous substance). If a worker is in a location that involves contact with the public, the employer must advise of any risks that may arise, including, as applicable, abusive behaviour, robbery, assault, or other possible confrontation.

(e) Working alone or in isolation

If the worker is assigned to work alone or in isolation, the worker must be trained in the policies and procedures to be followed. Under the requirements of the *Regulation* the employer must set up a system for checking on the well being of the worker. When establishing the system, the employer must consult with the worker on the time intervals to be used. In some cases working alone is linked to a potential for violence in the workplace.

(f) Violence in the workplace

The worker must be provided with orientation and training on the policies and procedures to be followed in the event of violence in the workplace. The worker should be advised of the meaning of the term "violence," which includes any threatening statement or behaviour, and the circumstances in the workplace where a risk of violence may be present. The worker should be trained in the procedures to follow to eliminate or minimize any risk in such situations, for example, when handling money, and opening or closing the business. He/she should also be trained in the steps to take to eliminate or minimize the risk of injury to the worker in the event of an incident.

In part, this topic is already covered under topics (c), (d), and (e). However, instruction in this topic will ensure that the worker is given an understanding of the overall measures in the workplace for protection from violence.

(g) Personal protective equipment (PPE)

The worker must be provided with appropriate orientation and training in the use and care of any personal protective equipment or clothing that the worker is required to use to safely perform his/her work. This is also a requirement under [Part 8](#) of the *Regulation*, and will help the worker meet his or her obligations to use PPE properly.

(h) Location of first aid facilities, the means of summoning first aid, and reporting illnesses and injuries

The worker must be advised of the location of first aid facilities, the identity of the first aid attendant(s), and how to summon an attendant. This topic also covers the employer's obligation to inform the worker of the procedures to follow to report an illness or injury to WorkSafeBC.

(i) Emergency procedures

The worker must be advised of potential emergency situations that could occur in his/her work location, and trained in the procedures to follow. This topic is a companion to topic (h) on first aid, and addresses other aspects of emergency response, such as evacuation in the event of fire, or if hazardous substances are handled, how to contain a spill of the substance.

(j) Instruction and demonstration of the worker's work task or work process

The worker must be provided with both instruction and demonstration - not simply a verbal description - of work tasks that the worker will be required to perform when he/she begins work. Further training may be required as new tasks are assigned.

The demonstration should address the aspects of the work that will involve safety risks if not performed correctly. For example, if the worker will be operating a piece of mechanical equipment, the employer will need to ensure that all safety points are demonstrated, including the use of guarding and other safety devices, means of equipment startup, and how to follow safe operating procedures.

(k) The employer's occupational health and safety (OHS) program

Under this topic the employer is expected to provide an orientation to the OHS program in the workplace. If a program is required under section [3.1](#) of the *Regulation* the orientation would describe the program elements, which are outlined in section [3.3](#) of the *Regulation*, and how they are implemented. If, for a small workplace, the program is less formal, then the orientation would be on the elements of the program outlined in section [3.2](#).

(l) WHMIS information requirements, as applicable to the worker's workplace

This topic is intended to ensure the worker is provided with an orientation on the Workplace Hazardous Materials Information System (WHMIS), and its application to hazardous products in the workplace. The orientation should explain the WHMIS hazard classes, and the use of WHMIS labels and Safety Data Sheets (SDS). In addition, there are four WHMIS objectives for training a worker in how to work safely with hazardous products. Workers need to know the hazards of the products, how they can protect themselves, what to do in case of an emergency or spill, and where to get more information on the products. The first three of these will already be addressed under other topics such as (c), (d), (h), and (i). To address the fourth, typically workers will need to be informed of where SDSs are located or how they can be accessed if available electronically.

If there are hazardous products in the workplace not covered by WHMIS, the orientation under topics such as (c), (d), (h), and (i) should be given to address safety with those products.

(m) Contact information for the joint occupational health and safety (OHS) committee, or worker health and safety representative

If applicable, the employer must inform the worker on how to contact the joint OHS committee, or the worker health and safety representative.

Delivering the orientation

The employer must determine how to deliver the orientation and training to the worker. However, there are a number of options to consider.

- **Address topics according to applicability:** As previously noted, some topics listed in section 3.23 may not be applicable in a given workplace. The employer can adjust the orientation accordingly.
- **Organize topics into groups:** Section 3.23 requires that applicable topics be covered in the orientation or training, but not necessarily as separate items. The employer can organize the orientation or training in any manner, as long as the content intended by the topics is addressed. For example, three of the topics involve contact information, and could be presented as a unit. Two of the topics (first aid and emergency procedures) involve a common theme of emergency response. The topics on working alone and violence often cover aspects of the same issue, and could be presented together. Other combinations are also possible.

- **Use generic instruction and orientation coupled with site-specific information:** Information on some of the topics listed in section 3.23 may be applicable from one workplace to another while site-specific instructions will only apply at the worksite in question. Generic instruction and orientations can serve as a good basis on which an employer can add employer or site-specific information. Generic instruction and orientation, coupled with site-specific information can be particularly useful where a worker is performing the same work under different circumstances. Examples include circumstances where
 - Employers have a number of workplaces
 - The industry has highly mobile workers, such as in construction
 - Workers are performing casual or temporary work, such as substitute teachers

In determining the right combination of generic and site-specific topics that will meet the requirements of section 3.23, the circumstances of each scenario need to be considered. By way of example, generic topics for workers under the above noted circumstances could include

- Employer and worker rights and responsibilities
- Employer's occupational health and safety program
- Generic aspects of WHMIS
- Personal protection equipment

Topics that will be specific to a site include

- Workplace health and safety rules
- Name and contact of supervisor
- Location of first aid facilities
- Emergency procedures

Generic instruction and orientation could be provided at a corporate or district level. In some cases workers could carry documentation as proof that they have received generic orientation for their respective occupation or trade. Generic orientation and training that includes an expiry date will help ensure that workers receive up-to-date information.

Where to get further information

Some examples of the various sources of information on orientation and training are

- The Canadian Centre for Occupational Health and Safety (CCOHS) maintains a web site on which they provide information on various topics, including a number of those listed in section 3.23. Examples include: rights and responsibilities, working alone, WHMIS, and violence in the workplace. CCOHS also maintains a Youth portal on the site, with topics specific to young workers. The home page for CCOHS is found at <http://www.ccohs.ca/>.
- WorkSafeBC maintains a [Young Worker portal](#) on its web site. The portal provides a range of materials and helpful links, including a checklist for training and orientation, a program on rights and responsibilities, and information on typical accidents young workers have experienced.
- Any health and safety association in an industry may also have information available.

Children in the workplace

In British Columbia, the *Employment Standards Act ("ESA")* sets out age requirements for the employment of children. Specifically, the *ESA* requires that an employer may not hire a child under the age of 15 without the written consent of the child's parent or legal guardian. An employer may not employ a child under the age of 12 without the permission of the Director of Employment Standards, which is granted through a permit. The *Employment Standards Regulation* further sets out working conditions for children, including the requirement that a child may only work under the direct supervision of a person who is 19 years of age or older. The *Employment Standards Regulation* sets out separate conditions for children working in the entertainment industry, and excludes certain types of work, such as babysitting, from the above requirements.

A WorkSafeBC prevention officer, or any other person, who encounters a potential violation of the *ESA* or the *Employment Standards Regulation* should refer the matter to the Employment Standards Branch. Contact information for the regional Branch locations can be found at: <http://www.labour.gov.bc.ca/esb/contact/welcome.htm>

Individuals seeking additional information may want to view the following fact sheets. These fact sheets have been developed by the Employment Standards Branch to outline conditions for the employment of children, the [first aimed at parents](#) and the [second aimed at employers and the general public](#).

Contents

BUILDINGS, STRUCTURES, EQUIPMENT AND SITE CONDITIONS

- G4.1.1 [Snow avalanche assessment](#)
- G4.3(2) [Welding repair of forks and fork extensions on lift trucks](#)
- G4.8 [Rated capacity of truck-mounted cranes](#)
- G4.9 [Inspection and maintenance records](#)
- G4.11 [Putting equipment, machinery, and work processes into operation](#)

EMERGENCY PREPAREDNESS AND RESPONSE

- G4.13(1) [Emergency preparedness and response - Risk assessment](#)
- G4.13(3)(a) [Industrial high angle rope rescue program](#)
- G4.16 [Training](#)

IMPAIRMENT

- G4.19 [Physical or mental impairment - Recreational diving instructors](#)

WORKING ALONE OR IN ISOLATION

- G4.20.1 [Definition of working alone or in isolation](#)
- G4.20.2 [Hazard identification, elimination, and control](#)
- G4.21 [Procedures for checking the well-being of workers](#)
- G4.22.1-1 [Late night retail - Definitions and money handling procedures](#)
- G4.22.1-2 [Late night retail - Second worker or barrier](#)
- G4.22.1-3 [Late night retail - Violence Prevention Program](#)
- G4.22.2-1 [Mandatory prepayment for fuel](#)
- G4.22.2-2 [Alternative methods for fuel prepayment outside of urban centres](#)

WORK AREA REQUIREMENTS

- G4.38 [Extreme temperatures](#)
- G4.41 [Waste material in agricultural operations](#)
- G4.42(1) [Cleaning with compressed air - Hazards of combustible dusts](#)

STORING AND HANDLING MATERIALS

- G4.43.1 [Storage racks](#)

ERGONOMICS (MSI) REQUIREMENTS

- G4.46 [Definition of musculoskeletal injury \(MSI\)](#)
- G4.47 [Risk identification](#)
- G4.48 [Risk assessment](#)
- G4.49 [Risk factors](#)
- G4.50-1 [Risk control](#)
- G4.50-2 [Minimizing the risk of MSI when moving a physically-dependent person](#)
- G4.51 [Education and training](#)
- G4.52 [Evaluation](#)
- G4.53 [Consultation](#)

WORK AREA GUARDS AND HANDRAILS

- G4.55 [Guardrails on work platforms](#) [Retired]
- G4.58(4)(b) [Prior approval for wire rope guardrails](#) [Retired]
- G4.59 [Floor and roof openings](#)

ILLUMINATION

- G4.65 [Illumination levels](#)
- G4.66 [Means of illumination](#) [Retired]
- G4.67 [Brightness, reflectance and glare](#)
- G4.68 [Illumination measurement](#)
- G4.69 [Emergency lighting](#)

INDOOR AIR QUALITY

- G4.72 [Design and operation](#)
- G4.79 [Moulds and indoor air quality](#)

ENVIRONMENTAL TOBACCO SMOKE AND E-CIGARETTE VAPOUR

- G4.81/4.82 [Controlling exposure to environmental tobacco smoke \(ETS\) and e-cigarette vapour](#)
- G4.81(b) [Safe outdoor location](#)

G4.82(1) [Entry into indoor areas where smoking and e-cigarette use is permitted](#)

OCCUPATIONAL ENVIRONMENT REQUIREMENTS

G4.84(1) [Eating areas - Unwholesome food](#)

G4.84(2) [Eating areas - Storage and consumption](#)

G4.85(1)-1 [Washroom facilities - Sufficient facilities](#)

G4.85(1)-2 [Washroom facilities - Readily available](#)

G4.85(2) [Washroom facilities where no plumbing is available](#)

G4.85(3) [Maintenance of washroom facilities](#)

G4.86 [Change areas](#)

G4.87 [Unsafe water](#)

Guidelines - Part 4 - Buildings, Structures, Equipment and Site Conditions

G4.1.1 Snow avalanche assessment

Issued September 1, 2009; Revised February 1, 2011; Revised September 1, 2011; Editorial Revision January 1, 2014; Revised consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 4.1.1 of the *OHS Regulation* ("Regulation") states:

(1) In this section and section 4.1.2:

"*avalanche*" means snow avalanche;

"*avalanche risk assessment*" means the assessment referred to in subsection (2)(a);

"*avalanche safety plan*" means the plan referred to in subsection (2)(b);

"*avalanche safety program*" means the program referred to in subsection (6).

(2) Subject to section 4.1.2, if a person working at a workplace may be exposed to a risk associated with an avalanche, the employer must ensure that no work is carried out at the workplace until

(a) a written avalanche risk assessment is completed, and

(b) if the avalanche risk assessment indicates that a person working at the workplace will be exposed to a risk associated with an avalanche, a written avalanche safety plan is developed and implemented.

(3) The avalanche risk assessment must be conducted by a qualified person.

(4) In conducting the avalanche risk assessment, the qualified person must consider all of the hazards and risks associated with an avalanche, including, without limitation, the following:

(a) the topography and vegetation in the area of the workplace;

(b) the snow conditions in the area of the workplace;

(c) the history of avalanches in the area of the workplace;

(d) the nature and duration of work activities to be carried out at the workplace;

(e) the extent, if any, to which the nature and duration of work activities to be carried out at the workplace may affect the topography, vegetation or snow conditions in the area of the workplace;

(f) the nature of the workplace and the buildings and structures at the workplace.

(5) The avalanche safety plan must be developed by a qualified person and, subject to subsection (6), must include measures to eliminate the risks associated with an avalanche.

(6) If eliminating the risks associated with an avalanche is not practicable, the avalanche safety plan must include measures and procedures to minimize those risks, including an avalanche safety program that provides for

(a) the regular monitoring of weather, snow and avalanche conditions in the area of the workplace, at intervals the qualified person considers will be effective,

(b) the implementation of closures or other measures, as specified in the avalanche safety program, and

(c) safe work procedures to be followed by persons working at the workplace.

(7) The employer must make a copy of the avalanche safety program readily available to each person who administers or implements the avalanche safety program for the workplace.

(8) Whenever there is a significant change in the hazards or risks associated with an avalanche in the area of the workplace, the employer must do the following, unless the change is already addressed by the avalanche safety plan:

(a) ensure that a qualified person reviews the avalanche risk assessment and the avalanche safety plan;

(b) make changes to the avalanche risk assessment and the avalanche safety plan, as considered necessary by the qualified person, to reflect the current hazards and risks associated with an avalanche in the area of the workplace.

(9) If the avalanche safety plan includes procedures applicable to a person's work at the workplace,

(a) the employer must provide information and training to the person respecting the procedures, and

(b) the person must comply with the procedures.

Section 4.1.2

(1) Section 4.1.1 does not apply to work carried out to evaluate whether a person working at the workplace may be exposed to a risk associated with an avalanche.

(2) Section 4.1.1 does not apply if compliance with that section is not practicable when carrying out the following types of work at a workplace where a person may be exposed to a risk associated with an avalanche:

(a) work that

(i) is carried out intermittently,

(ii) involves moving through the workplace without stopping for a significant length of time in a particular area of the workplace, and

(iii) has minimal potential to trigger an avalanche;

(b) work related to an emergency;

(c) work carried out to complete an avalanche risk assessment;

(d) work carried out to develop an avalanche safety plan.

(3) Before a person carries out work to which subsection (2) applies, the employer must ensure that

(a) written safe work procedures are in place to minimize the risks associated with an avalanche, and

(b) the person

(i) understands the risks associated with an avalanche, and

(ii) is trained in the procedures referred to in paragraph (a) of this subsection.

(4) The safe work procedures required under subsection (3) must be developed by a qualified person and must set out the following:

(a) the qualifications and training a person must have in order to be eligible to carry out work to which subsection (2) applies;

(b) the procedures the person referred to in paragraph (a) of this subsection must follow to identify and address risks associated with an avalanche;

(c) the requirements the person referred to in paragraph (a) of this subsection must comply with when using equipment.

(5) A person carrying out work to which subsection (2) applies must comply with the safe work procedures required under subsection (3).

Purpose of guideline

The purpose of this guideline is to explain the difference between the avalanche risk assessment and the ongoing monitoring of weather, snow, and avalanche conditions, and to clarify when the exceptions under section 4.1.2 apply.

Background

Amendments to section 4.1.1 came into effect on February 1, 2015. The requirements set out in section 4.1.1 apply to any workplace where there is or may be a risk from a snow avalanche to a person working there. Some examples of the industries to which this section applies include: ski hills, forest operations, land surveying, pipelines situated entirely within the province, eco-tourism (e.g., snowmobile and mountain guiding), power

generation and transmission, property development, and lodging.

Avalanche risk assessment

Section 4.1.1(2) of the *Regulation* requires an avalanche risk assessment to be conducted before work commences in a workplace where there may be a risk from a snow avalanche to a person working there. The avalanche risk assessment must be conducted by a qualified person. Section 4.1.1(4) outlines hazards and risks that must be considered when conducting the assessment. This is not an exhaustive list – all other risks and hazards relating to a snow avalanche will need to be considered as part of the assessment.

The purpose of the avalanche risk assessment is to determine the potential for snow avalanches to affect the workplace, and to generate options for risk mitigation. This is an investigative assessment, which includes consideration of factors such as terrain, snow conditions, and history of avalanche events.

This initial, one-time risk assessment is distinct from the ongoing monitoring of weather, snow, and avalanche conditions that is required under section 4.1.1(6) to evaluate the current level of risk and guide operational decisions. In other words, an avalanche risk assessment is completed once during the planning stage of the operation (and reviewed as required by section 4.1.1(8)), whereas the regular monitoring of conditions takes place at intervals established by the qualified person.

The initial avalanche risk assessment that must be conducted under section 4.1.1(2) and the subsequent, ongoing monitoring of conditions under section 4.1.1(6) each requires a unique set of skills and qualifications. While the same person may possess all of those skills and qualifications, often times there will be a need for two separate individuals: one to conduct the initial avalanche risk assessment, and another to carry out the regular monitoring that will guide operational decisions.

Avalanche risk assessment and safety plan exceptions

Sections 4.1.2(1) and (2) provide exceptions to the requirements of section 4.1.1.

Exception 1

Section 4.1.2(1) applies to work carried out to evaluate whether a person working at the workplace may be exposed to a risk associated with an avalanche. In this situation, there is no need to conduct an avalanche risk assessment or develop an avalanche safety plan until after a determination has been made.

Exception 2

The purpose of section 4.1.2(2) is to account for situations where it is not practicable to formalize a written risk assessment prior to the worker entering the workplace due to the nature of the work being performed.

In cases where section 4.1.2(2) applies, the *Regulation* still requires safeguards against the risks associated with a snow avalanche. The requirements outlined in sections 4.1.2(3), (4), and (5) include safe work procedures developed by a qualified person, compliance with those procedures, and worker training.

"Practicable" is defined in section 1.1 of the *Regulation* as "that which is reasonably capable of being done." Determining whether or not it is practicable to comply with section 4.1.1 requires an objective test based on what a reasonable person with full knowledge of the situation would determine in the circumstances. That person will need to have adequate training, education, and experience in order to be knowledgeable of the work and the hazards.

For this exception to apply, in addition to compliance not being practicable, the work must fall within one of the categories described in section 4.1.2(2) as follows:

- The work is carried out intermittently, involves moving through the workplace without stopping for a significant length of time in a particular area of the workplace, and has minimal potential to trigger an avalanche
- The work is related to an emergency
- The work is carried out to complete an avalanche risk assessment or avalanche safety plan

It will generally not be considered practicable to comply with the requirements of section 4.1.1 where the work involves transitory, short-duration, low-impact activities within a large backcountry terrain base. Conducting a detailed historical risk assessment will not be reasonably achievable in those circumstances. In contrast, if the work operations are fixed, even within expansive terrain, it will be considered practicable to comply with section 4.1.1. Similarly, section 4.1.1 will apply when operating on regular work access or touring routes.

Intermittently

In order for the exception under section 4.1.2(2)(a) to apply, all of the following four conditions must be met:

- The work is carried out intermittently
- The work involves moving through the workplace without stopping for a significant length of time in a particular area of the workplace
- The work has minimal potential to trigger an avalanche
- It is not practicable to comply with section 4.1.1

For the purposes of section 4.1.2(2)(a), work that is carried out "intermittently" refers to activities that are occasional, sporadic, and not performed routinely. Work that is repetitive, within the same area, and capable of being scheduled and planned (for example, the grooming of regular trails or routes) will not qualify for this exception, regardless of frequency.

Emergency

For the purposes of section 4.1.2(2)(b), emergency work is limited to activities carried out to rescue workers or other persons (and equivalent situations) in an area for which it was not practicable to conduct a formal avalanche risk assessment or develop an avalanche safety plan.

The "emergency work" exception does not apply to work undertaken to repair or replace damaged infrastructure. Given that this work involves fixed facilities, it will be practicable to conduct an avalanche risk assessment and develop an avalanche safety plan in advance.

G4.3(2) Welding repair of forks and fork extensions on lift trucks

Issued August 1999; Editorial Revision April 2005; Revised April 30, 2015; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 4.3(2) of the *OHS Regulation* ("Regulation") states:

Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out

- (a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or
- (b) as specified by a professional engineer.

Purpose of guideline

This guideline describes the engineering requirements for welding repair on forklift forks and fork extensions on lift trucks.

Welding repair of forks and fork extensions

[Section 16.17 \(Operation and maintenance\)](#) of the *Regulation* sets out various requirements related to maintenance records, servicing, and use of mobile equipment. Section 4.3(2) of the *Regulation* requires, among other things, that the repair of mobile equipment be done in accordance with manufacturer's instructions and requirements of applicable standards, or in the absence of such instructions, as specified by a professional engineer.

The use of forks and fork extensions repaired by welding is acceptable when a professional engineer has certified the completed weld repair as adequate. If the engineer's certification requires the load capacity for the lift truck to be reduced, the load rating markings and the machine manuals should be changed to reflect the reduced load capacity. *Regulation* sections [4.8](#), [16.31\(1\)-\(3\)](#), and [26.12.1\(3\)](#) apply. (Refer also to OHS Guideline [G16.30](#)).

Forks and fork extensions on lift trucks should not be used after weld repair until the engineering certification is available. If the required certification for the weld repair is not available, the lift truck should be removed from service until the repair work is properly certified and the manuals adjusted as necessary, or until the fork or fork extension is replaced by a compatible one warranted by the manufacturer or a professional engineer. In the latter case, the installation of the forks or fork extensions is covered by [section 16.30](#) of the *Regulation*, which requires installation as specified by the equipment manufacturer or when certified by a professional engineer for use on the equipment.

G4.8 Rated capacity of truck-mounted cranes

Issued May 6, 2009; Editorial Revision April 6, 2020

Regulatory excerpt

Section 4.8 of the *OHS Regulation* ("Regulation") states:

- (1) Unless provided elsewhere in this Regulation, the rated capacity or rated load of a machine or piece of equipment is that specified by the manufacturer of the machine or piece of equipment based on its design.
- (2) The rated capacity or rated load must be certified by a professional engineer if
 - (a) the manufacturer's specification or other acceptable warranty cannot be produced,
 - (b) the equipment or machine has been modified in a manner which will change its rated capacity or rated load,
 - (c) wear, corrosion, damage or signs of fatigue are found which may reduce the rated capacity or rated load,
 - (d) the equipment or machine is used in a manner or for a purpose other than that for which it was originally designed, if the use will change the safe working load, or
 - (e) in the opinion of the Board, the provision of such certification is deemed necessary.

Purpose of guideline

This guideline provides guidance for users and suppliers of truck-mounted cranes, specifically for the requirement and the responsibilities to provide and ensure stability testing and provision of load charts.

Types of truck-mounted cranes and testing requirements

Cranes mounted on carriers are either designed and supplied by a crane manufacturer as a unit (*integral unit*), or the crane is mounted on a carrier provided by an end user (*combination unit*). The requirements for stability testing and provision of load charts include the following:

A. Integral Unit

When the manufacturer designs and supplies an integral unit, all components (the frame, axles, tires, and crane) complement each other and the manufacturer provides load chart(s) appropriate for the completed product. The load chart will have been determined by the crane manufacturer based on the stability of the integral unit and on the factors other than stability that may limit the capacity (e.g., frame strength). These units typically have a telescopic or a lattice boom.

The manufacturer will perform a practical stability test as described by the *Crane Load Stability Test Code - SAE J765 (SAE J765)*, published in the SAE Handbook, to ensure the crane will remain stable when used in accordance with the supplied load chart. These are normally *type* tests; that is, only one of a number of identical units is tested.

For an *integral unit* with a suitable manufacturer-supplied load chart, it is not necessary for a new or updated load chart to be produced, or for stability testing to be re-done, until and unless one of the conditions in *Regulation* subsections 4.8(2)(a) - (e) occurs.

B. Combination Unit

When an end user supplies the carrier and a crane is mounted to it, different manufacturers have produced equipment independently of each other without specific knowledge of each other's design characteristics (structural, hydraulic, and/or mechanical).

The crane manufacturer cannot provide a load chart(s) that considers the stability of the combined crane and carrier or the ability of the carrier to support the crane. The load chart provided by the crane manufacturer is the maximum that could be expected from that equipment but it may have to be reduced if the carrier to which it is mounted is incapable of supporting the crane loaded to the crane manufacturer's indicated capacity.

These *combination units*, where the crane and carrier units have been discretely designed and manufactured, could be articulating boom (knuckleboom) trucks or telescopic boom trucks. They can only be tested for stability after the crane has been mounted to the carrier. The tests performed must be *unit* tests; that is, each boom and carrier set is tested for stability. The load chart for the combined crane and carrier needs to show the capacity that is the lower of that determined from the stability testing and the capacity that was provided by the boom manufacturer.

The load chart needs to show the capacity relative to the portion of the swing circle to which it applies in a work area diagram. For example, the load chart may be applicable for 360° of swing or there may be a reduction in some portions of the swing circle compared to others. In some cases, there may be zero capacity in some portions of the swing circle.

ASME B30.22 Articulating Boom Cranes requires that a *unit* test, not a *type* test, is performed. The same rationale that is the basis for this *ASME B30.22* requirement applies for telescopic boom trucks. That is, for both articulating boom and telescopic boom truck cranes, and pursuant to *Regulation* subsection 4.8(2)(e), WorkSafeBC deems it necessary for each *combination unit* to undergo the testing described in *SAE J765*.

The ability of the carrier frame and attachment to safely support the loads shown in the load chart(s) is also to be verified by a professional engineer for each *combination unit*. This verification of structural competence for the hoist capacity is required in addition to the stability test.

Applicable Regulation sections and standards

The regulatory requirements for stability testing and load charts are found in the following *Regulation* sections:

Regulation subsection 4.8(2)(a) requires that the rated capacity or rated load be certified by a professional engineer whenever the manufacturer's specification or other acceptable warranty cannot be produced. This will be the case for each *combination unit* produced.

Regulation [section 14.2](#) references the standards that crane equipment must meet. The North American safety standards for mobile cranes (including boom trucks), *CSA Z150 Code for Mobile Cranes*, *ASME B30.5 Mobile and Locomotive Cranes* and *ASME B30.22 Articulating Boom Cranes* all require stability testing that follows *SAE J765* to determine the ratings that are limited by stability. The standards require a work area chart that defines the portions of the swing circle in relation to reduced areas of capacity or indicates that the rated capacities are independent of the boom location on the swing circle. *SAE J765* describes the test procedure and conditions to ensure all mobile cranes are tested in the same way.

Regulation [subsection 14.5\(3\)](#) requires that the load chart be permanently posted on the crane or be issued to the crane operator who must keep it available at all times when operating the crane. The load chart must indicate the rated capacity for the crane for the working positions and configurations in use and must be in a legible condition. This requirement applies to both *integral* and *combination* units. The load chart has a chart number that relates to the specific truck-crane unit.

Responsibilities

Under the *Workers Compensation Act ("Act")* [section 26 General duties of suppliers](#), every supplier must ensure that any tool, equipment, machine, or device supplied by the supplier is safe when used in accordance with the directions provided by the supplier and complies with the OHS provisions of the *Act* and with the *Regulation*. This means that the supplier has responsibility to ensure provision of a suitable load chart(s) based on stability testing with the completed unit. For the case of an *integral unit*, there will be an identified supplier of the unit. For the case of a *combination unit* assembled and sold by a distributor, this distributor (assembler) is the supplier of the equipment. For the case of a *combination unit* assembled for use by an employer, there exists a supplier for the carrier and a supplier for the crane. In this case, the responsibility to ensure provision of the appropriate load chart(s) for the *combination unit* is with the employer.

With respect to the rated capacity of a truck-mounted crane, the employer needs to ensure that the proper load chart is available as per *Regulation* section 4.8 and subsections 14.2(5), and 14.5(3). The load chart may be manufacturer-supplied for an *integral unit*, and will be as certified by a professional engineer for a *combination unit*. The employer must also ensure that a new load chart is provided by a professional engineer when required by circumstances described in *Regulation* subsections 4.8(2)(a) - (e). Operators of truck-mounted cranes must be adequately trained to use the equipment in accordance with the load chart(s).

A professional engineer who performs stability testing needs to ensure the testing is performed in accordance with applicable standards. Stability testing needs to be performed in accordance with *SAE J765*. The load ratings provided as a result of the testing may not exceed those specified by the crane manufacturer (i.e. the load ratings based on factors other than stability).

With respect to the rated capacity of a truck-mounted crane, the operator of the unit must use the equipment in accordance with training and with instructions provided, and must report unsafe or harmful conditions to the employer (also see [Part 14 requirements](#), e.g., for inspection, maintenance, repair, modification, record keeping).

G4.9 Inspection and maintenance records

Issued September 1999; Revised June 3, 2002; Editorial Revision April 4, 2007; Editorial Revision February 1, 2008; Editorial Revision February 15, 2019; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 4.9 of the *OHS Regulation* ("*Regulation*") states:

- (1) If this Regulation requires a machine or piece of equipment to have an inspection and maintenance record, then an effective written or other permanent recording system or log must be immediately available to the equipment operator and to any other person involved with inspection and maintenance of the equipment.
- (2) The recording system must
 - (a) identify the make, model and serial number of the equipment, and the name and address of the current owner,
 - (b) contain an entry on each shift, signed by the operator of the machine or equipment, reporting the result of each start of shift inspection and safety check, and any observed defect, operating difficulty or need for maintenance occurring on the shift, and
 - (c) contain an entry signed by the person responsible for any test, inspection, modification, repair or maintenance performed on the equipment, summarizing the work done, indicating the status of the equipment or machine for further use, and if appropriate, noting where a detailed record of the test, inspection, modification, repair or maintenance can be obtained.
- (3) If this Regulation requires a machine or piece of equipment to have inspection and maintenance records, then detailed reports of inspection, maintenance, repairs and modifications must be kept for the duration of the service life of the machine or equipment and must be reasonably available to the workplace and made available, upon request, to the operator and to anyone else involved in the operation, inspection, testing or maintenance of the equipment.

Purpose of guideline

The purpose of this guideline is to

- Clarify the application of section 4.9 of the *Regulation*
- Interpret "immediately available" under section 4.9(1)
- Interpret the term "signed" under section 4.9(2) where a computer-based record system is being used
- Describe the intent of section 4.9(3) and its use of "reasonably available"

Application of section 4.9

Section 4.9 applies if another section of the *Regulation* requires a machine or piece of equipment to have an inspection and maintenance record. The following are examples of sections of the *Regulation* that require a specified machine or piece of equipment to have an inspection and maintenance record. Therefore, the machines and pieces of equipment in the table are examples of those for which inspection and maintenance records must be maintained to the criteria set out in section 4.9.

Section 4.83(6)	- an exhaust ventilation system or an air cleaning system in a designated smoking room
Section 12.77	- automotive lift
Section 13.22	- swing stage - permanent powered platform - elevating work platform

Section 14.14	- a crane or hoist with a rated capacity of 900 kg (2000 lb) or more - a crane or hoist used to support a worker - a tower crane - a mobile crane, boom truck, or sign truck - a side boom tractor or pipe layer - a construction material hoist - a chimney hoist - any other type of hoist specified by WorkSafeBC
Section 16.17	- a rough terrain forklift
Section 20.29	- a concrete placing boom or mast

"Immediately available"

Section 4.9(1) also states that the record must be "immediately available to the equipment operator and to any other person involved with inspection and maintenance of the equipment." This means that the operator, and maintenance and inspection personnel, must be able to make entries, review entries and display the records to someone (such as a supervisor, joint health and safety committee representative, or WorkSafeBC prevention officer) without leaving the workplace.

If a "log book" is used, the book must be on the site, but not necessarily in the possession of the operator or in the cab of the equipment. The book must be readily available at the workplace for entries to be made and for inspection. It should be kept where it is secure and protected from the weather. If an electronic or computerized system is used, the operator and others required to make entries must be able to readily do so from a terminal at the worksite. The operator must also be able to display the records at the workplace for inspection by a supervisor, prevention officer, member of the joint health and safety committee, or other authorized person making a health- or safety-related inspection.

"Signed"

Section 4.9(2) requires that each entry in the record be "signed." If a computer-based record system is being used, each entry must include a unique identifier that is password protected, so the person responsible for making an entry can be traced, and so a person cannot make or remove an entry made by someone else.

"Reasonably available"

Section 4.9(3) states "detailed reports of inspection, maintenance, repairs and modifications must be ... reasonably available to the workplace." The intent of section 4.9(3) is to allow the detailed originals of reports and certifications to be stored away from the workplace, as long as the material is available and can be produced, and is referenced in the log book available at the workplace. The detailed reports must be maintained so the records, or a requested part of them, can be produced for inspection at the worksite on request of an authorized person or prevention officer. This could be done, for example, by fax delivery to the site.

If there is a question on the status of equipment to perform safely because of missing or incomplete records, a prevention officer may stop use of the equipment until the appropriate records are produced to indicate compliance with the *Regulation*. For example, if there is a missing or inadequate record, for a required annual certification or for a repair to a critical area of the equipment, and the prevention officer considers there is an immediate danger to workers if the equipment continues to be used, a closure order may be issued.

G4.11 Putting equipment, machinery, and work processes into operation

Issued June 18, 2008; Editorial Revision April 6, 2020

Regulatory excerpt

Section 4.11 of the *OHS Regulation* ("Regulation") states:

Before any equipment, machinery or work process is put into operation the persons responsible for doing so must ensure that

- (a) safeguards and air contaminant controls required by this Regulation are in place and functioning, and
- (b) no person will be exposed to undue risk by putting the equipment, machinery or work process into operation.

Purpose of guideline

This guideline

- Clarifies the circumstances in which section 4.11 applies
- Outlines some other provisions that also apply to putting equipment into operation
- Clarifies some of the terms that are covered in section 4.11
- Discusses the means of compliance with section 4.11 and related provisions
- Outlines some requirements that apply to start of shift checks

Circumstances in which section 4.11 applies

This requirement applies basically to the startup of newly commissioned equipment, machinery, or processes, and in cases where they are returned to service, for example, after being dormant for a period of time, after repairs, or if they have been modified from the original design specifications.

Start of shift requirements are typically covered by other sections of the *Regulation*.

The obligations under section 4.11 of the *Regulation* are limited to ensuring required safeguards and air contaminant controls are in place, and no person is put at undue risk. The responsibility for compliance under section 4.11 applies to the employer and workers at the site who may be assigned responsibilities, such as operators or mechanics; and to other persons such as supplier representatives, consultants, and commissioning engineers, where applicable.

The requirement applies to fixed devices in workplaces, such as conveyers, presses, and auto-lifts, but also includes powered portable and mobile equipment. It does not apply to hand tools such as hammers, handsaws, and the like.

Other requirements that apply to putting equipment into operation

Section 4.11 should be viewed in the context of other requirements of the *Regulation* that apply to putting equipment into operation. For example, [section 4.3 \(Safe machinery and equipment\)](#), is a broader requirement that covers issues ranging from selection, through to operation, inspection, repair, and maintenance. In addition some requirements, particularly in Parts 12 to 16 of the *Regulation*, specify adherence to certain standards for particular kinds of equipment. Some of those standards contain provisions related to putting equipment into operation. (The *Regulation* specifies standards only for a limited number of types of equipment. There are standards for other types of equipment that are not referenced in the *Regulation* and hence are not mandatory. The employer may, however, find such standards to be useful sources of information.)

Section 4.11 should also be viewed in the context of [section 26](#) of the *Workers Compensation Act* ("Act"), which contains important obligations for suppliers of equipment to the workplace.

Clarification of terms

Section 4.11 refers to terms such as

- "Safeguards," which, under [section 12.1](#) of the *Regulation*, means the use of a guard, a safety device, a shield, an awareness barrier, warning signs, or other appropriate means, either singly or in combination, to provide effective protection to workers from hazards.
- "Air contaminant controls," which typically refers to effective ventilation to control harmful contaminants (e.g., refer to [section 5.64](#) of the *Regulation*), but may also include other means such as spray water mists, barriers to air contaminant movement from the source, and temperature controls.

Ensuring compliance with section 4.11 and other related provisions

The means of complying with the requirements of section 4.11 and other provisions applicable to putting equipment into operation will vary somewhat depending on whether the equipment, machinery, or process is new, or is being returned to service.

New equipment, machinery, or processes: The term "new" as used in this guideline applies to any equipment, machinery, or process that is being used in the workplace for the first time, regardless of whether it has been previously used. When originally being commissioned in a workplace there are a number of considerations in ensuring safety including

- A review of the requirements of the *Regulation* for safeguards and air contaminant controls to ensure they are met
- Assurance that work procedures are in place for the protection of workers
- Assurance that no worker could be at undue risk when the equipment is put into operation. This will include, as applicable, ensuring steps have been taken to ensure no failure of the equipment will occur or other failure, such as the support structure for it.
- Conformity with any manual or other instructions provided by the supplier of the device, as required under section 4.3 of the *Regulation*

It should be noted that suppliers, as well as employers, have obligations to ensure worker safety. A supplier, as defined by the *Act*, is a person who manufactures, supplies, sells, leases, distributes, erects, or installs any tool, equipment, machine, or device (or any biological, chemical, or physical agent) to be used by a worker.

Under section 26 of the *Act*, a supplier must, among other things

- Ensure that any equipment, machine or device supplied by the supplier is safe when used in accordance with the directions provided by the supplier and complies with the OHS provisions of the *Act* and the *Regulation*
- Provide directions for the safe use of any equipment, machine or device that is obtained from the supplier to be used at a workplace by workers
- If the supplier has responsibility under a leasing agreement to maintain any tool, equipment, machine, device or other thing, they must maintain it in safe condition and in compliance with the OHS provisions of the *Act*, the *Regulation*, and any applicable orders.

Section 26 of the *Act* is clear on the issue of directions for safe use. Such directions must be provided in each case where a piece of equipment, machine, or device is supplied to the workplace for use by a worker.

Equipment, machinery, or process being returned to the workplace: In this scenario, the device would have been used previously in the workplace, and is being returned to service at the workplace after a time interval. Typical examples include equipment, machinery, or processes that have been dormant for a period of time, have undergone repairs or modification, or have been shutdown for maintenance where procedures may involve lockout, and temporary removal of safeguards or air contaminant controls. Because steps should have been taken to ensure compliance with section 4.11 and related requirements at the original commissioning stage, ensuring compliance may be more straightforward in this case.

However, the employer should ensure that all considerations used for new devices are checked off when the devices are returned to service, and

that any additional considerations are addressed, where required, related to repairs or modifications.

Start of shift inspections

Typically, other provisions of the *Regulation* apply to start of shift inspections. General provisions include sections [3.5 \(Workplace inspections - general requirement\)](#), and [4.3 \(Safe machinery and equipment\)](#).

Under section 3.5, to prevent development of unsafe conditions in some cases, inspections may need to be made at the beginning of each shift. Under section 4.3, manufacturer instructions or safe work practices may mandate start of shift checks.

Start of shift requirements for specific types of equipment can be found in other Parts of the *Regulation*, for example

- [Part 11](#) - various types of fall protection equipment
- [Part 12](#) - some specific types of equipment and processes, such as abrasive blasting or high pressure washing
- [Part 13](#) - ladders, window cleaners' belts and work platforms
- [Part 14](#) - cranes and hoists
- [Part 16](#) - all types of mobile equipment
- [Part 17](#) - worker transport vehicles

This list is not comprehensive, but is intended to provide an indication of the breadth of start of shift requirements in the overall *Regulation*.

Guidelines - Part 4 - Emergency Preparedness and Response

G4.13(1) Emergency preparedness and response - Risk assessment

Issued September 1999; Editorial Revision December 2, 2011; Revised November 2, 2016

Regulatory excerpt

Section 4.13 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must conduct a risk assessment in any workplace in which a need to rescue or evacuate workers may arise.
- (2) If the risk assessment required by subsection (1) shows a need for evacuation or rescue, appropriate written procedures must be developed and implemented, and a worker assigned to coordinate their implementation.
- (3) Written rescue and evacuation procedures are required for but not limited to
 - (a) work at high angles,
 - (b) work in confined spaces or where there is a risk of entrapment,
 - (c) work with hazardous substances,
 - (d) underground work,
 - (e) work on or over water, and
 - (f) workplaces where there are persons who require physical assistance to be moved.

Purpose of guideline

The purpose of this guideline is to provide information regarding some situations that require written rescue and evacuation procedures.

Work at high angles

Section 4.13(3)(a) states that written rescue and evacuation procedures are required for work at high angles. Work at "high angles" means a worker is in a position that cannot be reached by a standard stairway or elevator, and thus an injured worker on a stretcher could not be brought to a location accessible by an ambulance crew without use of specialized rescue equipment and techniques. Some examples are rock scaling while suspended on a rappel system, work being done using a swing stage, work on the jib or upper portions of a tower crane and work in an excavation.

Work with hazardous substances

An office or small retail operation with minimal storage of chemicals (just normal quantities of regular office supplies such as toner and "white out") will not normally need procedures beyond a basic fire evacuation plan for the premises. If part of the operation involves processing or warehousing chemicals, a more elaborate plan may be needed, including in-house capability to shut down processes and assist injured workers.

Where persons require physical assistance to be moved

The risk assessment may indicate that there are persons at the workplace who will need to be assisted by workers to move during an evacuation. The reason for requiring physical assistance will typically be because of a physical impairment affecting a person's ability to safely evacuate on his or her own (e.g., persons with disabilities which require them to use wheelchairs or other means of assistance to move about, or persons who are unable to walk in the event of a medical emergency such as a cardiovascular incident, seizure, asthma attack, or severe allergic reaction). In such cases, written rescue and evacuation procedures must be developed (refer to section 4.13(3)(f)). The procedures also need to be practiced (refer

to section 4.14(3)) so workers know their responsibilities and the procedures and equipment to be used.

Work with hazardous stored energy

A risk assessment is required under section 4.13(1) for workplaces in which a need to rescue or evacuate workers may arise. This includes workplaces where hazardous stored energy is present. Some examples of facilities where work with hazardous stored energy is carried out include, but are not limited to: electrical substations, transmission towers, hydroelectric dams, and water towers. In these types of workplaces, the risk assessment will typically show a need for evacuation or rescue and, as a result, appropriate written procedures.

The extent and complexity of the rescue and evacuation procedures will depend on a number of circumstances, which include the following:

- The nature and level of risk associated with the potential for a release of hazardous energy
- Issues hindering the evacuation of workers from the facility
- Whether the facility is in a remote location

Evacuation by air

Where a risk assessment made under section 4.13 concludes that removal by air is the most practicable method of evacuating injured workers, the employer's written procedures must conform to Transport Canada as well as WorkSafeBC requirements. Refer to [Part 29](#) of the *Regulation*.

G4.13(3)(a) Industrial high angle rope rescue program

Issued September 1999; Editorial Revision August 2004; Editorial Revision March 31, 2010; Revised April 13, 2011; Editorial Revision December 15, 2017; Revised February 15, 2019

Regulatory excerpt

Section 4.13 of the *OHS Regulation* ("Regulation") states in part:

- (1) The employer must conduct a risk assessment in any workplace in which a need to rescue or evacuate workers may arise.
- (2) If the risk assessment required by subsection (1) shows a need for evacuation or rescue, appropriate written procedures must be developed and implemented, and a worker assigned to coordinate their implementation.
- (3) Written rescue and evacuation procedures are required for but not limited to
 - (a) work at high angles,
 - ...

Purpose of guideline

This guideline describes the specialized rescue service for high angle rope rescue and lists municipal fire/rescue departments that have developed high angle rope rescue capability using techniques and equipment acceptable to WorkSafeBC. It also provides guidance on other acceptable means of rescue and arranging rescue service for short-term and long-term work at high angles.

Introduction

Rescue of a worker at a high elevation can be effectively done in a variety of ways, depending on the circumstances at the workplace. For example, on a construction site, the personnel hoist may be used, or a "dedicated emergency platform" (DEP) hoisted by a tower or mobile crane may be used to remove an injured worker. Some work activities, for example window washing, swing stage work, and tower crane operation result in a need for high angle rescue capability to rescue or remove a stranded or injured worker. An employer may develop its own high angle rescue capability, and this requires specialized equipment, training, and practice.

As an alternative, for a workplace located in an area serviced by a local fire/rescue department, and where the department has high angle rope rescue capabilities, the employer may be able to arrange for the department to provide rescue services for the employer's operation.

Municipal fire/rescue departments with high angle rope rescue capability

The following municipal fire/rescue departments have developed high angle rope rescue capability using techniques and equipment acceptable to WorkSafeBC for workplace rescue. (The initiative to develop this capability was in part sponsored by WorkSafeBC under the *Technical High Angle Rope Rescue Program*.)

City of Abbotsford	City of Langley	City of Prince George
City of Burnaby	City of Nanaimo	City of Prince Rupert
City of Campbell River	City of Nelson	City of Quesnel
City of Coquitlam	City of New Westminster	City of Richmond
City of Delta	City of North Vancouver	City of Saanich
City of Fort St. John	District of North Vancouver	City of Surrey

City of Kamloops	City of Penticton	City of Terrace
City of Kelowna	City of Port Alberni	City of Vancouver
City of Kitimat	City of Port Coquitlam	City of Victoria
Regional District of Kootenay Boundary	City of Port Moody	City of West Kelowna
City of Langford	District of Powell River	City of West Vancouver
		Municipality of Whistler

Notice of rescue service for short-term work

If an employer wants to use the local municipal fire/rescue department as a high angle rope rescue service provider, the employer must notify the department in advance, and ensure the department is capable and prepared to provide the required services. If the employer's activity is a short-term/transient activity such as window cleaning or other work using suspended staging, or tower crane erection, the employer may use the following form, "Notice of Rescue Service for Short-term Work," to document notification of the fire/rescue department. The employer should keep a copy of the completed form as part of fall protection records.

Application for industrial rescue service

For workplaces with a longer term need for rescue capability to be available, particularly where site conditions are regularly changing such as at a high-rise construction project, a more formal written agreement needs to be established between the employer and the fire department.

A sample of such a formal agreement is included at the end of this guideline. A copy of the written agreement must be available at the workplace as an attachment to the fall protection plan required by [section 11.3](#) of the *Regulation*. The fire/rescue department may

- Visit the workplace to determine site suitability for rescue purposes
- Request additional and reasonable provisions to assist rescue capabilities
- Refuse to enter into an agreement to provide rescue services if all reasonable requirements are not fulfilled

Notice of Rescue Service for Short-term Work

British Columbia's Occupational Health & Safety Regulation section 4.13(1) requires employers to conduct a risk assessment in any workplace in which a need to rescue or evacuate workers may arise. This includes work at high angles. For the erection of a tower crane or other short-term work such as window washing or swing stage work, if the risk assessment shows a need for evacuation or rescue, then appropriate written procedures must be developed and implemented and a worker assigned to coordinate their implementation.

The intent of this notification form is to assist employers in meeting this step before conducting short-term work and will form part of the development of written procedures once it is **completed** and the appropriate rescue service is notified. All fields below should be completed.

DATE FORM COMPLETED: _____ COMPLETED BY: _____

FROM: _____
(Company Name)

This confirms that the rescue service of _____ has been advised that a need to rescue or evacuate workers may arise. This includes work at high angles. For example, the erection of a tower crane or other short-term type work such as window washing or swing stage work. Short-term work that **could** require a high angle rope rescue team response in the event of an accident will be conducted as follows (please print):

Describe work to be conducted:

Dates of the short-term work - Start _____ End _____

Worksite address: _____

Access the site from: _____

Rescue Service Contact: _____ Position: _____

Phone: _____ Date spoken with: _____

Site contact: _____ Position: _____

Phone: Day _____ Cell/Pager: _____

Number of workers: _____

Notes:

- A site inspection (assessment) by the fire/rescue department **is not required** prior to the short-term work. However, the above information needs to be confirmed with the fire/rescue department.
- There **is no requirement** to send this document to the fire/rescue department.
- Retain this completed form for your records.

**TECHNICAL HIGH ANGLE ROPE RESCUE PROGRAM
Fire Service Application for Technical High Angle Rope Rescue Service**

We, the undersigned, being authorized representatives of the business named herein (hereinafter referred to as the "Company"), and contributors to the funding of the Fire Service Rope Rescue Program (hereinafter referred to as the "Service"), hereby request said Service for the duration of the Company's construction project indicated below. The Company acknowledges and understands that eligibility for, and access to the Service shall remain contingent upon the Company's continuing compliance with the prerequisite Terms and Conditions of Service defined in this document. The Company further acknowledges that from time to time, authorized representatives of the Service reserve the right to verify the Company is in compliance with the Terms and Conditions of Service and agree to cooperate with the representatives during such verifications. The Company fully understands that failure to comply with the Terms and Conditions of Service may result in termination of Service, which may result in the Company being in contravention of Workers' Compensation Board's Occupational Health and Safety Regulation. **"Tower Crane Technical High Angle Rope Rescue Service or Service is understood to mean: Command and execution of a rope rescue by a Fire Department and does not imply any guarantee of the success of a rescue."**

TERMS AND CONDITIONS OF SERVICE

1. The Company shall ensure that the information contained herein is communicated to all persons employed by the Company who are, or may become responsible for, the establishment and maintenance of the Terms and Conditions below.
2. The Company shall ensure that a facility at, or on, the project named herein, has been designated as the Fire Service Technical Rescue Command Post, and has been appropriately identified and equipped with signage acceptable to the representatives of the Service.
3. The Company shall designate one (1) liaison person from the head office, to whom the Service shall have reasonable access to a twenty-four (24) hour basis, and two (2) liaison persons at the project site to whom the Service shall have immediate access to during normal business hours and on-call access on a twenty-four (24) hour basis. Portable communication devices to be utilized shall be acceptable to the representatives of the Service.
4. The Company shall provide to representatives of the Service, a plot plan of the project complete with the street address, on which shall be identified the Service's staging area, access routes to the site, temporary structures and utilities, locations and particulars of where a rescue may need to be performed.
5. The Company shall ensure the access point and staging areas are maintained in such a fashion as to accommodate the requirements of the vehicles, materials and equipment of the Service. The Company shall immediately notify the Service of any deviation from this requirement that may affect the response time of the Service.
6. If, upon a site survey, a Fire Department identifies a need for special or extra equipment out of the ordinary, a *Department representative should contact the BCCSA THARR Program Representative* at 1.877.860.3675 or tharp@bccsa.ca.

Fire Service Application For Tower Crane Technical High Angle Rope Rescue Service
APPLICATION PARTICULARS

Company Name: _____

Company Address: _____

Company Liaison: Name: _____ Position: _____

Phone (day) : _____ Phone (evening) : _____

Pager/Cell: _____

Project Name: _____

Project Address: _____

Project Liaison: Name: _____ Position: _____
(Primary)
Phone (day): _____ Phone (evening): _____ Pager/Cell: _____

Project Liaison: Name: _____ Position: _____
(Secondary)
Phone (day): _____ Phone (evening): _____ Pager/Cell: _____

Anticipated service requirement end date: _____

Type of Request (please check):

first site survey multiple cranes

Crane Manufacturer/Crane Specific ID: _____

second site survey due to relocation or addition of a crane on the site

Crane Manufacturer/Crane Specific ID: _____

or annual site survey on long-term project

Crane Manufacturer/Crane Specific ID: _____

Other

Please explain: _____

The crane(s) will be available on the following date(s) for fire department training: _____

*Please note: this form must be completed in its entirety.

We, the undersigned, being authorized representatives of the Company and the Fire Service, agree to the Terms and Conditions of Service and additional requirements stated herein. A copy of this application and The Terms of Conditions have been received by The Company. The Company shall be eligible for Service as of this date.

FOR THE COMPANY:

Representative Name and Title Signature
(Please Print)

FOR THE SERVICE:

Representative Name and Title Signature
(Please Print)

DATED this ____ day of _____, 20 ____.

If a workplace is located outside the service area of a municipal fire/rescue department providing high angle rope rescue service, the employer has to provide for any necessary high angle rescue requirements by other acceptable means.

Rescues outside service area by other acceptable means

Evacuation or rescue of a worker at high angles is a high-risk operation requiring training and equipment to match the nature of the situation. The required competencies of the person or persons involved in conducting the rescue and the required equipment are dependent on the circumstances identified in the risk assessment and need to be part of the site-specific rescue plan.

The site-specific rescue plan must include equipment and procedures specific to the operation. Workers who execute the site-specific rescue plan must have appropriate training which provides them with the competencies necessary to conduct the rescue in a safe manner without endangering either the worker(s) being rescued or the worker(s) performing the rescue.

Equipment

The employer must ensure that workers involved in the rescue plan/procedures are trained and competent in the use and implementation of all high angle rescue equipment and procedures. The equipment must be suitable and compatible for its intended application/use and all equipment must be

maintained and used in accordance with the manufacturer's instructions, the applicable standards, and the requirements of the *Regulation*.

Training

A rescuer's training and experience must be suitable for the type of rescue being performed. Depending on the nature of the potential rescue, appropriate training may consist of one or more of the following:

- Site-specific training
- Rescue courses or programs
- Related training
- Rescue training which conforms to National Fire Protection Association (NFPA) or equivalent standards

Each of the above options is further described below.

Site-specific training

A qualified person may create a training program which is site or job specific. This training program should take into consideration all probable hazards to which the rescuers could be exposed, as well as ways to effectively address these hazards. The scope of training for such programs may be significantly different from program to program. This type of training would not necessarily qualify a person to perform or coordinate rescues at other workplaces.

Rescue Training

Rescuers may have taken a course, courses, or a program from a dedicated rescue training provider. Examples include the following:

- British Columbia's Technical High Angle Rope Rescue Program (THARP)
- Technical rope rescue courses
- Industrial high angle rescue courses

These types of courses and programs vary in complexity and the types of material taught. The demands of a potential rescue should be compared to the training provided to the rescuer. If the rescuers' training does not equip them to safely perform a rescue, then additional training may be required.

Related training

Workers may have extensive training and experience with different types of rope systems. Although this training and experience may not directly qualify a worker to perform high angle rescue, it may contribute to the worker's ability to safely conduct rescue work. Examples include the following:

- Industrial rope access technician
- Cave guiding
- Mountain guiding
- Mine Rescue

The demands of a potential rescue should be compared to the training provided to the rescuer. If the rescuers' training does not equip them to safely perform a rescue, then additional training may be required.

Rescue training following NFPA or equivalent standards

In-house and third party training providers may create high angle rescue training programs based on an assessment performed under NFPA 1670, Standard on Operations and Training for Technical Search and Rescue Incidents (2017), and conforming to the requirements outlined in NFPA 1006, Standard for Technical Rescue Personnel Professional Qualifications. These standards identify three operational levels: awareness level, operations level, and technician level. The level of training should be appropriate to the type and complexity of the rescues to be performed, and should be developed and delivered by a qualified rescue professional. Standards which are equivalent to the NFPA standards can also be considered.

G4.16 Training

Issued September 1999; Editorial Revision March 11, 2021

Regulatory excerpt

Section 4.16 of the OHS Regulation ("*Regulation*") states:

- (1) All workers must be given adequate instruction in the fire prevention and emergency evacuation procedures applicable to their workplace.
- (2) Workers assigned to firefighting duties in their workplace must be given adequate training, by a qualified instructor, in fire suppression methods, fire prevention, emergency procedures, organization and chain of command, firefighting crew safety and communications applicable to their workplace.
- (3) Retraining for firefighting duties must be provided periodically, but not less than once a year.
- (4) A worker not covered by Part 31 (Firefighting), who is assigned to firefighting duties, must be physically capable of performing

the assigned duties safely and effectively before being permitted to do them.

Purpose of guideline

The purpose of this guideline is to provide information regarding the requirements of workers who are assigned firefighting duties in their workplace.

Introduction

Section 4.16 of the *Regulation* covers the training and fitness of workers with regard to their involvement in fire prevention, evacuation, and firefighting duties. It does not apply to a municipal fire department (including a volunteer department) or an industrial fire brigade covered by Part 31 of the *Regulation*.

Adequate training

Section 4.16(2) provides for "adequate training... applicable to their workplace". This provides for flexibility to adapt to the level of risk in the workplace. For example, in an office, workers would be expected to know the area fire and/or evacuation alarm signal and the response to be made when the signal is activated. In an industrial setting with a higher level of risk, for example where workers must use a respirator or other specialized equipment to evacuate, more instruction is required; along with the availability of the necessary equipment. If a worker is expected to be part of the "workplace response" to contain a fire or other emergency, then training and instruction should be more detailed, and clearly define the limits for response due to available equipment and training.

Physical capabilities

Section 4.16(4) requires workers assigned to firefighting to be "physically capable of performing assigned duties safely and effectively before being permitted to do them." A worker may become unfit for such duties temporarily through injury or more permanently through aging or loss of physical condition. The employer must ensure a worker is not permitted to undertake firefighting or emergency response duties if, at the time of the incident, the individual is not physically able to do the assigned duties safely and effectively.

Guidelines - Part 4 - Impairment

G4.19 Physical or mental impairment – Recreational diving instructors

Issued June 26, 2014

Regulatory excerpt

Section 4.19 of the *OHS Regulation* ("*Regulation*") states:

- (1) A worker with a physical or mental impairment which may affect the worker's ability to safely perform assigned work must inform his or her supervisor or employer of the impairment, and must not knowingly do work where the impairment may create an undue risk to the worker or anyone else.
- (2) A worker must not be assigned to activities where a reported or observed impairment may create an undue risk to the worker or anyone else.

Purpose of guideline

This guideline provides guidance for recreational diving instructors and employers regarding fitness for work.

Regulatory requirements

Recreational diving training sessions are not occupational diving operations under the Regulation and therefore the requirements of sections [24.7-24.68 \(Diving Operations\)](#) do not apply. Consequently, recreational diving instructors are not required to comply with the medical certification requirements found within these sections.

Section 4.19 of the Regulation does have application. Diving instructors that are aware of any mental or physical impairment which may affect their ability to safely perform their instructional function must inform their employer and must refrain from doing their work where the impairment may create an undue risk to themselves, the trainee divers, or anyone else.

There is a need for disclosure of impairment from any source - including prescription and non-prescription drugs, fatigue, or a medical condition.

Under section 4.19(2), the employer or supervisor is required to ensure that a recreational diving instructor with a reported or observed impairment is not assigned instructional activities where his or her ability to act as an instructor is impacted by the impairment. Instructional activities involve physical exertion and include the supervision, instruction, and safety of the students in the charge of the instructor (including in-water rescue).

Medical fitness of diving instructors

In addition to the requirements specified in section 4.19 of the Regulation, the importance of medical fitness for recreational diving instructors is also recognized by the diving profession.

The World Recreational Scuba Training Council sets standards for diving and diving safety, and its members include most prominent diving organizations. Most recreational diving instructors and assistant instructors in B.C. are members of a diving organization such as the Professional Association of Diving Instructors (PADI). Although there is no WorkSafeBC regulatory requirement for this membership, there are advantages for diving instructors to be members of these diving organizations.

Application for membership in a diving instructor organization usually requires an acknowledgement that if a member's physical condition or health changes and renders the member incapable of meeting the physical requirements of diving instruction and supervision, the member ceases instructional and supervisory duties until the required level of fitness returns, and if necessary, be cleared by a diving medical examination performed by a physician. WorkSafeBC endorses this practice.

In order to ensure that dive instructors are aware of the importance of making sure they are medically fit to dive, PADI instructors receive an annual reminder of their professional obligation to report any injuries or medical conditions when they renew their membership. In addition, PADI's quarterly professional membership publication regularly includes articles about the physical requirements of scuba diving and diving fitness.

Guidelines - Part 4 - Working Alone or In Isolation

G4.20.1 Definition of working alone or in isolation

Issued February 1, 2008; Editorial Revision November 20, 2008

Regulatory excerpt

Section 4.20.1 of the *OHS Regulation ("Regulation")* states:

In sections 4.20.2 to 4.23, "to work alone or in isolation" means to work in circumstances where assistance would not be readily available to the worker

- (a) in case of an emergency, or
- (b) in case the worker is injured or in ill health.

Purpose of guideline

The purpose of this guideline is to provide information on when a worker is considered to be working alone or in isolation. This includes criteria for determining if a worker has assistance that is readily available.

Application

The requirements of sections 4.20.2 to 4.23 are intended to safeguard workers, as defined in the *Workers Compensation Act ("Act")*, who are assigned to work alone or in isolation. If an individual who is assigned to work alone or in isolation does not fall under the definition of a "worker" then the requirements do not apply. In addition, the requirements only apply when assistance is not readily available to the worker in the event of an emergency, injury, or illness.

Assistance that is readily available

A worker is considered to be working alone or in isolation when he or she does not have assistance that is readily available in case of emergency, injury, or ill health. In order to determine whether or not assistance is readily available, the following conditions should be considered:

- Presence of others: Are other people in the vicinity?
- Awareness: Will other persons capable of providing assistance be aware of the worker's need?
- Willingness: Is it reasonable to expect those other persons will provide assistance?
- Timeliness: Will assistance be provided within a reasonable period of time?

Relying on customers for assistance

Different circumstances may prevail that will require employers to make a reasonable assessment to determine assistance is readily available. In a retail premises, such as a convenience store, customers are not generally considered to meet the definition of assistance that is readily available. However, if the worker is in an area where there is a high volume of customers, such as a shopping mall or sports stadium, there may be security staff or workers of other employers available to provide assistance.

Agreements with other employers

If two or more workers of different employers are working together or in the same vicinity and each worker is capable of and willing to provide assistance in a timely manner, this can qualify as assistance that is readily available. An example of this would be where a coffee or donut retailer is situated within premises shared with a retail gas vendor. Another example would be where a second worker is on the premises for a short period of time, such as to make deliveries or pickups. In this case, the worker only has assistance that is readily available for the period in which the additional worker is on the premises, and is considered to be assigned to work alone once the additional worker leaves the premises. Employers would need to ensure that the workers of both employers are capable of, and willing to, provide assistance and that the workers are aware of the arrangement, and should put the arrangement in writing.

Communication systems

Providing workers with electronic means of communication, such as a phone, radio, or personal alarm, does not guarantee that the condition of "assistance that is readily available" has been met. A "person check" system alone is also unlikely to meet the "readily available" test.

If a worker cannot be seen or heard by persons capable of providing assistance in a timely manner, then he or she should be regarded as working alone or in isolation.

G4.20.2 Hazard identification, elimination, and control

Regulatory excerpt

Section 4.20.2 of the *OHS Regulation* ("Regulation") states:

- (1) Before a worker is assigned to work alone or in isolation, the employer must identify any hazards to that worker.
- (2) Before a worker starts a work assignment with a hazard identified under subsection (1), the employer must take measures
 - (a) to eliminate the hazard, and
 - (b) if it is not practicable to eliminate the hazard, to minimize the risk from the hazard.
- (3) For purposes of subsection (2) (b), the employer must minimize the risk from the hazard to the lowest level practicable using engineering controls, administrative controls or a combination of engineering and administrative controls.

Purpose of guideline

The purpose of this guideline is to define the phrase "assigned to work alone or in isolation," outline ways to conduct a risk assessment to identify hazards to workers assigned to work alone or in isolation, and describe some steps an employer may take to eliminate or minimize identified hazards.

Assigned to work alone or in isolation

The requirements of sections 4.20.2 apply when a worker is *assigned to work alone or in isolation*. Being assigned to work alone or in isolation means that the worker

- Is directed or expected to work during a scheduled or predetermined period of time, such as a specified work shift or a specified portion of a work shift
- During that time it is anticipated or expected that the worker will be working alone or in isolation

Workers who work alone or in isolation for short or intermittent periods of time without being directed to do so are not considered to have been "assigned" to work alone. For example, a worker in most office and similar work settings, where other workers are normally present during their work hours, is not considered to be assigned to work alone or in isolation if, for example, the worker decides to come in early, work late, or come in on a day off. While a worker in such a setting may choose to work alone and this is permitted by the employer, the worker is not considered to have been assigned to work alone. Accordingly, the provisions of sections [4.20.2 to 4.23](#) would not apply.

Importantly, employers still have obligations to ensure the health and safety of these workers even though the provisions of sections 4.20.2 to 4.23 may not apply. These obligations include the following.

First, the general duties of employers to workers under [section 21](#) of the *Workers Compensation Act* ("Act") apply, including the duty to ensure the health and safety of all workers working for that employer. Where workers are permitted to work alone outside of their regular assigned working hours, the employer must perform a risk assessment relating to the hazards the worker may be exposed to while working alone, and take the necessary measures to ensure the worker's safety. These measures may include implementing a person check system but may consist of other procedures that will meet this goal. The content of this guideline dealing with hazard assessments and person check systems can be of assistance to employers in meeting their obligations under the *Act*.

Second, employers are required under section 4.28 of the *Regulation* to conduct a risk assessment in any workplace where there is a risk of injury to workers from violence arising out of their employment. This risk assessment should include considerations of the risks of violence associated with working alone or in isolation, where workers are permitted to work alone or in isolation. This risk assessment is required regardless of whether or not workers have been assigned to work alone.

Finally, under the first aid provisions of the *Regulation*, employers are required to keep up-to-date written procedures for providing first aid at the worksite. Under section 3.18 of the *Regulation*, employers must provide an effective means for communication between the first aid attendant and the workers served. This includes providing effective communication for workers who are working alone, including those who have not been assigned.

Identification, elimination and control

Common situations and occupations where a worker may be assigned to work alone or in isolation and exposed to hazards include

- A worker who handles cash such as a convenience store clerk, retail outlet employee, parking attendant, and taxi driver
- A worker who meets clients out of the office such as a home care worker, or a social service worker
- A worker who does hazardous work with no regular interaction with other people such as a forestry worker, boom boat operator, a worker in the freezer area of a cold storage facility, or a night cleaner in a plant
- A worker who is performing work activities alone that may lead to slips or falls, including the use of ladders, or stocking high shelves
- A worker who is at risk of violent attack who is isolated from other workers or public view such as a security guard, custodian, and a night shift employee in a community care or outpatient department

The employer is expected to assess the likelihood of hazards to workers assigned to work alone or in isolation. The assessment of the hazards should be based on what reasonably could be anticipated for that workplace or work activity.

There are a number of ways to perform the assessment.

Depending upon the number of workers and the complexity of the potential hazards, the assessment process may be as simple as a short discussion held with workers who are given an opportunity for input or as complex as using an assessment team for the workplace or for each department. Assessment teams should include those workers and employer representatives with the knowledge and experience to provide the best input into the process. Another option is for an employer to hire a consultant to work with workers and employer representatives in conducting the assessment.

Where available, members of the joint health and safety committee or the worker health and safety representative should be invited to participate. They can serve as members of the team or act in a consultative role.

Employers should review the method of assessment and redo the assessment if there is a significant change in the nature of the business or the location of the workplace or in the event of a serious incident. Again, where available, the joint committee or the worker health and safety representative should be invited to participate in any review.

Risk assessment process

The assessment is a step-by-step process that first identifies the nature and type of hazard that could reasonably be anticipated in the workplace, followed by an assessment of the likelihood of such hazards occurring. This assessment should help the employer set priorities and identify tasks that require further analysis to ensure that effective controls can be implemented.

While the size and type of workplace and the nature of the work will dictate the complexity of the assessment, it should generally follow the process outlined below:

- Gather information on previous incidents where workers were exposed to hazards while working alone or in isolation in the workplace, generally over a period of at least a year, preferably 3 years.
- Gather information on experience in similar workplaces, including severity and frequency of any hazards that workers working alone or in isolation have been exposed to. Sources of information may include the Internet, NIOSH, industry associations, or the police.
- Determine the hazard control measures, if any, already in place at the workplace.
- Obtain staff and Joint Health and Safety Committee (JHSC) input (using questionnaires, surveys, formal and informal discussions, and interviews, as appropriate to the size of the workplace).
- Inspect the workplace for hazards.
- Analyze the information.

To determine specific situations that may expose workers to hazards, consider factors such as

- Occupations and locations that may be at higher risk. Some assistance in making this determination is available by consulting the Assigned Hazard Rating List under Part 3 of the OHS Guidelines which provides a hazard rating for various occupations and industries.
- Types of tasks that may place workers at higher risk. Higher risk tasks may include working with machinery, working from heights, using explosives, or other activities where serious accidents or injuries have occurred in the past.
- Types of foreseeable interactions that may place workers at higher risk. Higher risk interactions may include repossessing furniture, issuing fines or other monetary penalties directly to individuals, working with aggressive or unpredictable patients in a healthcare facility, or other interactions that may involve aggravated individuals.

In addition, consider other factors such as

- The specific workplace layout, including furniture design and placement, and the location of entrances and exits
- The location of the workplace, and the emergency response time necessary to get there in the event of an emergency
- Whether or not the worker may be attacked by an animal or encounter a poisonous material
- The climate of the work environment, including whether or not the worker may be exposed to extreme weather conditions or temperatures
- Whether or not the work is physically demanding so that the worker may be fatigued
- Age, experience, and training of the workers who may be at risk
- Type of equipment, tools, and supplies available for use, including emergency communication equipment and emergency supplies such as food and drinking water and appropriate first aid equipment
- Whether or not the worker will need to carry some or all of the emergency supplies and first aid equipment with them during work activities
- Work activities which take a worker out of a safe environment, such as cleaning the area around the gas pumps at 2 a.m.
- Staff deployment and scheduling, including the extent to which persons work at night, the system for checking up on workers who work alone (see *Regulation* sections 4.21 to 4.23 and associated guidelines on person check systems and working alone in late night retail)

Eliminating hazards

If employers identify a hazard under section 4.20.2(1) of the *Regulation*, the hazard should be eliminated where practicable. The following are examples of how hazards could be eliminated:

- Use video surveillance to remotely monitor an area instead of using an on-site security guard
- Install an automated payment system for services, such as parking, instead of using a cashier/attendant
- Use vending machines to dispense food or other convenience items rather than using a checkout cashier

Minimizing the risk of a hazard

If hazards cannot be eliminated, or it is not practicable to do so, employers should try to minimize the risk from the hazard occurring. The options

available to achieve this result are administrative controls and engineering controls.

Part 1 of the *Regulation* has the following definitions:

"*Administrative controls*" means the provision, use and scheduling of work activities and resources in the workplace, including planning, organizing, staffing and coordinating, for the purpose of controlling risk;

"*Engineering controls*" means the physical arrangement, design or alteration of workstations, equipment, materials, production facilities or other aspects of the physical work environment, for the purpose of controlling risk;

In selecting measures to reduce risk, preference should be given to implementing available and practicable engineering controls. These controls generally provide "passive protection" which is not dependent on a person taking a specific action. This can be particularly important in an emergency or crisis situation. However, where engineering controls are not practicable or do not reduce the risk to a level that is as low as practicable, administrative controls will need to be developed and implemented.

Some examples of engineering controls include physical arrangements in the workplace to separate the worker from the customers and public by locked doors, pay windows, barriers that are substantial enough to prevent access to the worker, or use of another type of secure enclosure.

Examples of administrative controls include the use of some or all of the following:

- Rearrange the work schedule so that more than one person is always present in the workplace
- Rearrange work schedules so that the hazardous work, such as that which presents a falling hazard, is done while more than one worker is working
- Require that the worker contact the person/company responsible for checking the well-being of the worker to ensure that a person check is done before and after the expected completion time of a possibly hazardous activity
- Require mandatory on-site supervision of young workers by an adult
- Use cash handling procedures that require the use of a locked drop safe, keeping only small amounts of cash accessible on the site, installing surveillance cameras, and posting signs indicating that the amount of cash on site is limited
- Use uniformed security guards
- Prohibit high-risk work activities during times when a worker is working alone
- Use a personal emergency call device that a worker may wear on a lanyard around his/her neck and use to call for help in the event of a personal security or emergency issue

Complying with other sections

Before allowing work to commence, an employer must ensure that doing so would not violate other sections of the *Regulation*. For example, [section 3.17.1](#) prohibits commencing work in a workplace that is only accessible by air service if air service is unavailable. In such a workplace, workers would be considered to be working alone or in isolation because assistance is not readily available. In this example, conducting a hazard assessment and taking steps to eliminate or minimize hazards under 4.20.2 does not mean work can commence. Work may only commence once the conditions of 3.17.1 have been satisfied.

G4.21 Procedures for checking the well-being of workers

Issued Feb 1, 2008; Revised April 9, 2008; Revised November 20, 2008; Revised December 21, 2009; Editorial Revision April 6, 2020

Regulatory excerpt

Section 4.21 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must develop and implement a written procedure for checking the well-being of a worker assigned to work alone or in isolation.
- (2) The procedure for checking a worker's well-being must include the time interval between checks and the procedure to follow in case the worker cannot be contacted, including provisions for emergency rescue.
- (3) A person must be designated to establish contact with the worker at predetermined intervals and the results must be recorded by the person.
- (4) In addition to checks at regular intervals, a check at the end of the work shift must be done.
- (5) The procedure for checking a worker's well-being, including time intervals between the checks, must be developed in consultation with the joint committee or the worker health and safety representative, as applicable.
- (6) Time intervals for checking a worker's well-being must be developed in consultation with the worker assigned to work alone or in isolation.

Purpose of the guideline

The purpose of this guideline is to

- Provide information on the application of the requirements for checking the well-being of workers assigned to work alone or in isolation

- Elaborate on time intervals to use when checking the well-being of workers
- Provide information on acceptable methods for checking, including
 - technologies with particular application in populated areas,
 - means of checking that may be of particular use in remote locations, and
 - use of non-workers, such as family members, in certain limited circumstances

Application

As of February 1, 2008, the requirement to develop and implement a written procedure for checking the well-being of workers under 4.21 *applies to all workplaces where workers are assigned to work alone or in isolation.*

Previously, section 4.21 applied to *workers who were working alone under conditions which present the risk of disabling injury if the worker might not be able to secure assistance in the event of injury or other misfortune.* As of February 1, 2008, the requirement to be working under certain conditions has been removed, and section 4.21 now applies to all workplaces where workers are assigned to work alone or in isolation.

Section 4.21 only applies to workers who are assigned to work alone or in isolation. An employer may still have general duty obligations to check on the well-being of a worker who is working alone or in isolation without being assigned to do so. For further discussion of what it means to be *assigned to work alone or in isolation*, as well as the general duty obligations of an employer, see [G4.20.2 Hazard identification, elimination, and control](#).

Time intervals

Time intervals should be developed after considering the risks to which the worker is exposed. They must be developed in consultation with the worker assigned to work alone or in isolation, and with the joint committee or worker health and safety representative as applicable. This may be done as part of the hazard identification process required under [section 4.20.2](#) of the *Regulation*. High-risk activities require shorter time intervals between checks.

Methods for checking well-being

In selecting procedures to check a worker's well-being, employers should give preference to procedures which allow for the visual confirmation of the worker's well-being. An alternative is two-way voice contact between workers at the site. Where this is not practicable, employers may use other approaches. For example, an employer could require workers to make phone calls at regularly scheduled intervals to workers at another location.

Employers may also decide to use one of a number of available technologies to check the well-being of workers. An acceptable system is one that allows the worker to send an OK signal at predetermined intervals and which activates procedures to contact the worker or initiate emergency response if the worker does not send a signal at a predetermined interval or if a signal for assistance is received. If such a technology is used the employer is still required to develop written procedures and ensure there is the appropriate documentation of check-ins.

Information is provided below on technologies and systems that may have particular application in populated areas. In addition, there is discussion of various types of check systems that may be particularly applicable to work in remote locations.

Use of worker check technologies - in populated areas

Technologies that may be of assistance, particularly in populated areas include, but are not limited to

- **Call-in systems:** These systems are available from security service providers and only require access to a phone. Workers call into the system at scheduled intervals during their shift and enter a code to confirm their safety. In the event that a worker fails to phone in by his or her scheduled interval, the service provider follows a predetermined protocol to make contact with the worker. If the worker cannot be contacted, emergency assistance will be sent.
- **Externally monitored panic alarm devices:** A number of security service providers offer panic alarm devices for use in their service area, which workers can carry with them, eliminating the need for access to a phone. As is the case with call-in systems, panic alarm devices can be programmed to require a worker to confirm his or her safety at scheduled intervals.

Some devices also offer a "person down" feature, which will notify the service provider when a worker does not move for a given period of time, as well as a panic button, which will automatically alarm the service provider of an emergency. In the event that the person down or panic alarm feature is activated, or a worker fails to confirm his or her safety at a scheduled interval, the service provider will attempt to contact the worker before emergency assistance is sent. These devices are designed to be carried on the worker at all times, and can be worn around the worker's neck or on his or her belt. It is the employer's responsibility to ensure that workers consistently wear the device when assigned to work alone or in isolation.

- **Internally monitored panic alarm devices:** Panic alarm devices can also be purchased with a monitoring station that is operated by the employer, rather than a security service provider, for use in their workplace. The employer's monitoring station can be linked to a number of different panic alarm devices, and will emit an audible signal in the event that a worker fails to confirm his or her safety or the person down or panic button features are activated. In such cases, the employer is expected to follow their written procedures to ensure the worker is contacted or assistance is provided.

As with the other systems, the procedures for an internally monitored device must include the intervals at which a worker is expected to confirm his or her well-being. At a minimum, the monitoring station must be checked at these intervals by the worker assigned to check the

well-being of the workers who are assigned to work alone or in isolation, and the results of the checks recorded. To ensure that assistance is provided quickly in the event that a panic alarm or person down feature is activated by a worker, the station should be monitored more regularly. This can be accomplished by having the worker(s) responsible for checking the station remain within the vicinity of the station, as is practicable, so that they can be alerted in the event that an audible signal is emitted.

Checking worker well-being in remote locations

Examples of work activities in remote areas include range riding, timber cruising, surveying, fire watch, beetle probes, mineral exploration, seismic blasting, and guide work. Working alone in such areas can present particular risks given that the work is typically done outdoors, and often in difficult terrain or otherwise relatively inaccessible areas.

Such areas also present particular challenges to providing a means of checking worker well-being. Land-based telephone lines and security services are typically unavailable, and cell phone coverage may be limited or non-existent.

However, there are a number of types of systems that may be of use in such locations. Examples include

- **Wireless satellite hand-held alerting and tracking devices:** These are proving to be a promising type of system at a relatively modest cost. Several systems are available, and provide capabilities such as alerts, simple messaging, and very importantly GPS coordinates of the worker. Systems are available that can provide coverage in most outdoor situations. Such systems should be tested for reliability in the areas they are intended to be used.
- **Satellite phones:** These can also be effective in remote areas, and offer the advantage of permitting extended two-way voice communication. They should be evaluated for reliability in the areas they are intended to be used.
- **Radio transmitters:** In some circumstances, for example where there is a relatively permanent base site with power generation capability, it may be feasible to use a radio transmitter that provides surface-to-surface radio contact. In some areas there are repeater systems that can be accessed for a wider area of communication.
- **Crew contact:** Where a crew is working in a remote location but the work involves working alone, it may be possible to arrange work so that the crew will meet periodically during the work day, or have another means of alerting one another. If a worker doesn't arrive on time at the pre-determined point, or otherwise signal his or her well-being then a search procedure can be initiated by the other worker(s). The successful use of this approach involves the following five elements:
 - A pre-determined meeting place or other means of contact
 - A pre-determined time for contact
 - Information provided by the workers beforehand on their expected routes and areas of activity
 - A procedure for the crew to follow in the event a worker does not make contact
 - A plan in place to find a missing worker

In addition, depending on any limits to the kind of assistance that the co-workers on the crew can provide, it may be necessary to have an effective means of communication between the crew and the home base for the operation. While section 4.21 of the *Regulation* only applies to workers who are alone, the general duties of employers to workers under section 21 of the *Act* still apply. This includes the duty to ensure the health and safety of all workers working for that employer. Where crews are working in remote locations, the employer must perform a risk assessment relating to the hazards the workers may be exposed to, and take the necessary measures to ensure the workers' safety. This may include implementing a system to check on the well-being of the crew.

Use of non-workers

There are circumstances where an employer may choose to use a non-worker as the person designated to contact the worker. This practice should be limited in application as having non-workers, such as family members, perform person checks raises issues given that these individuals are not accountable to WorkSafeBC or the employer.

The use of non-workers as the established contact person is acceptable only in situations where it is a reasonable means to perform effective person checks. That would typically be in low and negligible-risk scenarios. Further, the employer must take steps to ensure that the non-worker has received training, as required by section 4.22, and that the person is following the employer's written procedures.

G4.22.1-1 Late night retail – Definitions and money handling procedures

Issued February 1, 2008; Editorial Revision February 21, 2008; Formerly Issued in G4.22.1 - Reissued as G4.22.1-1 September 9, 2008; Revised November 20, 2008; Editorial Revision June 30, 2009; Editorial Revision to include February 1, 2011 Regulatory Amendment; Editorial Revision consequential to April 15, 2012 Regulatory Amendment

Regulatory excerpt

Section 4.22.1 of the *OHS Regulation* ("*Regulation*") states:

(1) In this section:

"*late night hours*" means any time between 11:00 p.m. and 6:00 a.m.;

"*late night retail premises*" means

- (a) a gas station or other retail fueling outlet, or
- (b) a convenience store or any other retail store where goods are sold directly to consumers

that is open to the public for late night hours;

"*violence prevention program*" means a program implemented under subsection (2)(b)(iii).

(2) If a worker is assigned to work alone or in isolation in late night retail premises and there is any risk of harm from a violent act to the worker, then, in addition to any other obligations the employer has under sections [4.20.2 to 4.23](#) and [4.28 to 4.30](#),

(a) the employer must develop and implement a written procedure to ensure the worker's safety in handling money, and

(b) when that worker is assigned to work late night hours, the employer must also do one or more of the following:

(i) ensure that the worker is physically separated from the public by a locked door or barrier that prevents physical contact with or access to the worker;

(ii) assign one or more workers to work with the worker during that worker's assignment;

(iii) implement a violence prevention program in accordance with subsections (2.1) to (2.3).

(2.1) A violence prevention program must include procedures, policies and work environment arrangements necessary to ensure that all of the following requirements are met:

(a) there is a time lock safe on the premises that cannot be opened during late night hours;

(b) cash and lottery tickets that are not reasonably required in order to operate during late night hours are stored in the time lock safe referred to in paragraph (a);

(c) there is good visibility both into and out of the premises;

(d) there is limited access to the inside of the premises;

(e) the premises is monitored by video surveillance;

(f) there are signs on the premises, visible to the public, indicating that

(i) the safe on the premises is a time lock safe that cannot be opened during late night hours,

(ii) there is a limited amount of accessible cash and lottery tickets on the premises, and

(iii) the premises is monitored by video surveillance;

(g) a worker described in subsection (2)

(i) is at least 19 years of age, and

(ii) is provided with a personal emergency transmitter that is monitored by

(A) the employer, or

(B) security company or other person designated by the employer.

(2.2) By the end of the first year of the implementation of a violence prevention program and by the end of every second year after that first year, the employer must receive a security audit report, in writing, from an independent qualified person confirming that the program meets all of the requirements under subsection (2.1).

(2.3) The written security audit report referred to in subsection (2.2) must be

(a) retained by the employer, and

(b) posted by the employer in the workplace

for a period beginning on or immediately after the date the report is received and ending no earlier than the date on which the next report is posted.

Purpose of guideline

The purpose of this guideline is to provide information about how to determine whether a workplace is considered to be a late night retail premises. The guideline also provides information on money handling procedures. The Violence Prevention Program option is covered in G4.22.1-3.

Application

The requirements of 4.22.1 only apply if all of the following conditions are satisfied:

- (1) The worker is working alone or in isolation (see [G4.20.1](#))
- (2) The worker is working in a late night retail premises
- (3) It is between the hours of 11:00 p.m. and 6:00 a.m.

Retail premises

A late night retail premises is defined as a gas station or other fueling outlet, a convenience store, or any other retail store where goods are sold directly to consumers, and is open any time between 11:00 p.m. and 6:00 a.m. "Other retail stores" are shops or other premises where the primary business conducted is the sale of products directly to consumers. These businesses generally have products for sale on display or available to the consumers to be taken away from the premises. Some examples of other retail stores include

- Coffee shops
- Money marts
- Liquor off-sales
- Take-out food restaurants

Examples of workplaces which do **not** meet the definition of other retail stores because goods are not sold directly to customers, or are not sold from a retail store include

- Full service restaurants
- Pubs or bars
- Taxicabs and limousine services
- Toll booths
- Hotel check-in desks
- Food and other merchandise sold from street carts

While these workplaces are not generally considered to be late night retail premises, employers must still comply with the other working alone or in isolation requirements. This includes requirements under section [4.20.2](#) of the *Regulation* to identify and control hazards presented to any workers assigned to work alone or in isolation, and under section [4.21](#) of the *Regulation* to develop and implement a procedure for checking the well-being of the worker.

Written procedures for handling money

Section 4.22.1(2)(a) requires that employers develop and implement a written procedure to ensure a worker's safety in handling money. A procedure should include some or all of the following:

- Ensure cash handling areas are located away from entrances and exits
- Ensure sales counters are located so they are clearly visible from inside and outside the store
- Keep as little cash in the cash register as possible
- Place large bills in a drop box or strong room that is out of sight
- Fit counter safes with time delay locks
- Use only one cash register and leave the cash tray of the unused register open and visible

A procedure for handling money should also include the following guidelines for making bank deposits:

- Avoid making bank deposits at night
- Vary the time and route for making deposits
- Don't carry money in bags marked with the company logo or that make it obvious that cash is being transported
- Make deposits with a co-worker, where practicable. The co-worker should face away from the depository to keep an eye on other people in the area

G4.22.1-2 Late night retail – Second worker or barrier

Issued February 1, 2008; Editorial Revision February 21, 2008; Formerly Issued in G4.22.1 - Reissued as G4.22.1- 2 September 9, 2008; Editorial Revision November 20, 2008; Editorial Revision August 1, 2009; Editorial Revision March 30, 2010; Editorial Revision January 5, 2011; Revised July 29, 2011; Revised consequential to February 1, 2012 Regulatory Amendment; Editorial Revision consequential to April 15, 2012 Regulatory Amendment

Regulatory excerpt

Section 4.22.1(2)(b) of the *OHS Regulation* ("*Regulation*") states:

(2) If a worker is assigned to work alone or in isolation in late night retail premises and there is any risk of harm from a violent act to the worker, then, in addition to any other obligations the employer has under sections 4.20.2 to 4.23 and 4.28 to 4.30,

(b) when that worker is assigned to work late night hours, the employer must also do one or more of the following:

- (i) ensure that the worker is physically separated from the public by a locked door or barrier that prevents physical contact with or access to the worker;
- (ii) assign one or more workers to work with the worker during that worker's assignment;
- (iii) implement a violence prevention program in accordance with subsections (2.1) to (2.3).

Purpose of guideline

The purpose of this guideline is to provide information about the implementation of the late night retail requirements related to having a second worker or a physical barrier or locked door any time between 11:00 p.m. and 6:00 a.m. (late night hours).

Employers must be in compliance with *Regulation* section 4.22.1(2)(a) - money handling procedures; section 4.21 - procedures for checking on well-being of worker; and all the other [Working Alone or In Isolation](#) requirements as well as the [Violence in the Workplace](#) requirements. Prevention Officers will ensure compliance with these requirements as part of regular inspection practices.

The remainder of this guideline explains the performance requirements for the barriers and should be used for general information.

Appropriate use of barriers

The requirement under section 4.22.1(2)(b)(i) of the *Regulation* is a performance based requirement. Performance based requirements set expectations for outcomes that must be achieved rather than specific methods of compliance. If an employer chooses to use a barrier or locked door under this section instead of having more than one worker on site, the required outcome is that it must **prevent physical contact with or access to the worker**.

To access the worker means to enter into the worker's workspace. A raised counter that can be climbed over or other controls that merely slow access do not meet the required outcome of preventing access.

Physical contact with the worker means person-to-person contact. Any barrier or locked door must prevent this outcome.

Barriers may be constructed from various materials, including Plexi-glass or Lexan, and be strong enough to withstand reasonable force applied to them. They need not be made of a bullet-resistant material, nor do they need to extend from floor to ceiling, provided that they cannot be climbed over or under. Retractable barriers are acceptable, but the barrier must be in-place during late-night retail hours.

Barriers also must be compliant with applicable building codes, fire codes, and other laws.

A barrier that permits merchandise to be passed through it, such as a transaction window, is acceptable if appropriate engineering controls are in place to prevent a customer from reaching at arm's length into the window to contact a worker reaching at arm's length towards the customer. Some engineering controls to be considered in the design of a barrier include

- A sufficiently narrow width at the opening of the barrier, together with an adequate distance at the opening between the typical location of the worker and that of the customer. Counters and shelving may be installed to increase this distance between the worker and the customer. Where an opening is large enough for a customer's arm to fit through, the distance between the customer and the worker should be two arms' lengths.
- Where the barrier allows for an opening beyond an appropriate width, a means of preventing the opening from widening beyond this width, such as a lock or security bar. The means of release for a lock or security bar needs to be beyond the reach of customers standing outside of the barrier.

Working outside of a barrier during late night hours

The use of a barrier is not intended to prevent workers from performing their regular tasks and duties, such as cleaning up, making coffee, and stocking shelves. The doors to the premises could be locked between the hours of 11:00 p.m. and 6:00 a.m. The worker could perform needed tasks, and with a buzzer system, could be alerted to customers at the door. Once the worker moves behind the barrier, the customers could then safely be buzzed in.

There may be some circumstances which require the worker to move from behind the barrier or locked door to go outside of the building for a short duration. These circumstances should be extremely infrequent and exceptional during a shift. Some examples of these exceptional circumstances include where: the worker's access to the washroom is only from the outside; supplies are required that are located in an adjacent building or storage unit; the worker needs to perform snow removal or another task to ensure the safety of customers.

In these cases, the employer will need to have adequate written procedures for ensuring the safety of the worker while they are outside the building. These procedures should be developed as part of the hazard identification, elimination, and control process, as required by section 4.20.2 of the *Regulation*. Acceptable procedures could include having the worker carry a personal alarm or a phone with an emergency contact button, or requiring the worker to call into a designated person advising when he/she is leaving the building, his/her expected return time, and when he/she has safely returned behind the barrier.

Late night deliveries

The requirement to use a barrier or locked door only applies to workers who are assigned to work alone or in isolation at late night retail premises. Some premises may receive deliveries during late night hours which require the worker to go outside of the locked door or barrier. In these cases, if the delivery person is willing and able to provide the late night retail premises worker with assistance in case of an emergency, injury, or illness, the worker is not considered to be working alone or in isolation. This is only the case for the period of time in which the delivery person is on the

premises. During this period of time, the worker is not required to be behind the barrier or locked door.

Employers at late night retail premises wishing to enter into such an arrangement with employers of delivery workers should ensure that the workers of both employers are capable of, and willing to, provide assistance and that the workers are aware of the arrangement. The arrangement should be a written agreement.

G4.22.1-3 Late night retail – Violence Prevention Program

Issued April 15, 2012; Revised July 6, 2012; Editorial Revision December 15, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

Section 4.22.1 of the *OHS Regulation* ("*Regulation*") states:

(1) In this section:

"*late night hours*" means any time between 11:00 p.m. and 6:00 a.m.;

"*late night retail premises*" means

(a) a gas station or other retail fueling outlet, or

(b) a convenience store or any other retail store where goods are sold directly to consumers

that is open to the public for late night hours.

"*violence prevention program*" means a program implemented under subsection (2)(b)(iii).

(2) If a worker is assigned to work alone or in isolation in late night retail premises and there is any risk of harm from a violent act to the worker, then, in addition to any other obligations the employer has under sections 4.20.2 to 4.23 and 4.28 to 4.30,

(a) the employer must develop and implement a written procedure to ensure the worker's safety in handling money, and

(b) when that worker is assigned to work late night hours, the employer must also do one or more of the following:

(i) ensure that the worker is physically separated from the public by a locked door or barrier that prevents physical contact with or access to the worker;

(ii) assign one or more workers to work with the worker during that worker's assignment;

(iii) implement a violence prevention program in accordance with subsections (2.1) to (2.3).

(2.1) A violence prevention program must include procedures, policies and work environment arrangements necessary to ensure that all of the following requirements are met:

(a) there is a time lock safe on the premises that cannot be opened during late night hours;

(b) cash and lottery tickets that are not reasonably required in order to operate during late night hours are stored in the time lock safe referred to in paragraph (a);

(c) there is good visibility both into and out of the premises;

(d) there is limited access to the inside of the premises;

(e) the premises is monitored by video surveillance;

(f) there are signs on the premises, visible to the public, indicating that

(i) the safe on the premises is a time lock safe that cannot be opened during late night hours,

(ii) there is a limited amount of accessible cash and lottery tickets on the premises, and

(iii) the premises is monitored by video surveillance;

(g) a worker described in subsection (2)

(i) is at least 19 years of age, and

(ii) is provided with a personal emergency transmitter that is monitored by

(A) the employer, or

(B) security company or other person designated by the employer.

(2.2) By the end of the first year of the implementation of a violence prevention program and by the end of every second year after that first year, the employer must receive a security audit report, in writing, from an independent qualified person confirming that the program meets all of the requirements under subsection (2.1).

(2.3) The written security audit report referred to in subsection (2.2) must be

(a) retained by the employer, and

(b) posted by the employer in the workplace

for a period beginning on or immediately after the date the report is received and ending no earlier than the date on which the next report is posted.

(3) The employer must train a worker described in subsection (2) in

(a) the written procedure referred to in subsection (2)(a), and

(b) if the employer implements a violence prevention program, the procedures, policies and work environment arrangements referred to in subsection (2.1).

(4) A worker described in subsection (2) must

(a) follow the written procedure referred to in subsection (2)(a), and

(b) if the employer implements a violence prevention program,

(i) follow the procedures, policies and work environment arrangements referred to in subsection (2.1), and

(ii) wear, during late night hours, the personal emergency transmitter referred to in subsection (2.1)(g)(ii).

Section 4.23 of the *Regulation* states:

The procedures referred to in sections 4.21 and 4.22.1(2)(a) and, if a violence prevention program is implemented, the procedures, policies and work environment arrangements referred to in section 4.22.1(2.1), must be reviewed at least annually, or more frequently if there is

(a) a change in work environment arrangements that could adversely affect

(i) the effectiveness of the violence prevention program, or

(ii) a worker's well-being or safety, or

(b) a report that the procedures, policies or work environment arrangements, as applicable, are not working effectively.

Purpose of guideline

The purpose of this guideline is to provide information about the "third option" available to employers to protect their workers during late night retail operations - the Violence Prevention Program. It includes information about the requirements associated with the program including guidance about the elements of the program, who may be assigned to work late night, the security audit reports required to be performed, and who is qualified to perform the audits.

Background

A third option is available for employers who wish to employ workers in late night retail stores. As an alternative to (or in addition to) having two workers on shift or having a barrier between a single worker and customers, employers may choose to institute a prescribed Violence Prevention Program which must be audited initially within a year of implementation, and then every two years thereafter.

The requirements under this option, and the other options available to employers who operate late night retail stores, are in addition to the other working alone and violence prevention requirements (sections [4.20.1 to 4.23](#) and sections [4.28 to 4.31](#)) under the *Regulation* with which employers must comply. These include hazard identification, elimination and control, procedures for checking on workers, and training and instruction of workers on working alone, and violence prevention procedures and policies. The employer is also required to develop and implement a written procedure for a worker's safe handling of money when working late night retail hours (section 4.22.1(2)).

Violence Prevention Program - section 4.22.1(2.1)

A Violence Prevention Program that is implemented as a third option must include the prescribed elements noted in this section. The following provides further information regarding these elements.

Time lock safe - (2.1)(a)

There must be at least one time lock safe on the premises that cannot be opened during late night hours. The purpose of the time lock safe(s) is to hold items such as cash, lottery tickets, and tobacco products that are not required during late night hours (see below).

The time lock safe may be a "drop safe" or a "time delay" safe that cannot be opened by the lone worker during late night retail hours. The time lock safe however may not be a change safe, which a worker would be able to open during late night hours.

A time delay safe, of which there are various designs commonly found in the retail industry, will be acceptable as a time lock safe, providing certain conditions are met.

The time delay safe will be acceptable if

- Time delay is set such that it will not open during late night retail hours, or
- Worker who is working alone during the late night hours is not able to open the time delay safe, and
- Written safe work procedures are developed and implemented

A time delay safe that dispenses limited amounts of cash without the safe opening will also be accepted if,

- Total amount of cash that is dispensed during late night hours, and the time delay setting to dispense the cash, are strictly limited to meet operational needs during those hours, and
- These operational needs have been determined by the employer based on a reasonable assessment of the cash required during late night hours, and
- Written safe work procedures are developed and implemented

Workers are required to be trained on and understand the restrictions and the written safe work procedures under which the time delay safe operate, during the late night hours.

Cash and lottery tickets not reasonably required - (2.1)(b)

The Violence Prevention Program must include procedures to ensure that only cash and lottery tickets reasonably required during late night hours are accessible outside of the time lock safe. The employer should base this determination on an assessment of the customer and sales volumes predicted during the late night hours. For example, the average number of ticket sales between 11 p.m. to 6 a.m., over a two week period could be considered.

Other requirements pertaining to the retailing of tobacco products are covered under the *Tobacco and Vapour Products Control Act* and the Tobacco and Vapour Products Control Regulation (B.C. Reg. 232/2007).

Good visibility both into and out of the premises - (2.1)(c)

This requirement applies to the visibility through existing doors and windows. A worker's sight line to the exterior of the premises should not be obstructed by materials posted on the windows or doors of the store, or by shelving or other facilities within or outside of the store. Similarly, visibility from the exterior into the store should not be obstructed as outlined above or limited by opaque or shaded applications to windows and doors.

Where door and window size, types, and locations appear inadequate, an assessment as part of the environment arrangements to eliminate or minimize the risk to workers may be required under [section 4.29](#) of the *Regulation*.

Limited access to inside of premises - (2.1)(d)

Limited access to the inside of the premises generally means restricting access to the store through one entrance only. Other entrances from outside the premises such as loading bays and emergency doors should be secured. Additional access limitations as applicable to the store's layout should also be considered. For example, where a retail premise is connected with a restaurant, access to the restaurant should be closed if it is not operated during some or all of the late night hours.

Video surveillance monitoring - (2.1)(e)

The premises must be monitored by video surveillance. The configuration of the surveillance set up should include what is necessary to address worker safety in the store. The format of the surveillance system should be such that any incidents of concern are recorded and can be reviewed by the employer and other persons, such as law enforcement officials, as needed.

Signs on premises - (2.1)(f)

There must be signs visible to the public that indicate the following on the premises:

- A time lock safe that cannot be opened during late night hours
- A limited amount of accessible cash and lottery tickets
- Video surveillance monitoring

Signs with similar wording which convey the same message are also acceptable.

Monitored personal emergency transmitter - (2.1)(g)

Several elements of the Violence Prevention Program relate specifically to the worker who is assigned to work alone during late night hours. The worker must be at least 19 years old. In the event that more than one worker is assigned to work late night hours, at least one of these workers must be 19 years of age.

The worker must be provided a personal emergency transmitter that is monitored by the employer, a security company, or other person designated by the employer. This device is in addition to the worker check-in procedures that the employer must have in place for workers working alone

section 4.21).

To meet the requirements for having a monitored personal emergency device, the device must be continuously monitored so that assistance can be dispatched in the case of an emergency. The device must have a panic button or other means by which the service provider or employer is immediately alerted to an emergency. Some devices also offer a "person down" feature which will notify when a worker does not move for a given period of time.

The worker must wear the device on their person and the employer must ensure that workers wear the devices as required.

Security audit report - section 4.22.1(2.2)

An employer who chooses to implement a Violence Prevention Program must receive a security audit report by the end of the first year after implementation of the program, and every two years after that. The security audit is a documented inspection to confirm that all program elements under section 4.22.1(2.1) are met. Where employers have more than one operating location, an audit must be conducted at each workplace location. There can be different considerations at individual locations depending on the work environment arrangements and sales volumes that may impact the specific procedures, policies, and work arrangements needed to meet the requirements of the Violence Prevention Program.

The security audit report must be prepared by an independent qualified person. "Qualified" is defined in the *Regulation* (section 1.1) as "being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof." The qualified person performing the security audit needs to have knowledge and experience with violence prevention procedures, workplace designs, and security and surveillance functions.

An independent person is a person who is not affiliated, related, or closely associated with the employer or the larger controlling unit (e.g., a franchisor). The independent qualified person cannot be employed by the employer or by any provider who developed the Violence Prevention Program or aspects of it for the employer. Employers are expected to exercise due diligence in the selection of the qualified person.

Retention and posting - section 4.22.1(2.3)

The security audit report must be retained by the employer and posted at the workplace for a period starting from when the report is received until when the next report is issued and posted. The report should be posted in an area that is accessible by workers, and may be in an electronic format if all workers have ready access to it.

Training of workers - section 4.22.1(3)

The employer must train a worker who is assigned to work alone in late night retail on the written procedures for handling money safely developed by the employer under section 4.22.1(2), and on all the procedures, policies, and work environment arrangements of the Violence Prevention Program.

Specified worker obligations - section 4.22.1(4)

The requirements under this section place specific obligations on late night retail workers to follow the procedures, policies, and work area arrangements developed by the employer under the Violence Prevention Program and the required written cash handling procedures developed by the employer as required under section 4.22.1(2). There is also a specific obligation imposed on the worker to wear on their person the assigned personal emergency transmitter.

Refer to: [G-P2-22 Orders to workers](#).

Review of procedures - section 4.23

An annual review of the procedures, policies, and work arrangement developed under the Violence Prevention Program (as well as the procedures for checking on workers working alone, and for the safe handling of money) is required. However, a review must also be conducted when it is determined that the procedures in place are not working effectively or where work environment changes are made that may affect the effectiveness of the Violence Prevention Program, or a worker's well-being or safety.

Some examples of changes in work environment arrangements that could prompt a review include construction, renovations, or other changes in a store's design or layout that restrict visibility into and out of the premises, affect video camera sight lines, or otherwise affect the ability of the worker to safely respond to a potentially violent situation. Relevant changes could also include the addition of services or product lines that affect customer and sales volumes, such as the addition of a coffee/food station or cash machine.

G4.22.2-1 Mandatory prepayment for fuel

Issued February 1, 2008; Revised March 27, 2008; Revised August 18, 2008; Formerly Issued in G4.22.2 - Reissued as G4.22.2-1 September 22, 2008

Regulatory excerpt

Section 4.22.2 of the *OHS Regulation* ("*Regulation*") states:

An employer must require that customers prepay for fuel sold in gas stations and other retail fueling outlets.

Purpose of guideline

The purpose of this guideline is to clarify who is covered by this section and set out some alternatives for providing prepayment for customers.

Application

The prepayment requirement applies 24 hours a day, seven days a week. The requirement applies to both full service and self service stations. The requirement applies regardless of the number of workers assigned and working at any given time at the worksite.

The prepayment requirement only applies to vehicle fuel. Fuel is considered to be products such as gasoline, propane, and diesel. The prepayment requirement does not apply to fuel being pumped into containers. For example, customers do not need to prepay for propane being pumped into a cylinder (e.g., for barbecues), or for pre-filled propane cylinders.

"Other retail fueling outlets" include convenience stores that dispense fuel. However, the requirements of section 4.22.2 are not intended to apply to marine fueling stations that use boat access to the fueling location. The risk of injury to a worker in a marine "gas and dash" situation is not as significant.

Methods of Prepayment

Pay at the pump

Where available, customers can prepay for fuel by swiping their credit or debit cards before fueling to preauthorize their purchase at the pump. As practices may differ regarding how preauthorization occurs on such transactions at the pump, customers are encouraged to discuss any concerns about retail fuel prepayment transactions directly with their financial institution and credit card companies.

At gas kiosk/in store

Customers may prepay by cash, credit card, or debit card with an attendant at a payment kiosk or with the clerk in the store. The payment transaction is completed before fueling commences. The customer will determine the amount of fuel to be purchased, then immediately pay the cash, or complete the credit card or debit card transaction. Optimally, the gas pumps can then be set to authorize fueling to the prepaid amount only.

This option will be preferred by customers who wish to keep their credit and debit cards within their sight and control.

Providing credit and debit cards

Customers may also prepay by leaving a credit card or debit card with the gas attendant or with the clerk in the store before fueling. After fueling, the payment transaction is completed. The attendant or clerk will put through the amount fueled on the credit card and the customer will sign the receipt. Where a debit card is used, the customer will complete the transaction by authorizing the withdrawal through the usual PIN (personal identification number) and account selection process.

This option will not suit customers with concerns about relinquishing control of their cards.

Cardlock systems

Finally, a customer may make a payment using a cardlock system, typically used by the commercial trucking industry.

Upgrading equipment

Employers should consult with their equipment distributor/service provider to ensure their point of sales software, valves, nozzles, and other equipment is capable of safely operating in a prepay mode.

G4.22.2-2 Alternative methods for fuel prepayment outside of urban centres

Issued February 1, 2008; Revised March 27, 2008; Revised August 18, 2008; Formerly Issued in G4.22.2 - Reissued as G4.22.2-2 September 22, 2008

Regulatory excerpt

Section 4.22.2 of the *OHS Regulation* ("Regulation") states:

An employer must require that customers prepay for fuel sold in gas stations and other retail fueling outlets.

Purpose of guideline

The purpose of this guideline is to clarify WorkSafeBC's expectations for fuel payment in small, rural or remote locations outside of urban centres, where implementing one or more of the above methods of fuel prepayment poses particular difficulties to an employer, and where payment for fuel can be secured by an alternative method. Where alternative methods prove to be appropriate, the employer, not the customer, has the discretion to determine if these methods will be used at their workplace.

Determining when alternatives may be used

A number of factors should be considered in determining if an alternative secured payment method is appropriate for a particular gas station. First, alternative payment methods should be considered only for stations in small, rural or remote locations, outside of urban centres, particularly outside the lower mainland. Next, the employer will have considered implementing one of the methods of prepayment noted in G4.22.2-1, but found challenges in doing so. Usually these challenges will relate to some special circumstances associated with the station being located in the small, rural or remote area. Finally, the number of customers that are known to the employer and their workers will generally be relevant in determining if, and what type of, alternative secured payment method should be used. As these considerations will vary considerably from station to station, a prevention officer can assist an employer with the determination.

Alternative methods

The following are acceptable alternative methods of securing payment for fuel in appropriate locations.

Standing accounts

Where the gas station employer and their workers are familiar with many of their customers who do not pose "gas and dash hazards," the retailer and customer may make alternative arrangements for paying for fuel. For example, they may have a standing account where future payment is arranged by agreement, or they may establish a "known customer" list for customers who may pay the attendant on each transaction after fuel has been pumped.

Leaving a means of securing payment: car keys or driver's licence

Gas station attendants may request that customers provide their car keys or a driver's licence to secure payment for the fuel that will be pumped. The attendant should verify that the driver's licence or keys are that of the customer.

Guidelines - Part 4 - Work Area Requirements

G4.38 Work area requirements – Extreme temperatures

Issued September 1999; Editorial Revision March 11, 2021

Regulatory excerpt

Section 4.38 of the *OHS Regulation* ("Regulation") states:

- (1) An open flame or other high temperature or extreme low temperature source or surface, which could cause a burn or other injury, must be positioned or shielded to prevent contact by workers.
- (2) If an extreme temperature source is necessarily exposed due to the work process, safe work procedures must be established, and workers must be instructed in those procedures and must wear appropriate clothing and personal protective equipment.

Purpose of guideline

The purpose of this guideline is to outline possible hazards that can cause exposures to extreme temperatures.

Addressing hazards

This requirement is intended to address the hazard from contact or exposure to an extreme temperature source that may cause an injury. Some examples are hot water and steam piping, exhaust systems, boiler and furnace surfaces, cryogenic piping and similar process equipment. It is not intended to cover heat stress or cold stress from prolonged exposure in a hot or cold environment (refer to [Part 7](#) for requirements regarding these hazards), or contact with a surface made cold or hot due solely to exposure to winter or summer weather. It is expected that workers employed in hot or cold weather will be generally aware of the risks of touching hot or cold surfaces with a bare hand.

Extreme temperatures

A surface above 40 degrees Celsius will potentially cause tissue damage if prolonged contact is maintained. Where section 4.38 of the *Regulation* applies, surfaces above this temperature should be positioned or shielded to prevent contact by a worker. Prolonged contact with a surface colder than minus 10 degrees Celsius will likely cause tissue damage. Where section 4.38 applies, a surface below this temperature should be positioned or shielded to prevent contact by a worker.

G4.41 Waste material in agricultural operations

Issued January 1, 2005

Regulatory excerpt

Section 4.41 of the *OHS Regulation* ("Regulation") states:

Refuse, spills and waste material must not be allowed to accumulate so as to constitute a hazard.

Purpose of guideline

The purpose of this guideline is to clarify when materials such as manure, when used in agricultural operations, might be considered "refuse" or "waste materials" under section 4.41 of the *Regulation*.

Waste material

The use of such materials in agricultural operations does not necessarily mean that section 4.41 of the *Regulation* applies. Section 4.41 applies if there is an accumulation of "waste" (in the sense of useless or discarded) material or spills of such material in an agricultural operation and a hazard is created.

Other material

Materials that are not wastes and that could be hazardous to workers are addressed by general requirements such as section 4.1, which states, among other things, that "workplaces must be maintained in such a condition that workers will not be endangered." If materials on the floor create a slippery surface, the use of non-slip footwear, as required by section 8.23, may assist with risk control.

G4.42(1) Cleaning with compressed air – Hazards of combustible dusts

Issued April 30, 2012

Regulatory excerpt

Section 4.42(1) of the *OHS Regulation* ("Regulation") states:

Compressed air or steam must not be used for blowing dust, chips, or other substances from equipment, materials and structures if any person could be exposed to the jet, or to the material it expels or propels and an injury or health hazard due to fire, explosion or other cause is likely to result.

Purpose of guideline

This guideline is intended to set out the circumstances under which cleaning equipment or work areas with compressed air is permitted, and the controls that need to be put in place in order to ensure that cleaning with compressed air does not create a hazard due to fire, explosion, or other cause.

Discussion

Cleaning equipment with compressed air provides a convenient and effective way of removing small particulate matter from inaccessible areas in and around equipment and other contained work areas.

Cleaning with compressed air, however, can release combustible dusts into the air, creating an explosion hazard. Combustible dusts are fine particles that present an explosion or fire hazard when suspended in air under certain conditions. A dust explosion can cause catastrophic loss of life, injuries, and destruction of buildings.

While cleaning with compressed air can present serious risks if done incautiously, the *Regulation* does permit it, provided it is done in a way that does not create an explosion or fire hazard. Cleaning with compressed air should be minimized, however, and should only be done where other methods of cleaning are not practicable.

Managing combustible dusts

Combustible dust explosions occur when dusts are dispersed into the air in concentration and come into contact with an ignition source. Cleaning with compressed air must be done in a way that ensures that these risk elements are controlled. Cleaning must occur in a way that minimizes the amount of dust that is dispersed into the air, does not allow dusts to spread, and ensures that dusts do not come into contact with any potential source of ignition. Prior to undertaking cleaning with compressed air, employers should consider the nature of the dust created by the work process and its combustibility.

Necessary controls include

1. Minimizing dust
 - The work area, equipment, and other areas near the cleanup area (e.g., floors, sills, and other surfaces) should be swept and/or vacuumed prior to cleaning, and dust removed from the cleanup area as much as possible.
2. Minimizing dispersion
 - Cleaning with compressed air should only occur in localized or isolated areas; cleaning of a number of work areas should occur in stages.
 - Where practicable, the area should be washed with water or a water mist should be applied.
 - Compressed air pressure must be kept as low as practicable to complete the cleaning. NFPA Standard 664 *Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities* sets out a maximum of 15 psi for the use of compressed air for blowing down equipment.
 - Compressed air must not be used to consolidate dust into piles or clean open areas.
 - Care must be taken to ensure that the compressed air stream does not contact a dust deposit containing a "smoldering nest", which occurs when a dust deposit or layer rests on a heated surface. Dust in a deposit that has not yet burnt can form an explosive dust cloud.
3. Eliminating Sources of Ignition
 - Machinery and equipment in recent operation must be allowed to cool prior to blowdown, and other hot surfaces must be identified and cooled or removed.
 - Electrical equipment in the area must be deenergized and locked out.
 - Sources of open flame, sparks, or static discharge must be identified and eliminated.
4. Emergency Response
 - Fire protection equipment must be readily available and in service.

The NFPA Standard 654 *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids* provides more information on managing combustible dusts in all phases of the manufacturing, processing, blending, pneumatic conveying, repackaging and handling of combustible particulate solids or hybrid mixtures, and also provides more detail on cleaning with compressed air.

Guidelines - Part 4 - Storing and Handling Materials

G4.43.1 Storage racks

Issued consequential to January 1, 2018 Regulatory Amendment

Regulatory excerpt

Sections 4.43.1(1), (2), (4) and (8) of the *OHS Regulation* ("Regulation") state:

(1) In this section, "storage rack" means a combination of steel frames, beams and associated accessories used, once assembled into a structure, to support materials and products, including, for example, a pallet rack or cantilever rack, but excludes shelving and display fixtures used for retail purposes.

(2) This section applies in respect of a storage rack that is

(a) 2.4 m (8 ft) or taller in height, as measured from the floor to the top of the highest shelf level of the storage rack, or

(b) under 2.4 m (8 ft) in height, if the materials and products are loaded on or unloaded off the storage rack by other than manual means.

...

(4) The employer must ensure that a qualified person installs and uninstalls the storage rack, in whole or in part, in accordance with the instructions of the manufacturer or a professional engineer.

...

(8) The employer must ensure that a qualified person

(a) inspects the storage rack

(i) for wear, corrosion, damage, missing or incompatible parts, and signs of fatigue, and

(ii) at regular intervals that will prevent the development of unsafe working conditions,

(b) makes a record of the results of each inspection, and

(c) provides the record to the employer.

...

Purpose of guideline

The purpose of this guideline is to:

- Clarify the application of section 4.43.1 of the *Regulation* to storage racks
- Provide direction to employers on how to meet their obligations in ensuring that qualified persons install, uninstall, and inspect storage racks
- Provide guidance on the frequency of storage rack inspections

Application of section 4.43.1 – Types of storage racks

Steel storage racks are universal equipment found in many workplaces. In most workplaces, they are loaded and unloaded with powered mobile equipment. Due to the common use of the phrase "storage racks" that describes all types of storage systems, as well as shelving units, this guideline provides further clarification and examples of the types of storage rack to which section 4.43.1 is intended to apply.

Section 4.43.1(1) defines a "storage rack" as a combination of steel frames, beams, and associated accessories used, once assembled into a structure, to support materials and products, including, for example, a pallet rack or cantilever rack, but excludes shelving and display fixtures used for retail purposes. The requirements of section 4.43.1 apply to the most common industrial storage racks, called "pallet racks," where palletized loads are placed on engineered steel framework of beams, columns, and bracings, designed to meet a certain rated capacity.

Other examples of steel storage racks to which section 4.43.1 applies include the following:

- Cantilever racks
- Double-deep racks
- Push-back racks
- Drive-in racks or drive-through racks
- Other similar types of industrial racks

Section 4.43.1(2) further narrows the scope of section 4.43.1 to apply to steel storage racks as described above where either of the following exists:

- It is 8 feet (2.4 m) or taller in height, as measured from the floor to the top of the highest shelf level of the storage rack
- It is under 8 feet (2.4 m) if the materials and products are loaded and unloaded off the storage rack by other than manual means (for example, using a forklift or automated mechanical system)

Steel storage racks that are designed to be shelving and display fixtures for retail purposes are excluded from the scope of section 4.43.1.

If a "steel storage rack" is not considered to be any of the above types, it is probably not the type of storage rack covered by this section. However, other sections of the *Regulation*, such as sections 4.2, 4.3, 4.8, and 4.43, would continue to apply to other types of storage racks,

shelving, and fixtures to ensure worker safety.

Competencies of a qualified person

The term "qualified" is defined in section 1.1 of the *Regulation* as being knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience, or a combination thereof.

Employers are responsible for ensuring that the qualified person can competently perform required tasks. When determining competency, the employer should assess the person's knowledge, skills, and abilities. Some competencies require the person to have *knowledge of*, which means the person is able to explain a process, procedure, or has underpinning knowledge. Competencies which have the *ability to* require the person to demonstrate the application of a process or procedure.

If the person is unable to demonstrate certain competencies, the employer should develop a plan to address any gaps in the person's knowledge, skills, or abilities, or consider hiring someone with the necessary competencies, like a qualified rack installer.

Although the same term, "qualified person," is used for sections 4.43.1(4) and 4.43.1(8), the qualified persons in these two roles likely possess a very different level of technical competencies.

(a) Qualified person referred to in section 4.43.1(4) for installation/uninstallation

Steel storage racks are engineered structures constructed by a network of frames, beams, and bracings designed to withstand specified loads. Proper installation and uninstallation of racks are critical for the safety of workers around racks. If installed incorrectly, racks could have catastrophic consequences. Similarly, if a rack is disassembled incorrectly, it could collapse prematurely and endanger workers.

Qualified persons are able to install or uninstall storage racks in accordance with the instructions of the manufacturer or a professional engineer because they are knowledgeable in installing/uninstalling storage racks, they understand the hazards involved with this task, and know how to control the hazards.

All of the competencies listed may not apply to a qualified person performing a partial install/uninstall needed for repairs or reconfiguring storage racks. The competencies of a qualified person need to be consistent with the specific task being performed.

General knowledge and abilities for a qualified person for the purposes of installation and uninstallation of storage racks include the following:

Knowledge of

- When to refer to a professional engineer and/or manufacturer
- Applicable legislative obligations (i.e., permits; electrical, building [seismic], and fire codes)
- How to identify a start point from engineering drawings, if applicable
- Requirements to participate in location specific orientation (i.e., employer of the rack site)
- Hazards that are specific to the storage rack type
- Hazards involved with the install/uninstall activity
- How to assess existing storage racks for compatibility
- When special or additional temporary support is required to safely install or uninstall
- When additional assistance is required for installation/uninstallation
- How to confirm compatibility within storage rack systems

Ability to

- Review layout drawings to support install/uninstall processes
- Review site specific procedures to support install/uninstall processes
- Use the materials list to confirm adequate storage rack components for installation
- Conduct a visual inspection of storage racks
- Take appropriate measurements as needed
- Stand and install storage racks
- Square the storage rack system
- Inspect and assess anchors
- Apply order of assembly and disassembly
- Conduct a final inspection
- Disassemble storage racks
- Determine lean and deflection
- Operate mobile equipment and work platforms, if required
- Select and use appropriate tools and equipment to install or uninstall storage racks
- Determine if the use of mobile equipment and work platforms is required for the purposes of installation/uninstallation

(b) Qualified person referred to in section 4.43.1(8) for inspection of storage racks

Steel storage racks, like other industrial equipment, endure "wear and tear" with use. Also, storage racks are often damaged by mobile equipment that moves items to and from the storage racks.

Section 4.43.1(8) states that employers must ensure that inspections of the storage rack are conducted by a qualified person for wear, corrosion, damage, missing or incompatible parts, and signs of fatigue, and at regular intervals that will prevent the development of unsafe working conditions.

General knowledge and abilities for a qualified person for the purposes of a routine inspection of storage racks include the following:

Knowledge of

- Hazards associated with products or loads
- When to escalate to an expert, such as a professional engineer or the manufacturer
- Appropriate load based on the storage rack system
- When the load should be removed

Ability to

- Determine scope and purpose of inspections
- Review past inspection reports to support inspection processes
- Apply safe operating procedures for storage racks
- Identify hazards in the inspectional area
- Determine actual load against rated capacity
- Perform systematic walk-around
- Identify wear, corrosion, damage, missing or incompatible parts, and signs of fatigue
- Categorize and document observations
- Apply safe inspection procedure
- Observe lean and deflection
- Select and use appropriate personal protective equipment (PPE), if required
- Use appropriate tools and equipment to conduct the inspection, if required

Inspection frequency

Section 4.43.1(8) requires storage racks to be inspected by a qualified person at regular intervals that will prevent the development of unsafe working conditions. In order to determine an appropriate inspection interval for the storage racks at a given workplace, the employer will need to review the various aspects of its operations and work environment. Some of the factors that may be relevant include the following:

- The nature of the environment in which the storage rack is located (e.g., indoors, outdoors, temperature, vibration, chemical exposure)
- Size of the facility
- Level of vulnerability of the storage rack to damage and failure
- Prior incidents of damage
- Nature of the operations, including equipment used around the storage racks
- Level of activity (e.g., seasonal fluctuations)
- Number of hours of work per week (e.g., shifts)
- Methods used to load and unload the storage racks
- Competency and training of the lift truck operators
- Procedures for reporting damage

Some employers may determine that daily inspections of their storage racks are appropriate due to the high-risk nature of their business operations (e.g., involving customer traffic, high volume mobile equipment traffic, and hazardous products stored). Other employers may determine that some of their storage racks are appropriate to be inspected every few months because their racks are isolated from traffic, they are only being used to store materials on a long-term basis, and the risk to workers is considered to be low.

Some employers may find it convenient to coincide the storage rack inspections with the regular joint health and safety committee or worker health and safety representative meetings to discuss the results of the storage rack inspections.

The frequency of inspections may change over time depending on the outcome and findings of successive inspections. In other words, if the selected inspection interval fails to prevent the development of unsafe conditions, then more frequent inspections may be necessary.

As a starting point, the employer may consult with the manufacturer of the storage rack or a professional engineer to determine the appropriate inspection frequency. Resources, such as the *CSA Standard A344-17, User guide for steel storage racks*, may also provide further guidance about the frequency of inspection.

Guidelines - Part 4 - Ergonomics (MSI) Requirements

G4.46 Definition of musculoskeletal injury (MSI)

Issued August 3, 2006; Editorial Revision March 11, 2021

Regulatory excerpt

Section 4.46 of the *OHS Regulation ("Regulation")* states:

"musculoskeletal injury" or "MSI" means an injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or

related soft tissue including a sprain, strain and inflammation, that may be caused or aggravated by work.

Purpose of guideline

This guideline provides further information on the definition of an MSI.

Conditions addressed by the definition

The definition of "musculoskeletal injury" includes reference to a sprain, strain, and inflammation that may be caused or aggravated by work.

A **sprain** is a joint injury in which some of the fibers of a supporting ligament are ruptured but the continuity of the ligament remains intact.

A **strain** is an overstretching or overexertion of some part of the musculature.

An **inflammation** is a localized response to injury or trauma that is marked by increased blood flow, redness, heat, pain, swelling, and often a loss of function.

The Ergonomics Requirements are intended to help address the risk of overexertion injuries of the back as well as strain and sprain injuries to other parts of the body. They are also intended to address the risk of injuries or conditions such as tenosynovitis, tendonitis, bursitis, hand arm vibration syndrome, epicondylitis, carpal tunnel syndrome, cubital tunnel syndrome, radial tunnel syndrome, thoracic outlet syndrome, and trigger finger.

G4.47 Risk identification

Issued August 3, 2006; Revised December 1, 2006

Regulatory excerpt

Section 4.47 of the *OHS Regulation* ("*Regulation*") states:

The employer must identify factors in the workplace that may expose workers to a risk of musculoskeletal injury (MSI).

Purpose of guideline

This guideline provides information on the context of section 4.47 and how to identify risk factors.

The context of section 4.47

Risk factor identification is the first step in a process involving identification, assessment, control, and evaluation.

[Section 4.49](#) lists factors that must be considered during the risk identification process. In some cases other factors such as illumination or vibration may be involved, which are addressed respectively in sections [4.64 - 4.69](#) and [7.10 - 7.16](#) of the *Regulation*.

Risk identification will be conducted by persons who are knowledgeable of work procedures, and the associated MSI risk factors. The risk identification process can be a part of a workplace inspection carried out under sections [3.5 to 3.8](#) of the *Regulation*.

Note: [Section 4.53](#) requires that the joint occupational health and safety committee or worker health and safety representative, as applicable, must be consulted on risk identification.

How are risk factors identified?

In identifying risk factors, the employer should give priority to jobs which have a high risk of MSI.

The employer should check past workplace records for evidence of MSI, including first aid records and claims history. The records should be examined for a sufficient period of time to ensure that any occurrences are identified, and where possible, that any patterns are clear. To achieve both objectives it is recommended that records be kept for at least several years.

Other sources of information include

- Interviews with workers and supervisors
- Trends in the employer's industry
- MSI statistics in similar operations where available

In addition to reviewing records, risk factors can be identified through direct observation of the work activities. For this purpose, the employer has the option of using the [MSI Risk Factor Identification Worksheet A](#) which can be found via the [Ergonomics](#) portal on the WorkSafeBC website. The Worksheet covers a number of factors to consider and includes links to documents that address several others.

Generally, there will be more than one risk factor identified for a given work activity. This may occur because of the nature of the activity but may also be attributable to the personal characteristics of different workers doing the job, for example, their height.

Notes of the records reviewed, priorities established, and risk factors identified for work activities will be of assistance to the employer in following through on risk assessment and control.

G4.48 Risk assessment

Issued August 3, 2006; Revised December 1, 2006

Regulatory excerpt

Section 4.48 of the *OHS Regulation* ("Regulation") states:

When factors that may expose workers to a risk of MSI have been identified, the employer must ensure that the risk to workers is assessed.

Purpose of guideline

This guideline outlines objectives for the risk assessment, and provides information on who should conduct it and how it can be performed.

Objectives of the risk assessment

The objectives include

- Determining the extent of impact of various risk factors on the potential for MSI
- Where feasible, determining the relative risk of MSI among workers or groups of workers

Achieving these objectives will assist with establishing priorities for the control of risks.

Who performs the assessment?

The risk assessment will be completed by a person who has a good understanding of

- The work processes involved
- The physical demands of work tasks and the factors which influence them (see the booklet [Preventing Musculoskeletal Injury \(MSI\) A Guide for Employers and Joint Committees](#))
- The methods for performing a risk assessment such as those referred to in this guideline

Note: [Section 4.53\(1\)](#) requires that the joint occupational health and safety committee or worker health and safety representative, as applicable, must be consulted on the risk assessment. Also, [section 4.53\(2\)](#) requires that during a risk assessment, the employer must consult with the workers with signs or symptoms of MSI, and a representative sample of the workers who are required to carry out the work being assessed.

How is the assessment performed?

A risk assessment can be performed using a variety of methods. WorkSafeBC provides the [MSI Risk Factor Assessment Worksheet B](#), which addresses a number of the factors to be considered. Other methods may be used as long as they ensure the proper identification and assessment of risks. Worksheet B can be found via the [Ergonomics](#) portal at the WorkSafeBC website.

Methods of assessment may include but are not limited to

- Observation of workers performing their tasks, including videotaping
- Still photographs of work postures, workstation layout, etc.
- Workstation measurements, using for example, a measuring tape, or weigh scales
- Measurement of handle size, weighing tools, measuring tool vibration, etc.
- Determination of characteristics of work surfaces such as slip resistance
- Measurement of exposures to heat, cold, vibration, noise, and lighting
- Biomechanical calculations, for example, the force required to accomplish a task or the pressure put on a spinal disk
- Physiological measures
- Worker surveys (for example, use of subjective force rating scales)
- Task analysis techniques (for example, NIOSH lifting equation, SNOOK push/pull tables – see *The design of manual handling tasks: Revised table of maximum acceptable weights and forces in Ergonomics, Vol. 34, No. 9, 1991*). Also, a [Push/Pull/Carry Calculator](#) is provided via the [Ergonomics](#) portal on the web site worksafebc.com
- Postural analysis techniques (for example, the Ovako Working Posture Analysis System (OWAS), Rapid Upper Limb Assessment (RULA), or WATBAK (a biomechanical modeling program from the University of Waterloo))

The person(s) performing the assessment and using any of these methods should understand the applications and limitations of the method being used.

G4.49 Risk factors

Issued August 3, 2006

Regulatory excerpt

Section 4.49 of the *OHS Regulation* ("Regulation") states:

The following factors must be considered, where applicable, in the identification and assessment of the risk of MSI:

- (a) The physical demands of work activities, including
 - (i) force required
 - (ii) repetition

- (iii) duration
- (iv) work postures
- (v) local contact stresses
- (b) Aspects of the layout and condition of the workplace or workstation, including
 - (i) working reaches
 - (ii) working heights
 - (iii) seating
 - (iv) floor surfaces
- (c) The characteristics of objects handled, including
 - (i) size and shape
 - (ii) load condition and weight distribution
 - (iii) container, tool and equipment handles
- (d) The environmental conditions, including cold temperature
- (e) The following characteristics of the organization of work
 - (i) work-recovery cycles
 - (ii) task variability
 - (iii) work rate

Purpose of guideline

This guideline provides information on the risk factors outlined in section 4.49.

General information

Section 4.49 states that the listed factors must be considered "where applicable." This means that the factors must be considered where they are present. Not all tasks will have all risk factors present.

In addition, it is acceptable for the employer to give priority to considering the risk factors relevant to high risk tasks that have caused injuries in the past.

Information on risk factors listed in section 4.49

Each of the factors listed in 4.49 is discussed below. Though listed separately, these factors often act in combination.

Force required (Section 4.49(a)(i))

This refers to the effort a worker must exert to counteract a load. This load may be experienced in the body through tension (such as muscle tension), pressure (such as increased pressure in the carpal canal), or irritation (such as irritation of a peripheral nerve). The greater the magnitude/intensity of the force, the greater the risk of causing an MSI.

Repetition (Section 4.49(a)(ii))

This refers to the cyclical use of the same body tissues either as a repeated motion or as a repeated muscular effort without movement. If motions are repeated frequently or for long periods without sufficient time to return to a resting state for recovery, there is risk of developing MSI. Consideration should be given to the following:

- How often the same motion or muscular effort is performed within a certain period of time
- The amount of time during or between a given work cycle for the affected muscle or tendon group to return to the recovery state

Duration (Section 4.49(a)(iii))

This refers to the length of time a person is exposed to a particular risk. A person may be exposed to a task that continually uses the same muscles and tendons.

Work postures (Section 4.49(a)(iv))

This refers to postures that are awkward. This occurs where joints are held at or near the end of range of motion or where muscle tension is required to hold the posture without movement. Awkward postures place significant stress on tendons, muscles, and other soft tissues and decrease their strength and efficiency. Postures to watch for include

- Shoulder abduction or flexion

- Flexion or extension of the wrist
- Ulnar deviation of the wrist
- Squatting and stooping
- Flexion or extension of the neck
- Rotation or side bending of the neck

Local contact stress (Section 4.49(a)(v))

This refers to physical contact between body tissues (in a small localized area) and objects in the work environment such as tools, machinery, and products. Local contact stress, when applicable, usually involves the knee, shoulder, elbow, wrist, or hand. Point pressure may also occur at the sides of fingers. Pressure over these areas may inhibit nerve function and/or blood flow.

Working reaches (Section 4.49(b)(i))

This refers to the risks that can result from reaching behind the shoulder, forward, or across the body. This factor may cause MSI, either through a single incident or through a repetitive or cumulative process.

Working heights (Section 4.49(b)(ii))

This refers to the risks from having to accommodate to inappropriate work surface heights for an extended period of time.

Seating (Section 4.49(b)(iii))

This refers either to the physical properties of a chair or seat, or prolonged sitting required by some jobs. The Canadian Standards Association (CSA) has issued the standard *CAN/CSA-Z412-M89 A Guideline on Office Ergonomics*, and WorkSafeBC has produced the booklet [How to Make Your Computer Workstation Fit You](#). These publications can assist with an understanding of this factor. WorkSafeBC publications on ergonomics are available at the [WorkSafeBC](#) website.

Floor surfaces (Section 4.49(b)(iv))

This refers to the physical characteristics of a floor, including grade, surface texture and material, unevenness, and slip resistance. Examples of risk factors associated with floor surfaces include

- Sloped surfaces and ramps, which can result in an increased effort to carry, push, pull, or manipulate loads
- Hard surfaces, which can cause increased fatigue and back discomfort to workers who have to stand on them for an extended period of time
- Uneven work surfaces, which can increase the force needed to move objects
- Floors that are slippery, which can cause an increased risk of falling or slipping

Size and shape (Section 4.49(c)(i))

This refers to the size and shape of an object and how it influences physical demands on the body. A large bulky object requires greater energy, puts greater stress on the spine, and increases difficulty in gripping. Large loads may restrict vision or require the use of an awkward posture to see around them. If the outside corners of a deep box are not within reach when the top of the box is at waist height, a good grip will be difficult.

Load condition and weight distribution (Section 4.49(c)(ii))

The condition and weight of a load will determine how workers handle it. For inanimate objects, the term "condition" typically refers to factors such as whether the load is slippery, sharp, fragile, hot or cold, rigid, or liquid. For example, to handle fragile loads, workers may have to use awkward or static postures. On the other hand, rigid loads facilitate a good grip and smooth predictable movements.

Note that patient handling is an important issue in the prevention of MSI in the health care sector. Factors such as patient size and condition are significant considerations for the safety of both the worker and the patient. The condition of the patient may affect the degree of effort needed to move the patient safely, and the precautions necessary to help ensure the move does not involve unexpected risks.

Containers, tool and equipment handles (Section 4.49(c)(iii))

Objects without handles are more difficult to handle and require more forceful gripping, which can result in an awkward posture. Important considerations in handle design include size, shape, texture, and location.

Size	Improper handle size increases fatigue; handles should accommodate gloves
Shape	Sharp edges, grooves, seams may cause contact stress
Texture	Slippery handles may cause dropping
Location	Improperly placed handles may force an awkward posture of wrists or arms. Asymmetrical placement may cause hazards of tipping of an unstable load

Environmental conditions, including cold temperature (Section 4.49(d))

Cold temperatures may have a direct adverse effect on the tissue through vascular constriction. Cold temperatures are related to increased forceful exertions and increased gripping forces.

Poor lighting and glare can adversely affect postures as well as cause eyestrain. This is addressed in sections [4.64 - 4.69](#) of the *Regulation on illumination*.

Hand/arm vibration is linked to conditions such as carpal tunnel syndrome, and vibration white finger disease. Sections [7.10 - 7.16](#) of the

Regulation and [associated OHS Guidelines](#) deal specifically with vibration.

Work-recovery cycles (Section 4.49(e)(i))

This refers to the availability and distribution of breaks in a particular activity to allow the tissue to return to a resting state for recovery. Breaks can be achieved in various ways, including job rotation or use of different body parts to perform a task, for example alternate use of the right and left hands.

Task variability (Section 4.49(e)(ii))

The longer the time a task remains unchanged, unvaried, or uninterrupted, the less likely are the affected tissues to return to a resting state for recovery.

Work rate (Section 4.49(e)(iii))

This refers to the speed at which the tasks are being carried out. Individual workers may vary somewhat in the rates at which they can safely perform the same task. In some cases work rate may be associated with non-optimal work techniques that could add to the risk of injury. The more critical or physically demanding the task, the more appropriate it is to ensure the pace is properly set for the worker. Planning the work rate will also involve consideration of work recovery cycles, task variability, and staffing schedules.

G4.50-1 Risk control

Issued August 3, 2006

Regulatory excerpt

Section 4.50 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must eliminate or, if that is not practicable, minimize the risk of MSI to workers.
- (2) Personal protective equipment may only be used as a substitute for engineering or administrative controls if it is used in circumstances in which those controls are not practicable.
- (3) The employer must, without delay, implement interim control measures when the introduction of permanent control measures will be delayed.

Purpose of guideline

This guideline provides information on the application of section 4.50(1), and discusses the hierarchy of controls and interim controls under sections 4.50(2) & (3).

Section 4.50(1) - General requirement for control of risk

The employer will eliminate or minimize the risks by creating control mechanisms for the risk factors found during the risk assessment.

In some cases, the control of ergonomic risk involves matters covered in other sections of the *Regulation*, or in the *Workers Compensation Act* ("Act"). Examples include lighting, vibration, unsafe work practices, and training.

Risk factors must be eliminated where practicable. "Practicable" is defined in section 1.1 of the *Regulation* as "that which is reasonably capable of being done." In determining if elimination is "practicable," the relevant considerations include

- Degree of risk to the worker arising from risk factors
- Extent of available information on the risk and the means of controlling it
- Availability and suitability of control measures
- Frequency of performing tasks that contain risk factors
- Resources needed to control the risk

Where elimination is not practicable, the specific risk factors identified in the risk assessment should be reduced to the lowest practicable level. Typically this means minimizing the duration, magnitude, and/or frequency of the relevant risk factor. Care should be taken to ensure that the reduction of risk of MSI from one factor does not increase the risk from another.

As a general rule, risk factors for tasks which are performed most of the time should be considered first. The primary risk factors to consider normally include awkward postures, force required, and repetition.

Note: The employer is required under [section 4.53](#) to consult with the joint occupational health and safety committee or worker health and safety representative, as applicable, on the implementation of controls.

Section 4.50(2) Hierarchy of controls/personal protective equipment

Under section 4.50(2) engineering or administrative controls must, where practicable, be used in preference to personal protective equipment (PPE) for eliminating or reducing the risk of MSI.

Section 1.1 of the *Regulation* states that "engineering controls" means the "physical arrangement, design or alteration of workstations, equipment, materials, production facilities or other aspects of the physical work environment, for the purpose of controlling risk."

Section 1.1 defines "administrative controls" to mean the "provision, use and scheduling of work activities and resources in the workplace, including

planning, organizing, staffing and coordinating, for the purpose of controlling risk."

PPE for MSI includes, but is not limited to the following:

- Gloves (for example, vibration dampening gloves, friction gloves)
- Footwear (for example, safe, cushioned footwear with a comfortable toe box, and proper-fitting, low profile heels)
- Devices to protect against contact stress (for example, knee pads and wrist rests on computer keyboards)

WorkSafeBC provides Ergonomics Commentary sheets on topics such as the computer mouse, wrist braces, and back belts. These can be accessed via the [Ergonomics](#) portal at the WorkSafeBC website.

Section 4.50(3) Interim controls

This section permits the use of interim controls if the introduction of permanent controls will be delayed.

"Delayed" in this context means putting off the introduction of permanent control measures for reasons related to practicability. For example, the cost of, or time required to develop control measures, may require that they be phased in over a period of time.

Section 4.50(3) requires that "interim control measures" be applied to minimize risk while more effective or long term solutions are being developed. The section does not authorize the employer to delay the introduction of practicable control measures for other reasons.

G4.50-2 Minimizing the risk of MSI when moving a physically-dependent person

Issued September 12, 2017

Regulatory excerpt

Section 4.50 (Risk control) of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must eliminate or, if that is not practicable, minimize the risk of MSI to workers.
- (2) Personal protective equipment may only be used as a substitute for engineering or administrative controls if it is used in circumstances in which those controls are not practicable.
- (3) The employer must, without delay, implement interim control measures when the introduction of permanent control measures will be delayed.

Purpose of guideline

The purpose of this guideline is to provide information on controls for minimizing the risk of musculoskeletal injury ("MSI") when a worker moves a physically-dependent person. This guideline applies to situations where it has been determined that moving a physically-dependent person is required and a worker is exposed to the risk of MSI.

Background

A physically-dependent person (such as a patient, resident, client, customer, or student) is a person who requires physical assistance to move himself or herself. Typical actions which involve moving a physically-dependent person and pose a significant risk of MSI to workers include, but are not limited to, the following:

- Lifting or lowering (e.g., from the floor to a bed; in or out of a bathtub)
- Transferring (e.g., from a bed to a chair; from a chair to the toilet)
- Repositioning (e.g., boosting in a bed or chair; turning in bed)
- Supporting (e.g., limbs during surgery or wound care, labour, and delivery)
- Rehabilitating and activating (e.g., ambulation training)

Some examples of workplaces in which these actions are performed include the following: health care (including acute, residential, home and community care, hospice, ambulance, and rehabilitation services), social services, schools, daycares, transportation, correctional facilities, and municipalities (including swimming pools and fire services).

Controls for minimizing the risk of MSI

Section 4.50(1) requires the employer to take steps that will eliminate or, if that is not practicable, minimize the risk of MSI. OHS Guideline [G4.50-1 Risk control](#) explains that, where elimination is not practicable, the risk factors are to be reduced to the lowest practicable level.

When moving physically-dependent people, there are different control options for minimizing the risk of MSI. Examples of commercially available engineering controls for moving physically-dependent people include the following:

- (a) Mechanical equipment (e.g., powered lifts, air-assisted lifts and sliding aids, turning mattresses, and standing beds)
- (b) Non-mechanical equipment or aids (e.g., slide sheets, transfer boards)

However, not all controls reduce risk factors equally. In order to determine which control will reduce the risk of MSI to the lowest practicable level, the employer can research industry best practices, and consult with equipment suppliers and other employers doing similar work.

Some questions that may assist in determining which control(s) will minimize risk include the following:

- Will the equipment allow the worker to conduct all required tasks?
- Is the equipment suitable for the space where the task(s) will take place?
- Have the risk factors to workers, identified in the risk assessment, been minimized?
- Does the equipment avoid creating new hazards to the worker or the person being lifted?

Controlling the risk of MSI while moving a physically-dependent person involves a number of additional elements, such as policies and procedures (including provision for emergency situations), complementing equipment (e.g., adjustable beds, wheelchairs, and tubs), equipment maintenance, adaptive clothing, training, supervision, etc. Training workers on the appropriate selection and use of available controls is an important element. However, it should be noted that training in body mechanics and manual handling on its own does not minimize the risk of MSI and is not considered a control.

Resources

For more information refer to the [Provincial Safe Resident Handling Standards for Musculoskeletal Injury Prevention in British Columbia](#).

G4.51 Education and training

Issued August 3, 2006

Regulatory excerpt

Section 4.51 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must ensure that a worker who may be exposed to a risk of MSI is educated in risk identification related to the work, including the recognition of early signs and symptoms of MSIs and their potential health effects.
- (2) The employer must ensure that a worker to be assigned to work which requires specific measures to control the risk of MSI is trained in the use of those measures, including, where applicable, work procedures, mechanical aids and personal protective equipment.

Purpose of guideline

This guideline provides information to assist with understanding terms in section 4.51(1) and on what is meant by "trained" in section 4.51(2).

Section 4.51(1)

This provision requires that workers be educated as to the risk factors which have been identified during the risk identification process under [section 4.47](#) for a work activity that they perform. The education needs to be sufficient so the workers are aware of the applicable risk factors and their potential impact on the body.

Because all work has a physical component to it (i.e. from lifting a box to sitting behind a desk) risk factors are likely to be identified in the majority of jobs. Therefore, most workers will need education under this provision.

The early signs and symptoms of MSI include but are not limited to the following:

- Pain or discomfort
- Reduced range of motion at a joint
- Swelling
- Tingling, numbness
- Weakness when trying to perform a natural action like grasping

See OHS Guideline [G4.46](#) for more information on the medical conditions addressed by the Ergonomics Requirements. WorkSafeBC has also produced the booklet [Understanding the Risks of Musculoskeletal Injury \(MSI\)](#) to help employers with the requirements of section 4.51(1) to educate workers in risk identification, signs and symptoms of MSI, and their potential health effects. These can be accessed via the [Ergonomics](#) portal at the WorkSafeBC website.

Section 4.51(2)

In this provision, "trained" refers to the provision of practical information so that the workers affected understand why a control measure is in place and are able to effectively apply the control measures in their work.

Workers should be able to demonstrate an understanding of the education and training. To check this, it may be useful to ask workers about the risk factors present in their job and if there are specific procedures or equipment they use to reduce the risk. Sample questions for the worker could include

- What are some early signs and symptoms of MSI, and what could happen if they are ignored?
- Who should you report any signs and symptoms of MSI to?
- What are the risks of MSI in your job?
- What can be done to reduce the risk of MSI in your job?

Note: [Section 4.53](#) of the *Regulation* requires that the joint occupational health and safety committee or worker health and safety representative,

as applicable, must be consulted on the content and means of provision of education and training under section 4.51.

G4.52 Evaluation

Issued August 3, 2006

Regulatory excerpt

Section 4.52 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must monitor the effectiveness of the measures taken to comply with the Ergonomics (MSI) Requirements and ensure they are reviewed at least annually.
- (2) When the monitoring required by subsection (1) identifies deficiencies, they must be corrected without undue delay.

Purpose of guideline

This guideline provides information on what is meant by conducting a review under section 4.52(1) and some of the considerations when applying section 4.52(2).

Section 4.52(1) - Conducting a review

This section requires the employer to monitor the effectiveness of control measures and ensure they are reviewed at least once a year.

The review must cover all the measures taken under sections [4.47 to 4.51](#), including risk identification and assessment, the implementation of control measures, and the education and training of workers.

In reviewing the effectiveness of existing measures, employers will evaluate whether they have eliminated or minimized the degree of risk to workers. The information to be considered may include evidence on changes of exposure to risk factors, reports of worker discomfort, MSI records in the first aid book, and MSI claims.

Section 4.52(1) states that a review must be done at least annually. A review is also required when significant changes in circumstances occur, including when

- MSI of a different type is reported, or workers report signs and symptoms of MSI of a different type
- A request from a worker is received to identify a risk factor that has not previously been considered
- A new or changed piece of equipment is implemented
- When new work stations or work processes are initiated

Note: [Section 4.53](#) requires that the joint occupational health and safety committee or worker health and safety representative, as applicable, must be consulted in the evaluation.

Section 4.52(2) – Effective control measures

If monitoring shows there has been no reduction in the level of risk to workers or reports of discomfort, the effectiveness of the measures taken will need to be considered, and a determination made of whether additional corrective action should be taken.

If any different injury or signs or symptoms are reported, or any new risk factors are identified during a review, these need to be assessed and appropriate risk control measures taken. Identification of new MSI or new risks means the priority for addressing MSI should be reviewed, and the overall MSI program adjusted as necessary to ensure the areas of highest risk are receiving appropriate action.

G4.53 Consultation

Issued August 3, 2006

Regulatory excerpt

Section 4.53 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must consult with the joint committee, if any, or the worker health and safety representative, as applicable, with respect to the following when they are required by the Ergonomics (MSI) Requirements:
 - (a) Risk identification, assessment and control
 - (b) The content and provision of worker education and training
 - (c) The evaluation of the compliance measures taken
- (2) The employer must, when performing a risk assessment, consult with
 - (a) Workers with signs or symptoms of MSI, and
 - (b) Representative sample of the workers who are required to carry out the work being assessed

Purpose of guideline

This guideline provides information on expectations for consultation under subsections (1) and (2) of this requirement. Consultation includes seeking the participation of the affected parties and asking for their input on measures taken under sections 4.47 to 4.52 of the *Regulation*.

Section 4.53(1)

Section 4.53(1) requires the employer to consult with the joint occupational health and safety committee or worker health and safety representative, as applicable, regarding implementation of ergonomic requirements. It is expected that ergonomic requirements will be incorporated as part of the occupational health and safety program for the workplace.

Section 4.53(2)

This provision requires the employer to consult with the affected workers when a risk assessment is being done regarding tasks or functions performed by those workers. A "representative sample" under subsection (2)(b) means, in addition to workers with signs or symptoms, a cross section of workers, having regard to differences in age, shift schedule, gender, size (height, weight), and work location (climatic conditions can vary considerably, and clothing or icy surfaces may result in different levels of risk for similar tasks). The size of the sample will depend on how many applicable differences there are in the group.

Guidelines - Part 4 - Work Area Guards and Handrails

G4.55 Guardrails on work platforms

Issued December 2, 2011; Retired consequential to May 1, 2017 regulatory amendment

G4.58(4)(b) Prior approval for fibre and wire rope guardrails

Retired February 1, 2011

Prior approval is no longer needed; see [Schedule 4-A](#) of the Occupational Health and Safety Regulation: WorkSafeBC Standard – Guardrails using rope or other non-rigid material.

G4.59 Floor and roof openings

Issued March 7, 2011

Regulatory excerpt

Section 4.59(1) and (4) of the *OHS Regulation* ("*Regulation*") states:

(1) A pit or other opening in a floor, walkway, roof or other area accessible to workers, which is a danger to workers, must be securely covered with a cover of adequate size and strength or guarded by fixed or movable guardrails, which must be identified as such and kept in place except when necessarily removed to work in the opening or pit.

...

(4) If a worker must enter an area not normally accessible and that has openings that are a danger, such openings must be guarded or personal fall protection must be used while the worker is in the area.

Purpose of guideline

The purpose of this guideline is to clarify the status of skylights as roof openings, and explain the application of section 4.59(1) of the *Regulation* to situations where work is being performed on roofs and other surfaces that are equipped with skylights.

Floor and roof openings

Workers commonly access roofs equipped with skylights for the purpose of inspection, maintenance, and other activities. There is some question as to whether skylights constitute an adequate cover as contemplated by this section.

The *British Columbia Building Code (2006)* references standards that apply to skylights, and these standards include human impact safety requirements. However, it is difficult to determine, based on observation, what standard a particular skylight is manufactured to, whether it is appropriately rated, or its actual condition.

Unless the employer can demonstrate that a skylight is strong enough to act as an adequate cover for workers, the skylight must be adequately covered and guarded by fixed or moveable guardrails. Alternatively, a system of personal fall protection may also be used as noted in section 4.59(4) of the *Regulation*.

Guidelines - Part 4 - Illumination

G4.65 Illumination levels

Issued September 1999; Revised January 1, 2005; Revised February 26, 2014

Regulatory excerpt

Section 4.65 of the *OHS Regulation ("Regulation")* states in part:

(1) Except as otherwise provided in this section and section 4.69, an employer must provide and maintain minimum illumination levels to ensure safe working conditions, safe passage and the identification of hazards or obstructions as follows:

(a) 22 lux (2 fc) in areas of low activity, such as parking lots, building exteriors, outside areas and basement areas housing machinery, but which are not regular task areas;

(b) 54 lux (5 fc) in areas of high activity, such as frequently used walkways and building access and egress points.

(1.1) Cap lamps or other local sources of illumination acceptable to the Board must be used if the light intensity in a work area is less than 22 lux (2 fc) and it is impracticable to provide illumination by any other means.

(2) For tasks which require the ability to distinguish detail an employer must provide and maintain illumination as required by Table 4-1.

(3) For work processes which require lower illumination levels than those specified in subsections (1) and (2), such as photographic darkrooms, fish hatching rooms and poultry catching operations, the employer may use other effective means to ensure the safety of workers.

Purpose of this guideline

The purpose of this guideline is to provide information on the types and levels of illumination for various activities.

Information on types and levels of illumination

Section 4.65 of the *Regulation* requires the employer to provide and maintain minimum illumination levels to ensure safe working conditions, safe passage, and the identification of hazards or obstructions.

Section 4.65(1.1) addresses illumination in outdoor areas during low light conditions. The term "cap lamp," which is commonly used in the mining industry, includes head lamps.

For tasks that require the ability to distinguish detail (for example, weaving, fine hand-painting, and precision manual arc welding) section 4.65(2) requires the employer to provide and maintain the illumination levels listed in Table 4-1. The illumination levels listed in Table 4-1 are based on Figure 11-1 of the *Lighting Handbook: Reference and Application* (8th edition), published by the Illuminating Engineering Society of North America. Figure 11-1 presents a range of illumination levels, whereas Table 4-1 presents only the minimum levels listed in Figure 11-1. As the *Regulation* specifies a minimum illumination level, some workers may complain about inadequate lighting. The *Lighting Handbook* should be used for guidance in resolving such complaints. WorkSafeBC can only require illumination be provided to the level specified in the *Regulation*.

The following factors should be considered in selecting an illumination level:

- Type of activity performed within a space
- Characteristics of the visual task
- Age of the occupant
- Importance of speed and accuracy in performing the visual task
- Reflectance of the task surface

In agriculture, many visual tasks need only lower lighting levels, and fall into task categories 1 and 2 of Table 4-1. As workers will be required to read pesticide labels, mixing of pesticides in storage areas is an activity that will likely fall into task category 2.

For further guidance, refer to Chapter 11 of the *Lighting Handbook: Reference and Application* (8th edition).

Section 4.65(3) permits an employer to use "other effective means" to ensure the safety of workers for work processes that require lower illumination levels. In addition to the activities mentioned in the *Regulation*, the performing arts industry may have operational requirements for reduced illumination levels during rehearsals and performances. In agriculture, low illumination levels are often required in poultry and in mushroom operations. "Other effective means" might include the use of strip lighting in aisles, illuminating paint, safelights and handheld flashlights. It is important that proper access and exit routes be available and be free of tripping hazards and any obstructions.

G4.66 Means of illumination

Issued September 1999; Retired March 11, 2021

This guideline is being retired as it is no longer required.

G4.67 Brightness, reflectance and glare

Issued September 1999; Editorial Revision March 11, 2021

Regulatory excerpt

Section 4.67 of the OHS Regulation ("*Regulation*") states:

As far as practicable, the workplace must be designed and maintained in such a manner to adequately control

- (a) brightness ratios,
- (b) reflectance values, and
- (c) glare.

Purpose of guideline

The purpose of this guideline is to outline various options to assist in adequately controlling brightness ratios, reflectance values, and glare.

Control options

Controlling brightness ratios, reflectance values, and glare can be achieved by actions such as the following:

- Adding light fixtures
- Moving light fixtures
- Changing types of light source (fluorescent, LED etc.)
- Installing blinds
- Relocating a workstation
- Painting with low gloss paints
- Covering highly reflective surfaces

G4.68 Illumination measurement

Issued September 1999; Editorial Revision March 11, 2021

Regulatory excerpt

Section 4.68 of the OHS Regulation ("*Regulation*") states:

- (1) The measurement of illumination must be done in accordance with the procedures in the *Lighting Handbook -- Reference and Application*, 8th Edition, 1993 (IES Handbook) published by the Illuminating Engineering Society of North America.
- (2) A photometer used to measure illumination levels must be colour and cosine corrected.

Purpose of guideline

The purpose of this guideline is to reference Chapter 2 of the IES handbook for the purpose of taking measurements of illuminance in the field.

Measurement of illumination

Chapter 2 of the *IES Handbook* discusses how light and other radiant energy is measured. For taking measurements of illuminance in the field, the *IES Handbook* suggests the following:

- Any conditions that might affect the readings, such as interior surface reflectance, lamp type and age, voltage, and survey instruments, be noted
- Detectors be cosine and colour corrected (required by section 4.68(2) of the Regulation)
- Detectors be used at temperatures between 15 and 50 degrees Celsius (60 and 120 degrees Fahrenheit)
- Care be taken to avoid casting shadows or reflecting light onto the detector, while taking readings
- Lighting systems be on for at least one hour to ensure that normal operating output has been attained, before measurements are taken
- For interior measurements, the area be divided into 60 cm (2 ft.) squares; the readings be taken 76 cm (30 in.) above the floor, and then averaged
- Daylight is excluded from the readings, if possible

G4.69 Emergency lighting

Issued September 1999; Revised consequential to the February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 4.69 of the *OHS Regulation* ("*Regulation*") states:

- (1) If failure of a lighting system would create conditions dangerous to the health and safety of workers, an emergency lighting system must be provided for the workplace and the exit routes.
- (2) An emergency lighting system must provide dependable illumination while the primary lighting system is off to enable all emergency measures to be carried out, including
 - (a) emergency shutdown procedures, and
 - (b) evacuation of workers from the premises.

(3) An emergency lighting system in a fixed facility must meet the requirements of section 3.2.7 (Lighting and Emergency Power Systems) of the *BC Building Code* with regard to

- (a) illumination level,
- (b) use of recessed fixtures,
- (c) duration of emergency lighting,
- (d) the use of self-contained emergency lighting units, and
- (e) emergency electrical power supply.

(4) The emergency lighting system must be inspected, tested and maintained to meet the requirements of section 6.5 (Emergency Power Systems and Unit Equipment for Emergency Lighting) of the *BC Fire Code*.

Purpose of the guideline

The purpose of this guideline is to summarize the *BC Building Code* and *BC Fire Code* requirements for an emergency lighting system

Requirement for an emergency lighting system

Section 4.69(1) requires that the employer provide an emergency lighting system for the workplace and the exit routes if the failure of a lighting system could create conditions dangerous to the health and safety of workers. Section 4.69(3) requires that the emergency lighting system meet the requirements of section 3.2.7 of the *BC Building Code* with regard to the following:

- Illumination level
- Use of recessed fixtures
- Duration of emergency lighting
- Use of self-contained emergency lighting units
- Emergency electrical power supply

The requirements of section 3.2.7 are summarized in the table below.

Requirements for Emergency Power Systems (*BC Building Code*)

Item	Requirement(s)
Illumination level	10 lx (average) at floor or tread level, or, in the case of a service space, at floor or catwalk level.
Recessed fixtures	Must not be located in an insulated ceiling unless the fixture is designed for such an installation.
Duration of emergency lighting	Ranges from 30 minutes to 2 hours, depending on the height of the building and the occupancy.
Self-contained emergency lighting units	Must conform to <i>CSA Standard C22.2 No. 141, "Unit Equipment for Emergency Lighting."</i>
Emergency electrical power supply	<p>Must be provided by a power source, such as a generator or batteries, capable of supplying power for the duration outlined above in the event that the regular power to the building is interrupted. Must be installed in conformance to:</p> <ul style="list-style-type: none"> • <i>CSA Standard Z32, "Electrical Safety and Essential Electrical Systems in Health Care Facilities"</i> for "treatment occupancies," which includes facilities where medical treatment or accommodation for such treatment is provided, or • <i>CSA Standard C282, "Emergency Electrical Power Supply for Buildings"</i> for other buildings. <p>If the emergency electrical power supply is dependent on a fuel supply from outside the building, that fuel supply shall be provided with a suitably-identified separate shut-off valve outside the building.</p>

Section 4.69(4) requires that the emergency lighting system be inspected, tested, and maintained to meet the requirements of section 6.5 of the *BC Fire Code*. The requirements of section 6.5 are summarized in the table below.

Inspection, Testing and Maintenance of the Emergency Lighting System

Item	Requirement(s)

Inspection, testing and maintenance	The emergency power system must be inspected, tested, and maintained in accordance with: <ul style="list-style-type: none"> • <i>CSA Standard Z32, "Electrical Safety and Essential Electrical Systems in Health Care Facilities"</i> for health care facilities, or • <i>CSA Standard C282, "Emergency Electrical Power Supply for Buildings"</i> for other buildings.
Notification	Supervisory staff must be notified when an emergency power system (or any part thereof) is shut down.
Instructions	Where an emergency power system is installed, instructions must be provided for switching on essential loads and for starting the generator when this is not done automatically.
Records	Must be maintained as required by <i>CSA Standard C282, "Emergency Electrical Power Supply for Buildings."</i>
Supply of fresh fuel	Liquid fuel storage tanks must be drained and refilled with fresh fuel at intervals not greater than 12 months.
Inspection of unit equipment	Self-contained emergency lighting unit equipment must be inspected at intervals not greater than one month. Self-contained emergency lighting unit equipment must be tested <ul style="list-style-type: none"> • At intervals not greater than one month to ensure that emergency lighting will function if the primary power supply fails, and • At intervals not greater than 12 months to ensure that the unit will provide emergency lighting for a duration equal to the design criterion under simulated power failure conditions. <p>After a 12 month interval test, the voltage and current charging conditions, as well as the recovery period, must be tested to ensure that the charging system is functioning in accordance with the manufacturer's specifications.</p>

Guidelines - Part 4 - Indoor Air Quality

G4.72 Design and operation

Preliminary Issue April 14, 2022

Regulatory excerpt

Section 4.72 of the *OHS Regulation* ("*Regulation*") states in part:

(1) An employer must ensure that a ventilation system for the supply and distribution of air and removal of indoor air contaminants is designed, constructed and operated in accordance with

(a) established engineering principles, and

(b) *ASHRAE Standard 62-1989, Ventilation for Acceptable Indoor Air Quality*.

(2) An adequate supply of outdoor air must be provided to the workplace in accordance with Table 2 of *ASHRAE Standard 62-1989*.

(3) For a building ventilation system installed prior to 1989, an adequate supply of outdoor air must be provided in accordance with the ASHRAE standard in place at the time the ventilation system was designed.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

Section 4.4(2)(a) of the *Regulation* provides WorkSafeBC the authority to accept alternative standards to those listed in the *Regulation*. The purpose of this guideline is to specify an acceptable alternative standard under section 4.72.

Alternative acceptable standard to ASHRAE 62-1989

The *ASHRAE Standard 62.1-2016* is an updated version of *ASHRAE Standard 62-1989* and is considered an acceptable alternative to the *ASHRAE Standard 62-1989* version.

G4.79 Moulds and indoor air quality

Issued June 14, 2002; Revised February 8, 2007

Regulatory excerpt

Section 4.79(1) of the *OHS Regulation* ("*Regulation*") states in part:

The employer must ensure that the indoor air quality is investigated when

(a) complaints are reported...

Section 4.79(2) states in part:

An air quality investigation must include...

(c) sampling for airborne contaminants suspected to be present in concentrations associated with the reported complaints...

Section 3.10 states:

Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.

Purpose of guideline

This guideline discusses the application of the *Regulation* to workplaces with mould showing on exposed or hidden surfaces, or where mould may be a factor in complaints regarding indoor air quality. The guideline provides information for investigating indoor air quality complaints with respect to mould contamination, including information on sampling for the presence of moulds in buildings. Information is also provided on possible health effects and for cleanup personnel involved in the remediation of buildings damaged by water and mould.

The presence of mould should be suspected if there is visible moisture (condensation) on building surfaces or if there has been water damage, for example, due to roof or wall leaks, plumbing failures, or flooding. Workers who occupy damp or water-damaged buildings and workers involved in the remediation of water-damaged buildings may be exposed to mould. The presence of moulds may also result in complaints from workers about poor air quality in the building, such as a musty odour. These complaints require an investigation by the employer (*Regulation* sections [3.10](#) and [4.79\(1\)](#)). In order to establish whether there is a potential for worker exposure to mould, a risk assessment must be carried out. Some basic principles are outlined in this guideline, including precautionary measures that need to be considered in order to minimize the potential for worker exposure.

Note: Public exposure to moulds. WorkSafeBC applies the *Regulation* to protect workers under its jurisdiction from the adverse health effects of exposure to moulds. While public exposure is not within its jurisdiction, WorkSafeBC cooperates with other agencies, such as public health authorities and the Canada Mortgage and Housing Corporation, in finding solutions to the problems of mould contamination.

Conditions for mould growth

Moulds are part of the fungi kingdom and serve an important role in breaking down organic matter. They are found both outdoors and indoors. Fungi can form a colony, which is a visible mass of interwoven filaments that may appear cottony, velvety, granular, or leathery. Fungi can be any colour but usually will appear as a shade of white, grey, brown, yellow, or green. The fungi most commonly found growing indoors are often called "moulds" (for example, species of *Penicillium*, *Aspergillus*, and *Cladosporium*). For the purposes of this guideline, the terms "mould," "mildew," and "fungus or fungi" are interchangeable.

Moulds spread naturally through the release of spores into the air. Any air movement will cause the dry spores to be carried with the air current; eventually the spores will land on a surface. Moulds may also spread through direct mechanical transfer of mould-covered materials, or by a person or animal brushing against a mould and then depositing some mould on another surface. Once a colony of mould is established and subsequently disturbed or damaged, spores may become airborne and spread throughout the building.

As long as moisture and nutrients are present, mould growth will usually continue unabated. Moulds are likely to grow where there is water or prolonged dampness – such as in bathrooms, basements, water-damaged walls, ceiling/roofing material, and the damp parts of refrigeration or air conditioning systems (for example, air chillers or drip trays). A source of nutrients for mould is basically any organic material and can include simple sugars and starches as well as more complex carbon-containing substances such as paper and wood. Many porous building materials such as drywall, wallboard, wallpaper, insulation, ceiling tile, and wood contain organic material.

Without moisture, mould cannot grow or reproduce and will die or enter a dormant stage. In the case of some moulds, this dormant stage can last for years. However, given the right conditions, such as a water or moisture supply, the mould can become active (start growing again) and release spores.

Health effects of exposure to moulds

A person's exposure to moulds is primarily through inhalation of airborne spores. For most people, exposure to mould does not result in any

significant health effects. Most of the health complaints reported are upper respiratory in nature, such as coughing, itchy eyes, stuffy nose, sneezing and sore throat. However, mould exposure in water-damaged buildings has also been linked to the development of asthma in both children and adults.

For a person who has a compromised or sensitized immune system, health effects can be severe. Some moulds are infectious (pathogenic) and others produce chemical by-products or mycotoxins (toxigenic agents). For those individuals with compromised or sensitized immune systems, exposure to pathogenic moulds or their toxic by-products may be associated with a variety of adverse health effects, including allergic reactions, asthma, pneumonitis with flu-like symptoms, infections of the upper airways, sinusitis, or other lung diseases.

Section 4.79 requires an investigation of a worker's complaint related to indoor air quality. However, there are currently no exposure limits or standardized risk assessment procedures to accurately predict a worker's health risk from mould exposure. Nor is there at present a standardized protocol for sampling of these organisms, although a number of methods are currently used.

Investigation of mould contamination

The extent of mould contamination can be determined in two ways. The primary method is through a visual assessment to establish the presence of mould and the extent (area) of growth. This could include an intrusive investigation for the presence of hidden mould.

The secondary method is via air sampling to establish the presence and types of mould spores in the air. Trained individuals are required to identify the presence of specific types of mould and to carry out representative sampling. Also, microscopic identification of the spores and mould colonies requires considerable expertise, and these services are not routinely available from commercial laboratories. For someone with limited experience, sampling results are difficult to interpret. Experience in interpretation of results is essential.

Visual assessment

The presence and extent of visible growth of mould can be checked by direct observation and measuring the area of coverage. It may be necessary to cut access holes or use equipment such as a borescope (an instrument that uses optical fibres for the visual inspection of hard to reach spaces) to view spaces in ventilation ductwork or inside wall cavities to check for hidden sources of mould and the extent of water damage. Once the area of mould coverage has been determined, [Table 1](#) can be used to categorize the problem and determine the level of controls recommended to control spores and mould dispersion.

Note: Any disturbance of a mould source, for sampling, should not be conducted without taking some precautions. The precautions listed under "Small" in Table 1 should be adequate.

[Section 4.78\(2\)](#) of the *Regulation* requires regular inspection of ventilation systems for conditions that could promote the growth of micro-organisms – conditions such as water leaks and stagnant water pools - along with correction of any deficiencies found. This action is required whether or not there are reports or complaints regarding indoor air quality.

Bulk or surface sampling

If it is necessary to determine the type of mould, a small sample can be taken by scraping some visible mould material or cutting a piece of material (such as mould-stained drywall) with a clean tool and placing the sample into a sample vial or sealable plastic bag. Another method is by applying a piece of clear, not semi-transparent, 18 mm (3/4 inch) cellophane tape against a contaminated surface and sticking the tape to a standard glass 25 x 76 mm (1 x 3 inch) slide or to a piece of plastic for further identification.

Air sampling

Is air sampling for mould needed? In most cases, if visible mould growth is evident, sampling for airborne fungal material is not necessary. In specific instances, such as where the source(s) of the mould contamination is unclear or health concerns are a problem, air sampling may be considered as part of the site investigation. Keep in mind that air sampling for mould provides information only for the moment in time in which the sampling occurred, much like a snapshot. Furthermore, reliable sampling for mould can be expensive, and generally accepted standards for judging what is and what is not an acceptable or tolerable quantity of airborne mould spores have not been established.

In limited circumstances, air sampling for mould in indoor environments before and after remediation can be used as an indicator of remediation effectiveness. To be effectively used in this manner, the mould makeup of the outdoor air should also be determined so that a side-by-side comparison can be made in terms of mould types present and their relative numbers indoors versus outdoors. Post-remediation air sampling should be conducted using a non-culturable sampling method (for example, spore trap sampling or PCR sampling), as the mould may have been killed during the cleaning process. Remember, dead mould can still have allergenic or toxic properties!

Prevention and remediation of mould contamination

Moisture is an essential condition for mould growth. A primary objective in all mould remediation is to identify the sources or causes of moisture and eliminate or control them. Evidence suggests that flooding for periods as brief as 48 hours can lead to mould problems. Other possible sources of moisture are condensation and building leaks.

Once moisture is brought under control, remediation activities can commence. Table 1 provides guidance on methods of remediation and the recommended personal protective equipment. These control measures are based on methods developed by the American Conference of Governmental Industrial Hygienists (ACGIH) and the "EPA Protocol" (*Mold Remediation in Schools and Commercial Buildings* issued by the United States Environmental Protection Agency, March 2001). The EPA document can be viewed at http://www.epa.gov/mold/mold_remediation.html.

The person responsible for remediation will need to use professional judgment and experience to adapt the guidelines in Table 1 to specific projects. In cases where a particular toxic mould species has been identified or is suspected, when extensive hidden mould is expected (such as

behind vinyl wallpaper or in a ventilation system), or when the chances of the mould becoming airborne are estimated to be high, a more cautious or conservative approach to remediation should be considered. A health and safety professional with training and experience in conducting mould investigations and developing safe work procedures should be consulted in these circumstances.

Remediation workers need to know the possible health effects of mould exposure to be able to recognize and report symptoms. The emphasis is exposure avoidance through control measures and work procedures. Ventilation, personal protective equipment, and personal hygiene all contribute to safe work methods.

Table 1: Guide for Removing Visible Mould Growth in the Indoor Environment

Extent of Visible and Hidden Mould Growth (surface area)	Minimum Recommended PPE ¹	Control Measures to Prevent Dust or Spore Dispersion ²
Small Total surface area affected is less than 1 square metre (10 square feet)	N95 respirator or half facepiece respirator with HEPA filters, gloves, and goggles.	Isolation of the work area; wet wiping or misting of surfaces with water containing a surfactant (wetting agent); and the use of drop sheets to prevent dispersion of dust and spores. Material is removed with minimum of dust and spore dispersal and placed in a plastic bag and sealed.
Medium Total surface area affected is between 1 square metre and 10 square metres (10 square feet to 100 square feet)	N95 respirator or half facepiece respirator with HEPA filters, gloves, disposable coveralls, and goggles.	Limited containment: use polyethylene sheeting ceiling to floor around the affected area with a slit entry and covering flap. Maintain area under negative pressure with HEPA filtered negative air unit. Block supply and return air vents within the containment area.
Large Total surface area is greater than 10 square metres (100 square feet) or the potential for increased occupant or remediator exposure during remediation is estimated to be significant.	Full facepiece or powered air purifying respirator (PAPR) with HEPA filters, gloves, disposable coveralls (covering head and boots), and goggles.	Full containment: use of critical barriers. Maintain area under negative pressure with HEPA filtered fan unit exhausted outside the building. Block supply and return air vents within the containment area. Provide facilities and procedures for decontamination and personal hygiene.

¹ Higher levels of respiratory protection should be considered for situations where the "Extent of Visible and Hidden Mould Growth" is categorized as "Small" or "Medium." For example, full facepiece powered air-purifying respirators (PAPRs) with High Efficiency Particulate Arrestor (HEPA) filter cartridges will afford protection to the eyes not available with half-facepiece respirators. As well, in situations where large numbers of spores are released and the area is not well ventilated, a higher level of respiratory protection should be selected and used.

For outdoor remediation projects where mould infestation has not breached the inner vapour barrier, the guidelines in Table 1 apply without the requirement for containment when there is good natural ventilation to the outdoors. Note that for situations where the "Extent of Visible and Hidden Mould Growth" is categorized as "Large" openings and intakes into a building should be effectively sealed to prevent mould contamination from remediation activities entering the building. By using the "Extent of Visible and Hidden Mould Growth" criterion, the appropriate Personal Protective Equipment (PPE) for outdoor remediation work can still be determined.

²A health and safety professional with training and experience in conducting mould investigations and developing safe work procedures should be consulted where the "Extent of Visible and Hidden Mould Growth" is classified as "Medium" or "Large." Remediation of mould contamination should be conducted by trained remediation personnel.

Guidelines - Part 4 - Environmental Tobacco Smoke and E-Cigarette Vapour

G4.81/4.82 Controlling exposure to environmental tobacco smoke (EIS) and e-cigarette vapour

Issued March 28, 2002; Revised May 1, 2002; Editorial Revision October 2004; Revised March 31, 2008; Revised June 18, 2008; Revised January 1, 2009; Revised May 12, 2009; Preliminary Revision September 1, 2016; Revised consequential to May 1, 2017 Regulatory Amendment; Revised October 30, 2018 consequential to the enactment of the *Cannabis Control and Licensing Act*

Regulatory excerpt

Section 4.80.1 of the *OHS Regulation ("Regulation")* states:

In sections 4.81 and 4.82, "activated e-cigarette", "e-cigarette" and "tobacco" have the same meaning as in the *Tobacco and Vapour Products Control Act*.

Sections 4.81(a) and 4.82 of the *Regulation* state:

4.81 Controlling exposure

Subject to section 2.41 of the *Tobacco and Vapour Products Control Act* and section 4.23(2)(c) of the Tobacco and Vapour Products Control Regulation, an employer must control the exposure of workers to environmental tobacco smoke and e-cigarette vapour at a workplace by doing all of the following:

(a) prohibiting the following activities in the workplace:

- (i) smoking tobacco;
- (ii) holding lighted tobacco;
- (iii) using an e-cigarette;
- (iv) holding an activated e-cigarette;

...

4.82 Exceptions

(1) An employer must ensure that a worker does not work in an indoor area where the activities referred to in section 4.81(a) are permitted under section 4.23(2)(a) or (b) of the Tobacco and Vapour Products Control Regulation unless

- (a) the worker must enter the area to respond to an emergency endangering life, health or property,
- (b) the worker must enter the area to investigate for illegal activity, or
- (c) the tobacco smoke or e-cigarette vapour has been effectively removed.

(2) If necessary to prevent tobacco smoke or e-cigarette vapour from entering a workplace, a room where the activities referred to in section 4.81(a) are permitted under section 4.23(2)(a) of the Tobacco and Vapour Products Control Regulation must be provided with a separate, non-recirculating exhaust ventilation system that

- (a) is designed in accordance with expected occupancy rates,
- (b) maintains adequate air flows from areas in which smoking tobacco or using activated e-cigarettes is prohibited to areas in which smoking tobacco or using activated e-cigarettes is permitted,
- (c) discharges directly to the outdoors, and
- (d) meets all other requirements, specified in the *American Society of Heating, Refrigerating and Air-conditioning Engineers Standard 62-1989, Ventilation for Acceptable Indoor Air Quality*, for a lounge in which smoking tobacco or using activated e-cigarettes is permitted.

As of September 1, 2016, changes to the *Tobacco Control Act* and Tobacco Control Regulation, now called the *Tobacco and Vapour Products Control Act (TVPCA)* and the Tobacco and Vapour Products Control Regulation (TVPCR) came into force.

Two significant changes are as follows:

- In addition to tobacco smoking or holding lighted tobacco, the prohibited activities in proximity to a doorway, window, or air intake of an indoor workplace have been expanded to include use of an e-cigarette or holding an activated e-cigarette.
- The prescribed distance restricting prohibited activities from a doorway, window, or air intake of an indoor workplace has been increased from 3 metres to 6 metres.

WorkSafeBC does not directly enforce the requirements of the *TVPCA* or TVPCR. However, sections 4.81 and 4.82 of the *Regulation* have been amended to align with the *TVPCA* and TVPCR. The *Cannabis Control and Licensing Act (CCLA)* which came into force October 17, 2018 sets out requirements to control exposure to environmental cannabis smoke and e-cigarette vapour in much the same way as the *TVPCA* does for tobacco. However, as sections 4.81 and 4.82 of the *Regulation* have not yet been amended to include cannabis and align with the *CCLA*, these sections cannot be used to deal with a cannabis-related workplace complaint. Prohibitions on cannabis smoking and vaping in the workplace are currently included in the *CCLA*. It is expected that *CCLA* enforcement will be carried out by the director of the *CCLA* and also by the enforcement officers who deal with tobacco and liquor violations (e.g., police officers, park rangers, park wardens, and tobacco enforcement officers).

Purpose of guideline

This guideline provides an overview of sections 4.81, 4.82, and related requirements of the *Regulation* that control smoking and the use of e-cigarettes in the workplace, in the context of the provincial *TVPCA* and TVPCR which came into effect on September 1, 2016.

Requirements of the Regulation

For the purposes of this guideline, e-cigarette vapour is the vapour produced by an activated e-cigarette.

1. Application of the Regulation ETS and E-Cigarette Vapour Requirements

The basic requirements for controlling worker exposure to tobacco smoke and e-cigarette vapour are found in sections 4.81 and 4.82 of the *Regulation*.

Section 4.81(b) of the *Regulation* restricts tobacco smoking and e-cigarette vapour to a safe outdoor location that is a minimum of 6 metres from a doorway, window, or air intake of an indoor workplace, subject to an exception addressing patios. Section 4.22(1) of the *TVPCR* increased this prescribed distance from 3 metres to 6 metres.

Section 4.81 establishes the basic framework for controlling exposure by prohibiting smoking and e-cigarette use in the workplace, restricting those activities to a safe outdoor location or, in certain circumstances, prohibiting work in an indoor area where smoking or e-cigarette use is permitted. In turn, section 4.82(1) provides the exceptional circumstances where a worker may work in an indoor area where smoking and e-cigarette use is permitted under the *TVPCA*.

Section 4.82(2) lays out the requirements necessary to prevent tobacco smoke and e-cigarette vapour from entering a workplace for the cases where smoking or the use of e-cigarettes is permitted under the *TVPCA*. These obligations for the design and operation of indoor designated smoking areas apply where smoking or e-cigarette use is permitted under the *TVPCA* (for example, for residents in community care facilities and for certain motel/hotel rooms). Workers must not enter such areas except as permitted by section 4.82(1).

The requirements of sections 4.81 and 4.82 are intended to prevent workers from being exposed to airborne tobacco smoke and e-cigarette vapour at work. They do not apply to the non-airborne components of ETS, such as tar residues, or to the odour associated with a designated smoking area, which may remain after ETS or e-cigarette vapour has dissipated from the air.

Other requirements of the Regulation on smoking: There are a number of requirements in the *Regulation* that explicitly or otherwise have the effect of prohibiting smoking, whether indoors or outdoors. Examples of these provisions are shown in Table 1 below.

Part	Section	
Chemical Agents and Biological Agents	5.27(1), (2) 5.84	Ignition sources Prohibition
Substance Specific Requirements	6.56	Personal hygiene
Blasting Operations	21.40(1)	Ignition sources prohibited
Underground Workings	22.40(b) 22.154	Battery charging stations No smoking
Oil and Gas	23.7(1)	Fire hazards
Laboratories	30.17(2)	Personal protection

WorkSafeBC prevention officers will apply other provisions of the *Regulation* that control smoking in the workplace, such as those outlined in Table 1, as well as requirements in [Part 4 \(General conditions\)](#) of the *Regulation* on indoor ventilation, where related to the issue of smoking. For example, under section [4.72 \(Design and operation\)](#) of the *Regulation*, indoor ventilation systems must be operated in a manner that meet criteria including provision of an adequate supply of outdoor air. Typically this will mean keeping air intakes open. The *TVPCR* permits smoking and e-cigarette use on a patio of a hospitality establishment under certain conditions, including closure of any air intake that is mounted in the wall between the patio and the indoor area of the facility. The employer needs to comply with both sets of requirements, and has the option of either prohibiting smoking and e-cigarette use on the patio or moving the air intake away from it.

2. Requirements of the provincial *TVPCA* and *TVPCR*

The Province of British Columbia has enacted provisions, under the auspices of the Minister of Health, to control smoking and e-cigarette use under the *TVPCA*, which became effective September 1, 2016. Each regional health authority has tobacco enforcement officers who are responsible for enforcement of the *TVPCA* and *TVPCR*. Some of the main provisions are outlined below - additional information about the *TVPCA* and *TVPCR* is available at <http://www2.gov.bc.ca/gov/content/health/keeping-bc-healthy-safe/tobacco-vapour>.

- In workplaces and public spaces which are "fully or substantially enclosed," smoking and e-cigarette use is prohibited. These workplaces and public spaces include offices, industrial establishments, restaurants, bars, pubs, night clubs, and bingo halls. The prohibition also applies to all vehicles used for business purposes, such as buses, taxis, and work or commercial trucks. In addition, it applies to a workplace located in a private dwelling during any period in which a person performs services in return for compensation.
- A place is "fully or substantially enclosed" if it has a roof or other covering, and more than 50% of the nominal wall space is enclosed by any material that does not permit air to flow easily through it. The "nominal wall space" is the area determined by calculating the length, in metres of the perimeter of the building, structure, vehicle, or place, and multiplying it by 2.7 metres. (Note: Ministry of Health officials advise that the nominal wall space concept is best applied to walls that are more than 2.7 metres high, when covered by a roof.)
- Smoking and using an e-cigarette are also prohibited in transit shelters, and in common areas of apartment buildings, condominiums, and dormitories.
- Exemptions from the prohibition on smoking or use of e-cigarettes indoors have been made for the following:
 - A person who is in care or a resident in a community care facility, assisted living residence, or hospital, who may smoke or use an e-cigarette in a room designated for smoking by the facility
 - A person who is registered as a hotel/motel guest who may smoke or use an e-cigarette in the room or building in which the guest and

- the guest's party, if any, have been assigned exclusive accommodation
- o The ceremonial use of tobacco by Aboriginal people
- o Subject to certain requirements set out in the TVPCR, a retailer who sells or distributes vapour products
- For patios used in conjunction with a public place such as a restaurant, bar, casino, or bingo hall, smoking and e-cigarette use is permitted only if all the following conditions apply:
 - o The predominant use of the public place is to sell food or beverages or both, or as a casino or bingo hall
 - o Any doorway between the public place and the patio is closed at all times while the patio is in use except when someone is passing through it
 - o Any window or air intake between the patio and the public place is closed at all times when the patio is in use
 - o The patio is not fully or substantially enclosed. (Note: Ministry of Health officials advise that where a patio has a roof over only part of it, then for the purposes of applying the test of full or substantial enclosure, the patio can be considered to have two sections, one with a roof over it and one without) (Refer to guideline [G4.81\(b\) Safe outdoor location](#))

G4.81(b) Safe outdoor location

Issued March 28, 2002; Revised May 1, 2002; Editorial Revision March 2005; Revised March 31, 2008; Editorial Revision June 18, 2008; Formerly Issued as part of G4.82(1) and (2) - Re-issued as G4.81(b) January 1, 2009; Revised September 1, 2016; Revised consequential to May 1, 2017 Regulatory Amendment; Revised October 30, 2018 consequential to the enactment of the *Cannabis Control and Licensing Act*

Regulatory excerpt

Section 4.81(b) of the *OHS Regulation* ("Regulation") states:

Subject to section 2.41 of the *Tobacco and Vapour Products Control Act* and section 4.23(2)(c) of the Tobacco and Vapour Products Control Regulation, an employer must control the exposure of workers to environmental tobacco smoke and e-cigarette vapour at a workplace by doing all of the following:

(b) subject to section 4.22(3) of the Tobacco and Vapour Products Control Regulation, restricting the activities referred to in paragraph (a) of this section to a safe outdoor location that is a minimum of 6 m from a doorway, window or air intake of an indoor workplace;

As of September 1, 2016, changes to the *Tobacco Control Act* and Tobacco Control Regulation, now called the *Tobacco and Vapour Products Control Act* (TVPCA) and the Tobacco and Vapour Control Regulation (TVPCR) came into force.

Two significant changes are as follows:

- In addition to tobacco smoking or holding lighted tobacco, the prohibited activities in proximity to a doorway, window, or air intake of an indoor workplace have been expanded to include use of an e-cigarette or holding an activated e-cigarette.
- The prescribed distance restricting prohibited activities from a doorway, window, or air intake of an indoor workplace from 3 metres to 6 metres.

WorkSafeBC does not directly enforce the requirements of the TVPCA or TVPCR. However, sections 4.81 and 4.82 of the *Regulation* have been amended to align with the TVPCA and TVPCR. The *Cannabis Control and Licensing Act* (CCLA) which came into force October 17, 2018 sets out requirements to control exposure to environmental cannabis smoke and e-cigarette vapour in much the same way as the TVPCA does for tobacco. However, as sections 4.81 and 4.82 of the *Regulation* have not yet been amended to include cannabis and align with the CCLA, these sections cannot be used to deal with a cannabis-related workplace complaint. Prohibitions on cannabis smoking and vaping in the workplace are currently included in the CCLA. It is expected that CCLA enforcement will be carried out by the director of the CCLA and also by the enforcement officers who deal with tobacco and liquor violations (e.g., police officers, park rangers, park wardens, and tobacco enforcement officers).

Purpose of guideline

This guideline discusses what is meant by a "safe outdoor location."

Safe outdoor location

Section 4.81(b) of the *Regulation* restricts environmental tobacco smoke (ETS) and e-cigarette use to a safe outdoor location that is a minimum of 6 metres from a doorway, window, or air intake of an indoor workplace, subject to an exception addressing patios. This is consistent with the restriction set out in section 4.22(1) of the TVPCR.

For the purposes of section 4.81(b), "safe outdoor location" refers to a location that is safe with regard to any of the hazards identified in the *Regulation*. For example, such a location will have a safe means of access and egress, will not expose users to vehicle traffic, and will be clear of any flammable materials. The potential for hazards such as cold stress should also be considered. There is no obligation under this section for the employer to provide amenities such as canopies or seating for worker comfort, although the employer may do so.

The safe outdoor location should be arranged or located in such a way that smoke or e-cigarette vapour from the outdoor area does not readily enter any indoor work area; for example, through a doorway, window, or air intake. (Note: Provincial and applicable Municipal legislation specify various minimum distances from such portals.)

Typically, the outdoor location may be a ground surface, floor, or deck area; and a roof or awning may cover it. Any structure, including a

temporary structure, such as a tent that significantly obstructs the movement of air, may bring the area within the meaning of an indoor area. For example, an area that has natural airflow obstructed on more than two sides by the presence of windbreaks, such as walls, fences, or other adjacent structures or objects, may be deemed to be indoors for the purpose of this section. Low-height walls (half-height or less) or chain-link fencing or similar open structures that minimally obstruct airflow will normally not be considered as a windbreak.

While the above information describes a typical configuration for a safe outdoor location, an employer may choose another design that minimally obstructs natural airflow and does not allow the accumulation of ETS or e-cigarette vapour. For example, a freestanding, gazebo-type structure, with a roof and a low-height wall that surrounds all sides of the seating area, may be acceptable. A very narrow type of structure with wind breaks on three sides, but with large openings at top and bottom on all sides, may also be effective at preventing ETS or e-cigarette vapour accumulation. Note that the configuration of an outdoor area will need to work in a variety of atmospheric conditions - for example, from calm to windy days.

G4.82(1) Entry into indoor areas where smoking and e-cigarette use is permitted

Formerly Issued as part of G4.82(1) and (2), and G4.82(3) - Re-issued as G4.82(1) January 1, 2009; Editorial Amendment October 22, 2010; Preliminary Revision September 1, 2016; Revised consequential to May 1, 2017 Regulatory Amendment; Revised October 30, 2018 consequential to the enactment of the *Cannabis Control and Licensing Act*

Regulatory excerpt

Section 4.82(1) of the *OHS Regulation* ("Regulation") states:

An employer must ensure that a worker does not work in an indoor area where the activities referred to in section 4.81(a) are permitted under section 4.23(2)(a) or (b) of the Tobacco and Vapour Products Control Regulation unless

- (a) the worker must enter the area to respond to an emergency endangering life, health or property,
- (b) the worker must enter the area to investigate for illegal activity, or
- (c) the tobacco smoke or e-cigarette vapour has been effectively removed.

As of September 1, 2016, changes to the *Tobacco Control Act* and Tobacco Control Regulation, now called the *Tobacco and Vapour Products Control Act (TVPCA)* and the Tobacco and Vapour Control Regulation (TVPCR) came into force.

Two significant changes are as follows:

- In addition to tobacco smoking or holding lighted tobacco, the prohibited activities in proximity to a doorway, window, or air intake of an indoor workplace have been expanded to include use of an e-cigarette or holding an activated e-cigarette.
- The prescribed distance restricting prohibited activities from a doorway, window, or air intake of an indoor workplace has been increased from 3 metres to 6 metres.

WorkSafeBC does not directly enforce the requirements of the *TVPCA* or TVPCR. However, sections 4.81 and 4.82 of the *Regulation* have been amended to align with the *TVPCA* and TVPCR. The *Cannabis Control and Licensing Act (CCLA)* which came into force October 17, 2018 sets out requirements to control exposure to environmental cannabis smoke and e-cigarette vapour in much the same way as the *TVPCA* does for tobacco. However, as sections 4.81 and 4.82 of the *Regulation* have not yet been amended to include cannabis and align with the *CCLA*, these sections cannot be used to deal with a cannabis-related workplace complaint. Prohibitions on cannabis smoking and vaping in the workplace are currently included in the *CCLA*. It is expected that *CCLA* enforcement will be carried out by the director of the *CCLA* and also by the enforcement officers who deal with tobacco and liquor violations (e.g., police officers, park rangers, park wardens, and tobacco enforcement officers).

Purpose of guideline

This guideline

- Notes the circumstances where smoking or using an e-cigarette indoors is permitted under the *TVPCA* and TVPCR)
- Discusses circumstances under *Regulation* section 4.82(1) in which a worker may enter an indoor area where smoking is permitted under the TVPCR
- Provides detailed information on what needs to be done to clear indoor air of environmental tobacco smoke (ETS)
- Provides a strategy for home care service providers to consider to help ensure worker safety in the circumstances where the occupant(s) are cannabis or tobacco smokers or use e-cigarettes
- Discusses control measures for entry in the event of emergencies or investigation of illegal activities

For the purposes of this guideline, e-cigarette vapour is the vapour produced by an activated e-cigarette.

Indoor locations where smoking or use of e-cigarettes indoors is permitted

Under the provisions of the *TVPCA* and section 4.23(2) of the TVPCR, smoking or use of an e-cigarette indoors is only permitted in the following circumstances (note that no such permissions are included in the *CCLA*):

- A person who is in care or a resident in a community care facility, assisted living residence, or hospital, who may smoke or use an e-cigarette in a room designated for smoking by the facility
- A person who is registered as a hotel/motel guest who may smoke or use an e-cigarette in the room or building in which the guest and the

- guest's party, if any, have been assigned exclusive accommodation
- Subject to specific circumstances, a person who uses an e-cigarette or holds an activated e-cigarette within the premises at which a retailer deals in, sells, offers to sell or distributes vapour products
- The ceremonial use of tobacco by Aboriginal people

Also, the *CCLA*, *TVPCA*, and *TVPCR* do not apply to a private dwelling, except during the times when a person performs services in the dwelling in return for compensation; thus they permit smoking tobacco or cannabis, or the use of an e-cigarette prior to the worker's entry.

Worker entry into an indoor area where smoking or the use of an e-cigarette is permitted

In a situation where smoking or the use of an e-cigarette is permitted by the *TVPCA*, *Regulation* section 4.82(1) permits a worker to enter the area only in the following three circumstances where:

- The worker must enter the indoor area to respond to an emergency endangering life, health, or property
- The worker must enter the indoor area to investigate for illegal activity
- The tobacco smoke or e-cigarette vapour has been effectively removed

Entry in the event of emergencies or investigation of illegal activities

Sections 4.82(1)(a) and (b) are intended to permit one or more workers to quickly respond to an investigation for illegal activities or an emergency of a magnitude that outweighs the risk to the worker resulting from short-term exposure to ETS or e-cigarette vapour. Exposure to ETS or e-cigarette vapour is not typically an immediate danger to life or health. Entry in these cases may be for reasons such as the following:

- An occupant may require immediate attention by a medical practitioner, caregiver, or first aid attendant
- Activation of a fire alarm may result in the need for workers to enter a room designated for tobacco use to locate the source of the problem
- A mechanical system failure, such as a ruptured water pipe, inside a room designated for tobacco use may require immediate attention
- A serious accident or incident may require immediate investigation
- A hazard that poses a serious risk to workers or others may require immediate attention
- Illegal activity may necessitate immediate access by an appropriate regulatory authority for the purpose of collecting evidence or otherwise discharging their statutory duties

If it is necessary for workers to enter an indoor area in these circumstances, the exhaust ventilation system should, when practicable, remain in operation while they are inside and smoking or use of e-cigarettes should not be allowed. Workers should minimize the time spent in the area if there is residual exposure to ETS or e-cigarette vapour. In order to achieve these outcomes, it is important that employers review their emergency entry plans with staff and train them accordingly.

Effective removal of tobacco smoke

As a result of *Regulation* section 4.82(1), except in the rare situation of an emergency or an investigation for an illegal activity, the employer cannot assign or allow work duties that would require a worker to enter an indoor area where smoking or e-cigarette use is taking place or if ETS or e-cigarette vapour has not been effectively removed.

The question for employers and entry workers is: when is it safe to enter a room after smoking has stopped?

The following information is provided for three circumstances: a room designated for tobacco use meant for multiple smokers in a community care facility, assisted living residence, or hospital; a hotel room; and a private dwelling. The information is based on general principles of exhaust ventilation and estimations of time required for evacuation of air within a defined space.

1. Rooms designated for tobacco use

As per *Regulation* section 4.82(2)(1), if necessary to prevent tobacco smoke from entering a workplace, a room designated for tobacco use within a community care facility, assisted living residence, or hospital must be provided with a separate, non-recirculating exhaust ventilation system that meets the following requirements:

- Is designed in accordance with expected occupancy rates.
- Maintains adequate air flows from non-smoking to smoking areas. A minimum of 60 cfm (0.03 cubic metres per second) per person of outside air needs to be supplied to the room, and at least 70 feet per minute air velocity must be maintained through wall openings.
- Discharges directly to the outdoors.

The tobacco smoke load in a designated room can be substantial when a number of smokers are present at the same time. As a guide, before a worker is allowed to enter the designated room, the air of the room should be allowed to experience a minimum of four air changes following cessation of smoking. This will remove about 94% of the original load providing the layout of the room allows good ventilation flow-through and the effectiveness of the exhaust ventilation system is not compromised by problems such as short-circuiting. Note that each subsequent air change results in only marginal improvement in air quality. It is estimated it would take another three air changes to achieve 99% removal of contaminants.

Note: Information pertaining to ETS and ETS-free areas can also be found in clause 5.18 of *ANSI/ASHRAE Standard 62.1-2007 Ventilation for Acceptable Indoor Air Quality*.

2. Hotel guestrooms

The *Hotel Guest Registration Act* defines "hotel" as including an inn or building in which private rooms are maintained for the accommodation of the public. The tobacco smoke load for hotel guestrooms will likely be less than for a typical room designated for tobacco use since typically only one or two persons utilize a typical hotel guestroom, and for a relatively short duration. As a result, due to the significantly lower initial tobacco

smoke load, two air changes after cessation of smoking prior to entry of the worker is considered reasonable.

Note: ETS from hotel guestrooms should not migrate to worker-frequented areas. A guestroom in which smoking is allowed needs to be provided with a dedicated exhaust system to prevent recirculation of ETS-contaminated air through the general heating or HVAC system, and the room needs to be maintained under negative pressure relative to adjacent, worker-frequented areas such as hallways. If these requirements cannot be met, a "no smoking" status needs to be assigned to the guestroom.

Note: Information pertaining to ETS and ETS-free areas can also be found in clause 5.18 of *ANSI/ASHRAE Standard 62.1-2007 Ventilation for Acceptable Indoor Air Quality*.

3. Protecting home care service workers from ETS, cannabis smoke, and e-cigarette vapour:

The *TVPCA*, *CCLA*, and the *Regulation* do not apply to a private dwelling, except during the times when a person performs services in the dwelling in return for compensation. Examples of such services include home care, appliance repair, home cleaning, and real estate services. Home care service work is a particular concern given that services are often provided on a repetitive basis, and in close proximity to the occupant of the dwelling. The *Regulation* does not prohibit tobacco or cannabis smoking or e-cigarette use prior to the worker's entry.

The home care service employer must ensure that measures are taken to protect these workers from exposure to ETS, cannabis smoke, and e-cigarette vapour. This can be achieved through a written agreement drawn with the employer and the client and/or the owner of the residence, outlining the measures and conditions that will be required to be in place before the home care worker can enter the residence. The agreement should cover the following:

1. The obligation to prohibit smoking or e-cigarette use inside the residence for at least 1 (one) hour before the home care worker commences his or her duties. Where exhaust fans are available in a residence, such as those found in kitchens or bathrooms, it is important to ensure at least one fan is operated during this time, provided it does not result in uncomfortable cooling. Persons wishing to smoke can do so outdoors during this period of time while the worker is in the residence.
2. If prohibiting smoking or e-cigarette use or going outside is not practicable, the agreement should restrict smoking or e-cigarette use to a room that is provided with an exhaust fan. The worker will not enter this room. This restriction would begin one hour before the worker's arrival and be maintained while the worker is in the residence.
3. When a worker arrives at the residence and finds the client and/or the owner has not respected the agreement regarding smoking or use of e-cigarettes, the worker can do the following:
 - Arrange to reschedule the visit for another time when the client or owner of the residence will respect the agreement. The worker would report the incident to the supervisor or employer.
 - If it is not practicable at the time of visit to reschedule to a later time (such as in situations where there is an urgent need of care), the worker would insist that smoking and/or e-cigarette use be prohibited while in the home and would advise the client and/or owner that further service may be not be undertaken if the client and/or owner of the residence does not comply with the agreement. The worker would report the incident to the supervisor or employer.

Note: This exception would apply only to workers that are not at undue risk due to a pre-existing medical condition. It is not appropriate for an immunologically compromised worker to enter the residence in these circumstances.

If it turns out that the client or owner consistently violates the contractual agreement, then the employer is in a position to suspend provision of services or cancel the contract.

Guidelines - Part 4 - Occupational Environment Requirements

G4.84(1) Eating areas – Unwholesome food

Issued January 1, 2005

Regulatory excerpt

Section 4.84(1) of the *OHS Regulation* ("*Regulation*") states:

Workers must not keep or consume food in an area of a workplace where it could become unwholesome because of workplace contaminants.

Purpose of guideline

The purpose of this guideline is to explain what is considered to be "unwholesome because of workplace contaminants" under section 4.84(1) of the *Regulation*.

Workplace contaminants

The term "workplace contaminants" means chemical or biological substances arising from workplace processes, and may include airborne contaminants or contaminants on surfaces, such as tables, benches, eating utensils, clothing, or skin. The employer must ensure food is not stored or consumed in areas where the presence of these contaminants could result in a hazard to workers as a result of ingestion with food or beverages. Typically the measures taken to ensure compliance would include worker orientation and training, posting of notices or signs, and effective supervision and enforcement.

G4.84(2) Eating areas – Storage and consumption

Issued January 1, 2005

Section 4.84(2) of the *OHS Regulation* ("Regulation") states:

The employer must ensure that an area suitable for the storage and consumption of food is provided for workers if

- (a) there is a risk that food stored or consumed at a workplace may become unwholesome because of workplace contaminants, or
- (b) food storage or food consumption is restricted or prohibited at the workplace.

Storage and Consumption

The intent of section 4.84(2) is to ensure that, where there are restrictions on storage or consumption of food in work areas for any reason, the affected workers are able to access and use an area suitable for storage and consumption of their food.

An area suitable for food storage means a place where stored food is protected from workplace contaminants. It is not the intent to require the employer to provide temperature-controlled storage facilities, rather to require the employer to provide an area suitable for storage away from possible contaminants.

An area suitable for consumption of food typically means an area that is isolated from the contaminants in the workplace and that is equipped and maintained for safe consumption of food.

Suitability

If the employer provides an eating area, the following minimum floor area per person, based on the maximum number of persons scheduled to use the room at any one time, is recommended:

No. of persons	Floor area per person	
	In square metres	In square feet
25 and fewer	1.1 (min. 5.6 sq. m)	12 (min. 60 sq.ft.)
26 to 74	.93	10
75 to 149	.65	7
150 to 499	.56	6
500 and more	.47	5

The floor, walls, and ceiling of an eating area should be finished with a material that can be easily maintained in a clean and sanitary condition. The eating area should have sufficient receptacles with self-closing lids provided and used for the disposal of all waste food and paper, and these should be maintained in a clean and sanitary condition and be emptied daily.

The air quality in an indoor eating area provided by the employer must meet the indoor air quality provisions of sections 4.70 to 4.80 of the *Regulation*. Preferably, an indoor eating area should have a total window area equal to at least 10% of the floor area, and windows capable of being opened should equal at least 5% of the floor area. Mechanical ventilation should be configured so no workplace contaminants are circulated into an eating area.

Work clothes, tools, equipment, or other articles should not be stored in an eating area if they may contain, or have on them, workplace contaminants.

In highly transient and/or short-term operations, where it is not practicable to provide an eating area, providing the opportunity to access public facilities or providing other options to the workers may be acceptable. For example, public facilities such as malls may be acceptable where they are readily accessible. In remote areas, other options may include a vehicle, such as a crummy in a logging operation.

Note: The above recommendations, for which an employer is required to provide an eating area, would also apply to eating areas that are voluntarily provided by the employer for locations where section 4.84(2) does not apply.

Exceptions

The following sections of the *Regulation* set out restrictions on the consumption or storage of food and prohibit or restrict smoking; the requirements in these sections supersede any choices or options provided by section 4.84 of the *Regulation*.

Part	Section	
Chemical and Biological Substances	5.26	Storage area (hazardous substances not to be stored in an eating area)

	5.84	Prohibition (against eating or drinking in a work area involving lead, mercury, asbestos, silica, or pesticides)
Substance Specific Requirements	6.56	Personal hygiene (eating or drinking prohibited near cytotoxic drugs)
	6.92	Cleanup of residues (surfaces of food preparation and eating areas to be free of pesticide residues)
	6.95	Wash and shower facilities (to be separate from food preparation and eating areas for workers handling pesticides)
	6.100	Location (pesticides not to be stored in food preparation, food storage, or eating areas)
Diving, Fishing and Other Marine Operations	24.66	Contaminated environments (no food or drink in diving exclusion or contamination zones)
Laboratories	30.17	Personal protection (eating, drinking, and food storage restrictions in laboratories)

G4.85(1)-1 Washroom facilities – Sufficient facilities

Issued January 1, 2005

Section 4.85(1) of the *OHS Regulation ("Regulation")* states:

Except as provided by subsection (2), the employer must ensure that a sufficient number of plumbed washroom facilities are readily available for workers.

...

In determining the number of facilities to provide, the calculations should be based on the anticipated largest number of workers on any shift at the workplace at one time; workers who spend more than 75% of their time away from the workplace may be excluded from the count.

Recommendations for sufficient plumbed washroom facilities include the following:

- Where there are more than 9 workers, separate washrooms clearly signed for male and female workers. However, if the total number of workers on shift is 9 or fewer, or if a work area with 9 or fewer workers is located more than 60 metres (200 feet) from other washroom facilities, a single washroom for use by both male and female workers is generally suitable, provided it has a lockable door.
- In each female or male washroom, one toilet for 9 or fewer workers, two toilets for 10 to 24 workers, plus one more toilet for each additional 25 workers. If more than one toilet is required in a washroom for male workers, urinals may be substituted for half the recommended number of toilets.
- In each male or female washroom, one wash basin connected to a source of hot and cold water in each washroom containing one or two toilets and/or urinals, and at least one additional wash basin for each additional two such fixtures. If a large circular pedestal wash basin is provided, 60 centimetres (2 feet) of the circumference is generally considered equivalent to one wash basin.
- Washrooms should be designed so as to provide privacy for workers using the facilities.

G4.85(1)-2 Washroom facilities – Readily available

Issued January 1, 2005

Section 4.85(1) of the *OHS Regulation ("Regulation")* states:

Except as provided by subsection (2), the employer must ensure that a sufficient number of plumbed washroom facilities are readily available for workers.

...

Section 4.85(1) requires washroom facilities to be "readily available for workers." Generally, the walking distance from a working area to a washroom should not be more than 60 metres (200 feet). In multi-storied workplaces, washrooms should not be more than one floor above or below the working area.

In a workplace where the washroom facilities are not in a part of the building occupied by or under the control of the employer, the employer must ensure suitable facilities are available to workers.

If public-use washrooms are available within walking distance at the workplace, the employer may utilize these facilities for workers provided the facilities are kept clean and sanitary and are of sufficient number to accommodate the total number of users, including the anticipated number of workers and the public. A risk assessment under the workplace violence provisions of the *Regulation* (section 4.28) may also be required where workers will be sharing washrooms with non-workers.

G4.85(2) Washroom facilities where no plumbing is available

Issued January 1, 2005

Section 4.85(2) of the *OHS Regulation* ("Regulation") states:

- (2) If plumbed washroom facilities cannot be provided because of the nature of the workplace or the nature of the work in which the worker is involved, the employer must
- (a) provide access to portable washroom and hand-washing facilities, or
 - (b) make such other reasonable arrangements to accommodate workers as the circumstances allow, if access to portable washroom and hand-washing facilities cannot be provided.

Where access to or installation of plumbed facilities is not practical, portable toilets should be provided and maintained. The number of portable facilities (toilets and hand-washing facilities) should be sufficient for the number of workers, and the facilities should be readily accessible to workers. See OHS Guidelines [G4.85\(1\)-1](#) and [G.4.85\(1\)-2](#) for recommendations on the number of facilities and their location.

In highly transient or short-term operations, where it is not practicable to provide portable facilities, the needs of workers must be reasonably accommodated. Depending on the workplace location, workers may be given the opportunity to access alternative facilities such as those in parks or public buildings, or be provided with other options appropriate to the workplace location.

G4.85(3) Maintenance of washroom facilities

Issued January 1, 2005; Preliminary Revision February 3, 2022

Regulatory excerpt

Section 4.85(3) of the *OHS Regulation* ("Regulation") states:

- If washroom facilities are provided they must be
- (a) maintained in proper working order,
 - (b) kept clean and sanitary, and
 - (c) provided with the supplies necessary for their use.

Purpose of guideline

The purpose of this guideline is to explain the minimum standards for maintaining washroom facilities in accordance with section 4.85(3) of the *Regulation*.

Maintenance requirements for washroom facilities

The employer must ensure washroom facilities are maintained to meet the requirements of section 4.85(3).

Washroom facilities must be serviced, cleaned, and sanitized as frequently as necessary to maintain them in a clean and sanitary condition. Sanitized means that cleaned surfaces have been treated by a process that destroys bacteria, viruses, and other microorganisms that can cause disease or otherwise affect a worker's health.

For example, urinals, floors, walls, toilet seats, and high touch points like door handles should be cleaned with appropriate cleansing and sanitizing agents and wiped dry. Sanitizing products should be applied according to the manufacturer's directions in order to ensure effectiveness.

Employers should regularly inspect and assess the condition of washroom facilities at worksites as part of their occupational health and safety program and set a routine servicing schedule for cleaning, waste removal, and replenishment of supplies. Servicing schedules should account for the number of toilets, workers, and shifts. Employers must ensure that washroom facilities provided through rental contracts are appropriately serviced to meet the requirements.

To facilitate compliance with the requirements of section 4.85(3) of the *Regulation*, the employer should have a process in place for reporting and addressing issues with the maintenance or cleanliness of the washroom facilities, or availability of supplies, and ensure that workers are made aware of that process.

Keeping a cleaning log and/or schedule and posting it, as well as the process for reporting issues, in or around each washroom facility can help employers show they have been duly diligent in meeting their responsibilities. It can also help to assure workers that the facilities are being reasonably maintained.

With respect to the provision of supplies, each washroom should be provided with suitable waste receptacles and with the supplies necessary for the use of the facilities, such as a supply of soap or other hand cleanser, toilet paper, and hand-drying towels or air dryers.

Washroom facilities must also be adequately illuminated in accordance with the requirements of section 4.65 of the *Regulation*. Refer to OHS Guideline [G4.65 Illumination levels](#).

If the washroom facilities are not under the employer's direct control, the employer must still ensure that all facilities intended for use by workers are maintained to meet the requirements of section 4.85(3).

G4.86 Change areas

Issued January 1, 2005

Regulatory excerpt

Section 4.86 of the *OHS Regulation* ("Regulation") states:

If the employer requires the worker to change into protective work clothing at the workplace, the employer must ensure that adequate change areas are provided.

Purpose of guideline

The purpose of this guideline is to clarify when change areas are to be provided, and what constitutes an adequate change area under section 4.86 of the *Regulation*.

Definitions

For the purposes of section 4.86 of the *Regulation*, the following definitions apply:

- **"Protective work clothing"** means any clothing provided by the employer to protect the worker from hazards in the workplace or to prevent contamination of the workplace by materials the worker may bring into it on their personal clothing.
- **"Change area"** means a room or similar area within the workplace that will allow individual workers privacy while changing into or out of street clothes as necessary to properly use protective clothing.

Adequate change area

Section 4.86 is intended to ensure that workers who are required to remove their street clothes and put on protective work clothing to perform their work are assured of privacy while changing. An adequate change area would also provide for a suitable place for workers to store their personal clothing and personal effects while they are working. A change area should contain or be in close proximity to individual lockers for the secure storage of the worker's clothing and personal effects.

Section 4.86 does not apply when workers put on coveralls, uniforms, or other work clothing or protective wear that does not require them to remove their street clothes.

Group change rooms may be provided but they should have provision for workers who wish personal privacy while changing clothes. A washroom with a lockable door or a room to which access can be restricted to ensure privacy may be suitable as a change room. A toilet stall with a locking door within a washroom would not normally be considered of sufficient size to function as a change area.

Workplace contaminants

Certain sections of the *Regulation* set specific provisions for change areas, washing and/or shower facilities, and the handling of street clothing and protective clothing to ensure exposure to workplace contaminants is adequately controlled. The following table lists some examples:

Part	Section	
Chemical and Biological Substances	5.26	Work process involving substances such as lead, mercury, asbestos, silica, or pesticides
Substance Specific Requirements	6.55	Handling of personal protective equipment for workers exposed to cytotoxic drugs
	6.95	Provision of wash and shower facilities for personal hygiene for workers handling pesticides
	6.97	Handling of personal protective equipment for workers exposed to pesticides or pesticide residue
	6.107	Removing protective clothing for workers handling treated lumber
Diving, Fishing and Other Marine Operations	24.66	Diving operations at contaminated sites
Laboratories	30.17	Laboratories where toxic, radioactive, or biohazardous substances are handled

G4.87 Unsafe water

Issued January 1, 2005

Section 4.87 of the *OHS Regulation* ("Regulation") states:

The employer must display at every plumbed non-potable water source from which a person might reasonably believe he or she can safely drink, a notice that the water is unfit for human consumption.

The intent of section 4.87 is to ensure workers are aware that non-potable water sources in the workplace are not to be used as a source of drinking water or for the preparation of food. A plumbed water source, other than one connected only to a domestic water supply system, is to be considered unfit for consumption unless it is protected against contamination and has been tested and found to meet potable water standards. The drinking water standards adopted by the local public health authority will be used to determine if a plumbed water source is potable and thus fit for consumption.

Some typical examples of non-potable plumbed water systems are those using untreated surface or groundwater (well water) sources for irrigation, industrial processes or cooling water, and fire protection or sprinkler systems.

Plumbed water sources supplying non-potable water must have a notice that the water is unfit for consumption. This may be achieved by conspicuously posting near taps or other outlets notices such as "DO NOT DRINK" or using a suitable symbol. In addition, workers should be informed of the significance of the signs and/or symbols as part of their orientation to the workplace.

Note: Drinking fountains and water taps providing drinking (potable) water for workers should be maintained in a clean and sanitary condition to ensure the water provided is maintained fit for consumption.

Contents

DEFINITIONS, DESIGNATION AS HAZARDOUS SUBSTANCES, AND GENERAL INFORMATION REQUIREMENT

G5.1.1 [Designation of biological agents as hazardous substances](#)

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

G5.3-1 [WHMIS application](#)

G5.3-2 [Fire extinguishers](#)

G5.3-3 [Cylinders of breathing air](#)

G5.3-4 [Exemptions](#)

G5.3-5 [Leaded surface coating materials](#)

G5.3-6 ["For industrial use only" labels](#)

G5.3-7 [Warehousing of hazardous products](#)

G5.3-8 [The application of WHMIS in agriculture](#)

G5.5 [WHMIS program – Consultation on WHMIS education and training](#)

G5.6 [Worker education and training](#)

G5.8-1 [Supplier label](#) [Retired]

G5.8-2 [Supplier label: Labelling on leased or rented chemical application units](#)

G5.8-3 [Laboratory sample shipments containing at least two different hazardous products](#)

G5.14-1 [Supplier safety data sheet \(SDS\)](#) [Retired]

G5.14-2 [Fees](#)

G5.15 [Laboratory SDS](#)

CONTAINERS AND STORAGE

G5.22 [Covers](#)

G5.25 [Storage practices](#)

FLAMMABLE AND COMBUSTIBLE SUBSTANCES

G5.27 [Ignition sources – Combustible liquid normally used as fuel](#)

G5.27(2) [Electrical Safety Act repealed](#) [Retired]

G5.28 [Bonding or grounding of containers – Ensuring effectiveness](#)

G5.30 [Dispensing](#) [Retired]

G5.32 [Manual cleaning – Work procedures](#)

SUBSTANCES UNDER PRESSURE

G5.38 [Handling and securing cylinders](#)

CONTROLLING EXPOSURE

[Table of Exposure Limits for Chemical and Biological Substances](#)

- [G5.48-1 Table of exposure limits – Background information](#) [Retired]
- [G5.48-2 Exposure limits and the review process](#)
- [G5.48-3 Normal 8-hour work period](#)
- [G5.48-4 Conversions for ppm and mg/m³](#)
- [G5.48-5 Welding fume](#)
- [G5.48-6 Allergenic species of wood dust](#)
- [G5.48-7 Nuisance dusts](#)
- [G5.48-8 Simple asphyxiants – Inert gases or vapours](#)
- [G5.48-9 Measuring compliance with the exposure limits](#)
- [G5.48-10 Use of indicator tubes to measure compliance](#)
- [G5.48-11 Sampling of thoracic fraction of sulfuric acid mist](#) [Retired]
- [G5.48-12 Establishing exposure limits for certain refined hydrocarbon mixtures](#)
- [G5.48-13 Monitoring worker exposure to sulfur dioxide](#) [Retired]
- [G5.49 Application of excursion limits](#)
- [G5.50 Extended work periods](#)
- [G5.51 Additive effects](#)
- [G5.52 Skin notation](#)
- [G5.53-1 Workplace monitoring](#)
- [G5.53-2 Assessing compliance – The walkthrough survey](#)
- [G5.53-3 Monitoring worker exposure](#)
- [G5.53-4 Occupational hygiene methods acceptable to WorkSafeBC](#)
- [G5.54-1 Exposure control plan](#)
- [G5.54-2 Elements of an exposure control plan](#)
- [G5.54-3 Risk identification, assessment, and control](#)
- [G5.54-4 Hygiene facilities and decontamination procedures](#)
- [G5.54-5 Health monitoring](#)
- [G5.54-6 Documentation](#)
- [G5.54-7 Drywall sanding requirements](#)
- [G5.55 Type of controls](#)
- [G5.56 Oxygen deficiency](#)
- [G5.57 Designated substances](#)
- [G5.58 Protective policy](#)
- [G5.59 Investigating symptoms](#)

[Table of Exposure Limits for Chemical and Biological Substances](#)

VENTILATION

- [G5.62 Submitting plans](#)
- [G5.63 Building modification](#)
- [G5.70 Discharged air](#)
- [G5.71\(3\) Location and construction of dust collectors](#)

INTERNAL COMBUSTION ENGINES

- [G5.73 Engine servicing and work area assessment for mobile equipment operated indoors](#)
- [G5.75 Mobile equipment emission controls](#)

HAZARDOUS WASTES AND EMISSIONS

- [G5.80 Hazardous wastes and emissions – Sharp-edged waste](#)
- [G5.81 Combustible dust - Sawmills and other wood products manufacturing facilities](#)

PERSONAL HYGIENE

- [G5.82 Employer's responsibility](#)
- [G5.83 Worker's responsibility](#)

EMERGENCY WASHING FACILITIES

- [G5.85 Where required](#)
- [G5.86 Water supply](#)
- [G5.88 Risk assessment](#)
- [G5.89 Table 5-3: Provision and location of emergency washing equipment](#)
- [G5.90 Mobile shower units](#)

- G5.91 [Remote worksites](#)
- G5.93 [Testing and maintenance](#)
- G5.94 [Training](#)
- G5.95 [Protection from freezing](#)

EMERGENCY PROCEDURES

- G5.97 [Emergency procedures — emergency plan](#)
- G5.99 [Risk assessment](#)
- G5.101 [Procedures for spill cleanup and re-entry](#)

Guidelines - Part 5 - Definitions, Designation as Hazardous Substances, and General Information Requirement

G5.1.1 Designation of biological agents as hazardous substances

Issued February 1, 2008; Editorial Revision to include February 1, 2011 regulatory amendment

Regulatory excerpt

Section 5.1.1 of the *OHS Regulation* ("*Regulation*") states:

For the purposes of sections 5.2 and 6.33 to 6.40 and Part 30, the following biological agents are designated as hazardous substances:

- (a) a liquid or solid material that is contaminated with a prion, virus, bacterium, fungus or other biological agent that has a classification given by the Public Health Agency of Canada as a Risk Group 2, 3 or 4 human pathogen that causes an adverse health effect;
- (b) a biological toxin that causes an adverse health effect.

Purpose of guideline

This guideline provides information on Risk Groups 2, 3, and 4 human pathogens that cause adverse health effects.

Risk Groups

Risk Groups 2, 3, and 4 are a component of a universally agreed to classification system as adopted by the Public Health Agency of Canada. This system is based on the biosafety containment classification system of the Public Health Agency of Canada.

The following provides an overview of each Risk Group.

Risk Group 2: A pathogen that can cause human or animal disease but under normal circumstances is unlikely to be a serious hazard to healthy laboratory workers, the community, livestock, or the environment. Laboratory exposures rarely cause infection leading to serious disease; effective treatment and preventive measures are available and the risk of spread is limited. They are considered to represent a moderate risk to individuals and a limited risk to the community. Examples of Risk Group 2 pathogens include the Hepatitis B and Hepatitis C viruses, salmonella, and E. coli bacteria.

Risk Group 3: A pathogen that usually causes serious human or animal disease, or which can result in serious economic consequences but does not ordinarily spread by casual contact from one individual to another, or that can be treated by antimicrobial or antiparasitic agents. They are considered to represent a high risk to individuals but a low risk to the community. Examples of Risk Group 3 pathogens include the human immunodeficiency virus (HIV), and the pathogens causing Creutzfeldt-Jacob disease, hantavirus, and tuberculosis.

Risk Group 4: A pathogen that usually produces very serious human or animal disease, often untreatable, and may be readily transmitted from one individual to another, or from animal to human or vice-versa directly or indirectly, or by casual contact. They are considered to represent a high risk to both the individual and the community. Examples of Risk Group 4 pathogens are the hemorrhagic fever viruses such as Ebola, Marburg, and Lassa fever.

Guidelines - Part 5 - Workplace Hazardous Materials Information System (WHMIS)

G5.3-1 WHMIS application

Issued August 1999; Editorial Revision January 2005; Editorial Revision May 9, 2014; Editorial Revision consequential to February 1, 2015 Regulatory Amendment; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 1.1(1) of the *OHS Regulation* ("*Regulation*") states, in part:

- (1) In this Occupational Health and Safety Regulation

"*hazardous product*" means any product, mixture, material or substance that is classified in accordance with the regulations made under section 15 (1) of the *Hazardous Products Act* (Canada) in a category or subcategory of a hazard class listed in Schedule 2 of that Act;

Section 5.3 of the *Regulation* states:

- (1) Subject to subsections (2) to (4), sections 5.4 to 5.18 (the WHMIS Requirements) apply to employers and workers with respect to hazardous products used, stored or handled at a workplace.
- (2) The provisions concerning a supplier label and SDS do not apply if the hazardous product is
 - (a) an explosive as defined in section 2 of the *Explosives Act* (Canada),
 - (b) a drug, food or cosmetic device within the meaning of the *Food and Drugs Act* (Canada),
 - (c) a pest control product as defined in section 2(1) of the *Pest Control Products Act* (Canada),
 - (d) a nuclear substance as defined in section 2 of the *Nuclear Safety and Control Act* (Canada), that is radioactive, or
 - (e) a consumer product as defined in section 2 of the *Canada Consumer Product Safety Act*.
- (3) The provisions do not apply if the hazardous product is
 - (a) wood or a product made of wood,
 - (b) tobacco or a tobacco product as defined in section 2 of the *Tobacco Act* (Canada),
 - (c) a manufactured article, or
 - (d) being transported or handled pursuant to the requirements of the *Transportation of Dangerous Goods Act, 1992* (Canada) or the *Transport of Dangerous Goods Act*.
- (4) The provisions do not apply to a hazardous waste, except that the employer must ensure the safe storage and handling of a hazardous waste generated at the workplace through the combination of worker training and the information required by this Regulation.

Purpose of guideline

The purpose of this guideline is to clarify the meaning of "hazardous product."

Hazardous products

A hazardous product is defined in section 1.1(1) of the *Regulation* as any product, mixture, material, or substance listed in Schedule 2 of the federal *Hazardous Products Act*. Schedule 2 sets out the following classes of hazardous products:

Physical Hazard Classes

1. Explosives
2. Flammable gases
3. Flammable aerosols
4. Oxidizing gases
5. Gases under pressure
6. Flammable liquids
7. Flammable solids
8. Self-reactive substances and mixtures
9. Pyrophoric liquids
10. Pyrophoric solids
11. Self-heating substances and mixtures
12. Substances and mixtures which, in contact with water, emit flammable gases
13. Oxidizing liquids
14. Oxidizing solids
15. Organic peroxides
16. Corrosive to metals
17. Combustible dusts
18. Simple asphyxiants
19. Pyrophoric gases
20. Physical hazards not otherwise classified

Health Hazard Classes

1. Acute toxicity
2. Skin corrosion/irritation
3. Serious eye damage/eye irritation
4. Respiratory or skin sensitization
5. Germ cell mutagenicity

6. Carcinogenicity
7. Reproductive toxicity
8. Specific target organ toxicity — single exposure
9. Specific target organ toxicity — repeated exposure
10. Aspiration hazard
11. Biohazardous infectious materials
12. Health hazards not otherwise classified

The contents of these classes are set out in Parts 7 and 8 of the federal [Hazardous Products Regulations](#).

G5.3-2 Fire extinguishers

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.8(1) of the *OHS Regulation* ("Regulation") states:

Subject to any exemptions from labelling requirements in the Hazardous Products Regulations and this Part, an employer must ensure that a hazardous product or the container of a hazardous product received at a workplace is attached or printed with a supplier label.

Section 5.14(1) of the *Regulation* states:

Subject to subsection (6), an employer who acquires a hazardous product for use, handling or storage at a workplace must obtain a supplier SDS in respect of that hazardous product that complies with the requirements of the Hazardous Products Regulations.

Purpose of guideline

The purpose of this guideline is to clarify the requirements for labelling and safety data sheets (SDS) with respect to fire extinguishers.

Fire extinguishers

Any fire extinguisher pressurized to more than 200 kPa (1.97 atmospheres or 29 psi at 20°C) meets the criteria for inclusion in Workplace Hazardous Materials Information System (WHMIS) Class Gases under Pressure, pursuant to Part 7 Subpart 5 of the federal *Hazardous Products Regulations*. Some retardants (or performance additives to prevent effects such as freezing or corrosion) may meet criteria for inclusion in WHMIS Class Acute Toxicity established by Part 8 Subpart 1 of the *Hazardous Products Regulations*. Older soda-acid extinguishers are included as WHMIS Classes, Skin Corrosive/Irritation and Serious Eye Damage/Irritation under Part 8 Subparts 2 and 3 of the *Hazardous Products Regulations*.

Section 13(1)(b) of the federal *Hazardous Products Act* (HPA) requires that a supplier apply a label to a hazardous product intended for use in a workplace, or to the container in which the hazardous product is packaged. The label must disclose the required information and display applicable hazard symbols.

A fire extinguisher is not exempted as a manufactured article under section 5.3(3)(c) of the *Regulation* (section 12(i) of the HPA) because workers are exposed to the hazard of a pressurized container or other hazardous products under normal conditions of use.

Where a fire extinguisher is intended for use in the workplace and is included as a WHMIS hazardous product the following must occur:

- Suppliers who sell extinguishers intended for use in the workplace must apply a WHMIS supplier label to the extinguisher and provide an SDS.
- A firm which recharges a fire extinguisher for an employer must apply a WHMIS supplier label to the extinguisher and provide an SDS, if these are not already applied and provided. Where an employer recharges extinguishers "in-house," a workplace label will suffice if a supplier label is not already on the extinguisher.
- A detachable pressurized cartridge used to pressurize a dry chemical extinguisher must be provided with a WHMIS label in addition to the label on the extinguisher unless the cartridge is immediately installed on the extinguisher after the cartridge is pressurized. Suppliers who pressurize such cartridges must provide a supplier label; employers who pressurize their own cartridges must provide, at minimum, a workplace label. Labels must be applied to individual cartridges unless an alternative acceptable arrangement is used. An example of an acceptable alternative is to provide a WHMIS label on the container of individual cartridges as long as cartridges are immediately installed on the extinguisher after being removed from the container. Where a supplier and employer wish to adopt this alternative or any arrangement in which the employer undertakes to apply supplier labels to cartridges contained in an outer container, the employer should establish the arrangement in writing.
- A generic SDS covering both the cartridge and the extinguisher will be considered acceptable for the purposes of providing an SDS on the cartridge.

G5.3-3 Cylinders of breathing air

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.7(1)(a) of the *OHS Regulation* ("Regulation") states:

(1) An employer must ensure that a worker who works with a hazardous product or may be exposed to a hazardous product in the course of his or her work activities is trained in the following:

(a) the content required on a supplier label and workplace label, and the purpose and significance of the information contained on those labels;

Section 5.8(1) of the *Regulation* states:

Subject to any exemptions from labelling requirements in the Hazardous Products Regulations and this Part, an employer must ensure that a hazardous product or the container of a hazardous product received at a workplace is attached or printed with a supplier label.

Section 5.8(3) of the *Regulation* states:

Subject to any exemptions from labelling requirements in the Hazardous Products Regulations and this Part, an employer must replace the label with either a supplier label or a workplace label if a supplier label applied to a hazardous product or a container of a hazardous product becomes illegible or is accidentally removed from the hazardous product or the container.

Section 5.14(1) of the *Regulation* states:

Subject to subsection (6), an employer who acquires a hazardous product for use, handling or storage at a workplace must obtain a supplier SDS in respect of that hazardous product that complies with the requirements of the Hazardous Products Regulations.

Purpose of guideline

The purpose of this guideline is to clarify the requirements for providing labels, safety data sheets (SDS), and worker training specific to compressed gas cylinders of breathing air.

Compressed air cylinders

Compressed air cylinders used in self-contained breathing apparatus (SCBA) are included as WHMIS Class Gases under Pressure pursuant to Part 7 Subpart 5 of the federal *Hazardous Products Regulations*.

Provincial requirements for cylinders filled in-house

- *Safety Data Sheets:* An SDS must be provided for synthetic mixtures of breathing gases. An SDS is not required for cylinders of compressed respirable atmospheric air as this air must meet the air quality required by [section 8.37](#) of the *Regulation*.
- *Labels:* Workplace labels specifying the product identity and making reference to the SDS are required on synthetic mixtures of breathing gases. Safe handling instructions must be provided through the worker education and training program. For cylinders of respirable atmospheric air which are identifiable to workers by size and shape, for which an SDS is not required, and where worker instruction in the safe use of the SCBA is in place as required by part 8 of the *Regulation*, further labelling or means of identification is not necessary.

Federal requirements for pressurized cylinders sold, imported, or filled on contract

- Suppliers who provide cylinders with compressed synthetic mixtures for breathing purposes for use in a workplace must apply supplier labels and provide an SDS
- Suppliers who provide cylinders of breathing air for use in the workplace are not required to provide an SDS or a reference to the SDS on the supplier label provided the supplier label meets the following:
 - Includes the following six elements of a WHMIS supplier label: the product identifier, supplier identifier, hazard pictogram, signal word, hazard statement, and precautionary statements (which include first aid measures)
 - Includes a precautionary statement advising users to ensure the cylinder is filled with air meeting the quality standards of the local regulatory agency

Where cylinders are refilled by an outside contractor who is not the original supplier of the cylinder, the contractor must provide a supplier identifier. If the original supplier label becomes illegible or is accidentally removed from the hazardous product, the supplier must provide a supplier label.

G5.3-4 Exemptions

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.3 of the *OHS Regulation* ("*Regulation*") states:

(1) Subject to subsections (2) to (4), sections 5.4 to 5.18 (the WHMIS Requirements) apply to employers and workers with respect to hazardous products used, stored or handled at a workplace.

(2) The provisions concerning a supplier label and SDS do not apply if the hazardous product is

(a) an explosive as defined in section 2 of the *Explosives Act* (Canada),

(b) a drug, food or cosmetic device within the meaning of the *Food and Drugs Act* (Canada),

- (c) a pest control product as defined in section 2(1) of the *Pest Control Products Act* (Canada),
 - (d) a nuclear substance as defined in section 2 of the *Nuclear Safety and Control Act* (Canada), that is radioactive, or
 - (e) a consumer product as defined in section 2 of the *Canada Consumer Product Safety Act*.
- (3) The provisions do not apply if the hazardous product is
- (a) wood or a product made of wood,
 - (b) tobacco or a tobacco product as defined in section 2 of the *Tobacco Act* (Canada),
 - (c) a manufactured article, or
 - (d) being transported or handled pursuant to the requirements of the *Transportation of Dangerous Goods Act, 1992* (Canada) or the *Transport of Dangerous Goods Act*.
- (4) The provisions do not apply to a hazardous waste, except that the employer must ensure the safe storage and handling of a hazardous waste generated at the workplace through the combination of worker training and the information required by this Regulation.

Purpose of guideline

The purpose of this guideline is to clarify requirements for information, education, training, labelling, and safety data sheets (SDS) for hazardous products that are partially or completely exempted from Workplace Hazardous Material Information System (WHMIS).

Hazardous products exempt from WHMIS legislation

Where a hazardous product is used or produced in a workplace, workers must know the hazard, how to protect themselves in normal work and in emergency situations, and where to find more information when it is needed. This is required regardless of whether the hazardous product is included fully in the WHMIS program or is partially or completely exempted. The information required for partially and completely exempted hazardous products and wastes include hazards (e.g., toxicity, fire, explosion, or reactivity), storage information, safe work procedures, protective equipment, spill, leakage, firefighting information, and first aid measures.

Partial exemptions

Partially exempt hazardous products, specified in section 5.3(2) of the *Regulation* and labelled under federal legislation other than WHMIS, can be sold without a WHMIS label or SDS. When these hazardous products are used in the workplace, [sections 5.6 and 5.7](#) of the *Regulation* require worker education and training. Workplace labels must be applied if the hazardous product is not in the original container.

Complete exemptions

Hazardous products specified in section 5.3(3) of the *Regulation* are excluded from both federal and provincial WHMIS requirements. General occupational health and safety requirements governing workplace education and training, as well as the general information requirement set out in [section 5.2](#) of the *Regulation* must be met. The provision of an SDS by suppliers will assist employers in meeting their obligations under these sections.

Hazardous wastes

An employer must provide worker training and information sufficient to ensure the safe storage and handling of a hazardous waste generated at the workplace, pursuant to section 5.3(4) of the *Regulation*. Information from an SDS for waste components or precursors, combined with the employer's firsthand knowledge about the process which generated the hazardous waste, will form the basis of the information given to employees.

G5.3-5 Leaded surface coating materials

Revised April 9, 2009; Editorial Revision March 7, 2011; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.3(2)(e) of the *OHS Regulation* ("*Regulation*") states:

- (2) The provisions concerning a supplier label and SDS do not apply if the hazardous product is
- (e) a consumer product as defined in section 2 of the *Canada Consumer Product Safety Act*.

Purpose of guideline

The purpose of this guideline is to highlight the federal requirements applicable to leaded surface coating materials.

Health Canada requirements

The federal *Surface Coating Materials Regulations* ("*SCMR*") prohibits the advertising, sale, and importation of surface coating materials containing a lead concentration exceeding 90 mg/kg (0.009% w/w). Surface coating materials that are used for any of the applications listed in section 4(2) of the *SCMR* exempt from this restriction, but specific labelling requirements apply if their lead content does exceed 0.009% w/w. These regulatory requirements are enforced by Health Canada.

G5.3-6 "For industrial use only" labels

Regulatory excerpt

Section 5.3(2) of the *OHS Regulation* ("Regulation") states:

The provisions concerning a supplier label and SDS do not apply if the hazardous product is

- (a) an explosive as defined in section 2 of the *Explosives Act* (Canada),
- (b) a drug, food or cosmetic device within the meaning of the *Food and Drugs Act* (Canada),
- (c) a pest control product as defined in section 2 (1) of the *Pest Control Products Act* (Canada),
- (d) a nuclear substance as defined in section 2 of the *Nuclear Safety and Control Act* (Canada), that is radioactive, or
- (e) a consumer product as defined in section 2 of the *Canada Consumer Product Safety Act*.

Purpose of guideline

The purpose of this guideline is to clarify WorkSafeBC's interpretation of product labelling that specifies industrial or professional use of hazardous products labelled "for industrial use only."

Industrial use

Statements on the label of a hazardous product which identify a product for industrial use imply intent for product use in the workplace. This includes statements such as "for industrial use only" or "for professional use only." Where the product is a hazardous product as defined in section 1.1(1) of the *Regulation*, the Workplace Hazardous Materials Information System (WHMIS) requirements apply.

G5.3-7 Warehousing of hazardous products

Issued February 27, 2001; Revised September 21, 2012; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.3 of the *OHS Regulation* ("Regulation") states:

- (1) Subject to subsections (2) to (4), sections 5.4 to 5.18 (the WHMIS Requirements) apply to employers and workers with respect to hazardous products used, stored or handled at a workplace.
- (2) The provisions concerning a supplier label and SDS do not apply if the hazardous product is
 - (a) an explosive as defined in section 2 of the *Explosives Act* (Canada),
 - (b) a drug, food or cosmetic device within the meaning of the *Food and Drugs Act* (Canada),
 - (c) a pest control product defined in section 2(1) of the *Pest Control Products Act* (Canada),
 - (d) a nuclear substance as defined in section 2 of the *Nuclear Safety and Control Act* (Canada), that is radioactive, or
 - (e) a consumer product as defined in section 2 of the *Canada Consumer Product Safety Act*.
- (3) The provisions do not apply if the hazardous product is
 - (a) wood or a product made of wood,
 - (b) tobacco or a tobacco product as defined in section 2 of the *Tobacco Act* (Canada),
 - (c) a manufactured article, or
 - (d) being transported or handled pursuant to the requirements of the *Transportation of Dangerous Goods Act, 1992* (Canada) or the *Transport of Dangerous Goods Act*.
- (4) The provisions do not apply to a hazardous waste, except that the employer must ensure the safe storage and handling of a hazardous waste generated at the workplace through the combination of worker training and the information required by this Regulation.

Purpose of guideline

The purpose of this guideline is to clarify the application of the WHMIS requirements in the *Regulation* relative to federal requirements when a hazardous product is "handled" in a warehouse.

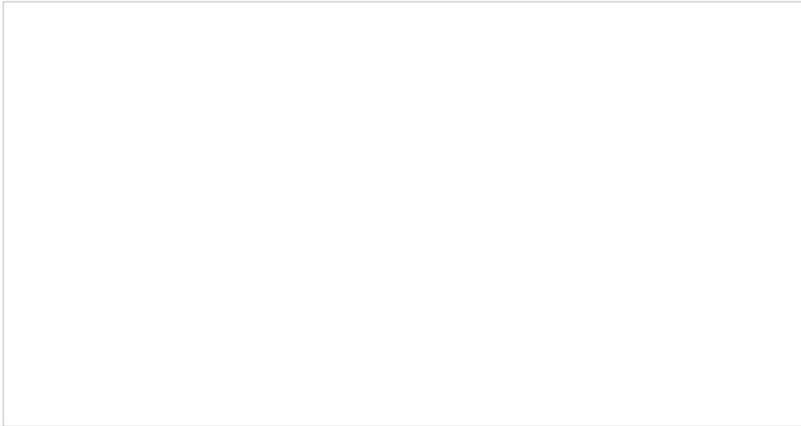
Application of WHMIS requirements

Section 5.3(3)(d) of the *Regulation* states, in part, that the WHMIS requirements "do not apply if the hazardous product is being transported or handled pursuant to the requirements of the *Transportation of Dangerous Goods Act, 1992* (Canada) or the *Transport of Dangerous Goods*

Act."

The *Transportation of Dangerous Goods (TDG) Act* defines *handling* as "loading, unloading, packing or unpacking dangerous goods in a means of containment for the purposes of, in the course of or following transportation and includes storing them in the course of transportation." Handling in this context does not include actual *use* of a hazardous product. TDG requirements deal primarily with acute exposures and the use of symbol alerts and placards. Transportation workers should not be exposed to hazards associated with the hazardous product unless there is an emergency, short-term circumstance such as a transport vehicle accident and spill. Conversely, worker exposure to hazardous products in a workplace can occur in a wider variety of circumstances and over a longer period of time. Hence, WHMIS requirements are more extensive than TDG and include the use of explicit labels and safety data sheets (SDS).

Application of WHMIS or TDG depends on the flow of goods through commerce as outlined in the following flow chart. WHMIS requirements are meant to apply at points of sale or use rather than during shipment. Transportation generally means to and from workplaces.



WHMIS, both federal (labels and SDS) and provincial (education and training, workplace labels), applies where hazardous products are used, processed, or repackaged in a warehouse. When warehoused, hazardous products can be:

- In "transshipment" (held in temporary storage between points of shipment)
- Repackaged (assembled, packaged, labelled, or relabelled)
- Used

Sections 5.2(c) and 5.2(d) of the *Regulation* are non-WHMIS "general information requirements" that apply to a transshipment warehouse where in the case of an emergency or spill of a hazardous product, an emergency response system must be established. This emergency response system requires written emergency and spill cleanup procedures, and effective supervisor and worker training in these procedures.

A hazardous product that is repackaged or used is subject to the WHMIS section of the *Regulation* since workers may be exposed to the hazards of the product.

The following table sets out the legislation and resources that apply to hazardous products in a warehouse:

	Federal	Provincial - Regulation	Other
Transshipment	TDG	Non-WHMIS sections [5.2(c) & 5.2(d)]	CANUTEC*
Repackaging	HPA/HPR**	WHMIS sections (5.3 – 5.18)	
Used	HPA/HPR	WHMIS sections (5.3 – 5.18)	

Notes to table:

* CANUTEC (Canadian Transport Emergency Centre), part of the TDG Directorate, Transport Canada, provides hazard information in case of transport-related emergency situations. Phone: (613) 996-6666.

** HPA/HPR (*Hazardous Products Act/Hazardous Products Regulations*)

G5.3-8 The application of WHMIS in agriculture

Issued January 1, 2005; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.3(1) of the *OHS Regulation* ("Regulation") states:

Subject to subsections (2) to (4), sections 5.4 to 5.18 (the WHMIS Requirements) apply to employers and workers with respect to

hazardous products used, stored or handled at a workplace.

Purpose of guideline

The purpose of this guideline is to provide information to farmers, ranchers, and agriculture workers on the general framework of the Workplace Hazardous Materials Information System (WHMIS), the application of regulatory requirements to partially and completely exempt products, and the means of forwarding concerns to WorkSafeBC about products for which suppliers are not providing information meeting WHMIS requirements.

Application to suppliers and workplaces

WHMIS was developed in 1988 as a major step in helping to ensure that employers and workers would be provided with information on the hazards and control measures for hazardous materials (termed "hazardous products") in the workplace. The requirements were made applicable to agriculture in 1993.

Broadly speaking, WHMIS applies on the following two levels:

- **Suppliers:** The suppliers of hazardous products are required, under federal legislation, to provide information to employers for hazardous products used in the workplace. Typically, the information must be provided in two ways: container labels, and safety data sheets (SDS).
- **Workplace:** Employers are required, under provincial legislation, to ensure hazardous products received in the workplace have the necessary labels and SDS, and to ensure that workers are educated and trained in the safe use of the products. Other obligations apply. For example, if a hazardous product is transferred from the supplier container to another container in the workplace it is necessary to label or identify the workplace container. [Sections 5.3 to 5.18](#) of the *Regulation* cover the provincial WHMIS requirements.

Partially and completely exempt products

As shown in [section 5.3](#) of the *Regulation*, there are different degrees to which hazardous products are covered by WHMIS.

Many industrial products are fully covered by WHMIS, meaning the supplier requirements for labels and SDS apply, and the employer must ensure that workplace obligations under WHMIS are also met. Examples of such hazardous products in agriculture include compressed gas cylinders used in welding operations, fuel products on site, and some acids and caustics.

Some hazardous products are partially exempt. Examples include pesticides and drugs (including some sterilants and disinfectants). In these cases there is no federal requirement for WHMIS labels and SDS, but typically the hazardous products must meet other federal labelling and information requirements specific to them. In the case of pesticides and some other partially exempt products, suppliers will often provide an SDS, and the buyer should obtain an SDS wherever available. The employer must meet provincial WHMIS requirements for information, education, and training of workers and other matters such as workplace labels, as covered in [sections 5.3-5.18](#) of the *Regulation*. Refer to [OHS Guideline G5.3-4](#) for more information on partially exempt hazardous products.

Also, note that [section 6.75](#) of the *Regulation* requires that employers make readily available to workers an SDS or its written equivalent for pesticides used at the workplace. Obtaining an SDS from the pesticide supplier will help ensure that the requirement is met. An SDS compliant with WHMIS will include information on the following categories:

- Identification
- Hazard identification
- Composition/information on ingredients
- Firstaid measures
- Firefighting measures
- Accidental release measures
- Handling and storage
- Exposure controls/personal protection
- Physical and chemical properties
- Stability and reactivity
- Toxicological information
- Ecological information
- Disposal considerations
- Transport information
- Regulatory information
- Other information

If the pesticide SDS does not fully meet WHMIS standards, but has sufficient information to ensure the health and safety of workers using, transporting, or storing the hazardous product, the SDS may be considered acceptable. Refer to [OHS Guideline G6.75](#) for a list of the information that would be considered equivalent.

Some hazardous products such as welding rods, which are manufactured articles, are completely exempt from both the federal and provincial WHMIS requirements. In such cases, where the article contains a hazardous material, the employer is encouraged to obtain an SDS if available. [Section 5.2](#) of the *Regulation* addresses general information requirements for any chemical or biological substance that could cause an adverse health effect; which would apply in this case. Section 5.2 covers general responsibilities to identify the hazards of the substance, educate the worker, and implement and follow safe work procedures. Refer to [OHS Guideline G5.3-4](#) for more information on completely exempt products.

What if a supplier is not providing adequate labels or SDS where required by WHMIS?

Where an agricultural workplace is unable to get the proper WHMIS information for a hazardous product from the supplier or distributor, the farmer or rancher is encouraged to contact WorkSafeBC at (604) 276-3100 (long distance toll free at 1-888-621-7233), or the nearest WorkSafeBC Regional Office. Many of WorkSafeBC's occupational hygiene officers are designated to enforce federal WHMIS requirements on suppliers and distributors in this province. Where a distributor is providing product from elsewhere in Canada, WorkSafeBC will forward the concern to the responsible jurisdiction for its follow-up with the supplier. For more information on the application of WHMIS, refer to the WorkSafeBC publication, *WHMIS at Work*, which is available on the WorkSafeBC website at www.worksafebc.com

G5.5 WHMIS program — Consultation on WHMIS education and training

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.5 of the *OHS Regulation* ("Regulation") states:

If hazardous products are used in the workplace the employer, in consultation with the joint committee or health and safety representative as applicable, must establish and maintain an effective WHMIS program, as part of the overall workplace health and safety program, which

- (a) addresses applicable WHMIS Requirements including education and training,
- (b) is reviewed at least annually, or more frequently if required by a change in work conditions or available hazard information, and
- (c) provides for the periodic evaluation of the knowledge of workers using suitable means such as written tests and practical demonstrations.

Purpose of guideline

The purpose of this guideline is to clarify the meaning of the phrase "in consultation with the joint committee or health and safety representative," as it applies to the development and implementation of Workplace Hazardous Materials Information System (WHMIS) education and training.

Consultation

An employer has consulted with the joint committee or health and safety representative regarding WHMIS education and training if the following two conditions are met:

- Prior to the finalization of the WHMIS education and training, the joint committee or health and safety representative has the opportunity to review and provide information or advice on the entire education and training component, including its content, structure, and means of implementation. Content means education in "how WHMIS works," education in the hazards of hazardous products, and training in work procedures as itemized in [section 5.7\(1\)](#) of the *Regulation*. Means of implementation includes the choice of instructors and the use of any in-course evaluation.
- After initial implementation of WHMIS education and training, and at the time of each annual review of the WHMIS program, the employer asks for information and advice from the joint committee or health and safety representative on the effectiveness of the education and training.

Where a number of committees have been established by a large employer, an acceptable arrangement is for the central committee, where there is one, to review the employer's general plan for WHMIS education and training in all workplaces, and for local committees to review the WHMIS education and training in the areas of their respective responsibilities.

G5.6 Worker education and training

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.6(1) of the *OHS Regulation* ("Regulation") states:

- (1) An employer must ensure that general WHMIS education, as it pertains to the workplace, is provided to workers on the
 - (a) elements of the WHMIS program,
 - (b) major hazards of the hazardous products in use in the workplace,
 - (c) rights and responsibilities of employers and workers, and
 - (d) content required on labels and SDSs, and the significance of this information.

Section 5.7(1) of the *Regulation* states:

An employer must ensure that a worker who works with a hazardous product or may be exposed to a hazardous product in the course of his or her work activities is trained in the following:

- (a) the content required on a supplier label and workplace label, and the purpose and significance of the information contained on those labels;
- (b) the content required on an SDS and the purpose and significance of the information contained on the SDS;
- (c) procedures for the safe use, storage, handling and disposal of the hazardous product;
- (d) procedures for the safe use, handling and disposal of the hazardous product contained or transferred in
 - (i) a pipe or a piping system including valves,
 - (ii) a process or reaction vessel, or
 - (iii) a tank car, tank truck, ore car, conveyor belt or similar conveyance,
- (e) procedures to be followed where fugitive emissions are present if workers may be exposed to those fugitive emissions;
- (f) procedures to be followed in case of an emergency involving the hazardous product.

Purpose of guideline

The purpose of this guideline is to provide a way to assess the effectiveness of a worker's Workplace Hazardous Materials Information System (WHMIS) education and training as it pertains to the workplace and the hazardous products to which that worker may be exposed.

Education and training assessment questions

What are the hazards of the hazardous product?

The worker's answer must reflect the possible adverse effects of the products or materials in question. This demonstrates an understanding of generic hazard information (education).

How are you protected from those hazards?

The answer must demonstrate the worker's understanding of proper procedures to follow for the use, storage, handling, or disposal of the product and the proper use of personal protective equipment. The answer must demonstrate knowledge of adequate workplace control of the hazard through engineering, administrative means, or the use of personal protective equipment.

What do you do in case of an emergency?

The answer must show the worker's understanding of procedures to follow in the event of a spill, release, fire, or poisoning involving the hazardous product, and include the use of personal protective equipment where applicable.

Where can you get further hazard information?

This question focuses on the worker's ability to gain access to the significant information provided on labels and safety data sheets (SDS). Workers must know how to interpret the supplier label, workplace label, and other means of identification applicable to the use of the product and how to obtain information significant to health and safety from the SDS.

G5.8-1 Supplier label

Issued August 1999; Retired May 9, 2014

G5.8-2 Supplier label: Labelling on leased or rented chemical application units

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.8(1) of the *OHS Regulation* ("*Regulation*") states:

Subject to any exemptions from labelling requirements in the Hazardous Products Regulations and this Part, an employer must ensure that a hazardous product or the container of a hazardous product received at a workplace is attached or printed with a supplier label.

Section 5.8(3) of the *Regulation* states:

Subject to any exemptions from labelling requirements in the Hazardous Products Regulations and this Part, an employer must replace the label with either a supplier label or a workplace label if a supplier label applied to a hazardous product or a container of a hazardous product becomes illegible or is accidentally removed from the hazardous product or the container.

Purpose of guideline

The purpose of this guideline is to clarify the supplier responsibilities for labelling of hazardous products contained within an application unit, such as a solvent spray parts washer, where the unit is leased or rented to an employer and the supplier periodically empties the holding tank on the unit and recharges it with a hazardous product.

Supplier labelling responsibilities

Sections 13(1)(b) and 14(b) of the federal *Hazardous Products Act* (HPA) requires that a supplier apply a label to a hazardous product intended for use in a workplace, or to the container in which the hazardous product is packaged. The label must disclose the required information and display applicable hazard symbols.

An application unit is not exempted as a manufactured article under [section 5.3\(3\)\(c\)](#) of the *Regulation* (section 12(i) of the HPA) because workers are likely to be exposed to the hazardous product during normal conditions of use. The supplier must provide and apply a supplier label on the leased or rented unit. If the label becomes illegible or is accidentally removed from the application unit, the employer must provide and apply a workplace label or a supplier label as required by [section 5.8\(3\)](#) of the *Regulation*. The supplier should be asked to provide a new supplier label as soon as practicable.

G5.8-3 Laboratory sample shipments containing at least two different hazardous products

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.8(1) of the *OHS Regulation* ("*Regulation*") states:

Subject to any exemptions from labelling requirements in the Hazardous Products Regulations and this Part, an employer must ensure that a hazardous product or the container of a hazardous product received at a workplace is attached or printed with a supplier label.

Purpose of guideline

The purpose of this guideline is to clarify the requirements for laboratory sample shipments containing at least two different hazardous products.

Laboratory samples

Part 5 of the *Hazardous Products Regulations* specifies, amongst other requirements, the packaging of a laboratory sample of a hazardous product which may be exempt from the application of paragraph 13(1)(b) or 14(b) of the *Hazardous Products Act*. Section 3.5 of the *Hazardous Products Regulations* provides an exemption for the labelling of at least two different hazardous products in a single outer container.

The following procedures will satisfy supplier and employer responsibilities for labelling sample shipments containing at least two different hazardous products to an outside laboratory:

- The supplier ensures the outer container bears a Workplace Hazardous Materials Information System (WHMIS) supplier label. The label must provide, in addition to other required information items, the identity of *all* hazardous products known or suspected to be contained in the enclosed samples.
- The supplier ensures the container is provided with a lab analysis requisition form or equivalent which describes which inner containers contain, or are suspected to contain, hazardous products. If a requisition form does not call for analysis of the hazardous product in question, specific information on the ingredient must still be provided. For example, a blood sample submitted for a white cell count from a patient infected with hepatitis, must be accompanied by information on the microorganism.
- The supplier and employer establish an agreement in writing which covers the above two points and provides the employer's assurance of the following:
 - Neither the samples nor any supplier information will be removed from the outer container prior to physical receipt by the lab department within the organization which receives shipment
 - An information system is established in the lab, which ensures that each lab worker who could be exposed to a hazardous product in any inner container knows the information, which would otherwise be required on a WHMIS label applied to the inner container. This could be accomplished, for example, by informing the worker about the supplier identifier and emergency number combined with a means of identifying the specific hazardous ingredient in the lab sample.

G5.14-1 Supplier safety data sheet (SDS)

Issued August 1999; Retired May 9, 2014

G5.14-2 Fees

Issued August 1999; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.14(2) of the *OHS Regulation* ("*Regulation*") states:

When a supplier SDS obtained under subsection (1) for a hazardous product is 3 years old, the employer must obtain from the supplier an up-to-date supplier SDS in respect of any of that hazardous product in the workplace at that time.

Purpose of guideline

The purpose of this guideline is to clarify when suppliers are not permitted to charge a fee for a safety data sheet (SDS).

Where fees are prohibited

If, under sections 13 or 14 of the *Hazardous Products Act*, a supplier is required to provide an SDS as a condition of sale or importation to a workplace, a supplier may not charge the purchaser a fee for the SDS. This applies to the SDS sent out with the first shipment or where an

employer requests an updated SDS, in conformity with section [5.14\(2\)](#) of the *Regulation*.

Where fees are not prohibited

However, where an employer is required to obtain an SDS for a hazardous product purchased prior to a supplier compliance point, legislation does not prohibit the supplier from charging a fee for an SDS. In addition, a fee may be legally charged where a supplier provides an SDS to an employer for product partially or completely exempt from Workplace Hazardous Materials Information System (WHMIS) pursuant to section 12 of the *Hazardous Products Act* (e.g., pesticides or restricted products being sold as consumer products). However, WorkSafeBC does not condone the practice of charging fees for an SDS in any circumstance. All instances of fees for an SDS are to be brought to the attention of the WHMIS Coordinator.

G5.15 Laboratory SDS

Issued August 1999; Editorial Revision May 9, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.15(2) of the *OHS Regulation* ("*Regulation*") states:

For the purpose of subsection (1), "produces" does not include the escape of a hazardous product from equipment or from another product nor does it include intermediate products undergoing reaction within a reaction or process vessel.

Purpose of guideline

The purpose of this guideline is to clarify the circumstances in which safety data sheets (SDS) are required for hazardous products produced and used by an employer in a laboratory.

Hazardous products used in laboratories

- Hazardous products produced for immediate use in a reaction or which are produced and consumed in a reaction do not require production of an SDS. Such hazardous products must be used immediately, be used in total, and be consumed entirely during the reaction.
- An SDS must be available as required by legislation on all hazardous products which are components of mixtures produced in laboratories.
- For mixtures other than those intended for immediate use, a new SDS for the mixture must be produced if either of the following occur:
 - The hazard of the mixture is different from the hazard of the ingredients separately
 - The precautionary information reported on the SDS for ingredients is in conflict (for example, a different type of protective gloves or respiratory protection is recommended for each individual component of the mixture)

A new SDS will not be required for dilutions with water and mixtures in which hazards and precautions are generally unchanged from those of the ingredients.

Guidelines - Part 5 - Containers and Storage

G5.22 Covers

Issued August 1999; Editorial Revision August 2004; Editorial Revision April 6, 2020; Editorial Revision February 3, 2022

Regulatory excerpt

Section 5.22 of the *OHS Regulation* ("*Regulation*") states:

If an open container of a hazardous substance could pose a hazard, the container must be kept sealed or covered when not in use.

Purpose of guideline

The purpose of this guideline is to outline that if an open container of a hazardous substance (as defined in section 13 of the *Workers' Compensation Act*) could pose a hazard, section 5.22 of the *Regulation* provides that the container must be kept sealed or covered when not in use.

Determination if a hazard is present

To determine if a hazard is present, an assessment should be conducted which takes into consideration the substance's chemical properties (such as flammability, stability, reactivity, incompatibility, corrosivity, and/or volatility) and physical properties (such as physical state — liquid vs. solid — boiling point, and/or freezing point). The container's stability should be considered (refer to [section 5.25](#) of the *Regulation* and OHS Guideline [G5.25](#)), as well as the volume of the material relative to the room space.

Substances to cover

In general, the following substances should be covered when not in use:

- Flammable solvents
- Oxidizing agents
- Reducing agents
- Strong acids and caustics
- Volatile and toxic solvents
- Combustible liquids

G5.25 Storage practices

Issued August 1999; Editorial Revision January 1, 2009; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.25 of the *OHS Regulation* ("*Regulation*") states:

A hazardous substance must be stored in a designated area, in a manner which ensures that it will not readily fall, become dislodged, suffer damage, or be exposed to conditions of extreme temperature.

Purpose of guideline

The purpose of this guideline is to clarify the requirements for the storage of hazardous substances.

Storage requirements

Section 5.25 of the *Regulation* requires that a hazardous substance be stored "in a designated area, in a manner which ensures that it will not readily fall, become dislodged, suffer damage, or be exposed to conditions of extreme temperature." The term "suffer damage" includes damage to the substance resulting from chemical instability such as peroxidation, as well as exposure to light, shock, or vibration. Under section 5.24, incompatible substances must not be stored "in a manner that would allow them to mix in the event of container leakage, breakage or other such circumstance." For information on chemical stability and incompatibilities, the appropriate safety data sheet (SDS) should be referenced.

The general training and work procedure requirements of [section 5.2\(d\)](#) of the *Regulation* also apply.

Guidelines - Part 5 - Flammable and Combustible Substances

G5.27 Ignition sources - Combustible liquid normally used as fuel

Issued consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 5.27 of the *OHS Regulation* ("*Regulation*") states:

- (1) When a combustible liquid normally used as fuel, a flammable gas or a flammable liquid is handled, used or stored, all sources of ignition must be eliminated or adequately controlled.
- (2) For the purposes of subsection (1) sources of ignition include open flame, spark-producing mechanical equipment, welding and cutting processes, smoking, static discharge and any electrical equipment or installation that is not permitted under the B.C. Electrical Code for use in hazardous locations.
- (3) If the work involves more than one employer, the prime contractor or, if there is no prime contractor, the owner must ensure that sources of ignition resulting from the work of one employer are eliminated or adequately controlled in any work area where a combustible liquid normally used as fuel, a flammable gas or a flammable liquid is handled, used or stored by any other employer.

Purpose of guideline

The purpose of the guideline is to provide examples of "combustible liquid normally used as fuel" that when handled, used, or stored, must have all sources of ignition eliminated or adequately controlled in accordance with section 5.27 of the *Regulation*.

Examples of "combustible liquid normally used as fuel"

"Combustible liquid" is defined in section 1.1 of the *Regulation* as a liquid that has a flash point at or above 37.8°C and below 93.3°C. Requirements of section 5.27 apply to a combustible liquid normally used as fuel because of its risk of fire or explosion given its relatively low flash point that is approaching the flammable range.

Some common examples of combustible liquids normally used as fuel and their flash points ranges taken from safety data sheets of manufacturers include the following:

Combustible liquids normally used as fuel	Approximate flash point ranges
Diesel	>40°C
Kerosene	38-72°C
Jet fuel	38-62°C

To determine if a liquid is a "combustible liquid normally used as fuel," the flash point of the liquid is within the definition of combustible liquid and its use is normally as fuel. If a combustible liquid is normally used as fuel, then the requirements of section 5.27 would apply to that liquid regardless of how it is being used at that particular workplace.

For example, section 5.27 would apply to diesel fuel even when it is being used as a cleaning solvent because it is normally used as fuel.

Combustible liquids such as lubricants and frying oil are not included in the scope of this requirement because they are not normally used as fuel. These substances have a higher flash point and, therefore, a lower risk to cause a fire or explosion.

G5.27(2) Electrical Safety Act *repealed*

Issued August 13, 2008; Retired November 2, 2016

This guideline is no longer required.

G5.28 Bonding or grounding of containers - Ensuring effectiveness

Issued consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 5.28 of the OHS Regulation ("*Regulation*") states:

If a metallic or other conductive container is used to transfer a combustible liquid normally used as fuel, a flammable liquid or a flammable gas to another metallic or other conductive container, the containers must be electrically bonded to each other or electrically grounded while the liquid or gas is being transferred.

Purpose of guideline

The purpose of the guideline is to provide examples of methods used to ensure that the bonding or grounding methods are effective when transferring combustible liquids normally used as fuel, or flammable liquids or gases.

Metallic or other conductive containers

In accordance with section 5.28 of the *Regulation*, metallic or other conductive containers used to transfer combustible liquid normally used as fuel, as well as a flammable gas or liquid, must be bonded to each other or grounded while the liquid or gas is being transferred.

Grounding and bonding

Grounding and bonding are ways to safely dissipate static charge to control the hazard of an ignition of gases and vapours. There are differences between these hazard controls.

Bonding is the use of an additional independent connection method — such as the use of a steel wire — between two conductive objects when this cannot otherwise be ensured. Bonding equalizes the electrostatic charge between the conductive objects, preventing potentially dangerous static sparks between them.

Grounding is a type of bonding where the conductive object is connected to the earth, usually with a conductive wire. Unlike bonding, grounding equalizes the electrostatic charge to that of the earth, which is generally considered to have zero potential, therefore preventing a spark discharge to a grounded object.

Ensuring that bonding and grounding are effective

In accordance with section 5.27 of the *Regulation*, employers are required to ensure that ignition sources are eliminated or adequately controlled in workplaces where combustible liquids normally used as fuel and flammable gas or liquids are stored, handled, or dispensed. Bonding and grounding are ways to adequately control static discharge.

Confirmation is essential to ensure that the bonding and grounding are effective. Employers should use an electrical continuity tester to verify that the bonding or grounding connections are made and exist before work begins. There have been explosions where a bonding system was not checked for continuity and led to a fatality.

Methods to verify continuity include the following:

- Ensure permanent systems are designed and installed by a competent person, such as an electrical engineer or manufacture representative. The systems are applicable to large, fixed facilities that store, handle, transport and dispense large quantities of flammable liquids or fuels on a regular basis. These systems usually include fail-safe or self-checking equipment that will monitor continuity and arrest the process if grounding and bonding are lost.
- Use an electrical continuity tester to ensure that continuity exists in the grounding and bonding systems. A continuity test must be conducted by a qualified person in accordance with accepted industry practices and standards.

Employers should seek advice of a qualified person to ensure bonding and grounding are effective in controlling the ignition hazard associated with static electricity.

G5.30 Dispensing

Issued August 1999; Retired March 31, 2015

This guideline is no longer required.

G5.32 Manual cleaning - Work procedures

Regulatory excerpt

Section 5.32 of the *OHS Regulation* ("Regulation") states:

A flammable liquid must not be used as a manual cleaning solvent unless

- (a) a thorough review of alternative solvents by the employer indicates that a suitable non-flammable substitute is not available,
- (b) appropriate written safe work procedures are implemented to effectively control flammability and health hazards,
- (c) the quantity of liquid used is minimized,
- (d) the worker is instructed and trained in the safe work procedures, and
- (e) the work procedures have been submitted to the Board.

Purpose of guideline

This guideline provides guidance on development of safe work procedures to WorkSafeBC under section 5.32 of the *Regulation*.

Content of safe work procedures

If a thorough review of alternative solvents shows that no suitable non-flammable substitute is available, the employer may use a flammable liquid as a manual cleaning solvent and must develop and implement safe work procedures that effectively control flammability and health hazards.

Safe work procedures should address the following applicable factors:

- Required storage location and conditions for the solvent, including transportation from one work site to another
- Labelling and signage requirements for storage and working containers
- Minimizing the quantities of flammable solvent used for manual cleaning
- Reference to the availability of the safety data sheet
- Means of elimination or control of all ignition sources during use and storage of the solvent, including ignition sources in workplaces of other employers where the solvent is being used
- Potential for migration and flashback of solvent vapours
- Requirements for bonding and grounding during storage and dispensing
- Control of hazards described in the safety data sheet, including:
 - means of ensuring control of worker exposures to the solvent (e.g., exposure monitoring, ventilation, respiratory protection)
 - required personal protective equipment (e.g., gloves, goggles, face shield, respirator)
- Instructions for safe use of the solvent, including prep work, location of use, means and method of application of the solvent, cleanup procedures, and waste disposal
- The procedures should also address how workers are educated on the hazards and trained on protective measures (e.g., fit-testing, drills, WHMIS)
- Incident response (e.g., spills, failure of ventilation, fire)
- Locations and availability of emergency supplies (e.g., fire control, spill control, eye-wash, first aid supplies and service)

These factors do not address all workplace hazards, and employers need to ensure that the health and safety program addresses all hazards. The procedures need to include consideration of protection for workers of the employer as well as any other workers present at a workplace where the flammable cleaning solvent is used.

The *Regulation* requires that workers are instructed and trained in the safe work procedures.

Guidelines - Part 5 - Substances Under Pressure

G5.38 Handling and securing containers

Issued August 1999

Regulatory excerpt

Section 5.38 of the *OHS Regulation* ("Regulation") states:

- (1) A compressed gas cylinder must not be hoisted by a sling or magnet, dropped, subjected to impact, handled by the regulator or used as a roller or work support.
- (2) A compressed gas cylinder must be secured to prevent falling or rolling during storage, transportation and use, and where practicable, must be kept in the upright position.

Purpose of guideline

The purpose of this guideline is to outline that section 5.38(2) of the *Regulation* requires that a compressed gas cylinder be secured to prevent falling or rolling during storage, transportation and use. Where practicable, the cylinder must be kept in the upright position.

Achieving compliance

Compliance with this section can be achieved by either of the following:

- Chaining the cylinders to a secure object (a method typically used by welding shops, machine shops, and other employers handling cylinders in relatively small numbers)
- Using the "interlock" method of storing cylinders (a method used by gas manufacturers, distributors, transfill depots, subdivisions and company depots, or other member companies of the Compressed Gas Association)

As shown in the Figure below (this is an overhead or "bird's eye" view), the interlock method consists of dovetailing the cylinders into a cohesive unit. This method is acceptable when cylinders are in an area shipping or receiving a large number of cylinders.

 Guidelines - Part 5 - Controlling Exposure

G5.48-1 Table of exposure limits - Background information

Issued October 29, 2003; Revised February 11, 2004; Revised February 4, 2005; Revised September 1, 2010; Retired September 25, 2019

This guideline is retired as it was merged with G5.48-2.

G5.48-2 Exposure limits and the review process

Issued October 29, 2003; Revised February 11, 2004; Revised February 4, 2005; Revised April 29, 2005; Revised November 28, 2008; Revised July 1, 2009; Revised September 1, 2010; Revised May 1, 2013; Revised September 25, 2019

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Section 5.1 of the *Regulation* defines ACGIH as follows:

"ACGIH" means

(a) the American Conference of Governmental Industrial Hygienists publication entitled *Threshold Limit Values and Biological Exposure Indices*, dated 2002, as amended from time to time, or

(b) The American Conference of Governmental Industrial Hygienists publication entitled *Documentation of the Threshold Limit Values and Biological Exposure Indices*, as amended from time to time;

Purpose of guideline

This guideline provides background information on exposure limits as well as outlines the review process WorkSafeBC follows for reviewing and revising exposure limits of chemical substances.

Background information

An exposure limit is a maximum allowed airborne concentration for a substance that no worker is to be exposed above it. These exposure limits may include an 8 hour time-weighted average concentration, a short-term (15-minute) exposure limit, or a ceiling limit.

An exposure limit is not intended to represent a fine line between safe and harmful conditions. In determining an exposure limit, it is not possible to take into account all factors that could influence the effect that exposure to the substance may have on an individual worker. Therefore, for all hazardous substances, regardless of any assigned exposure limit, the guiding principle is elimination of exposure or reduction to the lowest level that is reasonably achievable below the exposure limit.

Due to a wide variation in individual susceptibility, some workers may experience discomfort from some substances at concentrations at or below the exposure limit. Others may be affected more seriously by aggravation of a pre-existing condition, or by development of an occupational disease. Furthermore, other workplace contaminants may affect an individual's response. The effects of combined chemical exposures are often unknown or poorly defined.

Exposure limit review process

The ACGIH conducts scientific reviews of chemical substances with the purpose of confirming or revising existing Threshold Limit Values (TLVs). ACGIH publishes a list of new or revised TLVs annually. WorkSafeBC generally uses the TLVs established by ACGIH to determine exposure limits. Exposure limits that differ from the ACGIH TLVs are presented on the Table of Excluded Substances in [OHS Policy Item R5.48-1](#) which includes the following:

- Those substances for which a TLV is currently not considered feasible for B.C. workplaces
- Those substances, previously listed in the former Table 5-4 of the *Regulation* (prior to 2002), that had lower exposure limits than the corresponding ACGIH TLV at the time
- Those substances, previously listed in the former Table 5-4 of the *Regulation* (back in 2002), that the ACGIH does not currently have a

TLV for

For general information on how WorkSafeBC determines exposure limits, refer to [Regulating Chemical Exposure](#).

The procedure for adopting new or revised exposure limits is described in [WorkSafeBC's Exposure Limit Review Process for Chemical Substances](#). For questions about the exposure limit review process, contact WorkSafeBC's Policy, Regulation and Research division at 604-276-5160.

WorkSafeBC maintains a [Table of Exposure Limits for Chemical and Biological Substances](#) which lists all substances with a B.C. exposure limit prescribed under section 5.48 of the *Regulation*. This table has been created for convenience to promote public awareness; however, it does not represent the official version of the exposure limits and designations. Although WorkSafeBC regularly updates the table as necessary, it does not guarantee the accuracy or completeness of the information in this table since the contents of the table are constantly being revised by ACGIH or International Agency for Research on Cancer (IARC). For questions about the Table of Exposure Limits, contact WorkSafeBC's OHS Practice and Engineering Support department at 604-231-8644.

G5.48-3 Normal 8-hour work period

Issued originally as G5.48-2 August 1, 1999; Revised October 29, 2003

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Section 5.1 of the *Regulation* defines "8-hour TWA limit:"

"8-hour TWA limit" means the time weighted average (TWA) concentration of a substance in air which may not be exceeded over a normal 8 hour work period.

Purpose of guideline

The purpose of this guideline is to explain a normal 8-hour work period as it applies to section 5.48 of the *Regulation*.

Computation of an 8-hour work period

For an 8-hour TWA, a normal 8-hour work period will generally refer to a routine shift length of no more than 8 hours, over which exposure to an air contaminant occurs. In computing the TWA breaks should be included if there is significant exposure during the breaks, but not otherwise. For example, in the case of a routine shift length of 8 hours with an additional half-hour or three quarter-hour lunch break, the 8-hour work period is the TWA period, if there is no significant exposure over the lunch break. If significant exposure occurs during the lunch break, then the work period should be considered more than 8 hours and the exposure reduction factors stipulated in [section 5.50](#) need to be applied. Note that 15-minute paid breaks (such as coffee breaks) should be included in the exposure period.

Refer to [OHS Guideline G5.50](#) for assistance in applying the reduction factors.

G5.48-4 Conversions for ppm and mg/m³

Issued originally as G5.48-3 August 1, 1999; Revised February 11, 2004; Editorial Revision September 21, 2012

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Purpose of guideline

This guideline explains how to convert exposure limits between ppm and those in mg/m³.

Exposure limit conversions

The ACGIH's *Threshold Limit Values and Biological Exposure Indices* provides instructions for converting the exposure limit (8-hour TWA limit or STEL or ceiling) for gases and vapours from parts per million (ppm) to milligrams per cubic metre (mg/m³). This might be used in situations where a substance is measured or listed in milligrams per cubic metre and the Table of Exposure Limits for Chemical and Biological Substances lists that substance in parts per million.

To convert a known exposure limit in ppm to the equivalent exposure limit in mg/m³, use the following formula:

$$\text{Exposure limit in mg/m}^3 = \frac{(\text{limit value in ppm})(\text{gram molecular weight of substance})}{24.45}$$

Conversely, the following formula converts a known exposure limit in mg/m³ to the equivalent exposure limit in ppm:

$$\text{Exposure limit in ppm} = \frac{(\text{limit value in mg/m}^3)(24.45)}{\text{gram molecular weight of substance}}$$

Molecular weights can be found in the *NIOSH Pocket Guide to Chemical Hazards*, chemical supplier lists, the *NIST Chemistry WebBook* or other online databases.

The numeric value of 24.45 in both formulae is the molar volume of air in litres at normal temperature and pressure (NTP), which is considered to be 25°C and 1 atmosphere (101.325 kPa or 760 mm Hg or 760 torr). Note that this is not the same as *standard* temperature and pressure (STP), which is 0°C and 1 atmosphere.

If when dealing with measurements at NTP then it is necessary to calculate the molar volume of air for a temperature and pressure other than NTP and substitute this calculation for 24.45. Methods for calculating molar volumes can be found in standard occupational hygiene reference books such as those listed in [OHS Guideline G5.53-4](#).

G5.48-5 Welding fume

Issued originally as G5.48-4 August 1, 1999; Revised February 11, 2004; Revised August 3, 2006; Editorial Revision January 1, 2009; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

(TWA refers to time-weighted average, and ACGIH refers to American Conference of Governmental Industrial Hygienists.)

Purpose of guideline

This guideline explains that welding fumes are of variable composition and provides information on substances that may be present. It also discusses the sources of information on welding fumes and how to determine applicable exposure limits. The term "welding" includes thermal cutting and allied processes such as brazing.

Welding fume composition

Establishing a worker's exposure to hazardous substances in welding fumes is not a simple matter since this depends on the material being welded as well as the process and electrodes used. Welding fumes may contain fluoride, and metals or oxides of metals such as aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, hexavalent chromium, cobalt, copper, iron, lead, manganese, nickel, silver, tin, titanium, vanadium and zinc.

Apart from welding fumes, hazardous levels of gases, including carbon monoxide, oxides of nitrogen, or ozone may also be present during welding. In addition, there may be a risk of asphyxiation when shielding gases such as argon are used, particularly in an enclosed or confined space. Decomposition products such as phosgene can form when coatings or residues on or near the object being welded are heated.

Sources of information on welding fumes

To determine the potential level of exposure to welding fumes, a systematic review of the base metal, electrode, and type of process is required. Information requirements for hazardous materials covered by WHMIS are found in sections [5.3-5.18](#) of the *Regulation*, and for all substances, in [section 5.2](#). The safety data sheets (SDS) or other applicable information sources should be used to identify hazardous ingredients and expected products of reaction and decomposition. Information on electrodes, the metal(s) being welded or cut, and the specific type of welding process should also be identified.

Exposure limits

Once the information on possible types of exposure has been determined, the [Table of Exposure Limits for Chemical and Biological Substances](#) should be consulted for the applicable exposure limit(s).

The employer must comply with the exposure limit for each of the individual constituents in the welding fume. An additive exposure limit as established in [section 5.51](#) may apply if two or more of these hazardous substances demonstrate similar toxicological effects. Refer to [OHS Guideline G5.51](#) for further information.

(Note that sections [12.115 \(Coatings on metals\)](#) and [12.117 \(Silver solder\)](#) of the *Regulation* address issues respectively of coatings on metals, and cadmium in silver solder.)

G5.48-6 Allergenic species of wood dust

Issued originally as G5.48-5 August 1, 1999; Revised February 11, 2004

Regulatory excerpt

Section 5.48 of the *OHS Regulation ("Regulation")* states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Purpose of guideline

The purpose of this guideline is to clarify the types of wood species considered to be allergenic for the purposes of wood dust – allergenic species as referenced in Policy Item R5.48-1.

Allergenic species of wood dust

The Table of Exposure Limits for Excluded Substances in [Policy Item: R5.48-1](#) of the OHS Policies includes a listing for wood dust — allergenic species. (As noted in [OHS Guideline G5.48-2](#), substances with exposure limits that are *not* the current ACGIH TLVs are listed in the Table of Exposure Limits for Excluded Substances in this policy. They are included in the Table of Exposure Limits for Chemical and Biological Substances.) For the purposes of Policy Item R5.48-1, the following table of wood species should be considered allergenic for the purposes of "wood dust — allergenic species."

Wood Species Considered to be Allergenic

Common name	Species name
Softwood	
Western red cedar	<i>Thuja plicata</i>
California redwood	<i>Sequoia sempervirens</i>
Cedar of Lebanon	<i>Cedra libani</i>
Eastern white cedar	<i>Thuja occidentalis</i>
Hardwood	
Oak, European	<i>Quercus robur</i>
Beech	<i>Fagus spp.</i>
Ash	<i>Fraxinus americanum</i>
Tropical Wood	
Abirucana	<i>Pouteri</i>
African maple	<i>Triplochiton scleroxylon</i>
African zebra	<i>Microberlinia</i>
Cabreuva	<i>Myrocarpus fastigiatus</i>
Central American walnut	<i>Juglans olanchana</i>
Cocabolla	<i>Dalbergia retusa</i>
Common name unavailable	<i>Tanganyika aningre</i>
Ebony, African	<i>Diospyros crassiflora</i>
Iroko or Kambala	<i>Chlorophora excelsa</i>
Fenambouk	<i>Caesalpinea echinata</i>
Kejaat	<i>Pterocarpus angolensis</i>
Kobite	<i>Nesorgordonia papaverifera</i>
Mahogany, African	<i>Khaya spp.</i>
Makore	<i>Tieghemella hecklii</i>
Quillaja bark	Species name unavailable
Pau Marfim	<i>Balfourodendron riedelianum</i>
Ramin	<i>Gonystylus bancanus</i>

This list is derived from Chan-Yeung, M, Malo, J-L, "Aetiological Agents in Occupational Asthma," *European Respiratory Journal*, Volume 7, 1994 (pp. 346-371).

G5.48-7 Nuisance dusts

Issued August 16, 2000; Revised February 11, 2004; Revised November 23, 2005; Editorial Revision October 28, 2019

Regulatory excerpt

Section 5.48 of the *OHS Regulation ("Regulation")* states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

(TWA refers to time-weighted average, and ACGIH refers to American Conference of Governmental Industrial Hygienists.)

Purpose of guideline

The term "nuisance dust" has been used for years to describe a group of dusts with similar effects on people. Nuisance dusts are insoluble or poorly soluble in water and do not cause toxic effects on humans other than by inflammation of the respiratory tract or by accumulation of material in the lung (lung overload).

Exposure limits for nuisance dusts involve additional terms such as "total dust," "respirable dust," and "Particles not otherwise classified (PNOC)." This guideline explains the use of these terms. It also provides information on the exposure limits for PNOC and various nuisance dusts.

In addition, the guideline provides some technical information on a relatively new term that has begun to be used to describe dusts - "inhalable" particulate.

Total and respirable dusts

Historically, particulates in the air have been measured as "total dust." This term refers to dusts with a wide range of particle sizes capable of being deposited in the various regions of the human respiratory tract, from the nose and throat down into the gas exchange area of the lung.

Dusts have also been measured as "respirable dusts," which refers to the portion of total dust that is capable of passing through the upper respiratory tract and then being deposited in the gas exchange area of the lung.

Many nuisance dusts have an 8-hour TWA exposure limit of 10 mg/m³ for total dust, as shown in the Table of Exposure Limits for Chemical and Biological Substances (the Table). Examples include aluminum oxide, calcium sulfate, cellulose, emery, gypsum and Portland cement.

Such substances also have an 8-hour TWA of 3 mg/m³ for the respirable fraction of the dust. These substances are flagged in the Table with an End Note (N) which explains that an exposure limit based on the respirable fraction also applies.

PNOC (Particles not otherwise classified)

PNOC are nuisance dusts that have not been assigned individual exposure limits. PNOC may arise in various circumstances, for example, some roadwork operations, grinding acrylics and buffing nails. PNOCs are assigned a TWA of 10 mg/m³ for the total dust, and a TWA of 3 mg/m³ for the respirable fraction.

Additional technical information - Inhalable particulate

Exposure limits adopted by WorkSafeBC are based in part on the threshold limit values of the ACGIH. The concept of "inhalable dust," which has been developed by the ACGIH, refers to dusts that can be deposited anywhere in the respiratory tract. Although it is similar to the concept of "total dust," it is considered to more accurately describe the range of particle sizes that are deposited.

Substances that have been reviewed by the ACGIH, and for which exposure limits based on "inhalable" dust have been adopted by WorkSafeBC, include magnesium oxide, molybdenum (metal and insolubles), and silicon carbide (non-fibrous). Over time, the ACGIH will continue to review the application of "inhalable" to other substances. As changes are adopted by WorkSafeBC they will be reported in the Table of Exposure Limits for Chemical and Biological Substances.

G5.48-8 Simple asphyxiants - Inert gases or vapours

Issued October 29, 2003; Revised February 11, 2004

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Regulatory excerpt

The purpose of this guideline is to define asphyxiants as they apply to section 5.48 of the *Regulation*.

Simple asphyxiants

A number of gases and vapours, such as acetylene, argon, and nitrogen, when present in high concentrations in air, act primarily as simple asphyxiants without other significant physiological effects. (A simple asphyxiant is a substance that can displace oxygen in the air, resulting in suffocation from lack of oxygen.) The ACGIH does not assign a TLV, or exposure limit, because the limiting factor is the available oxygen in air, not the toxic nature of the substance itself. These substances are identified as "simple asphyxiants" in the STEL column of the [Table of Exposure Limits for Chemical and Biological Substances](#).

Oxygen-deficient atmosphere

An "oxygen-deficient" atmosphere is defined in section 1.1 of the *Regulation* as air with less than 19.5% oxygen by volume, or where the partial pressure of oxygen is less than 16.3 kPa (122 mm Hg). Oxygen-deficient atmospheres do not provide adequate warning, and most asphyxiants are odourless. Note that several of the simple asphyxiants are highly flammable and can present explosion hazards, and under section 5.31 of the *Regulation* employers must take account of this factor in limiting the concentration of the asphyxiant. Also note that the requirements of [sections 5.27](#), [5.13](#), and [5.56](#) of the *Regulation* apply.

G5.48-9 Measuring compliance with the exposure limits

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("Regulation") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Purpose of guideline

The purpose of this guideline is to outline the protocol for WorkSafeBC prevention officers in establishing compliance with this section and is based largely on operating procedures previously practiced by prevention officers. These follow recognized occupational hygiene principles. For further guidance on workplace monitoring, walkthrough surveys, and monitoring worker exposure, refer to OHS Guidelines [G5.53-1 to G5.53-3](#).

Sampling

Prevention officers will not normally perform sampling if the employer has an acceptable workplace monitoring program in place indicating that exposures are within the applicable exposure limits. In addition, prevention officers will normally not sample for compliance purposes during temporary or emergency conditions, where exposures may be higher than normal. Prevention officers may elect to conduct air sampling if they suspect that a problem exists and the employer has failed to conduct an exposure assessment or has an inadequate exposure-monitoring program. Additional circumstances under which a prevention officer may be required to sample are outlined in OHS Guidelines G5.53-1 to G5.53-3.

Typically, the prevention officer will select the worker or workers with the highest suspected exposures and conduct sampling during worst-case scenarios, such as during periods when activities or activity levels expected to result in the highest exposure are underway. In accordance with established occupational hygiene principles, compliance with exposure limits is determined by comparing the 95% upper and lower confidence limits of the mean exposure of a similarly exposed group to the exposure limit. The 95% upper and lower confidence limits represent a range of reasonable values that are intended to contain the average exposure level with 95% confidence. That is, one can be 95% confident that the upper and lower confidence limits will cover the mean exposure.

If only one sample is collected, sampling and analytical error must be accounted for. Use the coefficient of variation specified for the sampling method and follow the confidence limit guideline as described below. Contact the Risk Analysis Unit for information regarding the coefficient of variation for the analytical method of interest.

Exposure limits

Formulae for calculating the upper and lower confidence limits can be found in standard occupational hygiene references. The references that are acceptable to WorkSafeBC are listed in OHS Guideline [G5.53-4](#).

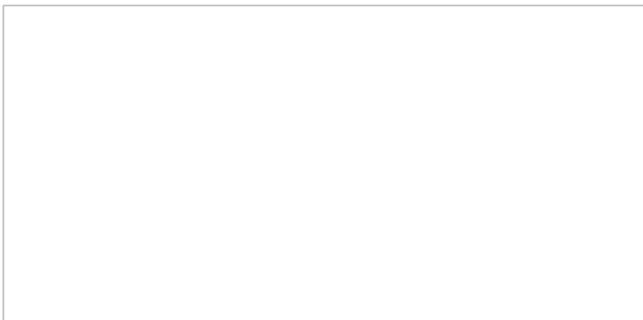
The guidelines for compliance with the exposure limits using the 95% confidence limits are outlined below.

- If the average exposure does not exceed the exposure limit and the upper confidence limit (UCL) is less than the exposure limit, then there is more than 95% confidence that the employer is in compliance.
- If the average exposure is greater than the exposure limit and the lower confidence limit (LCL) is also greater than the exposure limit, then there is more than 95% confidence that the employer is in non-compliance.
- If the average exposure does not exceed the exposure limit, but the upper confidence limit exceeds the exposure limit, there is not 95% confidence that the employer is in compliance. Similarly, if the measured exposure exceeds the exposure limit, but the lower confidence limit is below the exposure limit, there is not 95% confidence that the employer is in non-compliance. For both of these situations, there is a "possible over-exposure." Note that the closer the lower confidence limit comes to exceeding the exposure limit, the more probable it becomes that the results are not in compliance. To more definitely determine whether the exposure levels are within compliance, further sampling is needed.

Background

An officer may elect to sample on the employer's behalf or may require the employer to conduct the sampling under the provisions of [section 5.53](#) of the *Regulation*. Refer to OHS Guidelines G5.53-1 to G5.53-3 for further information.

Guidelines for compliance are shown schematically in the figure below.



Issued originally as G5.48-7 August 1, 1999; Revised February 11, 2004

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Colourimetric indicator tubes are useful for assessing worker exposure. However, these devices are limited with regard to applicability, specificity, and accuracy. Their primary intention is for screening exposures and the user must be familiar with these critical limitations if proper judgments are to be made, particularly in the matter of assessing compliance. Indicator tubes should meet the criteria established by Title 42 *CFR* Part 84 of the U.S. *Code of Federal Regulations*. An independent testing agency, Safety Equipment Institute (SEI) took over the task of product testing from NIOSH in 1985. The SEI certifies a manufacturer's indicator tube if it meets the minimum requirement set out in the standard, as follows:

± 35% accuracy at one-half the exposure limit, and
± 25% at one to five times the exposure limit.

Adherence to a quality assurance plan is verified by testing samples obtained from the supplier. Contact the Occupational Disease Prevention Services section for further information.

In essence this means that one should read an indicator tube ±25% of the indicated reading if the exposure level is in the vicinity of the exposure limit unless several grab samples are taken to increase the statistical confidence, in accordance with acceptable occupational hygiene statistical practice. Indicator tubes can be used to measure non-compliance with either short-term exposure limits or ceiling limits. In the case of a single grab sample by detector tube, if the reading exceeds either the short-term exposure limit or the ceiling limit by 25%, there is sufficient evidence of non-compliance with the exposure limit. If the indicator tube reading is close to the short-term exposure limit or ceiling limit (within 25±% of the limit), and if it appears that an overexposure may exist, other more reliable sampling methods should be used before a decision is made. See also OHS Guideline [G5.48-9](#) for guidelines on determining whether there is compliance with the exposure limits.

Readings from a short-term indicator tube should be compared to the appropriate short-term exposure limits in the [Table of Exposure Limits for Chemical and Biological Substances](#) (such as a short-term exposure limit or a ceiling limit). They should not be compared to 8-hour TWA limits. In addition, 8-hour time-weighted averages must not be calculated from results obtained using short-term indicator tubes.

Long-term indicator tubes connected to a sampling pump may be used to determine 8-hour time-weighted averages. These averages are then compared to the appropriate 8-hour TWA limit in the Table of Exposure Limits for Chemical and Biological Substances.

See OHS Guideline [G5.48-2](#) for the Table of Exposure Limits for Chemical and Biological Substances.

G5.48-11 Sampling of thoracic fraction of sulfuric acid mist

Retired on July 6, 2007

G5.48-12 Establishing exposure limits for certain refined hydrocarbon mixtures

Issued July 1, 2009; Revised February 4, 2010; Editorial Revision consequential to August 4, 2015 Regulatory Amendment; Editorial Revision October 28, 2019

Regulatory excerpt

Section 5.48 of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

(TWA refers to time-weighted average, and ACGIH refers to American Conference of Governmental Industrial Hygienists.)

Purpose of guideline

This guideline provides an explanation of the means to determine exposure limits for certain refined hydrocarbon solvent mixtures such as rubber solvent and VM ; P Naphtha. Hydrocarbon solvents affect the central nervous system and can cause a variety of symptoms including dizziness, drowsiness, and eye and respiratory tract irritation.

Note: Due to the complexities inherent in the use and interpretation of the Reciprocal Calculation Procedure (RCP), it will usually be necessary for an occupational hygiene professional to be involved in its application. The ACGIH publication *Threshold Limit Values and Biological Exposure Indices* should be consulted during application of this procedure.

Background

The majority of WorkSafeBC exposure limits (EL) are for single substances (e.g. toluene) or for substances containing a common element (e.g. tungsten metal and insoluble compounds). These exposure limits are those prescribed by ACGIH or as otherwise determined by WorkSafeBC. They are shown in the WorkSafeBC [Table of Exposure Limits for Chemical and Biological Substances](#).

Refined hydrocarbon solvents, such as Rubber Solvent and VM ; P Naphtha, are complex mixtures produced by the distillation of petroleum over a particular boiling range. They consist of aliphatic (alkane), cycloaliphatic (cycloalkane), and aromatic hydrocarbons ranging from 5 to 15 carbon

atoms in each molecule. The use of the mixture formula expressed in *Regulation section 5.51*, which takes additive effects into consideration, is difficult in these cases because these petroleum mixtures contain a large number of unique compounds and isomers, many of which do not have specific exposure limits. Because there are very many possible combinations of the various alkane, cycloalkane, and aromatic mixtures, it is necessary to calculate an exposure limit for each combination rather than list all possible calculated exposure limits in the Table of Exposure Limits for Chemical and Biological Substances.

The ACGIH has developed a means to calculate an exposure limit for specific refined hydrocarbon solvents, and has published the method (RCP) in Appendix H of the ACGIH publication *Threshold Limit Values and Biological Exposure Indices*, since 2009. The remainder of this guideline explains WorkSafeBC's adoption of this method and provides example calculations.

Reciprocal Calculation Procedure

The RCP is a method for deriving exposure limits (EL) for refined hydrocarbon solvents. This method is applicable if the toxic effects of the individual chemical components are additive (e.g., similar effects on the same organ or system).

The RCP calculation can only be applied to petroleum-based hydrocarbon solvents containing saturated aliphatics (alkanes and cycloalkanes) and aromatics with 5 to 15 carbon atoms and boiling points between 35°C and 329°C. Substances in the Table of Exposure Limits (e.g., refer to Rubber Solvent, VM ; P Naphtha) for which the RCP calculation applies are identified with an "(H)." The procedure would not apply for petroleum fuels, lubricating oils, solvents, or solvent mixtures that already have an EL (e.g., benzene has its own EL and would have to be considered separately).

The RCP formula calculates an EL based on the following:

- The mass composition of the mixture
- Hydrocarbon group "guidance values"
- Substance-specific ELs, where applicable

Note: The RCP does not apply to benzene, n-hexane, or methylnaphthalene, which have individual ELs significantly less than the guidance values to which they would belong and have unique toxicological properties. Whenever present in the mixture, these components should be measured individually.

Guidance values have been developed by a number of researchers, groups, and regulatory authorities, based on the chemical and toxicological properties of various hydrocarbon groups (e.g., C5 - C6 alkanes and C7 - C8 aromatics). The guidance values adopted by WorkSafeBC (Table 1) were developed by the UK Health and Safety Executive, a recognized health and safety authority.

Table 1: Hydrocarbon Guidance Values

Hydrocarbon Group	Number of Carbon Atoms	Guidance Value (mg/m ³)
Normal and branched chain alkanes	C5 - C6	1800
	C7 - C8	1200
	C9 - C15	1200
Cycloalkanes	C5 - C6	1800
	C7 - C8	800
	C9 - C15	800
Aromatics	C7 - C8	500
	C9 - C15	500

Note: Substances within each Hydrocarbon Group with exposure limits that are below their group Guidance Value (e.g. hexane isomers other than n-hexane; nonane isomers; toluene; xylene isomers; etc.) should have their exposure limit values (rather than the guidance values) entered into the RCP (refer to toluene in example below).

The reciprocal calculation mixture formula is

* Vapour mass fraction should be used if the vapour composition differs significantly from the liquid mass composition.

The resulting calculated EL_{solvmix} value should follow established recommendations regarding rounding. For calculated values <100 mg/m³, round to the nearest 25. For calculated values between 100 and 600 mg/m³, round to the nearest 50, and for calculated values >600 mg/m³, round to

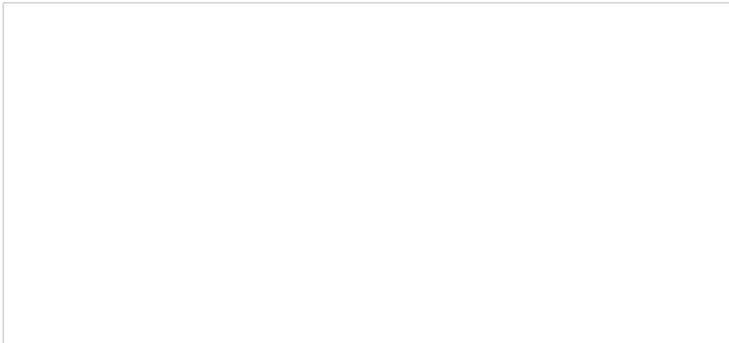
the nearest 200 mg/m³.

Example

The safety data sheet (SDS) for a solvent showed the following percentages and chemical composition:

Component	Percent Hydrocarbon Composition	Guidance Value (mg/m ³)
C7 - C8 alkanes	45%	1200
C9 - C10 alkanes	40%	1200
C7 - C8 aromatics	9%	500
Toluene	6%	75 (EL)
Benzene	<1%	Not applicable

The RCP calculation for this mixture is:



The EL for this particular solvent mixture is 600 mg/m³. However, benzene must be evaluated separately at the current EL for benzene.

Limitations of the reciprocal calculation procedure

Care in the use of the $EL_{solvmix}$ should be observed where the mixture in question is known to have significant toxicokinetic interactions of components that are manifested at or below the guidance values.

The use of the RCP should be restricted to applications where the boiling points of the solvents in the mixture are relatively narrow, within a range of less than 45°C (i.e., vapour pressure within approximately one order of magnitude).

The guidance values apply only to vapours and do not apply to mists or aerosols. The calculation does not apply to mixtures containing olefins or other unsaturated compounds or polycyclic aromatic hydrocarbons (PAHs).

Further reading

ACGIH *Threshold Limit Values and Biological Exposure Indices*, Appendix H (2009)

European Centre for Ecotoxicology and Toxicology of Chemicals (ECETOC). *Occupational exposure limits for hydrocarbon solvents*. Special Report No. 13. Brussels, Belgium (1997).

Farmer TH: *Occupational hygiene limits for hydrocarbon solvents*. *Annals of Occupational Hygiene* 40: 237-242 (1995).

McKee RH; Medeiros AM; Daughtrey, WC: *A proposed methodology for setting occupational exposure limits for hydrocarbon solvents*. *J of Occ and Env Hygiene* 2: 524-542 (2005).

UK Health and Safety Executive (UKHSE) EH40/2000. *Occupational Exposure Limits* (2000).

G5.48-13 Monitoring worker exposure to sulfur dioxide

Retired on September 1, 2010

G5.49 Application of excursion limits

Issued January 1, 2007

Regulatory excerpt

Section 5.1 of the *OHS Regulation ("Regulation")* contains the following relevant definitions:

"ACGIH" means the American Conference of Governmental Industrial Hygienists publication entitled "Threshold Limit Values and Biological Exposure Indices", dated 2002, as amended from time to time;

"8-hour TWA limit" means the time weighted average (TWA) concentration of a substance in air which may not be exceeded over a normal 8 hour work period;

"short-term exposure limit" or "STEL" means the time weighted average (TWA) concentration of a substance in air which may not be exceeded over any 15 minute period, limited to no more than 4 such periods in an 8-hour work shift with at least one hour between any 2 successive 15 minute excursion periods;

"ceiling limit" means the concentration of a substance in air which may not be exceeded at any time during the work period;

Section 5.48 of the *Regulation* states:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Section 5.49 of the *Regulation* states:

If a substance referred to under section 5.48 is provided only with an 8-hour TWA limit, the employer must, in addition to the requirement of section 5.48, ensure that a worker's exposure to the substance does not exceed

- (a) three times the 8-hour TWA limit for more than a total of 30 minutes during the work period, and
- (b) five times the 8-hour TWA limit at any time.

Section 5.50(1) of the *Regulation* states:

If the work period is more than 8 hours in a 24 hour day, the 8-hour TWA limit must be reduced by multiplying the TWA limit by the following factors:

Factor	Length of work period (in hours)
0.7	More than 8, but not more than 10
0.5	More than 10, but not more than 12
0.25	More than 12, but not more than 16
0.1	More than 16

Purpose of guideline

The purpose of this guideline is to explain, and provide examples of the application of excursion limits in section 5.49.

Background Information

Threshold Limit Values (TLVs) refer to airborne concentrations of chemical substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime, without adverse health effects. There are three categories of TLVs: time-weighted average ("TWA") over an 8-hour period; short-term exposure limit ("STEL"), and a ceiling limit. Some chemical substances have been assigned values for a TWA and either a STEL or a ceiling limit, while other substances have been assigned TWA or ceiling limits only. (See also OHS Guidelines [G5.48-2](#) to [G5.48-4](#) for general information on exposure limits).

[Section 5.49](#) of the *Regulation* establishes excursion limits for hazardous substances which have only been assigned a TWA by applying a formula to the assigned 8-hour TWA value. The purpose of excursion limits is to ensure workers are not exposed to excessively high short bursts of hazardous substances which could cause acute health effects.

Excursion limits are based on the premise that the maximum excursion should be related to the variability generally observed in actual industrial processes. Research has shown that if the variation of short-term exposure values is very high (greater than three times the average), it is an indication that the process is not under good control.

In order to be assured of satisfactory control of the industrial process and associated exposure values, a factor of three times the TWA is used. This ensures that only a small percentage of exposure values will exceed this value. If this excursion limit is exceeded, there is a high likelihood that further control measures are required.

Excursion limits apply only when neither a STEL nor ceiling value has otherwise been assigned to the substance. Section 5.49 is not meant to supersede any assigned STEL or ceiling limit.

Examples of Application of Excursion Limits

Elemental mercury has a TWA of 0.025 mg/m³ (No STEL or Ceiling limit)

The principle of excursion limits applies in this case since there is only a TWA for this substance. As per section 5.49(a), an employer must ensure that a worker's exposure to elemental mercury does not exceed 0.075 mg/m³ for more than a total of 30 minutes during the work period.

A worker exposed to a concentration of 0.080 mg/m³ for 15 minutes and to 0.060 mg/m³ for 15 minutes, is exposed, on average, to 0.070

mg/m³. This average value is less than 0.075 mg/m³ and is therefore in compliance with section 5.49(a).

As per section 5.49(b), the employer also must ensure that a worker's exposure to elemental mercury does not exceed 0.125 mg/m³ at any time during the work period. For example, a direct reading measurement of 0.15 mg/m³, taken with a calibrated mercury monitor, is a determination of non-compliance.

Acetic acid has a TWA of 10 ppm and a STEL of 15 ppm

The principle of excursion limits does not apply in this case because there is a STEL assigned for acetic acid. A worker is protected by the 8-hour TWA and is protected from high short burst exposures of acetic acid by the 15 minute STEL.

Chloroacetone has a ceiling limit of 1 ppm (No TWA or STEL)

The principle of excursion limits does not apply in this case because there is a ceiling limit assigned for chloroacetone. A worker is protected by setting a maximum permissible concentration in air, which must not be exceeded at any time during the work period.

Ethylene Oxide has a TWA of 0.1 ppm and a STEL of 1 ppm

The principle of excursion limits does not apply in this case because there is a STEL assigned for ethylene oxide. A worker is protected by the 8-hour TWA and is protected from high short burst exposures of ethylene oxide acid by the 15 minute STEL. Although there is no ceiling limit for ethylene oxide, the STEL also provides significant protection against very short, momentary high bursts - these bursts must not raise the 15 minute average concentration to higher than the STEL and must be limited to no more than 4 such periods in an 8 hour work shift with at least one hour between any 2 successive 15 minute excursion periods.

Application of Excursion Limits for Extended Work Periods

[Section 5.50](#) of the *Regulation* and the associated OHS Guideline [G5.50](#) explain how and when the TWA must be reduced for exposures during an extended work period. When the provisions for reduction of the TWA apply, this reduced value is the value to be used for excursion limit calculations in [section 5.49](#).

For example, if a worker is exposed to airborne elemental mercury (8-hour TWA limit of 0.025 mg/m³, no STEL, no ceiling limit) routinely over a 12-hour work shift, then a reduction factor of 0.5 must be applied to the exposure limit, resulting in a reduced TWA limit of 0.0125 mg/m³. This worker must not be exposed to an average of more than (3 X 0.0125 =) 0.0375 mg/m³ for more than a total of 30 minutes during the 12-hour work period. The worker must not be exposed to more than (5 X 0.0125 =) 0.0625 mg/m³ at any time during the 12-hour work period.

G5.50 Extended work periods

Issued August 1, 1999; Revised February 11, 2004

Regulatory Excerpt

Section 5.50(1) of the *OHS Regulation* ("*Regulation*") states:

If the work period is more than 8 hours in a 24 hour day, the 8-hour TWA limit must be reduced by multiplying the TWA limit by the following factors:

Factor	Length of work period (in hours)
0.7	More than 8, but not more than 10
0.5	More than 10, but not more than 12
0.25	More than 12, but not more than 16
0.1	More than 16

Purpose of guideline

The purpose of this guideline is to explain the modifications required in the 8-hour TWA limit if the work period exceeds 8 hours in a 24-hour day.

Modified 8-hour TWA limit

Where the work period exceeds 8 hours in a 24-hour day, the 8-hour TWA limit listed in the [Table of Exposure Limits for Chemical and Biological Substances](#) must be modified to ensure that workers on extended shifts are as equally protected as if they were working on conventional 8-hour shifts. Section 5.50(1) of the *Regulation* provides the factors by which the 8-hour TWA limit must be reduced.

Refer to OHS Guideline [G5.48-3](#) for clarification of "normal" 8-hour shift.

This section envisages several consecutive workdays with shifts longer than the normal 8-hour shift, not an occasional overtime shift. If exposure occurs as a single event lasting less than 8 hours during a work shift and there is a recovery period of at least 16 hours (at work or otherwise) before any further exposure, the reduction factor would not normally apply.

G5.51 Additive effects

Regulatory excerpt

Section 5.51 of the *OHS Regulation* ("Regulation") states:

If there is exposure to a mixture of 2 or more substances with established exposure limits which exhibit similar toxicological effects, the effects of such exposure must be considered additive unless it is known otherwise, and the additive exposure must not exceed 100% when calculated as follows:

$$AE = \%EL_1 + \%EL_2 + \dots \%EL_n$$

where

- (a) AE is the calculated additive exposure to the mixture,
- (b) $\%EL_1$ is the measured exposure to component 1 of the mixture expressed as a percentage of its exposure limit,
- (c) $\%EL_2$ is the measured exposure to component 2 of the mixture expressed as a percentage of its exposure limit, and
- (d) $\%EL_n$ is the measured exposure to any additional components of the mixture expressed as a percentage of their respective exposure limits.

Purpose of guideline

The purpose of this guideline is to explain the additive effects in section 5.51 of the *Regulation*. If the sum derived from the equation exceeds 100% then the exposure limit of the mixture is considered to be exceeded.

Background

This section applies to all exposure limits, with the exception of excursion limits (section 5.49 of the *Regulation*), as they are not considered to be "established exposure limits." When considering additive effects, similar exposure limits must be compared (for example 8-hour TWA limits must be compared with 8-hour TWA limits; do not compare an 8-hour TWA limit and a STEL).

For effects to be considered additive, the substances must act upon the same target organ (such as the kidneys) or target organ system (such as the respiratory system) and have similar toxicological effects. Thus, substances with primarily acute effects would not be considered additive with substances which cause chronic effects, even if same organ or organ system was involved. For example, although both silica and ammonia affect the lungs, they would not be considered additive because exposure to silica causes a chronic condition (silicosis), while exposure to ammonia causes acute effects (respiratory tract irritation).

Examples of additive effects

Some examples of processes where additive effects need to be considered are welding, painting, and plastics manufacturing. Additive effects should also be taken into account for exposure to diesel exhaust. If it is not clear whether additive effects apply an occupational hygienist should be consulted.

G5.52 Skin notation

Issued August 1999; Revised February 11, 2004

Regulatory excerpt

Section 5.52 of the *OHS Regulation* ("Regulation") states:

If skin absorption may contribute to the overall exposure, effective measures must be taken to limit exposure by this route.

Purpose of guideline

The purpose of this guideline is to explain how this section of the *Regulation* applies to those substances listed with a "Skin" notation in the [Table of Exposure Limits for Chemical and Biological Substances](#).

Background information

The notation refers to the potential significant contribution to the overall exposure by skin absorption (called the cutaneous route) either by contact with vapours or, of probable greater significance, by direct skin contact with the substance. This includes contact with the mucous membranes of the eyes. Specific substances (vehicles) in solutions or mixtures can also significantly enhance potential skin absorption. Although some substances are capable of causing irritation, dermatitis, and sensitization in workers, these properties are not considered relevant by the ACGIH when assigning a "Skin" notation. However, a dermatological condition can significantly affect the potential for skin absorption.

The "Skin" notation is intended to alert the reader that air sampling alone is insufficient to quantify exposure accurately and that measures to prevent significant skin absorption should be considered. For guidance on measures to control exposure, refer to OHS Guideline [G5.55](#) or consult with an occupational hygienist or occupational physician.

G5.53-1 Workplace monitoring

Regulatory excerpt

Section 5.53(1) of the *OHS Regulation* ("Regulation") states:

- (1) If a worker is or may be exposed to a hazardous substance, the employer must ensure that
 - (a) a walkthrough survey is conducted to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact, and
 - (b) reassessment is conducted when there is a change in work conditions which may increase the exposure, such as a change in production rate, process or equipment.
- (2) If the walkthrough survey required by subsection (1) reveals that a worker may be at risk of overexposure to an airborne contaminant, the employer must ensure that air sampling is conducted to assess the potential for overexposure.
- (3) Additional workplace monitoring to reliably determine worker exposure is required if
 - (a) the assessment under subsection (2) reveals that a worker may be exposed to an air contaminant in excess of 50% of its exposure limit, or
 - (b) measurement is not possible at 50% of the applicable exposure limit.
- (4) Workplace exposure monitoring and assessment must be conducted using occupational hygiene methods acceptable to the Board.
- (5) The results of workplace exposure monitoring and assessment, or a summary of the results, must be provided to workers at their request without undue delay.

Purpose of guideline

The purpose of this guideline is to outline that where a worker is or may be exposed to a hazardous substance, section 5.53 of the *Regulation* requires an assessment of the potential for harmful exposure and monitoring, or sampling, of exposure levels to airborne contaminants.

Assessment process

The process required under section 5.53 has 3 major elements:

- A walk-through survey
- Air sampling to assess the potential for overexposure
- Workplace monitoring to reliably characterize worker exposure, where workers may be exposed to an air contaminant at levels greater than 50% of the exposure limit. Section 5.53(4) provides that "Workplace exposure monitoring and assessment must be conducted using occupational hygiene methods acceptable to the Board." Refer to [OHS Guideline G5.53-4](#) for examples of occupational hygiene methods that have been deemed acceptable to WorkSafeBC.

As provided for under [section 36\(i\)](#) of the *Workers Compensation Act* and [section 3.8](#) of the *Regulation*, the joint committee should be involved in workplace monitoring, where feasible.

Workplace monitoring

WorkSafeBC prevention officers may conduct sampling to determine compliance with both sections 5.48 and 5.53 of the *Regulation*. Additional circumstances where a prevention officer may be required to conduct workplace monitoring include the following:

- Claims investigations
- Accident investigations
- Investigations conducted under [section 3.12\(5\)](#)
- Dispute resolution
- Asbestos abatement projects
- Penalty assessments

A prevention officer may encounter situations where the employer has neither conducted a walkthrough survey nor performed sampling of contaminants, as required. In these circumstances, the prevention officer may elect to either assist the employer in conducting the survey or performing the sampling (as part of an inspection) or require the employer to conduct the survey or perform the sampling. In deciding whether to assist the employer, the prevention officer may consider the following:

- The employer's resources and abilities to
 - conduct the survey or perform the sampling him- or herself, or
 - engage professional services,
- The educational benefit to the employer of accompanying the prevention officer on a walkthrough survey
- The employer's commitment to an occupational health and safety program under the OHS provisions.

Some questions to consider include the following:

- Does the firm have appropriate in-house expertise?
- Does the firm have access to technical support from either the parent corporation or a supplier of the harmful substance(s)?
- Are private occupational hygiene services for sampling and/or analytical work readily available in the community?

The manner in which compliance is assessed with each element of the progress is described in OHS Guidelines [G5.53-2](#), [G5.53-3](#), and [G5.53-4](#).

G5.53-2 Assessing compliance - The walkthrough survey

Issued August 1999

Regulatory excerpt

Sections 5.53(1) and (2) of the OHS Regulation ("*Regulation*") state:

- (1) If a worker is or may be exposed to a hazardous substance, the employer must ensure that
 - (a) a walkthrough survey is conducted to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact, and
 - (b) reassessment is conducted when there is a change in work conditions which may increase the exposure, such as a change in production rate, process or equipment.
- (2) If the walkthrough survey required by subsection (1) reveals that a worker may be at risk of overexposure to an airborne contaminant, the employer must ensure that air sampling is conducted to assess the potential for overexposure.

Purpose of guideline

The purpose of this guideline is to outline situations when a walkthrough survey and, if applicable, air sampling are required if a worker is or may be exposed to a hazardous substance.

Walkthrough survey

Section 5.53(1) of the *Regulation* requires an employer to conduct a walkthrough survey if a worker is or may be exposed to a harmful substance. A WorkSafeBC prevention officer encountering an employer who has not conducted a walkthrough survey at a workplace where in the prevention officer's opinion workers may be exposed to a harmful substance, will require the employer to conduct the walkthrough survey in accordance with this section.

If the employer conducts the walk-through survey and concludes that no worker may be at risk of overexposure to an airborne contaminant, and the prevention officer accepts this conclusion as being reasonable, no further action will be necessary, unless there is a change in work conditions. If, on the other hand, the employer finds a worker potentially at risk of overexposure to an airborne contaminant, air sampling must be considered, as required by section 5.53(2). Depending on the outcome of the sampling, further action may be required under sections [5.53\(3\)](#), [5.54](#), and [5.55](#) of the *Regulation*.

The prevention officer may determine that workers are at risk based on the following:

- Observations at the worksite (this may be in the course of assisting an employer with a walkthrough survey or during an inspection)
- Sampling results from the worksite or similar worksites or operations
- First aid reports
- Worker complaints

G5.53-3 Monitoring worker exposure

Issued August 1999; Revised February 11, 2004

Regulatory excerpt

Sections 5.53 of the OHS Regulation ("*Regulation*") states, in part:

- (1) If a worker is or may be exposed to a hazardous substance, the employer must ensure that
 - (a) a walkthrough survey is conducted to assess the potential for overexposure taking into account all routes of exposure, including inhalation, ingestion, and skin contact, and
 - (b) reassessment is conducted when there is a change in work conditions which may increase the exposure, such as a change in production rate, process or equipment.
- (2) If the walkthrough survey required by subsection (1) reveals that a worker may be at risk of overexposure to an airborne contaminant, the employer must ensure that air sampling is conducted to assess the potential for overexposure.
- (3) Additional workplace monitoring to reliably determine worker exposure is required if
 - (a) the assessment under subsection (2) reveals that a worker may be exposed to an air contaminant in excess of 50% of its exposure

limit, or

(b) measurement is not possible at 50% of the applicable exposure limit.

Purpose of guideline

The purpose of this guideline is to outline that under section 5.53(2) of the *Regulation*, the employer must conduct air sampling when the walkthrough survey required under section 5.53(1) reveals that workers may be at risk of overexposure.

Air sampling

The requirements set out in OHS Guideline [G5.48-9](#) are acceptable to WorkSafeBC for complying with section 5.53(2). Normally, the employer would select one or more workers for sampling, which should be those workers who are likely to be the most heavily exposed on a given day (worst case conditions). Sampling results are then compared with exposure limits in [section 5.48 \(Table of Exposure Limits for Chemical and Biological Substances\)](#) using the parameters in G5.48-9.

If the assessment conducted under section 5.53(2) reveals that a worker may be exposed to an air contaminant in excess of 50% of its exposure limit, or measurement is not possible at 50% of the applicable exposure limit, additional workplace monitoring to reliably determine worker exposure is required under section 5.53(3)(a).

Air sampling

"Additional monitoring" differs from "worst case" sampling discussed in OHS Guideline G5.48-9 in that a larger number of samples are collected to account for day-to-day, as well as worker-to-worker, variability. The WorkSafeBC prevention officer will not normally conduct the additional monitoring. The following is an acceptable process for carrying out the additional monitoring

- Collect samples over an appropriate period of time in order to obtain a reliable estimate of exposure,
- Group workers to be sampled on the basis of potential exposures (refer to the Note below),
- Take 6-10 samples from each group of workers
- Calculate the mean exposure for each group
 - If the mean exposure for some workers in the group is much higher than for other workers, the group is not similarly exposed and should be split into two or more groups.
- calculate the geometric standard deviation for each mean exposure
 - Formulae for calculating the standard deviation can be found in standard occupational hygiene references. Three references that are acceptable to WorkSafeBC are listed in OHS Guideline [G5.53-4](#).
- Calculate the 95% upper and lower confidence limits for each mean exposure
 - Formulae for calculating the upper and lower confidence limits can be found in standard occupational hygiene references. Three references that are acceptable to WorkSafeBC are listed in OHS Guideline [G5.53-4](#).
- Apply the protocols of compliance outlined in OHS Guideline G5.48-9

Note: Prevention officers should consider whether the employer has grouped workers with similar patterns of exposure together. Such grouping would normally be based on an examination of work processes, procedures, job descriptions, process schedules and weather conditions. Groups of workers with similar patterns of exposure are referred to as "similarly exposed groups" or "homogeneous exposed groups."

G5.53-4 Occupational hygiene methods acceptable to WorkSafeBC

Issued August 1999; Revised November 17, 2003; Revised May 6, 2009; Revised March 31, 2015; Revised September 25, 2019; Revised December 20, 2019; Revised November 13, 2020.

Regulatory excerpt

Section 5.53(4) of the *OHS Regulation* ("*Regulation*") states:

Workplace exposure monitoring and assessment must be conducted using occupational hygiene methods acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to provide information on the publications that detail occupational hygiene methods acceptable to WorkSafeBC. The guideline also explains how approval may be obtained to use methods that are not discussed in those publications.

Acceptable occupational hygiene methods

All elements of an assessment or monitoring program (e.g., hazardous materials survey, air sampling and bulk sampling) must be conducted using occupational hygiene methods acceptable to WorkSafeBC.

WorkSafeBC accepts methods detailed in standard occupational hygiene references published by the following:

(a) National Institute for Occupational Safety and Health (NIOSH), such as

Occupational Exposure Sampling Strategy Manual. Published by the National Institute of Occupational Safety and Health. Cincinnati, Ohio, 1977 (or later editions).

NIOSH Manual of Analytical Methods. Published online at <https://www.cdc.gov/niosh/nmam/default.html>

(b) American Industrial Hygiene Association (AIHA), such as

A Strategy for Assessing and Managing Occupational Exposures. Published by the American Industrial Hygiene Association, Fairfax, Virginia, 2006, 3rd edition (or later editions).

The Occupational Environment: Its Evaluation, Control, and Management. Published by the American Industrial Hygiene Association, Akron, Ohio, 2003, 2nd edition (or later editions).

Recognition, Evaluation, and Control of Indoor Mold. Published by the American Industrial Hygiene Association, Akron, Ohio, 2008 (or later editions).

(c) American Conference of Governmental Industrial Hygienists (ACGIH.org)

(d) U.S. Occupational Safety and Health Administration (OSHA), such as

OSHA Sampling and Analytical Methods. Published online at <https://www.osha.gov/dts/sltc/methods/index.html>.

(e) ASTM International, such as the methods published at <https://www.astm.org/>

(f) U.S. Environmental Protection Agency (<https://www.epa.gov/>)

(g) International Organization for Standardization (ISO), such as those listed: <https://www.iso.org/standards.html>

(h) Institut de recherche Robert-SauvÃ© en santÃ© et en sÃ©curitÃ© du travail (IRSST) methods, such as those listed: <https://www.irsst.qc.ca/en/laboratories/analysis/methods>

(i) U.K.'s Health & Safety Executive's Methods for the Determination of Hazardous Substances (MDHS) methods, such as those listed: <https://www.hse.gov.uk/pubns/mdhs/>

In order to conduct workplace exposure monitoring for some new or revised exposure limits, it is necessary to use sampling devices that may not be stated within the accepted analytical methods. Examples of these sampling devices include cyclones, Parallel Particle Impactors, inhalable samplers, inhalable fraction and vapour (IFV) sampling devices, and mixed phase denuder-filter samplers. These samplers are acceptable provided that they are used in accordance with the manufacturer's instructions, and have been validated in accordance with international consensus standards and practices for the intended purpose by the manufacturer and the laboratories who will conduct the analyses.

Acceptable analytical methods include the requirement for the collection of field blanks. The purpose of field blanks is to detect and identify any contamination from the sampling site or arising from the transportation of samples to the laboratory. The number of field blanks required is usually referenced in the analytical method. If the number of field blanks is not referenced, a minimum of two field blanks must be included with each set of samples that are collected from a site, or at least 10% of the sample number. If sampling is performed over several days, each day should be considered a separate set of samples. WorkSafeBC accepts that a certified industrial hygienist (CIH), a registered occupational hygienist (ROH), and a registered occupational hygiene technologist (ROHT) are trained and experienced to perform occupational hygiene sample collection and interpretation of results. A CIH, ROH, or ROHT may make a determination regarding the number of field blanks that vary from those stated in this guideline. The rationale for the determination must be documented and presented to a WorkSafeBC prevention officer if requested.

Where an exposure limit (e.g., 0.05 mg/m³ for elemental lead) or a definition that prescribes a limit (e.g., asbestos-containing material means at least 0.5% asbestos) is published by WorkSafeBC, an occupational hygiene method will only be acceptable if the parameters of the method (e.g., accuracy and detection limit) allow comparison of the test results to the published limits. Where a section of the *Regulation* specifies use of specific test methodology, that section's specifications prevail. For example, section 6.1 of the *Regulation* specifies certain methods for asbestos analysis, and those methods are the acceptable methods.

Before using occupational hygiene methods that are not discussed in references published by the organizations listed above or do not meet the other criteria in this guideline, the employer must obtain approval from the OHS Practice and Engineering Support department of WorkSafeBC. For more information about how to submit an acceptance request under the *Regulation*, please refer to the [Variance and Acceptances webpage](#).

G5.54-1 Exposure control plan

Issued August 1, 1999; Revised October 29, 2003; Editorial Revision February 2, 2006; Editorial Revision February 1, 2008; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 5.54(1) of the *OHS Regulation* ("*Regulation*") states:

An exposure control plan must be implemented when

(a) exposure monitoring under section 5.53(3) indicates that a worker is or may be exposed to an air contaminant in excess of 50% of its exposure limit,

(b) measurement is not possible at 50% of the applicable exposure limit, or

(c) otherwise required by this *Regulation*.

Purpose of guideline

The purpose of this guideline is to discuss when an exposure control plan is required. This includes providing specific sections under the *Regulation* where an exposure control plan is required.

When an exposure control plan is required

Section 5.54(1) of the *Regulation* requires the employer to implement an exposure control plan under certain specific circumstances. The elements that must be incorporated into the exposure control plan are listed in section 5.54(2).

An exposure control plan is required when any of the following conditions are present:

- The results of exposure monitoring indicate that a worker is or may be exposed to an air contaminant at levels greater than 50% of its exposure limit.
- Measurement is not possible at 50% of the applicable exposure limit.
- An exposure control plan is required by another section of the *Regulation*.

If the employer has failed to conduct workplace monitoring under section 5.53(3), a WorkSafeBC prevention officer may order the employer to implement an exposure control plan if the prevention officer determines exposure exceeds 50% of the exposure limit.

The determination of whether an exposure control plan is required will typically be made on the basis of the additional monitoring under section 5.53(3). Worst-case sampling (refer to OHS Guideline [G5.53-3 Monitoring worker exposure](#)) can also demonstrate exposure, although with less certainty. Where exposure greater than 50% of the exposure limit would occur only in an emergency, an emergency plan rather than an exposure control plan is required under sections [5.2](#) and [5.97](#) of the *Regulation*. For example, an accidental spill or leak of a substance may occur, which is otherwise contained or controlled below 50% of the exposure limit.

The word "may" in clause (a) in section 5.54(1) refers to situations where there is "possible exposure." The figure in OHS Guideline [G5.48-9 Measuring compliance with the exposure limits](#) shows that a guideline for determining possible exposure includes situations where the upper confidence limit is above the exposure limit and the lower confidence limit is below the exposure limit. For further clarification, refer to OHS Guidelines [G5.48-9](#) and [G5.53-3](#).

The levels of most common substances can be measured at the exposure limit. Even though exposure cannot be precisely measured or determined at 50% of the exposure limit, there may still be sufficient evidence for a knowledgeable person to reasonably conclude that there is no probability of exposure to levels greater than 50% of the exposure limit. In such cases no exposure control plan is required.

There are several other sections of the *Regulation* that require an exposure control plan. They are listed below.

Sections of the *Regulation* requiring an exposure control plan (ECP)

Section	Topic	Situations when an ECP is required
5.57	Controlling Exposure	Where it is not practicable to replace a material referred to in section 5.57(1) (designated substances) with a material that reduces the risk
6.3	Asbestos	If a worker is or may be exposed to potentially harmful levels of asbestos
6.34	Biological Agents	If a worker has or may have occupational exposure, as defined in section 6.33
6.43	Cytotoxic Drugs	If a worker is or may be occupationally exposed to a cytotoxic drug
6.60	Lead	If a risk assessment indicates that a worker is or may be exposed to lead dust, fumes, or mist
6.112.1	Silica	If a risk assessment shows that a worker is or may be exposed to respirable crystalline silica dust
6.119	Toxic Process Gases	If there is a risk of adverse health effects to workers from exposure to a toxic process gas
7.20	Ionizing and Non-Ionizing Radiation	If a worker exceeds, or may exceed, an applicable action level for ionizing or non-ionizing radiation
7.29	Heat Stress	If <ul style="list-style-type: none">• A worker is or may be exposed to thermal conditions which could cause heat stress• The thermal conditions could result in a worker's core body temperature exceeding 38°C (100°F)• The thermal conditions are or may be in excess of the levels listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard for unacclimatized workers

If a worker is or may be exposed to:

- Thermal conditions that could cause cold stress or injury
- Thermal conditions that could cause a worker's core body temperature to fall below 36°C (96.8°F)
- Thermal conditions that are below the levels classified as "little danger" to workers in the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard

G5.54-2 Elements of an exposure control plan

Issued August 1999

Regulatory excerpt

Section 5.54(2) of the OHS Regulation ("*Regulation*") states:

- (2) The exposure control plan must incorporate the following elements:
- (a) a statement of purpose and responsibilities;
 - (b) risk identification, assessment and control;
 - (c) education and training;
 - (d) written work procedures, when required;
 - (e) hygiene facilities and decontamination procedures, when required;
 - (f) health monitoring, when required;
 - (g) documentation, when required.

Purpose of guideline

The purpose of this guideline is to provide guidance on the seven major elements that an exposure control plan must incorporate as listed in section 5.54(2) of the *Regulation*.

Elements of an exposure control plan

The exposure control plan will normally be in writing so that all its elements can be recorded properly. If an exposure control plan is functioning effectively in a workplace, and the elements of the plan are not complex and require only limited record keeping, writing the plan may not be necessary. Similar considerations will determine the need for written work procedures under section 5.54(2)(d). Section 5.2 may require written work procedures under certain conditions, even though a written exposure control plan is not necessary.

Additional details regarding some of the specific elements of an exposure control plan are described in OHS Guidelines [G5.54-3 Risk identification, assessment, and control](#), [G5.54-4 Hygiene facilities and decontamination procedures](#), [G5.54-5 Health monitoring](#), and [G5.54-6 Documentation](#).

G5.54-3 Risk identification, assessment and control

Issued August 1999

Regulatory excerpt

Section 5.54(2)(b) of the OHS Regulation ("*Regulation*") states:

- (2) The exposure control plan must incorporate the following elements:
- (b) risk identification, assessment and control;

Purpose of guideline

The purpose of this guideline is to explain how the exposure control plan must incorporate risk identification, assessment and control pursuant to section 5.54(2)(b) of the *Regulation*.

Risk assessment

When identifying and assessing risk, the requirements of sections [5.53\(1\)](#) and [5.53\(3\)](#) for a walkthrough survey and exposure monitoring apply. Continuous monitoring of the work area may also be required, when necessary, to ensure the continuing safety of workers. For example, [section 6.128](#) requires continuous monitoring in some workplaces. For controlling risk, [section 5.55](#) applies.

To evaluate compliance with this section, WorkSafeBC prevention officers will:

- Determine whether the hazards have been correctly identified
- Establish whether the risk assessment is acceptable
- Assess the practicability of any proposed control measures
- Evaluate whether those measures provide an acceptable level of protection to workers

The degree of risk will depend on the probability, the extent, and the possible consequences of exposure (an injury or disease). Some of the factors that an employer should consider when performing a risk assessment are outlined in the table below.

Factors to be considered when performing a risk assessment

General	Specific
What is the nature of the hazard?	<ul style="list-style-type: none"> • What are the body systems involved (e.g., lungs, skin)? • What are the possible effects of exposure (e.g., breathing difficulties, scarring of tissues)? • Are there short-term or long-term effects (e.g., mild irritation, irreversible tissue damage, cancer)?
What is the nature of the exposure?	<ul style="list-style-type: none"> • What are the specific substances to which workers may be exposed? • What are the way(s) in which workers may be exposed (e.g., spills, during routine tasks or preventative maintenance)? • What are the specific work methods or procedures which may result in exposure? • Who are the workers at risk for exposure (i.e. process workers, maintenance workers, outside contractors)? • How many workers are potentially exposed?
Are there control measures in place to reduce the risk of exposure?	<ul style="list-style-type: none"> • Are there any engineering controls? (e.g., is the process enclosed or isolated?) • Are there administrative controls (e.g., is work scheduled to minimize time spent in the hazardous area)? • Is personal protective equipment available? (i.e., what type is available and how is it used?)

G5.54-4 Hygiene facilities and decontamination procedures

Issued August 1999; Editorial Revision February 1, 2008

Regulatory excerpt

Section 5.54(2)(e) of the *OHS Regulation ("Regulation")* states:

- (2) The exposure control plan must incorporate the following elements:
- (e) hygiene facilities and decontamination procedures, when required;

Purpose of guideline

The purpose of this guideline is to clarify that the walk-through survey required under [section 5.53\(1\)](#), the risk assessment performed under [section 5.88](#), along with specific requirements in Parts [6](#) and [7](#), will help determine whether or not hygiene facilities and decontamination procedures are required.

Hygiene facilities and decontamination procedures

Section 5.54(2)(e) requires that the exposure control plan incorporate "hygiene facilities and decontamination procedures, when required." The walk-through survey required under [section 5.53\(1\)](#), as well as the risk assessment required under [section 5.88](#), will determine the need for specific hygiene facilities and decontamination procedures. Certain sections of Parts 6 and 7 may also require hygiene facilities and decontamination procedures, such as for asbestos, lead, and biological agents designated as hazardous substances in [section 5.1.1](#). Refer to the relevant OHS Guidelines for further assistance.

G5.54-5 Health monitoring

Issued August 1999; Revised June 7, 2002; Editorial Revision October 2004

Regulatory excerpt

Section 5.54(2)(f) of the *OHS Regulation ("Regulation")* states:

- (2) The exposure control plan must incorporate the following elements:

(f) health monitoring, when required;

Purpose of guideline

The purpose of this guideline is to explain how the exposure control plan must incorporate "health monitoring, when required" pursuant to section 5.54(2)(f) of the *Regulation*.

Health monitoring

Health monitoring may be required explicitly (such as under [section 6.79](#) of the *Regulation*, WorkSafeBC may require health monitoring for workers exposed to pesticides in non-agricultural operations), or as an element of an exposure control plan. A list of the sections in which an exposure control plan is required is tabulated in OHS Guideline [G5.54-1](#).

The purpose of health monitoring is to protect workers from developing occupational disease by detecting biological indicators or adverse health effects at an early stage. Action can then be taken to prevent, reverse, reduce the severity, or arrest the progression of the adverse health effect or disease. Biological Action Values (BAV) for biological indicators are established by WorkSafeBC, based on current information and are reviewed periodically. For further information, consult the occupational physicians of WorkSafeBC.

Health monitoring should be considered when:

- There is reasonable likelihood of a workplace exposure
- The exposure can potentially cause an occupational disease or adverse health effect
- There is a means of detecting or measuring the disease, adverse health effect or its precursor or biological indicator

Effectiveness of exposure control plan

The results of health monitoring are also useful in evaluating the effectiveness of the exposure control plan, particularly when it cannot be evaluated by exposure monitoring alone. This occurs in any of the following situations:

- The skin or the gut are significant routes of absorption
- The skin itself may be affected by contact exposure
- Exposure control is dependent on the use of personal protective equipment

The skin and gut could be significant routes of exposure if the skin is in direct contact with a contaminant or if the contaminant is ingested and absorbed into the gut.

Biological monitoring

Biological monitoring of a substance, its metabolite, or its biological effect can be a component of health monitoring. An appropriate biological indicator is one that can be detected before disease or an adverse health effect occurs. Preventive action can then be taken as required. Before undertaking biological monitoring, the following criteria regarding the biological test should be met. The test should:

- Specifically assess the exposure or the effect
- Be sufficiently sensitive to detect occupational exposure levels and effects
- Vary quantitatively with the intensity of exposure and the risk of development of adverse effects
- Provide more information on potential health risk than can be obtained from exposure monitoring alone
- Be as non-invasive as possible
- Be readily available and not be too time-consuming, complex or expensive
- Be measured by analytical techniques which are accurate, specific and sensitive
- Have minimal storage and transport limitations

Health monitoring testing

Substances for which WorkSafeBC considers health monitoring may be appropriate include, but are not limited to, any of the following:

- Lead
- Cadmium
- Mercury
- Respiratory sensitizers (such as cedar dust or isocyanates)
- 4,4'-methylene bis[2-chloroaniline] or MOCA
- Organophosphate compounds

Health monitoring does not necessarily entail sophisticated testing, requiring medical or nursing personnel. Setting up a health monitoring system should be done by an occupational health physician or nurse, although its day-to-day functioning can often be managed by a qualified person, such as an occupational hygienist or health and safety manager. For some substances, health monitoring may only require an early reporting system linked with periodic inquiries about signs and symptoms, self-checks (such as examination of the skin for signs of sensitivity) by a lay person such as a first aid attendant or supervisor. When biological or biological effect monitoring is necessary, the services of appropriate medical, nursing, or technical personnel may be required for ordering tests and taking samples. A physician or nurse needs to interpret the results.

Health, biological, and biological effect monitoring should only be carried out with the informed consent of the worker. The individual should be advised of the purpose of the tests and biological samples should be analyzed only for the substances or effects for which consent has been obtained. Informed consent should ensure that the worker is made aware of any consequences that might occur if the results of the monitoring indicate that exposure should be reduced.

Personal results of health monitoring, as well as their interpretation, should be given to individual workers. Unless the worker's written informed consent for release is obtained, only categorical results (such as a range of values rather than specific measurement values) should be released to any person other than the individual or the worker's family physician. Both the worker and the employer should be advised about the worker's fitness to work, along with any work restrictions or recommended health and safety precautions.

Records concerning health, biological and biological effect monitoring should be kept and maintained in a form, which is easily linked to job and exposure records, while still observing the rules of confidentiality.

Although this section of the *Regulation* does not stipulate the period of time that records must be retained, they should be kept as long as practicable. This is especially important for identifying and assessing work-related health changes associated with changes over time in work processes, practices or control measures, as well as for detecting occupational diseases with delayed onset. In terms of confidentiality, standard guidelines and current accepted practice of regulatory bodies and recognized occupational health organizations should be followed. These include, for example, the Royal College of Physicians and Surgeons of Canada, the Canadian Medical Association, Doctors of BC (formerly known as the British Columbia Medical Association), the Occupational and Environmental Medicine Association of Canada, and the American College of Occupational and Environmental Medicine. Employers, in conjunction with worker health and safety representatives and occupational health personnel, should develop written policy regarding confidentiality. This policy, as well as any monitoring records, should be reviewed periodically.

Health monitoring programs should be reviewed and re-evaluated on a regular basis, and when the following occurs:

- There is a change in work processes or substance usage
- There is a significant change in the results of air monitoring, where a significant change may indicate either that the exposure limit is being exceeded or that control measures are keeping exposure levels below 50% of the exposure limit
- Signs or symptoms of occupational ill health are reported and investigated, as required by [section 5.59](#) of the *Regulation*
- Results of biological or biological effect monitoring exceed recommended limits

G5.54-6 Documentation

Issued August 1999; Editorial Revision February 1, 2008; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 5.54(2)(g) of the *OHS Regulation* ("*Regulation*") states:

(2) The exposure control plan must incorporate the following elements:

(g) documentation, when required.

Purpose of guideline

The purpose of this guideline is to specify when documentation is specifically required under certain sections.

Documentation

Section 5.54(2)(g) provides that the exposure control plan must incorporate "documentation, when required." Documentation is specifically required under certain sections. Some examples include the following:

- [Section 6.4](#) of the *Regulation* – inventory of asbestos-containing materials and a record of any changes made to the inventory
- [Section 6.32](#) – records of risk assessments, inspections, air monitoring results, instruction and training of workers, and incident investigation reports
- [Section 6.34\(1\)](#) – records of all workers who have occupational exposure, as defined in [section 6.33](#)

Documentation is also required under section 5.2 and whenever workplace monitoring is conducted under [section 5.53](#).

G5.54-7 Drywall sanding requirements

Issued June 14, 2002; Revised February 11, 2004; Editorial Revision June 6, 2007

Regulatory excerpt

Section 5.54(1) of the *OHS Regulation* ("*Regulation*") states:

An exposure control plan must be implemented when

- (a) exposure monitoring under section 5.53(3) indicates that a worker is or may be exposed to an air contaminant in excess of 50% of its exposure limit,
- (b) measurement is not possible at 50% of the applicable exposure limit, or
- (c) otherwise required by this Regulation.

Purpose of guideline

The purpose of this guideline is to clarify how Part 5 of the *Regulation* should be applied to control workers' exposure to the hazard of dust from

drywall sanding operations. It includes a sample exposure control plan to assist the drywall installation industry in meeting the requirements of [section 5.54\(2\)](#) of the *Regulation*.

Background

Workers sanding drywall filler compounds are exposed to large amounts of fine dust. Depending on the supplier, drywall filler compounds contain calcite, gypsum, mica, kaolin, perlite, talc, and silica and may contain trace amounts of crystalline silica, a *designated substance* (see [section 5.57](#) of the *Regulation*). WorkSafeBC has evaluated the dust exposures typically experienced by drywall sanders in a variety of workplaces, from wood frame residential construction to concrete high-rise construction, during both pole-sanding and hand-sanding activities. This evaluation found that drywall sanders are exposed to high dust levels, typically up to 8 times the exposure limit for "Particles (Insoluble or Poorly Soluble) not otherwise Classified (PNOC)" in the [Table of Exposure Limits for Chemical and Biological Substances](#) (see OHS Guideline [G5.48-2](#)). These results are consistent with research reports from other agencies.

Workers' exposure to crystalline silica from drywall sanding was found to be typically at or below the detection limit for crystalline silica (less than 0.02 mg/m³). Bulk samples of the various drywall filler compounds analyzed by WorkSafeBC all contained less than 1% crystalline silica. PNOC applies to dusts that contain no asbestos, contain less than 1% crystalline silica, and are known not to produce significant organic disease or toxic effect when exposures are maintained under reasonable control.

Application of the Regulation

Section 5.54(1)(a) of the *Regulation* requires an exposure control plan for drywall sanding operations as WorkSafeBC has established that workers involved in such operations are routinely overexposed to PNOC. The 8-hour TWA limit for PNOC as total dust is 10 mg/m³. The substance also has an 8-hour TWA limit of 3 mg/m³ for the respirable fraction of the dust.

[Section 5.55](#) of the *Regulation* requires control measures to minimize or eliminate workers' exposure to airborne contaminants. The following "hierarchy of controls" is listed with substitution as the most preferable option and personal protective equipment as the least preferable (see OHS Guideline [G5.55](#) for additional information):

- Substitution
- Engineering controls
- Administrative controls
- Personal protective equipment (PPE)

Substitution means replacing the substance of concern with a less harmful substance. For drywall filler compounds, crystalline silica would be the one substance of concern for elimination by substitution. Substitution would mean finding a filler compound with no crystalline silica content. The presence of crystalline silica in filler compounds is the result of small amounts present in the raw materials used in the manufacture of the drywall filler. Although manufacturers can specify raw material with the lowest amount of contamination with crystalline silica, achieving a product that is totally free of crystalline silica content is not feasible. Substitution with a product that requires no sanding or produces less dust would be ideal from a business and health perspective; however, no such product has yet been developed.

WorkSafeBC has reviewed control options and recognizes the following:

1. Local exhaust ventilation, such as the use of a high velocity/low volume extraction system attached to a sander, is not considered a viable option at this time. This is based on the findings of a joint WorkSafeBC/industry committee that the desired quality of finish required for prepping walls to be painted cannot be achieved by the present technology.
2. Wet sanding is not considered a viable option at this time. It wets the drywall paper and the desired quality of finish for large, new wall assemblies cannot be achieved. However, wet sanding may be viable for small touch-up jobs in dust-sensitive areas such as finished offices, computer labs, and clean rooms.
3. Respiratory protection is a viable option to control worker exposure to drywall sanding dust at this time.

The minimum respiratory protective device acceptable to WorkSafeBC for PNOC is a half-facepiece respirator fitted with N95 particulate filters or an N95 filtering facepiece respirator, having a minimum assigned protection factor of 10 (NIOSH TC-84A-xxx approvals only, where xxx is the assigned approval number). See also OHS Guideline [G8.33\(2\)-1](#) for a list of other acceptable filtering facepiece respirators. Only those respirators capable of being seal checked and/or fit tested, as applicable, are to be selected.

WorkSafeBC recognizes respiratory protection as the only current viable option for controlling exposure with the following conditions:

1. The industry is expected to actively investigate and evaluate the suitability of new technologies and methods for drywall installation and finishing as they become available. If suitable equipment or methods are found to lower worker exposure to drywall sanding dust, it is expected the industry will adopt the new technology or method(s). This is as required by [section 5.55](#) of the *Regulation*.
2. The use of respiratory protection is to be accompanied by the use of other available control measures as follows:
 - Restricting access to the drywall sanding area to the personnel required for the sanding operation.
 - Posting signs at the access routes to the drywall sanding area stating:
 - Entry to the area is restricted to authorized personnel
 - A warning to unprotected workers of the hazards
 - Precautions for entering the area
 - For example, a sign stating "Authorized Personnel Only, Drywall sanding operation in process, Respiratory protection required" would be acceptable.
 - Scheduling the entry of workers who do not have respiratory protection (such as workers delivering materials or inspecting the area)

to times when the airborne dust levels will be at their lowest, for example at the start of a shift or after a break. Workers without respiratory protection will be limited to a brief exposure to the hazardous area, such as a few minutes a few times each shift.

- Training workers in the hazards and control measures associated with drywall sanding.
- Coordinating with other sub-trades and the prime contractor on-site to minimize the need for workers not directly involved in the drywall sanding operation to be near the dust hazard area.
- Providing wash-up facilities for workers to wash dust off their hands and face before meal breaks and at the end of the shift.
- Arranging for workers to change to clean clothing upon completion of their sanding task so they do not wear dust-contaminated clothing in other work areas.

Sample Exposure Control Plan for Drywall Sanding

Purpose and Responsibilities

This plan provides direction to the supervisors and workers of _____ on the company's policies and procedures for drywall sanding operations. It covers all standard work practices including the use of pole sanders, sanding sponges, and hand-held sanding blocks for sanding of joints, corners, and seams where drywall filler compounds have been applied.

The employer is responsible for the following:

- Providing a job-specific exposure control plan (ECP) for each project to deal with the hazards and risks associated with sanding operations
- Reviewing periodically the effectiveness of the ECP, which may require sampling of worker exposure levels to drywall filler dust when there are significant changes in exposure conditions during non-standard work practices
- Ensuring that personal protective equipment is readily available and used and mechanical ventilation equipment is provided and used where deemed necessary
- Ensuring supervisors and workers are educated and trained to an acceptable level of competency
- Maintaining records of training, fit-test results, crew talks, and inspections
- Coordinating the work with the prime contractor and other employers to ensure a safe work environment

The supervisor is responsible for the following:

- Providing adequate instruction to workers on the hazards associated with drywall sanding and on the precautions specified in the job-specific plan covering hazards at the location
- Selecting and implementing the appropriate control measures
- Ensuring that workers using respirators have been properly fit-tested and that the results are recorded
- Directing the work in a manner that ensures the risk to workers is minimized and adequately controlled
- Liaising with the prime contractor and other sub-contractors to ensure a safe work environment

The worker is responsible for the following:

- Using the assigned protective equipment in an effective and safe manner
- Setting up the operation in accordance with the site-specific plan
- Following established work procedures as directed by the supervisor
- Reporting any unsafe conditions or acts to the supervisor

Risk Identification and Assessment

Drywall taping compounds may contain calcite, gypsum mica, kaolin, perlite, talc, and silica. Most of these substances do not have individual component or specific exposure limits. Evaluations conducted by WorkSafeBC and the National Institute for Occupational Safety and Health (NIOSH) have found that the exposure of drywall sanders to crystalline silica is less than posted exposure limits and mostly at or below the detection limit. Dusts without established exposure criteria are called "Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC)." The general criteria for these dusts is that they contain no asbestos, have less than 1% crystalline silica, and are known not to produce significant organic disease or toxic effect when exposures are maintained under reasonable control.

The exposure control requirements for drywall sanding are to address the hazard of PNOC concentration. An 8-hour TWA limit of 10 mg/m³ for total dust and 3 mg/m³ for respirable dust applies to drywall dust. WorkSafeBC evaluation of worker exposure to dust from drywall filler sanding operations has determined 80% of the exposures are above the 8-hour TWA limit of 10 mg/m³ for PNOC. The PNOC exposure levels can be as much as 8 times the 8-hour TWA limit.

Control Options

Company policy is to use the following control options to eliminate or reduce the risk to workers from the hazard of drywall sanding dust exposure. Every effort will be made to ensure the need to sand is reduced or minimized in the taping and filling stages of drywall installation. Care in and use of proper and appropriate filling procedures, methods, and practices will reduce the need to sand out joint compounds. If sanding is required, the following hierarchy of control measures needs to be considered:

- Engineering control options: A combination of local and general ventilation systems
- Administrative control options: Pole sanding or wet sanding when practicable
 - NOTE: Wet sanding of large, new wall assemblies is not considered a viable option; however, it may be practicable for small touch-

ups in dust-sensitive areas such as finished offices, computer labs, and clean rooms.

- Personal protective equipment (PPE):
 - The minimum respiratory protective device for use in drywall sanding is a half-facepiece respirator fitted with N95 particulate filters or a particulate facepiece N95 respirator (NIOSH TC-84A-xxx approvals only, where xxx is the assigned approval number). Only those respirators capable of being seal checked or fit tested will be selected.
- Coveralls

A combination of the above control options should be considered to ensure maximum protection for workers.

In addition, consideration must be given to the following:

- Restricting access to the sanding area.
- Posting all access routes to the designated sanding area with signs warning unprotected workers of the hazards, listing precautions for entering the area, and restricting the area to authorized personnel only. (Signs stating "Authorized Personnel Only, Drywall sanding operation in process, Respiratory protection required" are acceptable.)
- Coordinating with the prime contractor and other sub-trades to ensure other workers on-site are not placed to do work in the dust hazard area.
- Scheduling the entry of workers who do not have respiratory protection (such as workers delivering materials or inspecting the area) to times when the airborne dust levels will be at their lowest, for example at the start of a shift or after a break. Workers without respiratory protection will be limited to a brief exposure to the hazardous area, such as a few minutes a few times each shift.

Education and Training

Workers and supervisors involved in drywall filler sanding will be educated and instructed in the health hazards associated with the sanding operations and will be trained in the operation and use of the sanding equipment and control measures, including the safe use, limitations, and maintenance of the respiratory protection used.

Written Work Safety Procedures

The following written procedures will be made available on-site for the direction of workers:

- A site-specific exposure control plan (such as this document, modified accordingly with site-specific requirements)
- Specific instructions when any engineering control options are used to supplement the required personal protective equipment (such as use and maintenance of local exhaust ventilation systems; proper set-up of general ventilation such as pedestal fans)
- Respirator instructions provided by the supplier (manufacturer's booklet)
- Respiratory protection program (see *Regulation Part 8* and WorkSafeBC's *Breathe Safer* manual)

Hygiene Practices and Cleanup Procedures

All workers sanding drywall filler compounds are to change into coveralls or work clothes in a "clean area."

Workers will have and use facilities for washing of their hands and face before meal breaks and at the end of each shift.

Health Monitoring

Workers will promptly report any symptoms of exposure to the job site first aid attendant and their supervisor for further investigation.

Documentation

The company will keep records of the instruction and training provided to workers, respirator fit-test records, any related crew talks, and any reported unsafe conditions or deficiencies noted in workplace inspections or reported to the supervisor on the site.

Annual Review

The employer will undertake, on an annual basis, the following:

- Evaluation of the control options and work procedures used
- Evaluation of any new technologies and methods that have come onto the market
- Review of first aid reports and any reported health-related symptoms
- Review of documentation for training and education
- Review of the respirator program

The annual review will be done in consultation with the joint health and safety committee, and/or worker health and safety representative, if applicable.

G5.55 Type of controls

Issued August 1, 1999; Revised February 11, 2004; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.55 of the *OHS Regulation* ("*Regulation*") states:

- (1) If there is a risk to a worker from exposure to a hazardous substance by any route of exposure, the employer must eliminate the exposure, or otherwise control it below harmful levels and below the applicable exposure limit established under section 5.48 by

- (a) substitution,
- (b) engineering control,
- (c) administrative control, or
- (d) personal protective equipment.

(2) When selecting a suitable substitute, the employer must ensure that the hazards of the substitute are known, and that the risk to workers is reduced by its use.

(3) The use of personal protective equipment as the primary means to control exposure is permitted only when

- (a) substitution, or engineering or administrative controls are not practicable, or
- (b) additional protection is required because engineering or administrative controls are insufficient to reduce exposure below the applicable exposure limits, or
- (c) the exposure results from temporary or emergency conditions only.

Purpose of guideline

The purpose of this guideline is to describe acceptable control options.

Exposure limits

Section 5.55 of the *Regulation* requires that control measures be implemented to eliminate the exposure or control it below harmful levels and below the applicable exposure limit established under section 5.48. Those limits are available in the Table of Exposure Limits for Chemical and Biological Substances (refer to OHS Guideline [G5.48-2](#)).

Other useful sources of information in making the determination of a potentially harmful level include the SDS, supplier's recommendations, and reference literature, such as the *Documentation of Threshold Limit Values and Biological Exposure Indices* published by the ACGIH.

Control measures

Acceptable control options include substitution, engineering control, administrative control, and personal protective equipment. Good occupational hygiene practice considers this to be the "hierarchy of controls." That is, substitution is the most preferable option and personal protective equipment is the least preferable.

Section 5.55(2) requires that, when selecting a substitute, the employer ensures that the hazards of a substitute are known and that the risk to workers is reduced by its use. Factors that should be considered in selecting a suitable substitute include the following:

- The exposure limit
- Route(s) of exposure
- Acute and chronic effects
- Warning properties
- Flammability or other hazards
- Work procedures
- Training and supervision required

The only circumstances under which WorkSafeBC would consider personal protective equipment to be a primary means of control are when the conditions of section 5.55(3) are met. Section 5.55(3)(b) permits the use of respirators when engineering or administrative controls are insufficient to reduce exposure below the exposure limit (e.g., while sandblasting in a booth). In section 5.55(c), the term "emergency conditions" includes leaks, rescue situations, or repair efforts when controls break down. The definition of "temporary" is provided in [section 5.1](#) of the *Regulation*.

G5.56 Oxygen deficiency

Issued August 1, 1999

Regulatory excerpt

Section 5.56 of the OHS Regulation ("*Regulation*") states:

The airborne concentration of any gas or vapour must be controlled so that a worker is not exposed to an oxygen deficient atmosphere, and there is no other hazard, such as fire or explosion.

Purpose of guideline

The purpose of this guideline is to explain the requirement that the airborne concentration of any gas or vapour be controlled to ensure that a worker is not exposed to an oxygen deficient atmosphere pursuant to section 5.56 of the *Regulation*.

Oxygen deficient atmosphere

An oxygen deficient atmosphere is one in which the concentration of oxygen is below that required to sustain normal respiration. The process of respiration includes breathing, as well as the exchange of oxygen and carbon dioxide (between the lungs and the blood and also between the blood

and tissues).

At standard pressure and temperature, atmospheric air at sea level contains 20.95% oxygen. This atmosphere is oxygen deficient at concentrations of oxygen of 19.5% or less. The IDLH (immediately dangerous to life or health) concentration of oxygen in atmospheric air at sea level is 14%. At 3660 metres (10,000 feet) above sea level, the IDLH concentration of oxygen is 20.9%. Further information on oxygen deficient atmospheres is found in the WorkSafeBC publications "[Breathe Safer](#)" and "[Confined Space Entry — A Reference Manual](#)." Refer to the definitions for "oxygen deficient" and "IDLH" in [section 1.1](#) of the *Regulation*.

Some examples of gases that can cause an oxygen deficient atmosphere include the following:

- acetylene
- argon
- ethane
- ethylene
- helium
- hydrogen
- methane propane
- neon
- nitrogen
- propylene

Due to the flammability of some of these gases, the requirements of sections [5.27](#) and [5.31](#) also apply.

G5.57 Designated substances

Issued August 1, 1999; Revised February 11, 2004; Revised February 4, 2005; Revised January 1, 2009; Editorial Revision consequential to August 4, 2015 Regulatory Amendment; Editorial Revision June 1, 2017; Revised June 3, 2019

Regulatory excerpt

Section 5.57 of the *OHS Regulation* ("*Regulation*") states:

(1) If a substance identified as any of the following is present in the workplace, the employer must replace it, if practicable, with a material which reduces the risk to workers:

- (a) ACGIH A1 or A2, or IARC 1, 2A or 2B carcinogen;
- (b) ACGIH reproductive toxin;
- (c) ACGIH sensitizer;
- (d) ACGIH L endnote.

(2) If it is not practicable to substitute a material which reduces the risk to workers, in accordance with subsection (1), the employer must implement an exposure control plan to maintain workers' exposure as low as reasonably achievable below the exposure limit established under section 5.48.

(3) The exposure control plan must meet the requirements of section 5.54.

Purpose of guideline

Section 5.57(1) of the *Regulation* requires that designated substances be replaced or substituted, whenever practicable, with a less hazardous material, and if that is not practicable, measures must be taken to keep a worker's exposure to a level as low as is reasonably achievable.

The purpose of this guideline is to provide background information on the designations for carcinogenicity, reproductive effects, sensitization, and L endnotes as referenced in section 5.57(1), and to describe factors to consider when determining the practicability of using substitute materials.

Background

Section 5.57 of the *Regulation* establishes requirements for substances with specific designations by two authorities - the ACGIH (American Conference of Governmental Industrial Hygienists) and IARC (International Agency for Research on Cancer).

Periodically, designations for specific chemical substances are subject to change by the ACGIH and IARC if new scientific evidence concludes a different health outcome. As a result, the ACGIH and/or IARC will revise the designations for specific substances accordingly.

There may be circumstances where the ACGIH and/or IARC designations may not be reflected on other commonly used information sources, such as updated safety data sheets (SDS). To address such matters, the *Regulation* under the provisions of Part 5, also requires employers to use such updated information sources in assessing adverse health effects and establishing safe work procedures.

Section 5.57(1)(a): Carcinogenic substances - ACGIH and IARC notations

A substance is an ACGIH A1 or A2 carcinogen if the ACGIH assigns the following designations for a substance in the most current edition of the *ACGIH Threshold Limit Values and Biological Exposure Indices* (commonly known as the *TLV Booklet*):

- A1 - a substance is a *confirmed human carcinogen* based on the weight of evidence from epidemiological studies
- A2 - a substance is a *suspected human carcinogen* based on limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans

A substance is an IARC 1, 2A, or 2B carcinogen if IARC declares any of these categories for a substance in the publication [IARC Monographs on the Evaluation of Carcinogenic Risks to Humans](#), as amended from time to time:

- Group 1 - substances are deemed as *carcinogenic to humans* on the basis of sufficient evidence of carcinogenicity in humans
- Group 2A - substances are deemed *probably carcinogenic to humans* on the basis of limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals
- Group 2B - substances are deemed *possibly carcinogenic to humans* on the basis of limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals

For reference, the [Table of Exposure Limits for Chemical and Biological Substances](#) associated with the OHS Guideline G5.48-2 lists substances that are considered to be an ACGIH and IARC carcinogen by A1, A2, 1, 2A, or 2B in the Notations' column.

For additional information on the background and rationale for the different categories of carcinogens, refer to the most current edition of the ACGIH's *Threshold Limit Values and Biological Exposure Indices*, the most current edition of the ACGIH's *Documentation of TLVs and BEIs*, and the most current publications of IARC's *Overall Evaluations of Carcinogenicity to Humans*. Both agencies provide information on their websites:

- ACGIH can be found at acgih.org
- IARC can be found at iarc.fr

Section 5.57(1)(b): ACGIH reproductive toxins

ACGIH reproductive toxins are substances described by the ACGIH as having the potential for causing adverse reproductive effects on female and male reproductive organs, tissues or cells, on fertility, on the embryo or fetus, and may result in developmental abnormalities, tumours, and adverse effects on newborns.

ACGIH reproductive toxins are identified as such if reproductive effects are noted in the "TLV Basis" column in the ACGIH's annual publication *Threshold Limit Values and Biological Exposure Indices*, or the potential for adverse reproductive effects are stated in the ACGIH publication *Documentation of TLVs and BEIs*, as amended from time to time.

For reference, the Table of Exposure Limits for Chemical and Biological Substances associated with the OHS Guideline G5.48-2 lists substances that are considered to be an ACGIH reproductive toxin by a letter "R" in the Notations' column.

Section 5.57(1)(c): ACGIH sensitizers

ACGIH sensitizers are substances that have been designated by the ACGIH as having a sensitization effect. As defined in section 1.1 of the *Regulation*, a "sensitizer" is a substance that has been shown to elicit an allergic type of response in humans after an initial exposure, resulting in development of symptoms upon subsequent exposure at much lower concentrations.

Depending on the substance, workers can become sensitized to the substance through the respiratory system, the skin, and/or the eyes. Sensitization often involves a response by the body's immune system. Initially, there may be little or no response to a sensitizing substance. However, after a worker is sensitized, subsequent exposure may cause severe reactions even at low exposure concentrations, including at levels below the exposure limit.

The ACGIH designates sensitizers in several ways. The designations "SEN," "RSEN," or "DSEN" in the Notations' column of ACGIH's annual publication *Threshold Limit Values and Biological Exposure Indices* refer to the potential for a substance to produce sensitization as confirmed by human or animal data. "DSEN" indicates a substance with specific evidence of sensitization by the dermal route and "RSEN" indicates a substance with specific evidence of sensitization by the respiratory route. Some ACGIH sensitizers are also identified as such if the sensitizing effect is mentioned in the TLV Basis column in the ACGIH's annual publication *Threshold Limit Values and Biological Exposure Indices*.

For reference, the Table of Exposure Limits for Chemical and Biological Substances associated with the OHS Guideline G5.48-2 lists substances considered to be an ACGIH sensitizer by the terms "S," "S(D)," or "S(R)" in the Notations' column.

For an ACGIH sensitizer, the exposure limit is primarily meant to protect workers from becoming sensitized to the substance. However, it is not intended to and likely will not protect those workers who have already become sensitized.

The absence of a sensitization notation by the ACGIH does not mean that a substance lacks the ability to produce sensitization, but may reflect the inconclusiveness of scientific evidence at the time of the publication. Employers still need to protect workers who may be exposed to potential sensitizers in the workplace by implementing appropriate control measures.

Section 5.57(1)(d): L endnote

A substance with an ACGIH "L" endnote is identified with an "L" notation in the "TWA" column of the ACGIH's annual publication *Threshold Limit Values and Biological Exposure Indices*.

The ACGIH defines the "L" endnote as "exposure by all routes should be carefully controlled to levels as low as possible." WorkSafeBC

considers substances with this notation to be highly toxic, and which have not been assigned an exposure limit. Examples of substances in this category include benzo(α)pyrene, chrysene, and rosin core solder thermal decomposition products (colophony).

Substitution

Eliminating the potential for worker exposures to carcinogens, reproductive toxins, sensitizers, and other designated substances by substituting it with a less hazardous substance is the preferred approach. However, substitution as a control may not always be practicable in every situation.

To evaluate compliance with section 5.57 of the *Regulation*, the following questions should be considered:

- Is the designated substance essential or integral to the process?
- Are alternative materials available?
- Are the alternatives practicable?
- Are the hazards of the alternative known?
- Is the risk to the worker reduced by the alternative?

Section 5.57(2) of the *Regulation* prescribes that if substitution is not practicable for those substances listed in section 5.57(1) of the *Regulation*, the employer must implement an exposure control plan to ensure a worker's exposure is kept as low as reasonably achievable to levels below the exposure limit. As indicated by section 5.57(3), the exposure control plan must meet the requirements of section 5.54.

Refer to OHS Guidelines [G5.54-1 to G5.54-3](#) for further information on expectations for exposure control plans.

G5.58 Protective policy

Issued August 1, 1999; Revised October 29, 2003; Editorial Revision October 2004; Editorial Revision January 1, 2009

Regulatory excerpt

Section 5.58 of the *OHS Regulation* ("*Regulation*") states:

- (1) At any worksite where a worker is exposed to a substance which is identified in section 5.57(1) as an ACGIH reproductive toxin or an ACGIH sensitizer, the employer must develop policy and procedures appropriate to the risk, which may include protective reassignment.
- (2) The policy and procedures required by subsection (1) must
 - (a) inform workers about the reproductive toxin and identify ways to minimize exposure to the toxin for a worker who has advised the employer of pregnancy or intent to conceive a child, and
 - (b) identify ways to eliminate or minimize exposure to a sensitizer for a worker who is or may be sensitized to that substance.

Purpose of guideline

The purpose of this guideline is to provide additional information about protective reassignment and exposure control plans.

Protective policy

The policy and procedures may include protective reassignment, meaning that a worker may be relocated from a high-risk to a low-risk work area, based on the risk assessment carried out for the exposure potential.

"Exposure" or routes of exposure in this section include inhalation, ingestion, and skin absorption. The policy and procedures must be appropriate to the level of risk. Since exposure levels to substances exhibiting reproductive and sensitization toxic effects must be kept as low as reasonably achievable, [section 5.57\(2\)](#) of the *Regulation* requires that an exposure control plan be implemented. For example, at a given level of exposure in the workplace, the risk may be minimal. In this case, a policy that informs workers about the material and its reproductive toxicity or sensitizing capability may be all that is required. For further guidance, contact WorkSafeBC.

G5.59 Investigating symptoms

Issued August 1999; Editorial Revision June 26, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.59 of the *OHS Regulation* ("*Regulation*") states:

- (1) If a worker exhibits signs or reports symptoms of overexposure to a hazardous substance present in the workplace, the employer must investigate and assess the potential for exposure.
- (2) If the assessment demonstrates that the signs or symptoms can be caused by exposure to a hazardous substance that is present in the workplace, further investigation must be conducted, in consultation with the joint committee or the worker health and safety representative, as applicable, to address and resolve the worker's concern.
- (3) Records of the investigation required under subsection (2) must be made available to workers, and maintained by the employer for a minimum of 10 years.

Purpose of guideline

The purpose of this revised guideline is to provide guidance around investigating possible exposure to a hazardous substance.

Conducting an investigation into possible exposure

Under section 5.59(1) of the *Regulation* the potential for exposure must be investigated and assessed when a worker exhibits signs or reports symptoms of overexposure to a harmful substance present in the workplace. Where signs or symptoms are shown to be associated with workplace exposure, section 5.59(2) requires further investigation to address and resolve the worker's concern. The employer must consult with the joint committee or worker health and safety representative as applicable. These requirements are consistent with sections [3.9 and 3.10](#) of the *Regulation*, which provide that unsafe or harmful conditions must be investigated and remedied without delay.

The investigation of symptoms should include an initial review of hazardous substances present in the workplace with an emphasis on those materials to which the worker(s) exhibiting signs or symptoms of overexposure may have been exposed. For hazardous products controlled under the *Hazardous Products Act* and the *Hazardous Products Regulations*, this would mean a review of the safety data sheets (SDS) to identify the hazardous ingredients and toxicological properties. For complaints associated with indoor air quality (sections [4.71 to 4.80](#) of the *Regulation*), fugitive emissions, intermediate reaction products, or environmental contaminants, exploratory air sampling may have to be conducted to identify the contaminant. Once the hazardous substance has been identified, the employer should consider the symptoms workers are experiencing to determine if there is a relationship between the symptoms and the exposure. Not only should the substance be considered, but also the circumstances that give rise to the exposure. If a relationship is found, then a further investigation should be conducted to identify a means of controlling the hazard. When identifying a means of controlling the hazards, the requirements of [section 5.55](#) of the *Regulation* apply.

Section 5.59(3) requires that the investigation be documented, that records are made available to workers, and that records are maintained for a minimum of 10 years. The records should include the following information:

- The signs or symptoms of reported overexposure
- The harmful substance(s) considered in the investigation
- The relationship (if any) between the reported symptoms and exposure to the harmful substance(s) investigated
- Workplace conditions considered, such as locations, tasks, and process conditions
- Any action(s) taken to control the hazard(s)

Table of Exposure Limits for Chemical and Biological Substances [Explanation of table entries](#)

[Table of exposure limits](#) (Updated March 1, 2022)

Download [PDF version](#) (250 kb) of the table

Use [E-Limit](#) to search the Table of Exposure Limits

Occupational Health and Safety Regulation section 5.48 provides established exposure limits for a worker's exposure to hazardous chemical substances. Generally, these exposure limits are established according to the Threshold Limit Values ("TLVs") adopted by the American Conference of Governmental Industrial Hygienists ("ACGIH"). WorkSafeBC (the Workers' Compensation Board) has the authority to make exceptions and adopt exposure limits for specific chemical substances that are not consistent with the TLVs established by the ACGIH. [Policy R5.48-1](#) sets out those exceptions. The below Table of Exposure Limits for Chemical and Biological Substances shows all exposure limits for British Columbia workplaces, i.e., adopted TLVs and exposure limits developed by exception.

WorkSafeBC publishes this exposure limit table in accordance with its mandate under the *Workers Compensation Act* to provide information and promote public awareness. This table does not represent the official exposure limits and designations. WorkSafeBC does not warrant the accuracy or the completeness of the information in this table, and none of its board of directors, employees or agents shall be liable to any person for any loss or damage of any nature arising from this version.

Where WorkSafeBC has adopted a TLV or ACGIH designation, the official exposure limit is in the ACGIH TLV documentation. Where an exposure limit is adopted by exception, the official exposure limit is found in Policy R5.48-1. The official source of the International Agency for Research on Cancer (IARC) carcinogenicity designations is the IARC set of monographs.

Explanation of table entries

General notes regarding the Table entries:

- Chemicals and other substances are listed in alphabetical order. Numerals and prefixes, for example, 1,3-, tert-, o-, sec-, cis-, are disregarded in determining alphabetical order.
- In square brackets is the Chemical Abstracts Services (CAS) registry number. This is a unique identification number assigned specifically to that substance, and can be a convenient way to identify substances.
- WorkSafeBC reviews and updates this Table as necessary. If the exposure limit for a substance has been revised or newly adopted since January 1, 2003 this Table reports the change with the words "Revised (year)." Each year, new and amended substances, including notation changes, are **highlighted** for a period of time in the Table. Recent deletions of substances from the Table are shown as strike through (e.g., ~~Emery~~).
- Endnotes: Letters in parentheses indicate endnotes, which are explained at the end of the table. Substances which have an "L" endnote are subject to [section 5.57 \(Designated substances\)](#) of the *OHS Regulation*. For more information see [OHS Guideline G5.57](#).
- For solid and liquid particulate matter, except where the terms inhalable, thoracic, or respirable particulate mass are stated, the exposure limits listed in the table are expressed in terms of "total particulate matter".

- Additional explanation about this table is available at [G5.48-2](#) Annual revisions to exposure limits.

TWA column

This is the 8-hour time weighted average (TWA) limit, as defined in [section 5.1](#) of the *OHS Regulation*.

- Units: Exposure limits are reported in ppm, mg/m³, or f/cc. In general, substances present in air as a vapour or gas are reported in parts per million (ppm). Substances present in air as an aerosol (dust, fume, mist) and mixtures such as diesel fuel are typically reported in milligrams per cubic metre (mg/m³). See OHS Guideline G5.48-4 for a procedure to convert from one type of unit to the other. Fibrous substances, such as synthetic vitreous fibres (e.g., glass wool fibres) are reported in fibres per cubic centimetre (f/cc). This is equivalent to fibres per millilitre, or f/ml, which is another common term.

STEL/Ceiling column

This is the short-term exposure limit or STEL, which is defined in section 5.1 of the *OHS Regulation*. Note that:

- "C" indicates a ceiling limit, which is defined in section 5.1 of the *OHS Regulation*.
- The units ppm and mg/m³ are used as in the TWA column.
- In some cases, the term "**simple asphyxiant**" is used. This is a gas or vapour that can displace oxygen in the air, resulting in possible suffocation from lack of oxygen. Because simple asphyxiants do not have other significant toxic effects, an exposure limit is not applicable. The limiting factor is the available oxygen. See [section 5.56](#) of the *OHS Regulation* (Oxygen deficiency).

Notations column

The notations identify substances considered to be carcinogens, sensitizers and those with adverse reproductive effect under [section 5.57](#) of the *OHS Regulation*. Section 5.57 deals with requirements for substitution and keeping exposure as low as reasonably achievable below the exposure limit. The notations column also indicates substances that contribute significantly to overall exposure by the skin route, in which case [section 5.52](#) of the *OHS Regulation* applies. Note that:

- ACGIH notations **A1** and **A2** and IARC notations **1**, **2A** and **2B** indicate substances designated as carcinogens under section 5.57(1) of the *OHS Regulation*. The different categories used by the two organizations indicate different levels of certainty of carcinogenic effect, eg. from confirmed carcinogen to probable or possible. For more information see [OHS Guideline G5.57](#).
- Three terms, "S", "S(D)", and "S(R)", indicate a substance is an ACGIH sensitizer under section 5.57(1) of the *OHS Regulation*. The ACGIH indicates that a substance is a sensitizer with a "SEN" notation or it states a substance as having a sensitizing effect in the *TLV Basis* column in the ACGIH booklet. "S" indicates that a substance has the potential to produce sensitization, as confirmed by human or animal data. "S(D)" indicates a substance with specific evidence of sensitization by dermal route and "S(R)" indicates a substance with specific evidence of sensitization by respiratory route. The absence of a sensitization notation does not mean that a substance lacks the ability to produce sensitization, but may reflect the inconclusiveness of scientific evidence. For more information, see OHS Guideline G5.57.
- The letter "**R**" means that the substance has an adverse reproductive effect under section 5.57(1) of the *OHS Regulation*. For more information see OHS Guideline G5.57.
- The term "**EX**" means that the substance is a flammable asphyxiant or excursions above the exposure limit could approach 10% of the lower explosive limit.
- The term "**Skin**" identifies substances that contribute significantly to the overall exposure by the skin route. For more information see [OHS Guideline G5.52](#).

Table of exposure limits for chemical and biological substances

New! Use [E-Limit](#) to search the Table of Exposure Limits

Updated March 1, 2022

Substance [CAS No.]	TWA	STEL/Ceiling	Notations
Abate (See Temephos)			
Acetaldehyde [75-07-0] Revised 2014		C 25 ppm	A2, 2B
Acetamide [60-35-5]			2B; (I)
Acetic acid [64-19-7]	10 ppm	15 ppm	
Acetic anhydride [108-24-7] Revised 2011	1 ppm	3 ppm	
Acetone [67-64-1]	250 ppm	500 ppm	
Acetone cyanohydrin, as CN [75-86-5]		C 1ppm	Skin
Acetonitrile [75-05-8]	20 ppm		Skin
Acetophenone [98-86-2]	10 ppm		R
Acetylene [74-86-2]		Simple asphyxiant	EX
Acetylene tetrabromide (See 1,1,2,2 Tetrabromoethane)			
Acetylsalicylic acid (Aspirin) [50-78-2]	5 mg/m ³		

Acrolein [107-02-8]		C 0.1 ppm	Skin
Acrylamide, Inhalable [79-06-1] Revised 2005	0.03 mg/m ³ (V)		S(D); Skin; A2; 2A
Acrylic acid [79-10-7]	2 ppm		Skin; R
Acrylonitrile [107-13-1]	2 ppm		Skin; 2B
Adipic acid [124-04-9]	5 mg/m ³		
Adiponitrile [111-69-3]	2 ppm		Skin
Alachlor, Inhalable [15972-60-8] Revised 2007	1.0 mg/m ³ (V)		S(D)
Aldicarb [116-06-3]			Skin; (I)
Aldrin, Inhalable [309-00-2] Revised 2007	0.05mg/m ³ (V)		2A; Skin
Allyl alcohol [107-18-6]	0.5 ppm		Skin
Allyl amine [107-11-9]	2 ppm		
Allyl bromide [106-95-6]			Skin; (I)
Allyl chloride [107-05-1] Revised 2011	1 ppm	2 ppm	Skin
Allyl glycidyl ether [106-92-3]	1 ppm		
Allyl methacrylate [96-05-9]			Skin; (I)
Allyl propyl disulfide [2179-59-1] Revised 2006	0.5 ppm		S(D)
Aluminum metal and insoluble compounds [7429-90-5] , Respirable, Revised 2008	1.0 mg/m ³		
o-Aminoazotoluene [97-56-3]			2B
4-Aminobiphenyl [92-67-1]	(L)		Skin; A1, 1
1-Amino-2,4-dibromoanthraquinone [81-49-2]			2B
2-Aminopyridine [504-29-0]	0.5 ppm		
Amitrole [61-82-5] Revised 2006	0.2 mg/m ³		R
Ammonia [7664-41-7]	25 ppm	35 ppm	
Ammonium chloride - Fume [12125-02-9]	10 mg/m ³	20 mg/m ³	
Ammonium perfluorooctanoate [3825-26-1]	0.01 mg/m ³		Skin
Ammonium sulfamate [7773-06-0]	10 mg/m ³ (N)		
tert-Amyl methyl ether (TAME) [994-05-8]	20 ppm		R
Aniline [62-53-3]	2 ppm		Skin
o-Anisidine [90-04-0]	0.5 mg/m ³		Skin; 2B
p-Anisidine [104-94-9]	0.5 mg/m ³		Skin
Anthraquinone [84-65-1]			2B
Antimony and compounds, as Sb [7440-36-0]	0.5 mg/m ³		
Antimony hydride (Stibine) [7803-52-3]	0.1 ppm		
Antimony trioxide, Inhalable [1309-64-4]			A2, 2B, (I)
Antimony trioxide, Production [1309-64-4]	(L)		A2, 2B
ANTU [86-88-4]	0.3 mg/m ³		Skin
Argon [7440-37-1]		Simple asphyxiant	
Arsenic and inorganic compounds, as As [7440-38-2]	0.01 mg/m ³		A1, 1
Arsine [7784-42-1] Revised 2007	0.005 ppm		
Asbestos - All forms [1332-21-4]	0.1 f/cc (F)		A1, 1
Asphalt (Bitumen) fume, as benzene-soluble aerosol, Inhalable [8052-42-4]	0.5 mg/m ³		2B; (I)
Atrazine [1912-24-9]	5 mg/m ³		R

Azinphos-methyl, Inhalable [86-50-0]	0.2 mg/m ³ (V)		Skin; S(D)
Barium and soluble compounds, as Ba [7440-39-3]	0.5 mg/m ³		
Barium sulfate [7727-43-7], Inhalable, Revised 2018	5 mg/m ³ (E)		
Bendiocarb [22781-23-3]			Skin; (I)
Benomyl, Inhalable [17804-35-2] Revised 2008	1 mg/m ³		R, S(D)
Benz[a]anthracene [56-55-3] Revised 2006	(L)		A2, 2B
Benzene [71-43-2]	0.5 ppm	2.5 ppm	Skin; A1, 1
Benzidine [92-87-5]	(L)		Skin; A1, 1
Benzidine based dyes			2A
Benzo[b]fluoranthene [205-99-2]	(L)		A2, 2B
Benzophenone [119-61-9]			2B
Benzo[a]pyrene [50-32-8] Revised 2006	(L)		A2, 1
Benzotrichloride [98-07-7]		C 0.1 ppm	Skin; A2, 2A
Benzoyl chloride [98-88-4]		C 0.5 ppm	2A
Benzoyl peroxide [94-36-0]	5 mg/m ³		
Benzyl acetate [140-11-4]	10 ppm		
Benzyl chloride [100-44-7]		C 1 ppm	2A
Beryllium and compounds, Inhalable, as Be [7440-41-7] Revised 2009; 2010; 2015	0.00005 mg/m ³		A1, 1; Skin; S(D); S(R); (I)
Biphenyl [92-52-4]	0.2 ppm		
Bis(2-dimethylaminoethyl) ether (DMAEE) [3033-62-3]	0.05 ppm	0.15 ppm	Skin
Bismuth telluride - Se-doped [1304-82-1]	5 mg/m ³		
Bismuth telluride - Undoped [1304-82-1]	10 mg/m ³ (N)		
Borate compounds, Inorganic, Inhalable [1303-96-4; 1330-43-4; 10043-35-3; 12179-04-3] Revised 2005	2 mg/m ³	6 mg/m ³	
Boron oxide [1303-86-2]	10 mg/m ³		
Boron tribromide [10294-33-4]		C 1 ppm	
Boron trichloride [10294-34-5]			(I)
Boron trifluoride [7637-07-2] Revised 2020	0.1 ppm	C 1 ppm	
Boron trifluoride ethers, as BF ₃ [109-63-7; 353-42-4]	0.1 ppm		
Bromacil [314-40-9]	10 mg/m ³		
Bromine [7726-95-6]	0.1 ppm	0.2 ppm	
Bromine pentafluoride [7789-30-2]	0.1 ppm		
Bromochloroacetic acid [5589-96-8]			2B
Bromochloromethane [74-97-5]	200 ppm	250 ppm	
Bromodichloromethane [75-27-5]			2B
Bromoform [75-25-2] Revised 2009	0.5 ppm		
1-Bromopropane [106-94-5] Revised 2018	0.1 ppm		R; 2B
1,3-Butadiene [106-99-0]	2 ppm		A2, 1
Butane, all isomers: n-butane [106-97-8] and isobutane [75-28-5] Revised 2018		1000 ppm	EX
n-Butanol [71-36-3]	15 ppm	C 30 ppm	
sec-Butanol [78-92-2]	100 ppm		
tert-Butanol [75-65-0]	100 ppm		
Butenes, all isomers, including Isobutene [106-98-9; 107-01-7; 590-18-1; 624-64-6; 25167-67-3; 115-11-7]			(I)
2-Butoxyethanol (EGBE) [111-76-2] Revised 2003	20 ppm		
2-Butoxyethyl acetate [112-07-2] Revised 2003	20 ppm		
1-tert-Butoxypropan-2-ol [57018-52-7]			2B
Butyl acetate, all isomers [105-46-4; 110-19-0; 123-86-4; 540-88-5]	50 ppm	150 ppm	

n-Butyl acrylate [141-32-2]	2 ppm		S(D)
n-Butylamine [109-73-9]		C 5 ppm	Skin
Butylated hydroxytoluene (BHT), Inhalable, (2,6-Di-tert-butyl-p-cresol) [128-37-0]	2 mg/m ³ (V)		
tert-Butyl chromate, as CrO ₃ [1189-85-1]		C 0.1 mg/m ³	Skin
n-Butyl glycidyl ether (BGE) [2426-08-6] Revised 2005	3 ppm		2B; Skin; S(D); R
tert-Butyl hydroperoxide [75-91-2]			Skin; (I)
n-Butyl lactate [138-22-7]	5 ppm		
n-Butyl mercaptan [109-79-5]	0.5 ppm		
n-Butyl methacrylate [97-88-1]	50 ppm		
4-tert-Butylbenzoic acid [98-73-7]			(I); Skin
o-sec-Butylphenol [89-72-5]	5 ppm		Skin
p-tert-Butyltoluene [98-51-1]	1 ppm		
Cadmium and compounds, as Cd [7440-43-9]	0.01 mg/m ³		A2, 1
Cadmium and compounds, Respirable, as Cd [7440-43-9]	0.002 mg/m ³		A2, 1
Cadusafos [95465-99-9]			Skin; (I)
Calcium carbonate (incl. Limestone, Marble) [1317-65-3]	10 mg/m ³ (N)	20 mg/m ³	
Calcium chromate, as Cr, Total [13765-19-0]	0.001 mg/m ³		A1, 1; Skin; S(D); S(R)
Calcium cyanamide [156-62-7]	0.5 mg/m ³		
Calcium hydroxide [1305-62-0]	5 mg/m ³		
Calcium oxide [1305-78-8]	2 mg/m ³		
Calcium silicate, naturally occurring as Wollastonite, inhalable [13983-17-0] Revised 2020	1 mg/m ³ (E)		
Calcium sulfate, Inhalable [7778-18-9; 10034-76-1; 10101-41-4; 13397-24-5]	10 mg/m ³		
Camphor - Synthetic [76-22-2]	2 ppm	3 ppm	
Caprolactam, Dust [105-60-2]	1 mg/m ³	3 mg/m ³	
Captafol [2425-06-1]	0.1 mg/m ³		Skin; 2A; S(D); S(R)
Captan, Inhalable [133-06-2]	5 mg/m ³		S(D)
Carbaryl [63-25-2] Revised 2008; 2010	5 mg/m ³		Skin; R
Carbazole [86-74-8]			2B
Carbofuran, Inhalable [1563-66-2] Revised 2004	0.1 mg/m ³ (V)		
Carbon black, Inhalable [1333-86-4] Revised 2011	3 mg/m ³		2B
Carbon dioxide [124-38-9]	5000 ppm	15,000 ppm	
Carbon disulfide [75-15-0]	4 ppm	12 ppm	Skin
Carbon monoxide [630-08-0]	25 ppm	100 ppm	R
Carbon tetrabromide [558-13-4]	0.1 ppm	0.3 ppm	
Carbon tetrachloride [56-23-5]	2 ppm		Skin; A2, 2B
Carbonyl fluoride [353-50-4]	2 ppm	5 ppm	
Carbonyl sulfide [463-58-1] Revised 2015	5 ppm		
Carfentrazone-ethyl [128639-02-1]			(I)
Catechol [120-80-9]	5 ppm		Skin; 2B
Cellulose [9004-34-6]	10 mg/m ³ (N)		
Cesium hydroxide [21351-79-1]	2 mg/m ³		
Chlordane [57-74-9]	0.5 mg/m ³		Skin; 2B
Chlordane, Inhalable fraction and vapour [57-74-9]			Skin; 1B; (I)

Chlorinated camphene [8001-35-2]	0.5 mg/m ³	1 mg/m ³	Skin; 2B
o-Chlorinated diphenyl oxide [31242-93-0]	0.5 mg/m ³		
Chlorine [7782-50-5]	0.1 ppm	1 ppm	
Chlorine dioxide [10049-04-4]	0.1 ppm	0.3 ppm	
Chlorine trifluoride [7790-91-2]		C 0.1 ppm	
Chloroacetaldehyde [107-20-0]		C 1 ppm	
Chloroacetic acid (monochloroacetic acid) [79-11-8]	0.3 ppm		Skin
Chloroacetone [78-95-5]		C 1 ppm	Skin
2-Chloroacetophenone [532-27-4]	0.05 ppm		
Chloroacetyl chloride [79-04-9]	0.05 ppm	0.15 ppm	Skin
p-Chloroaniline [106-47-8]			2B
Chlorobenzene [108-90-7]	10 ppm		
o-Chlorobenzylidene malononitrile [2698-41-1]		C 0.05 ppm	Skin; S(D)
Chlorobromomethane (see Bromochloromethane)			
Chlordecone (Kepone) [143-50-0]			2B
1-Chloro-1,1-difluoroethane [75-68-3]	1000 ppm		
Chlorodifluoromethane [75-45-6]	500 ppm	1250 ppm	
Chlorodiphenyl (42% chloride) [53469-21-9]	1 mg/m ³		Skin; 1
Chlorodiphenyl (54% chloride) [11097-69-1]	0.5 mg/m ³		Skin; 1
Chloroform [67-66-3]	2 ppm		2B; R
bis(Chloromethyl) ether [542-88-1]	0.001 ppm		A1, 1
Chloromethyl methyl ether [107-30-2]	(L)		A2, 1
1-Chloro-2-methylpropene [513-37-1]			2B
3-Chloro-2-methylpropene [563-47-3]			2B
1-Chloro-1-nitropropane [600-25-9]	2 ppm		
Chloropentafluoroethane [76-15-3]	1000 ppm		
4-Chloro-ortho-phenylenediamine [95-83-0]			2B
Chloropicrin [76-06-2]	0.1 ppm		
beta-Chloroprene [126-99-8]	10 ppm		A2; 2B; Skin
1-Chloro-2-propanol [127-00-4] Revised 2008	1 ppm		Skin
2-Chloro-1-propanol [78-89-7] Revised 2008	1 ppm		Skin
2-Chloropropionic acid [598-78-7]	0.1 ppm		Skin; R
o-Chlorostyrene [2039-87-4]	50 ppm	75 ppm	
Chlorothalonil [1897-45-6]			2B
o-Chlorotoluene [95-49-8]	50 ppm		
4-Chloro-o-Toluidine [95-69-2]			2A
Chlorotrifluoromethane [75-72-9]	1000 ppm		
Chlorpyrifos, Inhalable [2921-88-2] Revised 2003	0.1 mg/m ³ (V)		Skin
Chromium and inorganic compounds:			
Metallic chromium, as Cr(0), Total [7440-47-3]	0.5 mg/m ³		
Metallic chromium, as Cr(0), Inhalable [7440-47-3]			(I)
Trivalent chromium compounds, as Cr(III), Total [7440-47-3]	0.5 mg/m ³		S(D); S(R) for water-soluble only
Trivalent chromium compounds, as Cr(III), Inhalable [7440-47-3]			S(D); S(R) for water-soluble only; (I)
Hexavalent chromium compounds, as CR(VI), Total, Insoluble [7440-47-3]	0.01 mg/m ³		A1, 1; S(D); S(R)
Hexavalent chromium compounds, as CR(VI), Total, Water-soluble [7440-47-3]	0.025 mg/m ³	C 0.1 mg/m ³	A1, 1; Skin; S(D); S(R)
Hexavalent chromium compounds, as CR(VI), Inhalable [7440-47-3]			A1, 1; S(D); S(R); Skin for water-soluble only; (I)

Chromyl chloride, as Cr(VI), Total [14977-61-8]	0.025 ppm		A1, 1; Skin; S(D); S(R)
Chromite ore processing (See Trivalent chromium compounds, as Cr(III), Total; and Hexavalent chromium compounds, as Cr(VI), Total)	0.5 mg/m ³		A1, 1; Skin; S(D); S(R)
Chrysene [218-01-9] Revised 2006	(L)		2B
Citral, inhalable [5392-40-5]			Skin; S(D); (I)
Clopidol [2971-90-6] Revised 2018	10 mg/m ³		
Coal dust - Anthracite, Respirable [8029-10-5]	0.4 mg/m ³		
Coal dust - Bituminous or Lignite, Respirable [308062-82-0]	0.9 mg/m ³		
Coal tar pitch volatiles, as benzene-soluble aerosol [65996-93-2]	0.2 mg/m ³		A1, 1
Cobalt and inorganic compounds, as Co, Total [7440-48-4]	0.02 mg/m ³		2B; S(D); S(R)
Cobalt and inorganic compounds, as Co, Inhalable [7440-48-4]			2B; S(D); S(R); (I)
Cobalt carbonyl, as Co [10210-68-1]	0.1 mg/m ³		2B
Cobalt hydrocarbonyl, as Co [16842-03-8]	0.1 mg/m ³		2B
Copper - Dusts and mists, as Cu [7440-50-8]	1 mg/m ³		
Copper - Fume, as Cu [7440-50-8]	0.2 mg/m ³		
Cotton dust - Raw, Untreated, Thoracic, Revised 2011	0.1 mg/m ³		
Coumaphos, Inhalable [56-72-4] Revised 2006	0.05 mg/m ³ (V)		Skin
p-Cresidine [120-71-8]			2B
Cresol, all isomers [95-48-7; 106-44-5; 108-39-4; 1319-77-3]	10 mg/m ³		Skin
Crotonaldehyde [4170-30-3]		C 0.3 ppm	Skin
Crufomate [299-86-5]	5 mg/m ³		
Cumene [98-82-8]	25 ppm	75 ppm	2B
Cyanamide [420-04-2]	2 mg/m ³		
Cyanazine [21725-46-2]			(I)
Cyanoacrylates, Ethyl [7085-85-0] and Methyl [137-05-3]	0.2 ppm		S(D); S(R)
Cyanogen [460-19-5]	10 ppm		
Cyanogen bromide [506-68-3]			(I)
Cyanogen chloride [506-77-4]		C 0.3 ppm	
Cyclohexane [110-82-7]	100 ppm		
Cyclohexanol [108-93-0]	50 ppm		Skin
Cyclohexanone [108-94-1] Revised 2003	20 ppm	50 ppm	Skin
Cyclohexene [110-83-8]	300 ppm		
Cyclohexylamine [108-91-8]	10 ppm		
Cyclonite [121-82-4]	0.5 mg/m ³		Skin
Cyclopentadiene [542-92-7]	75 ppm		
Cyclopentane [287-92-3]	600 ppm		
Cyhexatin [13121-70-5]	5 mg/m ³		
2,4-D (2,4-Dichlorophenoxy-acetic acid) [94-75-7] (see 2,4-Dichlorophenoxyacetic acid and its esters)			
DDT (Dichloro-diphenyltrichloroethane) [50-29-3]	1 mg/m ³		2A
Decaborane [17702-41-9]	0.05 ppm	0.15 ppm	Skin
Demeton, Inhalable [8065-48-3]	0.05 mg/m ³ (V)		Skin
Demeton-S-methyl, Inhalable [919-86-8]	0.05 mg/m ³ (V)		Skin; S(D)
Diacetone alcohol [123-42-2]	50 ppm		
Diacetyl [431-03-8] Revised 2015	0.01 ppm	0.02 ppm	

N,N'-Diacetylbenzidine [613-35-4]			2B
2,4-Diaminoanisoole [615-05-4]			2B
4,4'-Diaminodiphenyl ether [101-80-4]			2B
2,4-Diaminotoluene [95-80-7]			2B
o-Dianisidine [119-93-7]			2B
Diazinon, Inhalable [333-41-5] Revised 2003	0.01 mg/m ³ (V)		2A; Skin
Diazomethane [334-88-3]	0.2 ppm		A2
Diborane [19287-45-7]	0.1 ppm		
Dibromoacetic acid [631-64-1]			2B
Dibromoacetone [3252-43-5]			2B
1,2-Dibromo-3-chloropropane [96-12-8]			2B
2,3-Dibromopropan-1-ol [96-13-9]			2B
2-N-Dibutylaminoethanol [102-81-8]	0.5 ppm		Skin
Dibutyl phenyl phosphate [2528-36-1]	0.3 ppm		Skin
Dibutyl phosphate [107-66-4] Revised 2009; 2010	1 ppm	2 ppm	Skin
Dibutyl phthalate [84-74-2]	5 mg/m ³		R
Dichloroacetic acid [79-43-6] Revised 2005	0.5 ppm		Skin; 2B; R
Dichloroacetylene [7572-29-4]		C 0.1 ppm	
o-Dichlorobenzene [95-50-1]	25 ppm	50 ppm	
p-Dichlorobenzene [106-46-7]	10 ppm		2B
3,3'-Dichlorobenzidine [91-94-1]	(L)		Skin; 2B
1,4-Dichloro-2-butene [764-41-0]	0.005 ppm		Skin; A2
2,2-Dichlorodiethyl sulfide (Mustard Gas) [505-60-2]			1
Dichlorodifluoromethane [75-71-8]	1000 ppm		
1,3-Dichloro-5,5-dimethylhydantoin [118-52-5]	0.2 mg/m ³	0.4 mg/m ³	
1,1-Dichloroethane [75-34-3]	100 ppm		
1,2-Dichloroethane (see ethylene dichloride)			
1,2-Dichloroethylene, all isomers [540-59-0; 156-59-2; 156-60-5]	200 ppm		
Dichloroethyl ether [111-44-4]	5 ppm	10 ppm	Skin
Dichlorofluoromethane [75-43-4]	10 ppm		
Dichloromethane [75-09-2]	25 ppm		2A
2,2'-Dichloro-n-methyldiethylamine (Nitrogen mustard) [51-75-2]			2A
1,1-Dichloro-1-nitroethane [594-72-9]	2 ppm		
1,3-Dichloro-2-propanol [96-23-1]			2B
1,3-Dichloropropene [542-75-6]	1 ppm		Skin; 2B
2,4-Dichlorophenoxyacetic acid and its esters (2,4-D) [94-75-7] Revised 2006	10 mg/m ³	20 mg/m ³	2B; (I)
2,2-Dichloropropionic acid, Inhalable [75-99-0]	5 mg/m ³		
Dichlorotetrafluoroethane (Cryofluorane) [76-14-2]	1000 ppm		
Dichlorvos (DDVP), Inhalable [62-73-7]	0.1 mg/m ³ (V)		Skin; 2B; S(D)
Dicrotophos, Inhalable [141-66-2]	0.05 mg/m ³ (V)		Skin
Dicyclohexylmethane-4,4'-diisocyanate [5124-30-1] (see Methylene bis (4-cyclohexylisocyanate))			
Dicyclopentadiene [77-73-6]	5 ppm		
Dicyclopentadienyl iron, as Fe [102-54-5]	10 mg/m ³ (N)		
Dieldrin [60-57-1]	0.25 mg/m ³		2A; Skin; R

Diesel fuel, as total hydrocarbons, Inhalable [68334-30-5; 68476-30-2; 68476-31-3; 68476-34-6; 77650-28-3]	100 mg/m ³ (V)		Skin; 2B; (I)
Diethanolamine [111-42-2] Revised 2009; 2010	2 mg/m ³		Skin; 2B
Diethylamine [109-89-7]	5 ppm	15 ppm	Skin
2-Diethylaminoethanol [100-37-8]	2 ppm		Skin
Diethylene glycol monobutyl ether [112-34-5]			(I)
Diethylenetriamine [111-40-0]	1 ppm		Skin
Di(2-ethylhexyl)phthalate (DEHP) [117-81-7]	5 mg/m ³		2B
N,N-Diethylhydroxylamine [3710-84-7]			(I)
Diethyl ketone [96-22-0]	200 ppm	300 ppm	
Diethyl phthalate [84-66-2]	5 mg/m ³		
Diethyl sulfáte [64-67-5]			2A
Difluorodibromomethane [75-61-6]	100 ppm		
Diglycidyl ether (DGE) [2238-07-5] Revised 2007	0.01 ppm		R
Diglycidyl resorcinol ether [101-90-6]			2B
Dihydrosafrole [94-58-6]			2B
Diisobutyl ketone [108-83-8]	25 ppm		
Diisocyanates, not elsewhere specified, NOS	0.005 ppm	C 0.01ppm	
Diisopropylamine [108-18-9]	5 ppm		Skin
Diisopropyl sulfáte [2973-10-6]			2B
3,3'-Dimethoxybenzidine [119-90-4]			2B
Dimethoxymethane [109-87-5]	1000 ppm	1250 ppm	
Dimethylacetamide or N,N-Dimethylacetamide [127-19-5]	10 ppm		2B; Skin; R
Dimethylamine [124-40-3]	5 ppm	15 ppm	S(D)
bis(2-Dimethylaminoethyl) ether (DMAEE) [3033-62-3]	0.05 ppm	0.15 ppm	Skin
2,6-Dimethylaniline (2,6-Xylidine) [87-62-7]			2B
Dimethylaniline [121-69-7]	5 ppm	10 ppm	Skin
3,3'-Dimethylbenzidine [119-93-7]			2B
Dimethyl carbamoyl chloride [79-44-7] Revised 2007	0.005 ppm		Skin; A2, 2A
Dimethyl disulfide [624-92-0] Revised 2007	0.5 ppm		Skin
Dimethyl ether [115-10-6]	1000 ppm		
Dimethylethoxysilane [14857-34-2]	0.5 ppm	1.5 ppm	
Dimethylformamide [68-12-2]	5 ppm		Skin; 2A
1,1-Dimethylhydrazine [57-14-7]	0.01 ppm		Skin; 2B
1,2-Dimethylhydrazine [540-73-8]			2A
Dimethylphenol, all isomers [95-65-8; 95-87-4; 105-67-9; 108-68-9; 526-75-0; 576-26-1; 1300-71-6]			S(D); (I)
Dimethyl phthalate [131-11-3]	5 mg/m ³		
Dimethyl sulfáte [77-78-1]		C 0.1 ppm	Skin; 2A
Dimethyl sulfide [75-18-3] Revised 2004	10 ppm		
N,N-Dimethyl-p-toluidine [99-97-8]			2B
Dinitolmide [148-01-6] (See 3,5-Dinitro-o-toluidine)			
Dinitrobenzene, all isomers [99-65-0; 100-25-4; 528-29-0; 25154-54-5]	0.15 ppm		Skin
Dinitro-o-cresol [534-52-1]	0.2 mg/m ³		Skin
3,5-Dinitro-o-toluidine [148-01-6] Revised 2007	1 mg/m ³		
Dinitrotoluene [25321-14-6]	0.2 mg/m ³		Skin; 2B; (I); R
n-Dioctyl phthalate [117-84-0]	5 mg/m ³		
1,4-Dioxane [123-91-1]	20 ppm		Skin; 2B
Dioxathion, Inhalable [78-34-2]	0.1 mg/m ³ (V)		Skin

1,3-Dioxolane [646-06-0]	20 ppm		
Diphenylamine [122-39-4]	10 mg/m ³		
Dipropyl ketone [123-19-3]	50 ppm		
Dipropylene glycol methyl ether [34590-94-8]	100 ppm	150 ppm	Skin
Diquat, Inhalable, as the cation [85-00-7; 2764-72-9; 6385-62-2]	0.5 mg/m ³		Skin
Diquat, Respirable, as the cation [85-00-7; 2764-72-9; 6385-62-2]	0.1 mg/m ³		Skin
Disulfiram [97-77-8]	2 mg/m ³		
Disulfoton, Inhalable [298-04-4]	0.05 mg/m ³ (V)		Skin
Diuron [330-54-1]	10 mg/m ³		
Divinylbenzene [1321-74-0]	10 ppm		
Dodecyl mercaptan [112-55-0] Revised 2004	0.1 ppm		S(D)
Dyfonate, Inhalable (Fonofos) [944-22-9] Revised 2006	0.1 mg/m ³ (V)		Skin
Endosulfan [115-29-7] Revised 2009; 2010	0.1 mg/m ³		Skin
Endrin [72-20-8]	0.1 mg/m ³		Skin
Enflurane [13838-16-9]	2 ppm		
Epichlorohydrin [106-89-8]	0.1 ppm		Skin; 2A; R
EPN, Inhalable [2104-64-5] Revised 2003	0.1 mg/m ³		Skin
EPN, Inhalable fraction and vapour [2104-64-5]			Skin; (I)
1,2-Epoxybutane [106-88-7]			2B
Ethane [74-84-0] Revised 2018		simple asphyxiant	EX
Ethanol [64-17-5] Revised 2009		1000 ppm	
Ethanolamine [141-43-5]	3 ppm	6 ppm	
Ethion, Inhalable [563-12-2] Revised 2003	0.05 mg/m ³ (V)		Skin
2-Ethoxyethanol (EGEE) [110-80-5]	5 ppm		Skin; R
2-Ethoxyethyl acetate (EGEEA) [111-15-9]	5 ppm		Skin; R
Ethyl acetate [141-78-6]	150 ppm		
Ethyl acrylate [140-88-5]	5 ppm	15 ppm	2B; S(D)
Ethylamine [75-04-7]	5 ppm	15 ppm	Skin
Ethyl amyl ketone [541-85-5] Revised 2007	10 ppm		
Ethylbenzene [100-41-4] Revised 2011	20 ppm		2B
Ethyl bromide [74-96-4]	5 ppm		Skin
Ethyl tert-butyl ether (ETBE) [637-92-3] Revised 2018	25 ppm		
Ethyl butyl ketone [106-35-4]	50 ppm	75 ppm	
Ethyl chloride [75-00-3]	100 ppm		Skin
Ethyl methacrylate [97-63-2]	50 ppm		
Ethylene [74-85-1] Revised 2005	200 ppm		
Ethylene chlorohydrin [107-07-3]		C 1 ppm	Skin
Ethylenediamine [107-15-3]	10 ppm		Skin
Ethylene dibromide [106-93-4]	0.5 ppm		Skin; 2A
Ethylene dichloride (1,2-dichloroethane) [107-06-2]	1 ppm	2 ppm	2B
Ethylene glycol, Inhalable, aerosol only [107-21-1]			(I)
Ethylene glycol, Total, aerosol only [107-21-1]	10 mg/m ³	20 mg/m ³ ; C 100 mg/m ³	
Ethylene glycol, Vapour [107-21-1]		C 50 ppm	
Ethylene glycol dinitrate (EGDN) [628-96-6]	0.05 ppm		Skin
Ethylene oxide [75-21-8]	0.1 ppm	1 ppm	A2, 1
Ethyleneimine [151-56-4] Revised 2009; 2010	0.5 ppm		Skin; 2B

Ethyl ether [60-29-7]	400 ppm	500 ppm	
Ethyl formate [109-94-4] Revised 2015		100 ppm	
2-Ethylhexanoic acid, Inhalable [149-57-5]	5 mg/m ³ (V)		R
Ethylidene norbornene [16219-75-3]		C 5 ppm	
Ethyl isocyanate [109-90-0]	0.02 ppm	0.06 ppm	Skin; S(D); (I)
Ethyl mercaptan [75-08-1]	0.5 ppm		
N-Ethylmorpholine [100-74-3]	5 ppm		Skin
Ethyl silicate [78-10-4]	10 ppm		
Fenamiphos, Inhalable [22224-92-6] Revised 2006	0.05 mg/m ³ (V)		Skin
Fensulfothion, Inhalable [115-90-2] Revised 2005	0.01 mg/m ³ (V)		Skin
Fenthion, Inhalable [55-38-9] Revised 2006	0.05 mg/m ³ (V)		Skin
Ferbam, Inhalable [14484-64-1] Revised 2009	5 mg/m ³		
Ferrovandium dust [12604-58-9]	1 mg/m ³	3 mg/m ³	
Flour dust, Inhalable	0.5 mg/m ³		S(R)
Fludioxonil [131341-86-1]			(I)
Fluorides, as F	2.5 mg/m ³		
Fluorine [7782-41-4]	0.1 ppm		
Fluorine, as F [7782-41-4]			(I)
Fluorene [406-90-6]	2 ppm		
Folpet [133-07-3]			S(D); (I)
Fonofos (see Dyfonate) [944-22-9]			
Formaldehyde [50-00-0] Revised 2020	0.1 ppm	0.3 ppm	A1, 1; S(D); S(R)
Formamide [75-12-7]	10 ppm		Skin
Formic acid [64-18-6]	5 ppm	10 ppm	
Furan [110-00-9]			2B
Furfural [98-01-1] Revised 2020	0.2 ppm		Skin
Furfuryl alcohol [98-00-0]	5 ppm	10 ppm	2B; Skin
Gallium arsenide, Respirable [1303-00-0] Revised 2005	0.0003 mg/m ³		1
Gasoline [86290-81-5]	300 ppm	500 ppm	2B
Germanium tetrahydride [7782-65-2]	0.2 ppm		
Glutaraldehyde, Activated & unactivated [111-30-8]		C 0.05 ppm	S(D); S(R)
Glycerin - mist, Total [56-81-5]	10 mg/m ³		
Glycerin - mist, Respirable [56-81-5]	3 mg/m ³		
Glycidol [556-52-5]	2 ppm		2A
Glyoxal, Inhalable [107-22-2]	0.1 mg/m ³ (V)		S(D)
Glyphosate [1071-83-6]			2A
Grain dust (oat, wheat, barley)	4 mg/m ³		
Graphite - All forms except graphite fibres, Respirable [7782-42-5]	2 mg/m ³		
Gypsum [13397-24-5]	10 mg/m ³ (N)	20 mg/m ³	
Hafnium and compounds, as Hf [7440-58-6]	0.5 mg/m ³		
Halothane [151-67-7]	2 ppm		R
Hard metals, containing Cobalt and Tungsten Carbide, as Co, Thoracic [7440-48-4; 12070-12-1]	0.005 mg/m ³		A2; 2A; S(R); (I)

Helium [7440-59-7]		Simple asphyxiant	
Heptachlor [76-44-8]	0.05 mg/m ³		Skin; 2B
Heptachlor epoxide [1024-57-3]	0.05 mg/m ³		Skin
Heptane, Isomers [108-08-7; 142-82-5; 565-59-3; 589-34-4; 590-35-2; 591-76-4]	400 ppm	500 ppm	
Hexachlorobenzene (HCB) [118-74-1]	0.002 mg/m ³		Skin; 2B
Hexachlorobutadiene [87-68-3]	0.02 ppm		Skin
Hexachlorocyclopentadiene [77-47-4]	0.01 ppm		
Hexachloroethane [67-72-1]	1 ppm		Skin; 2B
Hexachloronaphthalene [1335-87-1]	0.2 mg/m ³		Skin
2,4-Hexadienal [142-83-6]			2B
Hexafluoroacetone [684-16-2]	0.1 ppm		Skin; R
Hexafluoropropylene [116-15-4] Revised 2007	0.1 ppm		
Hexahydrophthalic anhydride, all isomers, Inhalable [85-42-7; 13149-00-3; 14166-21-3] Revised 2004		C 0.005 mg/m ³ (V)	S(R)
Hexamethylene diisocyanate (HDI) [822-06-0]	0.005 ppm	C 0.01 ppm	S(R)
Hexamethylenetetramine, Inhalable fraction and vapour [100-97-0]			S(D); (I)
Hexamethyl phosphoramidate [680-31-9]			Skin; 2B
n-Hexane [110-54-3]	20 ppm		Skin
Hexane, all isomers except n-Hexane [75-83-2; 79-29-8; 96-14-0; 107-83-5]	200 ppm		
1,6-Hexanediamine [124-09-4]	0.5 ppm		
Hexazinone [51235-04-2]			(I)
1-Hexene [592-41-6]	50 ppm		
sec-Hexyl acetate [108-84-9]	50 ppm		
Hexylene glycol, Inhalable, aerosol only [107-41-5]			(I)
Hexylene glycol, vapour [107-41-5]			(I)
Hydrazine [302-01-2]	0.01 ppm		Skin; 2A
Hydrogen [1333-74-0]		Simple asphyxiant	EX
Hydrogenated terphenyls - Nonirradiated [61788-32-7]	0.5 ppm		
Hydrogen bromide [10035-10-6] Revised 2004		C 2 ppm	
Hydrogen chloride [7647-01-0] Revised 2006		C 2 ppm	
Hydrogen cyanide, as CN [74-90-8]		C 4.7 ppm	Skin
Cyanide salts, as CN [143-33-9; 151-50-8; 592-01-8]		C 5 mg/m ³	Skin
Hydrogen fluoride, as F [7664-39-3]		C 2 ppm	Skin
Hydrogen peroxide [7722-84-1]	1 ppm		
Hydrogen selenide [7783-07-5]	0.05 ppm		
Hydrogen sulfide [7783-06-4]		C 10 ppm	
Hydroquinone [123-31-9] Revised 2008	1 mg/m ³		S(D)
2-Hydroxypropyl acrylate [999-61-1]	0.5 ppm		Skin; S(D)
Indene [95-13-6] Revised 2008; 2010	10 ppm		
Indium and compounds, as In [7440-74-6]	0.1 mg/m ³		2A; 2B; (I)
Indium tin oxide, as In [50926-11-9]			2B; S(D); (I)
Iodides			(I)
Iodine [7553-56-2] Revised 2008; 2010		C 0.1 ppm	
Iodoform [75-47-8]	0.6 ppm		
Iron oxide dust, as Fe [1309-37-1]	5 mg/m ³		
Iron oxide fume, as Fe [1309-37-1]	5 mg/m ³	10 mg/m ³	

Iron pentacarbonyl [13463-40-6]	0.01 ppm		
Iron salts - soluble, as Fe	1 mg/m ³	2 mg/m ³	
Isoamyl alcohol [123-51-3]	100 ppm	125 ppm	
Isobutanol [78-83-1]	50 ppm		
Isobutyl nitrite, Inhalable [542-56-3]		C 1 ppm (V)	2B
Isobutyl nitrite, Total [542-56-3]			2B; (I)
Isooctyl alcohol [26952-21-6]	50 ppm		Skin
Isophorone [78-59-1]		C 5 ppm	
Isophorone diisocyanate [4098-71-9]	0.005 ppm	C 0.01 ppm	S(R)
Isoprene [78-79-5]			2B
Isopropanol (Isopropyl alcohol, 2-Propanol) [67-63-0] Revised 2003	200 ppm	400 ppm	
2-Isopropoxyethanol [109-59-1]	25 ppm		Skin
Isopropylamine [75-31-0]	5 ppm	10 ppm	Skin
N-Isopropylaniline [768-52-5]	2 ppm		Skin
Isopropyl ether [108-20-3]	250 ppm	310 ppm	
Isopropyl glycidyl ether (IGE) [4016-14-2]		C 50 ppm	
Kaolin, Respirable [1332-58-7]	2 mg/m ³ (E)		
Kerosene [8008-20-6; 64742-81-0]/Jet fuels, as total hydrocarbon vapour, Revised 2003	200 mg/m ³ (P)		Skin
Ketene [463-51-4]	0.5 ppm	1.5 ppm	
Lead - elemental and inorganic compounds, as Pb [7439-92-1]	0.05 mg/m ³		Elemental 2B; R Other inorganic 2A; R
Lead chromate, as Cr(VI), Total (See Hexavalent chromium compounds, as Cr(VI), Total) [7758-97-6]	0.012 mg/m ³		A1, 1; S(D); S(R); R; (I)
Lead chromate, as Pb, Total [7758-97-6]	0.05 mg/m ³		A1, 1; S(D); S(R); (I)
Lead chromate, as Cr(VI), Inhalable [7758-97-6]			A1, 1; S(D); S(R); R; (I)
Lindane [58-89-9]	0.5 mg/m ³		1; Skin
Liquified petroleum gas (L.P.G.) [68476-85-7] Revised 2020		Simple asphyxiant	EX
Lithium hydroxide [1310-65-2]		C 1 mg/m ³	
Lithium hydride [7580-67-8]	0.025 mg/m ³		
Magnesite [546-93-0] Revised 2006 (See Particles Not Otherwise Classified (PNOC))			
Magnesium oxide (fume), Inhalable [1309-48-4] Revised 2003	10 mg/m ³		
Magnesium oxide, Respirable dust and fume, as Mg [1309-48-4]	3 mg/m ³	10 mg/m ³	
Malathion, Inhalable [121-75-5] Revised 2003	1 mg/m ³ (V)		2A; Skin
Maleic anhydride [108-31-6]	0.1 ppm		S(D); S(R)
Manganese - Elemental & inorganic compounds, as Mn, Total [7439-96-5] Revised 2018	0.2 mg/m ³		R
Manganese - Elemental & inorganic compounds, as Mn, Respirable [7439-96-5] Revised 2018	0.02 mg/m ³		R
Manganese - Elemental & inorganic compounds, as Mn, Inhalable [7439-96-5]			R; (I)
Manganese cyclopentadienyl tricarbonyl, as Mn [12079-65-1]	0.1 mg/m ³		Skin
Melamine [108-78-1]			2B
Mercury - Alkyl compounds, as Hg [7439-97-6]	0.01 mg/m ³	0.03 mg/m ³	Skin; R
Mercury - Aryl compounds, as Hg [7439-97-6]	0.05 mg/m ³	C 0.1 mg/m ³	Skin; R

Mercury - Elemental, as Hg [7439-97-6]	0.025 mg/m ³		Skin; R
Mercury - Inorganic compounds, as Hg [7439-97-6]	0.025 mg/m ³		Skin; R
Mercury - Methyl, as Hg [7439-97-6]	0.01 mg/m ³	0.03 mg/m ³	Skin; 2B; R
Mesityl oxide [141-79-7]	10 ppm	25 ppm	
Methacrylic acid [79-41-4]	20 ppm		
Methane [74-82-8] Revised 2018		Simple asphyxiant	EX
Methanol [67-56-1]	200 ppm	250 ppm	Skin
Methomyl [16752-77-5]	2.5 mg/m ³		Skin; R
Methoxychlor [72-43-5]	10 mg/m ³		
2-Methoxyethanol (EGME) [109-86-4] Revised 2006	0.1 ppm		Skin; R
2-Methoxyethyl acetate (EGMEA) [110-49-6] Revised 2006	0.1 ppm		Skin; R
Methoxyflurane [76-38-0]	2 ppm		
4-Methoxyphenol [150-76-5]	5 mg/m ³		
1-Methoxy-2-propanol (PGME) [107-98-2] Revised 2018	50 ppm	100 ppm	
2-Methoxy-1-propanol [1589-47-5]	20 ppm	40 ppm	
1-Methoxypropyl-2-acetate [108-65-6]	50 ppm	75 ppm	
2-Methoxypropyl-1-acetate [70657-70-4]	20 ppm	40 ppm	
bis-(2-Methoxypropyl) ether (DPGME) (see Dipropylene glycol methyl ether) [34590-94-8]			
Methyl acetate [79-20-9]	200 ppm	250 ppm	
Methyl acetylene [74-99-7]	1000 ppm		EX
Methyl acetylene-propadiene mixture (MAPP) [59355-75-8]	1000 ppm	1250 ppm	EX
Methyl acrylate [96-33-3]	2 ppm		2B; Skin; S(D)
Methylacrylonitrile [126-98-7]	1 ppm		Skin
Methylal (see Dimethoxymethane) [109-87-5]			
Methylamine [74-89-5]	5 ppm	15 ppm	
Methyl n-aryl ketone [110-43-0]	50 ppm		
N-Methylaniline [100-61-8]	0.5 ppm		Skin
Methylarsonic acid [124-58-3]			2B
Methyl bromide [74-83-9]	1 ppm		Skin
Methyl tert-butyl ether (MTBE) [1634-04-4]	50 ppm		
Methyl n-butyl ketone [591-78-6] Revised 2008	5 ppm	10 ppm	Skin; R
Methyl chloride [74-87-3]	50 ppm	100 ppm	Skin; R
Methyl chloroform [71-55-6]	350 ppm	450 ppm	
Methylcyclohexane [108-87-2]	400 ppm		
Methylcyclohexanol [25639-42-3]	50 ppm		
o-Methylcyclohexanone [583-60-8]	50 ppm	75 ppm	Skin
Methylcyclohexanone, all isomers [591-24-2; 589-92-4; 1331-22-2]			(I)
2-Methylcyclopentadienyl manganese tricarbonyl, as Mn [12108-13-3]	0.2 mg/m ³		Skin
Methyl demeton, Inhalable [8022-00-2] Revised 2007	0.05 mg/m ³ (V)		Skin
Methylene bisphenyl isocyanate (MDI) [101-68-8]	0.005 ppm	C 0.01 ppm	S(R)
4,4'-Methylene bis(2-chloroaniline) (MBOCA; MOCA) [101-14-4] Revised 2009	0.01 ppm		Skin; A2, 1
Methylene bis(4-cyclohexylisocyanate), [5124-30-1]	0.005 ppm	C 0.01 ppm	S(R)
Methylene chloride (See Dichloromethane)			
4,4'-Methylene dianiline [101-77-9]	0.01 ppm		Skin; 2B
Methyl ethyl ketone (MEK) [78-93-3]	50 ppm	100 ppm	
Methyl ethyl ketone peroxide (MEKP) [1338-23-4]		C 0.2 ppm	

Methyleugenol [93-15-2]			2B
Methyl formate [107-31-3] Revised 2018	50 ppm	100 ppm	Skin
Methyl hydrazine [60-34-4]	0.01 ppm		Skin
4-Methylimidazole [693-98-1]			2B
Methyl iodide [74-88-4]	2 ppm		Skin
Methyl isoamyl ketone [110-12-3] Revised 2018	20 ppm	50 ppm	
Methyl isobutyl carbinol [108-11-2]	25 ppm	40 ppm	
Methyl isobutyl ketone [108-10-1] Revised 2011	20 ppm	75 ppm	2B
Methyl isocyanate [624-83-9] Revised 2018	0.02 ppm	0.06 ppm	Skin; S(D)
Methyl isopropyl ketone [563-80-4] Revised 2011	20 ppm		R
Methyl mercaptan [74-93-1]	0.5 ppm		
Methyl methacrylate [80-62-6]	50 ppm	100 ppm	S(D)
1-Methyl naphthalene [90-12-0] Revised 2007	0.5 ppm		Skin
2-Methyl naphthalene [91-57-6] Revised 2007	0.5 ppm		Skin
Methyl parathion [298-00-0] Revised 2009; 2010	0.2 mg/m ³		Skin
Methyl propyl ketone (2-pentanone) [107-87-9]	150 ppm	250 ppm	
Methyl silicate [681-84-5]	1 ppm		
alpha-Methylstyrene [98-83-9] Revised 2015	10 ppm		R; 2B
Methyltetrahydrophthalic anhydride isomers [3425-89-6; 5333-84-6; 11070-44-3; 19438-64-3; 26590-20-5; 42498-58-8]			Skin; S(D); S(R); (I)
Methyl vinyl ketone [78-94-4]		C 0.2 ppm	
Metribuzin [21087-64-9]	5 mg/m ³		
Mevinphos, Inhalable [7786-34-7] Revised 2003	0.01 mg/m ³ (V)		Skin
Mica, Respirable [12001-26-2]	3 mg/m ³		
Molybdenum - Metal and insoluble compounds, as Mo, Respirable [7439-98-7]	3 mg/m ³		
Molybdenum - Metal and insoluble compounds, as Mo, Inhalable [7439-98-7]	10 mg/m ³		
Molybdenum - Soluble compounds, as Mo, Respirable [7439-98-7]	0.5 mg/m ³		
Molybdenum trioxide [1313-27-5]			2B
Monochloroacetic acid [79-11-8] See Chloroacetic acid			
3-Monochloro-1,2-propanediol [96-24-2]			2B
Monocrotophos, Inhalable [6923-22-4]	0.05 mg/m ³ (V)		Skin
Monomethylformamide [123-39-7]			Skin; (I)
Morpholine [110-91-8]	20 ppm		Skin
beta-Myrcene [123-35-3]			2B
Naled, Inhalable [300-76-5]	0.1 mg/m ³ (V)		Skin; S(D)
Naphthalene [91-20-3] Revised 2018	10 ppm		Skin; 2B
1,5-Naphthalene diisocyanate [3173-72-6]	0.005 ppm	C 0.01 ppm	
beta-Naphthylamine (2-Naphthylamine) [91-59-8]	(L)		A1, 1
Natural gas [8006-14-2] Revised 2018		Simple asphyxiant	EX
Natural rubber latex, as total proteins, Inhalable [9006-04-6] Revised 2004; 2008; 2010	0.001 mg/m ³		Skin; S(D); S(R)
Neon [7440-01-9]		Simple asphyxiant	
Nickel - Insoluble inorganic compounds, as Ni [7440-02-0]	0.05 mg/m ³		A1, 1; (I)
Nickel - Elemental, Soluble inorganic compounds, as Ni [7440-02-0]	0.05 mg/m ³		1, 2B; (I)
Nickel carbonyl, as Ni [13463-39-3] Revised 2018	0.001 ppm	C 0.05 ppm	1; (I)

Nickel subsulfide, as Ni, Inhalable [12035-72-2]	0.1 mg/m ³		A1, 1
Nicotine [54-11-5]	0.5 mg/m ³		Skin
Nitrapyrin [1929-82-4]	10 mg/m ³ (N)	20 mg/m ³	
Nitrapyrin, Inhalable fraction and vapour [1929-82-4]			(I)
Nitric acid [7697-37-2]	2 ppm	4 ppm	
Nitric oxide [10102-43-9]	25 ppm		
p-Nitroaniline [100-01-6]	3 mg/m ³		Skin
2-Nitroanisole [91-23-6]			2B
3-Nitrobenzanthrone [17117-34-9]			2B
Nitrobenzene [98-95-3]	1 ppm		Skin; 2B
p-Nitrochlorobenzene [100-00-5]	0.1 ppm		2B; Skin
4-Nitrodiphenyl [92-93-3]	(L)		Skin; A2
Nitroethane [79-24-3]	100 ppm		
2-Nitrofluorene [607-57-8]			2B
Nitrogen [7727-37-9]		Simple asphyxiant	
Nitrogen dioxide [10102-44-0]		C 1 ppm	
Nitrogen trifluoride [7783-54-2]	10 ppm		
Nitroglycerin (NG) [55-63-0]	0.05 ppm		Skin
Nitromethane [75-52-5]	20 ppm		2B
1-Nitropropane [108-03-2]	25 ppm		
2-Nitropropane [79-46-9]	5 ppm		2B
Nitropyrene, mono, di, tri, tetra, isomers [42397-64-8; 42397-65-9; 5522-43-0; 57835-92-4; 75321-20-9]			2A; 2B; (I)
n-Nitrosodiethanolamine [1116-54-7]			2B
n-Nitrosodiethylamine [55-18-5]			2A
n-Nitrosodimethylamine [62-75-9]	(L)		Skin; 2A
n-Nitrosomethylethylamine [10595-95-6]			2B
n-Nitrosomethylvinylamine [4549-40-0]			2B
n-Nitrosomorpholine [59-89-2]			2B
n-Nitrosopiperidine [100-75-4]			2B
n-Nitrosopyrrolidine [930-55-2]			2B
Nitrotoluene, all isomers [88-72-2; 99-08-1; 99-99-0]	2 ppm		Skin; 2A; (I)
5-Nitro-o-toluidine, Inhalable [99-55-8] Revised 2007	1 mg/m ³		
5-Nitro-o-toluidine, Inhalable fraction and vapour [99-55-8]			(I)
Nitrous oxide [10024-97-2]	25 ppm		R
Nonane [111-84-2] Revised 2015	200 ppm		
Octachloronaphthalene [2234-13-1]	0.1 mg/m ³	0.3 mg/m ³	Skin
Octane, all isomers [111-65-9]	300 ppm		
Oil mist - mineral, mildly refined	0.2 mg/m ³		1
Oil mist - mineral, severely refined	1 mg/m ³		
Osmium tetroxide, as Os [20816-12-0]	0.0002 ppm	0.0006 ppm	
Oxalic acid, anhydrous [144-62-7] and dihydrate [6153-56-6] Revised 2018	1 mg/m ³	2 mg/m ³	
p,p'-Oxybis(benzenesulfonyl hydrazide), Inhalable [80-51-3] Revised 2008	0.1 mg/m ³		R
Oxygen difluoride [7783-41-7]		C 0.05 ppm	
Ozone - Heavy work [10028-15-6]	0.05 ppm		
Ozone - Moderate work [10028-15-6]	0.08 ppm		
Ozone - Light work [10028-15-6]	0.1 ppm		
Ozone - Light, mod., or heavy workload =< 2 hrs [10028-15-6]	0.2 ppm		

Paraffin wax fume [8002-74-2]	2 mg/m ³		
Paraquat, as the cation, Respirable [4685-14-7]	0.1 mg/m ³		Skin
Paraquat, as the cation, Total [4685-14-7]	0.5 mg/m ³		Skin
Paraquat, as the cation, Inhalable [4685-14-7]	0.1 mg/m ³		Skin; (I)
Parathion, Inhalable [56-38-2] Revised 2003	0.05 mg/m ³ (V)		2B; Skin
Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC)	10 mg/m ³ (N)		
Pentaborane [19624-22-7]	0.005 ppm	0.015 ppm	
Pentachloronaphthalene [1321-64-8]	0.5 mg/m ³		Skin
Pentachloronaphthalene, Inhalable fraction and vapour [1321-64-8]			Skin; (I)
Pentachloronitrobenzene [82-68-8]	0.5 mg/m ³		
Pentachlorophenol [87-86-5]	0.5 mg/m ³		1; Skin
Pentaerythritol [115-77-5]	10 mg/m ³ (N)		
Pentane, all isomers [78-78-4; 109-66-0; 463-82-1] Revised 2018	1000 ppm		
2,4-Pentanedione [123-54-6]			Skin; (I)
Pentyl acetate, all isomers [123-92-2; 620-11-1; 624-41-9; 625-16-1; 626-38-0; 628-63-7]	50 ppm	100 ppm	
Peracetic acid [79-21-0]			(I)
Perchloroethylene (See Tetrachloroethylene)			
Perchloromethyl mercaptan [594-42-3]	0.1 ppm		
Perchloryl fluoride [7616-94-6]	3 ppm	6 ppm	
Perfluorobutyl ethylene [19430-93-4] Revised 2004	100 ppm		
Perfluoroisobutylene [382-21-8]		C 0.01 ppm	
Perlite [93763-70-3] Revised 2006 (See Particles Not Otherwise Classified (PNOC))			
Persulfates, as persulfate [7727-21-1; 7727-54-0; 7775-27-1]	0.1 mg/m ³		
Phenol [108-95-2]	5 ppm		Skin
Phenolphthalein [77-09-8]			2B
Phenothiazine [92-84-2]	5 mg/m ³		Skin
N-Phenyl-beta-naphthylamine [135-88-6]	(L)		
m-Phenylenediamine [108-45-2]	0.1 mg/m ³		
o-Phenylenediamine [95-54-5]	0.1 mg/m ³		2B
m-Phenylenediamine [108-45-2]	0.1 mg/m ³		
p-Phenylenediamine [106-50-3]	0.1 mg/m ³		S(D)
Phenyl ether - Vapour (Diphenyl ether) [101-84-8]	1 ppm	2 ppm	
Phenyl glycidyl ether (PGE) [122-60-1] Revised 2008	0.1 ppm		2B; Skin; S(D); R
Phenylhydrazine [100-63-0]	0.1 ppm		Skin
Phenyl isocyanate [103-71-9]	0.005 ppm	0.015 ppm	Skin; S(D); S(R)
Phenyl mercaptan [108-98-5]		C 0.1 ppm	Skin
Phenylphosphine [638-21-1]		C 0.05 ppm	R
Phorate, Inhalable [298-02-2] Revised 2005	0.05 mg/m ³ (V)		Skin
Phosgene [75-44-5]	0.1 ppm		
Phosphine [7803-51-2]	0.3 ppm	1 ppm	
Phosphoric acid [7664-38-2]	1 mg/m ³	3 mg/m ³	
Phosphorus (yellow) [12185-10-3]	0.1 mg/m ³		
Phosphorus oxychloride [10025-87-3]	0.1 ppm		
Phosphorus pentachloride [10026-13-8]	0.1 ppm		
Phosphorus pentasulfide [1314-80-3]	1 mg/m ³	3 mg/m ³	

Phosphorus trichloride [7719-12-2]	0.2 ppm	0.5 ppm	
o-Phthalaldehyde [643-79-8]			Skin; S(D); S(R); (I)
Phthalic anhydride [85-44-9]	1 ppm		S(D); S(R); Skin
m-Phthalodinitrile, Inhalable [626-17-5] Revised 2009	5 mg/m ³ (V)		
o-Phthalodinitrile [91-15-6]			(I)
Picloram [1918-02-1]	10 mg/m ³ (N)		
Picric acid [88-89-1]	0.1 mg/m ³		S(D)
Pindone [83-26-1]	0.1 mg/m ³		
Piperazine and its Salts, as Piperazine [110-85-0]	0.3 mg/m ³	1 mg/m ³	S(D); S(R)
Piperidine [110-89-4]	1 ppm		
Plaster of Paris [26499-65-0]	10 mg/m ³ (N)	20 mg/m ³	
Platinum - Metal [7440-06-4]	1 mg/m ³		
Platinum - Soluble salts (as Pt) [7440-06-4]	0.002 mg/m ³		S
Polyvinyl chloride (PVC), Respirable [9002-86-2] Revised 2008	1 mg/m ³		
Portland cement, Respirable [65997-15-1] Revised 2015	1 mg/m ³ (E)		
Potassium bromate [7758-01-2]			2B
Potassium hydroxide [1310-58-3]		C 2 mg/m ³	
Propane [74-98-6] Revised 2018		Simple asphyxiant	EX
Propane sultone [1120-71-4]	(L)		2A
n-Propanol (n-Propyl alcohol) [71-23-8] Revised 2007	100 ppm		
2-Propanol [67-63-0] (see Isopropanol)			
Propargyl alcohol [107-19-7]	1 ppm		Skin
beta-Propiolactone [57-57-8]	0.5 ppm		2B
Propionaldehyde [123-38-6]	20 ppm		
Propionic acid [79-09-4]	10 ppm		
Propoxur [114-26-1]	0.5 mg/m ³		
Propyl acetate isomers [108-21-4; 109-60-4]	100 ppm	150 ppm	
Propylene [115-07-1] Revised 2006	500 ppm		
Propylene dichloride (1,2-Dichloropropane) [78-87-5] Revised 2006	75 ppm	110 ppm	1; S(D)
Propylene glycol dinitrate [6423-43-4]	0.05 ppm		Skin
Propylene glycol ethyl ether [1569-02-4]			Skin; (I)
Propylene oxide [75-56-9]	2 ppm		2B; S(D)
Propyleneimine (2-Methylaziridine) [75-55-8] Revised 2009; 2010	2 ppm		2B; Skin
n-Propyl nitrate [627-13-4]	25 ppm	40 ppm	
Pyrethrum [8003-34-7]	5 mg/m ³		
Pyridine [110-86-1] Revised 2004	1 ppm		2B
Quinone [106-51-4]	0.1 ppm		
Resin acids, as Total resin acids [8050-09-7]			S(D); S(R); (I)
Resorcinol [108-46-3]	10 ppm	20 ppm	
Rhodium, Metal and insoluble compounds as Rh [7440-16-6]	0.1 mg/m ³	0.3 mg/m ³	
Rhodium - Soluble compounds, as Rh [7440-16-6]	0.001 mg/m ³	0.003 mg/m ³	
Rommel, Inhalable [299-84-3] Revised 2006	5 mg/m ³ (V)		
Rosin core solder thermal decomposition products (colophony) [8050-09-7]	(L)		S(D); S(R)

Rotenone (commercial) [83-79-4]	5 mg/m ³		
Rouge [1309-37-1]	10 mg/m ³ (E,N)		
Rubber solvent (Naphtha) [8030-30-6] Revised 2009	(H)		
Safrole [94-59-7]			2B
Selenium and compounds, as Se [7782-49-2]	0.1 mg/m ³		
Selenium hexafluoride, as Se [7783-79-1]	0.05 ppm		
Sesone [136-78-7]	10 mg/m ³ (N)		
Silica, Amorphous - Diatomaceous earth (uncalcined), Total [61790-53-2]	4 mg/m ³		
Silica, Amorphous - Diatomaceous earth (uncalcined), Respirable [61790-53-2]	1.5 mg/m ³		
Silica, Amorphous - Fume, Total [69012-64-2]	4 mg/m ³		
Silica, Amorphous - Fume, Respirable [69012-64-2]	1.5 mg/m ³		
Silica, Amorphous - Precipitated and gel, Total [112926-00-8]	4 mg/m ³		
Silica, Amorphous - Precipitated and gel, Respirable [112926-00-8]	1.5 mg/m ³		
Silica, Crystalline - alpha quartz [14808-60-7; 1317-95-9] and Cristobalite, Respirable [14464-46-1] Revised 2006	0.025 mg/m ³		A2, 1
Silicon [7440-21-3] Revised 2006 (See Particles Not Otherwise Classified (PNOC))			
Silicon carbide Nonfibrous, Inhalable, [409-21-2] Revised 2003	10 mg/m ³ (E)		
Silicon carbide, Nonfibrous, Respirable, [409-21-2] Revised 2003	3 mg/m ³ (E)		
Silicon carbide, Fibrous (including whiskers) [409-21-2] Revised 2003	0.1 f/cc (F)		A2
Silicon tetrahydride (Silane) [7803-62-5]	0.5 ppm	1 ppm	
Silver and Compounds, as Ag [7440-22-4]	0.01 mg/m ³	0.03 mg/m ³	
Simazine [122-34-9]			(I)
Soapstone (see Talc) Revised 2011			
Sodium azide (as Sodium azide) [26628-22-8]		C 0.29 mg/m ³	
Sodium azide (as Hydrazoic acid vapour) [26628-22-8]		C 0.11 ppm	
Sodium bisulfite [7631-90-5]	5 mg/m ³		
Sodium fluoroacetate [62-74-8]	0.05 mg/m ³		Skin
Sodium hydroxide [1310-73-2]		C 2 mg/m ³	
Sodium metabisulfite [7681-57-4]	5 mg/m ³		
Starch [9005-25-8]	10 mg/m ³ (N)		
Stearates, Inhalable [57-11-4; 557-04-0; 557-05-1; 822-16-2]	10 mg/m ³ (J)		
Stearates, Respirable [57-11-4; 557-04-0; 557-05-1; 822-16-2]	3 mg/m ³ (J)		
Stoddard solvent (mineral spirits) [8052-41-3]	290 mg/m ³	580 mg/m ³	
Strontium chromate, as Cr, Total [7789-06-2]	0.0005 mg/m ³		A1; S(D); S(R); (I)
Strychnine [57-24-9]	0.15 mg/m ³		
Styrene - monomer [100-42-5] Revised 2020	20 ppm	40 ppm	2A
Styrene oxide [96-09-3]			S(D); Skin; (I)
Subtilisins, as crystalline active pure enzyme [1395-21-7; 9014-01-1]		C 0.00006 mg/m ³	S(R)

Sucrose [57-50-1]	10 mg/m ³ (N)		
Sulfometuron methyl [74222-97-2]	5 mg/m ³		
Sulfometuron methyl, Inhalable fraction and vapour [74222-97-2]			(I)
Sulfotepp (TEDP), Inhalable [3689-24-5] Revised 2005	0.1 mg/m ³ (V)		Skin
Sulfoxaflor [946578-00-3]			R; (I)
Sulfur dioxide [7446-09-5]	2 ppm	5 ppm	
Sulfur hexafluoride [2551-62-4]	1000 ppm		
Sulfuric acid, Thoracic [7664-93-9] Revised 2004	0.2 mg/m ³ (M)		A2, 1
Sulfur monochloride [10025-67-9]		C 1ppm	
Sulfur pentafluoride [5714-22-7]		C 0.01 ppm	
Sulfur tetrafluoride [7783-60-0]		C 0.1 ppm	
Sulfuryl fluoride [2699-79-8]	5 ppm	10 ppm	
Sulprofos [35400-43-2] Revised 2009; 2010	1 mg/m ³		Skin
Synthetic Vitreous Fibres - Continuous filament glass fibres	1 f/cc (F)		
Synthetic Vitreous Fibres - Continuous filament glass fibres, Inhalable	5 mg/m ³		
Synthetic Vitreous Fibres - Glass wool fibres	1 f/cc (F)		
Synthetic Vitreous Fibres - Rock wool fibres	1 f/cc (F)		
Synthetic Vitreous Fibres -Slag wool fibres	1 f/cc (F)		
Synthetic Vitreous Fibres - Special purpose glass fibres	1 f/cc (F)		2B
Synthetic Vitreous Fibres - Refractory ceramic fibres	0.2 f/cc (F)		A2, 2B
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid) [93-76-5]	10 mg/m ³		
Talc - Containing no asbestos fibres, Respirable [14807-96-6]	2 mg/m ³ (E)		
Talc - Containing asbestos fibres [14807-96-6]	0.1 f/cc (K)		A1, 1
Tantalum - Metal [7440-25-7]	5 mg/m ³		
Tantalum oxide dusts, as Ta [1314-61-0]	5 mg/m ³		
Tellurium and compounds (NOS), as Te, excluding hydrogen telluride [13494-80-9]	0.1 mg/m ³		
Tellurium hexafluoride [7783-80-4]	0.02 ppm		
Temphos, Total [3383-96-8]	10 mg/m ³	20 mg/m ³	Skin
Terbufos, Inhalable [13071-79-9]	0.01 mg/m ³ (V)		Skin
Terephthalic acid [100-21-0]	10 mg/m ³ (N)		
Terphenyls (o-, m-, p-isomers) [26140-60-3]		C 5 mg/m ³	
1,1,2,2-Tetrabromoethane, Inhalable [79-27-6] Revised 2006	0.1 ppm (V)		
1,1,2,2-Tetrabromoethane, Total [79-27-6]			(I)
1,1,1,2-Tetrachloro-2,2-difluoroethane [76-11-9] Revised 2008; 2010	500 ppm		
1,1,2,2-Tetrachloro-1,2-difluoroethane [76-12-0] Revised 2008; 2010	200 ppm		
1,1,1,2-Tetrachloroethane [630-20-6]			2B
1,1,2,2-Tetrachloroethane [79-34-5]	1 ppm		Skin; 2B
Tetrachloroethylene (Perchloroethylene) [127-18-4]	25 ppm	100 ppm	2A
Tetrachloronaphthalene [1335-88-2]	2 mg/m ³		
Tetrachlorovinphos [22248-79-9]			2B
Tetraethyl lead, as Pb [78-00-2]	0.075 mg/m ³		Skin

Tetraethyl pyrophosphate (TEPP), Inhalable [107-49-3] Revised 2007	0.01 mg/m (V)		Skin
Tetrafluoroethylene [116-14-3]	2 ppm		2A
Tetrahydrofuran [109-99-9] Revised 2005	50 ppm	100 ppm	2B; Skin
Tetramethyl lead, as Pb [75-74-1]	0.075 mg/m ³		Skin
Tetramethyl succinonitrile [3333-52-6]	0.5 ppm		Skin
Tetranitromethane [509-14-8]	0.005 ppm		2B
Tetrakis (hydroxymethyl) phosphonium chloride [124-64-1] Revised 2005	2 mg/m ³		S(D)
Tetrakis (hydroxymethyl) phosphonium sulfate [55566-30-8] Revised 2005	2 mg/m ³		S(D)
Tetryl [479-45-8]	1.5 mg/m ³		
Thallium and soluble compounds, as Tl, Inhalable [7440-28-0] Revised 2011	0.02 mg/m ³		Skin
Thiacloprid [111988-49-9]			Skin; (I)
4,4'-Thiobis(6-tert-butyl-m-cresol), Inhalable [96-69-5] Revised 2011	1 mg/m ³		
Thiodicarb [59669-26-0]			S(D); (I)
Thioglycolic acid [68-11-1]	1 ppm		Skin; S(D)
Thioglycolic acid and salts [68-11-1]			Skin; S(D); (I)
Thionyl chloride [7719-09-7]		C 1ppm	
Thiram [137-26-8] Revised 2008; 2010	1 mg/m ³		S(D)
Tin - Metal [7440-31-5]	2 mg/m ³		
Tin - Oxide and inorganic compounds, except tin hydride, as Sn [7440-31-5]	2 mg/m ³		
Tin - Organic compounds, as Sn [7440-31-5]	0.1 mg/m ³	0.2 mg/m ³	Skin
Titanium dioxide [13463-67-7] Revised 2006	10 mg/m ³ (N)		2B
Titanium tetrachloride, as HCl [7550-45-0]			(I)
o-Tolidine [119-93-7]			Skin; 2B
Toluene [108-88-3] Revised 2007; 2008	20 ppm		R
Toluene-2,4-diisocyanate (2,4-TDI) [584-84-9]	0.005 ppm	C 0.01 ppm	2B; S(D); S(R); Skin
Toluene-2,6-diisocyanate (2,6-TDI) [91-08-7]	0.005 ppm	C 0.01 ppm	2B; S(D); S(R); Skin
2,4- and 2,6-Toluene diisocyanate as a mixture [584-84-9; 91-08-7]			2B; S(D); S(R); Skin; (I)
m-Toluidine [108-44-1]	2 ppm		Skin
o-Toluidine [95-53-4] Revised 2009	2 ppm		Skin; 1
p-Toluidine [106-49-0]	2 ppm		Skin
Tributyl phosphate [126-73-8]	0.2 ppm		
Trichloroacetic acid [76-03-9] Revised 2018	0.5 ppm		2B
Trichlorfon, Inhalable fraction and vapour [52-68-6] (see also trichlorophon)			S(D); (I)
1,2,4-Trichlorobenzene [120-82-1]		C 5 ppm	
1,1,2-Trichloroethane [79-00-5]	10 ppm		Skin
Trichloroethylene [79-01-6] Revised 2007	10 ppm	25 ppm	A2, 1
Trichlorofluoromethane [75-69-4]		C 1000 ppm	
Trichloronaphthalene [1321-65-9]	5 mg/m ³		Skin
2,4,6-Trichlorophenol [88-06-2]			2B
1,2,3-Trichloropropane [96-18-4]	10 ppm		A2, 2A
1,1,2-Trichloro-1,2,2-trifluoroethane [76-13-1]	500 ppm	1250 ppm	
Trichlorophon, Inhalable [52-68-6] Revised 2003	1 mg/m ³		S(D)
Triethanolamine [102-71-6]	5 mg/m ³		
Triethylamine [121-44-8] Revised 2018	0.5 ppm	1 ppm	Skin
Triflumizole, Inhalable [68694-11-1]			S(D); (I)
Trifluorobromomethane [75-63-8]	1000 ppm		

1,3,5-Triglycidyl-s-triazinetriene [2451-62-9]	0.05 mg/m ³		R
Trimellitic anhydride [552-30-7] Revised 2008; 2010		C 0.04 mg/m ³	Skin; S(D); S(R)
Trimethylamine [75-50-3]	5 ppm	15 ppm	
Trimethyl benzene (mixed isomers) [25551-13-7]	25 ppm		
Trimethyl hexamethylene diisocyanate [28679-16-5]	0.005 ppm	C 0.01 ppm	
Trimethyl phosphite [121-45-9]	2 ppm		
Tri-n-Butyltin compounds [688-73-3]	0.05 mg/m ³		
2,4,6-Trinitrotoluene (TNT), Total [118-96-7]	0.1 mg/m ³		Skin
2,4,6-Trinitrotoluene (TNT), Inhalable fraction and vapour [118-96-7]			Skin; (I);
Triorthocresyl phosphate [78-30-8]	0.1 mg/m ³		Skin
Triphenyl phosphate [115-86-6]	3 mg/m ³		
Tris(2,3-dibromopropyl) phosphate [126-72-7]			2A
Tungsten and compounds in the absence of Cobalt, as W [7440-33-7]	3 mg/m ³		
Tungsten - Metal and insoluble compounds [7440-33-7]	5 mg/m ³	10 mg/m ³	
Tungsten - Soluble compounds, as W [7440-33-7]	1 mg/m ³	3 mg/m ³	
Turpentine [8006-64-2] and selected monoterpenes [80-56-8; 127-91-3; 13466-78-9] Revised 2003	20 ppm		S(D)
Uranium (Natural) - Insoluble compounds, as U [7440-61-1]	0.2 mg/m ³	0.6 mg/m ³	A1, 1; (I)
Uranium (Natural) - Soluble compounds, as U [7440-61-1]	0.05 mg/m ³		A1, 1; (I)
n-Valeraldehyde [110-62-3]	50 ppm		
Vanadium pentoxide, as V, Inhalable [1314-62-1] Revised 2015	0.05 mg/m ³		2B
Vegetable oil, Mist, Respirable, except castor, cashew nut, or similar irritating oil [8008-89-7]	3 mg/m ³		
Vinyl acetate [108-05-4]	10 ppm	15 ppm	2B
Vinyl bromide [593-60-2]	0.5 ppm		A2, 2A
Vinyl chloride [75-01-4]	1 ppm		A1, 1
4-Vinyl cyclohexene [100-40-3]	0.1 ppm		2B; R
Vinyl cyclohexene dioxide [106-87-6]	0.1 ppm		Skin; 2B; R
Vinyl fluoride [75-02-5]	1 ppm		A2, 2A
N-Vinyl-2-pyrrolidone [88-12-0] Revised 2003	0.05 ppm		
Vinylidene chloride [75-35-4]	1 ppm		2B
Vinylidene fluoride [75-38-7]	500 ppm		
Vinyl toluene, all isomers [25013-15-4]	25 ppm	75 ppm	
VM & P Naphtha [8032-32-4] Revised 2009	(H)		
Warfarin [81-81-2]	0.1 mg/m ³		R; Skin
Wood dust - Allergenic species	1 mg/m ³		S(R); S(D); A1, A2, 1; (I)
Wood dust - Non-Allergenic Hardwood	1 mg/m ³		A1, A2, 1; (I)
Wood dust - Non-Allergenic Softwood	2.5 mg/m ³		1; (I)
Xylene [1330-20-7] (o, m & p isomers) [95-47-6; 108-38-3; 106-42-3]	100 ppm	150 ppm	
m-Xylene alpha,alpha'-diamine [1477-55-0]		C 0.1 mg/m ³	Skin
Xylidine - Mixed isomers, Inhalable [1300-73-8]	0.5 ppm (V)		Skin
Yttrium - Metal [7440-65-5]	1 mg/m ³		
Yttrium and compounds, as Y [7440-65-5]	1 mg/m ³		
Zinc chloride - Fume [7646-85-7]	1 mg/m ³	2 mg/m ³	
Zinc chromates, as Cr, Total [13530-65-9; 11103-86-9; 37300-23-5]	0.01 mg/m ³		A1, 1; S(D); S(R); (I)

Zinc oxide, Respirable [1314-13-2] Revised 2003	2 mg/m ³	10 mg/m ³	
Zirconium and compounds, as Zr [7440-67-7]	5 mg/m ³	10 mg/m ³	

Endnotes

- (E) - the value is for particulate matter containing no asbestos and less than 1% crystalline silica.
- (F) - the value for fibres longer than 5 microns, with an aspect ratio of equal than/greater than 3:1, as determined by the membrane filter method at 400-450 times magnification (4 mm objective), using phase-contrast illumination.
- (G) - as measured by the vertical elutriator, cotton-dust sampler, see *TLV Documentation*.
- (H) - reciprocal calculation method, see OHS Guideline [G5.48-12](#).
- (I) - see Special Notes in Table 1 below
- (J) - does not include stearates of toxic metals.
- (K) - should not exceed 2 mg/m³ respirable particulate.
- (L) - No exposure limit. Exposure by all routes should be carefully controlled to levels as low as possible.
- (M) - refers to sulfuric acid contained in strong inorganic acid mists.
- (N) - the 8-hour TWA listed in the Table is for the total dust. The substance also has an 8-hour TWA of 3 mg/m³ for the respirable fraction.
- (O) - sampled by method that does not collect vapour.
- (P) - application restricted to conditions in which there are negligible aerosol exposures.
- (V) - vapour and inhalable aerosol.

Table 1: Special Notes

Substance [CAS No.]	Note
Asphalt (Bitumen) fume, as benzene-soluble aerosol, Inhalable [8052-42-4]	IARC group 2A carcinogen - Bitumens, occupational exposure to oxidized bitumens and their emissions during road paving IARC group 2B carcinogen - Bitumens, occupational exposure to straight-run bitumens and their emissions during road paving
Beryllium and compounds, as Be [7440-41-7]	Soluble compounds - dermal sensitization Soluble and insoluble compounds - respiratory sensitization
2,4-Dichlorophenoxyacetic acid and its esters [94-75-7]	IARC group 2B carcinogens - chlorophenoxy herbicides as a group
Diesel fuel, as total hydrocarbons, Inhalable [68334-30-5; 68476-30-2; 68476-31-3; 68476-34-6; 77650-28-3]	Diesel fuel, marine, is an IARC group 2B carcinogen
Dinitrotoluene [25321-14-6]	2,4-Dinitrotoluene, 2,6-Dinitrotoluene, and 3,6-Dinitrotoluene are IARC group 2B carcinogens
Indium and compounds, as In [7440-74-6]	Indium phosphide is an IARC group 2A carcinogen
Lead chromate, as Cr [7758-97-6]	IARC group 1 carcinogen - Chromium (VI) compounds as a whole
Lead chromate, as Pb [7758-97-6]	IARC group 2A carcinogen - Lead compounds, inorganic
Nickel - Elemental, Soluble inorganic compounds, as Ni [7440-02-0]	Elemental nickel and alloys containing nickel are IARC group 2B carcinogens. Nickel compounds are IARC group 1 carcinogens.
Nickel - Insoluble inorganic compounds, as Ni [7440-02-0]	Nickel compounds are IARC group 1 carcinogens
Nickel carbonyl, as Ni [13463-39-3]	
Nitropyrene, mono, di, tri, tetra, isomers [42397-64-8; 42397-65-9; 5522-43-0; 57835-92-4; 75321-20-9]	1-Nitropyrene is an IARC group 2A carcinogen 4-Nitropyrene is an IARC group 2B carcinogen 1,6-Dinitropyrene is an IARC 2B carcinogen 1,8-Dinitropyrene is an IARC 2B carcinogen 1,3-Dinitropyrene is an IARC 2B carcinogen
Nitrotoluene, all isomers [88-72-2; 99-08-1; 99-99-0]	2-Nitrotoluene [88-72-2] is an IARC group 2A carcinogen
Strontium chromate, as Cr, Total [7789-06-2]	Strontium chromate is hexavalent chromium compound
Uranium (Natural) [7440-61-1]	Ionizing radiation (all types) and Radionuclides are IARC group 1 carcinogens
Wood dust	ACGIH sensitizer – western red cedar ACGIH A1 - oak and beech ACGIH A2 - birch, mahogany, teak, walnut Wood dust is an IARC group 1 carcinogen
Zinc chromates, as Cr [13530-65-9; 11103 -86-9; 37300-23-5]	Zinc chromate is a hexavalent chromium compound

Table 1: Special Notes – No British Columbia exposure limit at this time

Substance [CAS No.]	Note

Acetamide [60-35-5]	No British Columbia exposure limit at this time.
Aldicarb [116-06-3]	
Allyl bromide [106-95-6]	
Allyl methacrylate [96-06-9]	
Antimony trioxide, Inhalable [1309-64-4]	
Bendiocarb [22781-23-3]	
Boron trichloride [10294-34-5]	
Butenes, all isomers, including Isobutene [106-98-9; 107-01-7; 590-18-1; 624-64-6; 25167-67-3; 115-11-7]	
4-tert-Butylbenzoic acid [98-73-7]	
tert-Butyl hydroperoxide [75-91-2]	
Cadusafos [95464-99-9]	
Carfentrazone-ethyl [128639-02-1]	
Chlordane, Inhalable fraction and vapour [57-74-9]	
Chromium - Metallic, as Cr(0), Inhalable [7440-47-3]	
Chromium - trivalent chromium compounds, as Cr(III), Inhalable [7440-47-3]	
Chromium - hexavalent chromium compounds, as Cr(VI), Inhalable [7440-47-3]	
Citral, inhalable [5292-40-5]	
Cobalt and inorganic compounds, as Co, Inhalable [7440-48-4]	
Cyanazine [21725-46-2]	
Cyanogen bromide [506-68-3]	
Diethylene glycol monobutyl ether [112-34-5]	
N,N-Diethylhydroxylamine [3710-84-7]	
Dimethylphenol, all isomers [95-65-8; 95-87-4; 105-67-9; 108-68-9; 526-75-0; 576-26-1; 1300-71-6]	
EPN, Inhalable fraction and vapour [2104-64-5]	
Ethylene glycol, Inhalable, aerosol only [107-21-1]	
Ethyl isocyanate [109-90-0]	
Fludioxonil [131341-86-1]	
Fluorine, as F [7782-41-4]	
Folpet [133-07-3]	
Hard metals, containing Cobalt and Tungsten Carbide, as Co [7440-48-4; 12070-12-1]	
Hexamethylenetetramine, Inhalable fraction and vapour [100-97-0]	
Hexazinone [51235-04-2]	
Hexylene glycol, Inhalable, aerosol only [107-41-5]	
Hexylene glycol, vapour [107-41-5]	
Indium tin oxide, as In [50926-11-9]	
Iodides	
Isobutyl nitrite, Total [542-56-3]	
Lead chromate, as Cr(VI), Inhalable [7758-97-6]	
Manganese, elemental and inorganic compounds, as Mn, Inhalable [7439-96-5]	
Methylcyclohexanone, all isomers [591-24-2; 589-92-4; 1331-22-2]	
Methyltetrahydrophthalic anhydride isomers [3425-89-6; 5333-84-6; 11070-44-3; 19438-64-3; 26590-20-5; 42498-58-8]	
Monomethylformamide [123-39-7]	
Nitrapyrin, Inhalable fraction and vapour [1929-82-4]	
5-Nitro-o-toluidine, Inhalable fraction and vapour [99-55-8]	
Paraquat, as the cation, Inhalable [4685-14-7]	
2,4-Pentanedione [123-54-6]	
Pentachloronaphthalene, Inhalable fraction and vapour [1321-64-8]	
Peracetic acid [79-21-0]	
o-Phthalaldehyde [643-79-8]	

o-Phthalodinitrile [91-15-6]
Propyl acetate isomers, as a mixture [108-21-4; 109-60-4]
Propylene glycol ethyl ether [1569-02-4]
Resin acids, as Total resin acids [8050-09-7]
Simazine [122-34-9]
Styrene oxide [96-09-3]
Sulfometuron methyl, Inhalable fraction and vapour [74222-97-2]
Sulfoxaflor [946578-00-3]
1,1,2,2-Tetrabromoethane, Total [79-27-6]
Thiacloprid [111988-49-9]
Thiodicarb [59669-26-0]
Thioglycolic acid and salts [68-11-1]
Titanium tetrachloride, as HCl [7550-45-0]
2,4- and 2,6- Toluene diisocyanate as as mixture [584-84-9; 91-08-7] (see OHS Regulation s. 5.51)
Trichlorfon, Inhalable fraction and vapour [52-68-6]
Triflumizole, Inhalable [68694-11-1]
2,4,6-Trinitrotoluene (TNT), Inhalable fraction and vapour [118-96-7]

* Download [PDF version \(250 KB\)](#) of the table.

Guidelines - Part 5 - Ventilation

G5.62 Ventilation – Submitting plans

Issued August 1, 1999; Revised October 29, 2003

Regulatory excerpt

Section 5.62 of the *OHS Regulation* ("Regulation") states:

The employer or the employer's agent must submit to the Board drawings and specifications for an existing or proposed ventilation system if requested by the Board.

Purpose of guideline

The purpose of this guideline is to explain when WorkSafeBC might request plans for industrial ventilation systems pursuant to section 5.62 of the *Regulation*. It does not apply to heating, ventilation, or air conditioning (HVAC) systems, which are covered under [section 4.71](#) of the *Regulation*.

Submitting plans

WorkSafeBC prevention officers may request plans to evaluate compliance with a previously written order or with the general requirements for industrial ventilation. It may be appropriate to request plans in any of the following situations:

- The installation of a new process requires addition(s) to the existing industrial ventilation system.
- The process being built or modified is uncommon and a generic industrial ventilation plan or guideline is not available in the ACGIH *Industrial Ventilation Manual*.
- The process being built or modified involves the control of a highly toxic material.
- The employer or employer's agent is unable to answer basic questions about the proposed system change, including basic areas of knowledge, as it applies to the workplace or process in question, for:
 - air flow requirements
 - fan static pressure
 - method of filtration
 - capture velocity
 - air flow patterns

Examples of highly toxic materials include methylene bisphenyl isocyanate (MDI), hexamethylene diisocyanate (HDI), and other substances identified in [section 5.57\(1\)](#).

If WorkSafeBC requests a plan, WorkSafeBC's role is to review the plan with respect to the regulatory requirements as noted above.

G5.63 Building modification

Issued August 1999

Regulatory excerpt

Section 5.63 of the *OHS Regulation* ("Regulation") states:

The owner of a building must permit an employer to install an exhaust ventilation and makeup air system to meet the requirements of this Part for controlling harmful air contaminants in the workplace, provided that all such work is subject to the approval of the owner acting reasonably.

Purpose of guideline

The purpose of this guideline is to explain when the owner of a building to permit an employer to install a ventilation system if required by sections 4.73 and 5.63 of the *Regulation*.

Background

The requirement under section 4.73 of the *Regulation* applies to ventilation systems for maintaining indoor air quality, not to industrial ventilation systems. For example, installation of a ventilation system may be required in situations where the building has no existing HVAC system or the HVAC system is inadequate for the occupancy. All such work, however, is subject to the approval of the owner, acting reasonably. In the context of this section, "the owner, acting reasonably" is taken to mean that the owner cannot be unreasonable when rejecting the project.

Generally, the operation and maintenance of the heating, ventilation, and air conditioning (HVAC) system is the responsibility of the building owner or owner's agent, although this responsibility may be varied by commercial agreement. A statute or regulation overrides a private contract; therefore, the requirements of this section take precedence over any term of a lease agreement that might be contrary to the responsibility cast by the *Regulation*. However, the responsibility for the cost of the installation or upgrade will likely be determined by the lease agreement.

Section 5.63 applies to industrial ventilation systems, not to systems for maintaining indoor air quality or thermal comfort. The latter is covered under section 4.73 of the *Regulation*.

G5.70 Discharged air

Issued August 1, 1999; Revised October 29, 2003; Editorial Revision February 3, 2022

Regulatory excerpt

Section 5.70 of the *OHS Regulation* ("Regulation") states:

- (1) The use of a ventilation system designed to recirculate contaminants into the work area is restricted by the provisions of Table 5-1.
- (2) A ventilation system that discharges air from the work area must be designed to minimize the likelihood of exposing any worker at a workplace, including an adjacent workplace,
 - (a) to an air contaminant in a concentration which exceeds either 10% of its applicable exposure limit in this Part or an acceptable ambient air quality standard established by an authority having jurisdiction over environment and air standards, whichever is greater, and
 - (b) if practicable, to an objectionable odour.

Table 5-1: Recirculation of discharged air

Recirculation permitted without written approval	A nuisance particulate with an 8-hour TWA limit of at least 10 mg/m ³ , provided that its concentration in the discharged air is less than 10% of the TWA limit. Asbestos fibre or other particulate, except a biological contaminant, provided that it is exhausted from a portable vacuum cleaner or bench-top containment unit, fitted with an effective HEPA filter. A welding fume (including its components identified under section 5.57(1)) exhausted from a portable welding fume extractor fitted with an air cleaner, provided that its concentration in the discharged air is less than 10% of the applicable exposure limit. A biological contaminant discharged from a biological safety cabinet that is installed and operated in accordance with the requirements in Part 30 (Laboratories) . Non-allergenic softwood dust, provided that its concentration in the discharged air is less than 10% of the 8-hour TWA limit.
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Recirculation only with written approval by the Board	Allergenic wood dust. Non-allergenic hardwood dust. Any contaminant not otherwise listed in this Table.
No recirculation permitted	A substance identified under section 5.57(1) , unless otherwise identified in this Table.

Purpose of guideline

The purpose of this guideline is to clarify that section 5.70 of the *Regulation* applies to industrial ventilation systems. It does not apply to heating, ventilation, or air conditioning (HVAC) systems. HVAC systems are covered under [section 4.77](#) of the *Regulation*, which contains similar wording to section 5.70(2).

Recirculation provisions of Table 5-1

Table 5-1 sets out situations when recirculation is not permitted, when it is permitted with written approval from WorkSafeBC, and when it is permitted without such approval. The table states that WorkSafeBC may grant approval for recirculation for "any contaminant not otherwise listed in the table."

Recirculation of substances identified by [section 5.57\(1\)](#) are not permitted, unless otherwise permitted in Table 5-1.

Background

Authorities having jurisdiction over environmental air standards are the B.C. Ministry of Environment and Climate Change Strategy and Environment and Climate Change Canada for all regional districts in B.C. except the Greater Vancouver Regional District (GVRD). The GVRD sets and enforces its own standards for air quality within the GVRD.

Section 5.70 applies to minimizing exposure of all workers, including those at adjacent workplaces, even if those workers are employed by other employers. The term "likelihood" in section 5.70(2) refers to the probability that a worker may be exposed to discharge air from a ventilation system. If conditions, such as the direction of the prevailing wind, the discharge velocity of the exhaust air, or thermal effects in the air stream, routinely direct contaminants towards areas where workers are located, then this section applies.

Contaminated air

Contaminated air that is allowed to escape through a wall or ceiling opening could re-enter the work area or an adjacent location. If this situation is thought to exist, the problem needs to be investigated to identify the nature of the contaminants, as well as the employer responsible for generating them. Typically, in determining if a worker's overexposure to the limits set by section 5.70 exists, it is necessary to sample the air in the worker's breathing zone and not the air discharged from a ventilation system. The quantity of air contaminant discharged from a ventilation system falls under the jurisdiction of Environment and Climate Change Canada or the B.C. Ministry of Environment and Climate Change Strategy. WorkSafeBC's jurisdiction is the exposure of the worker, who may be located some distance away from the discharge point, and due to mixing and dilution, the concentration at that location may be significantly lower than at the discharge point. However, it may be helpful for determining the nature and/or the source of a particular contaminant by area sampling adjacent to the discharge.

Odor control

In determining the practicability of taking action to control an objectionable odour arising from discharged air, first determine if the contaminants can be identified:

- If identification is possible, initially evaluate whether the concentration exceeds 10% of its applicable exposure limit or an acceptable air quality standard.
- If identification of the constituents is not possible or if the odour continues to be a concern at levels less than 10% of the exposure limit, the practicability of controlling the emission should then be discussed with the employer responsible for generating the odour.

A decision to issue orders to control the odour will be determined on the basis of the duration of exposure, the availability of control technology and the offensiveness of the emission. If workers are experiencing other health effects, such as sensitivity or acute reactions, WorkSafeBC's occupational health physicians should be consulted.

Some options for controlling an objectionable odour include the following:

- Decreasing the concentration of the contaminant in the exhaust
- Repositioning the stack
- Increasing the stack height

However, before recommending that the position or the height of the stack be altered, the WorkSafeBC prevention officer should consider whether this change will constitute a further hazard that is not practicable to control (for example, whether the required stack height will be unstable or whether the new position will affect the structural integrity of the building). If there is a further hazard, alternative control technologies for objectionable odours should be considered.

Regulatory excerpt

Section 5.71(3) of the *OHS Regulation* ("Regulation") states:

A dust collector having an internal volume greater than 0.6 m³ (20 ft³) and being used to control combustible dusts must be located and constructed so that no worker will be endangered in the event of an explosion inside the collector.

Purpose of guideline

This guideline explains terms used in *Regulation* section 5.71(3) and provides guidance for locating and constructing dust collectors used to control combustible dusts so that workers will not be endangered in the event of an explosion inside the collector.

Background

WorkSafeBC considers the relevant National Fire Protection Association (NFPA) standards to provide acceptable guidance with respect to combustible dust collectors. There are a series of NFPA standards that are relevant to the control of fire and explosion hazards from combustible dusts and an employer should review the standard(s) relevant to the application in question. Information in this guideline references mainly the following NFPA standards, which are available for review online at <http://www.nfpa.org/>.

NFPA 61 Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities (2008)

NFPA 484 Standard for Combustible Metals (2009)

NFPA 654 Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids (2006)

NFPA 655 Standard for Prevention of Sulfur Fires and Explosions (2007)

NFPA 664 Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities (2007)

In addition, there are specifications in the *BC Building Code* (e.g., edition 2006, articles 3.3.1.20 and 6.2.2), *BC Electrical Code Regulation (2009)* - Chapter 18, and the *BC Fire Code*, (e.g., edition 2006 article 5.3) with respect to protection from fires and explosions of combustible dust.

Employers should not rely solely on the generic information in this guideline to minimize hazards that could lead to a dust explosion. The entire relevant standard(s) or code(s) should be consulted for complete information.

What is a "dust collector having an internal volume greater than 0.6 m³ (20 cu. feet)?"

A dust collector is one component of a dust collection system. The collection system is a pneumatic conveying system that is specifically designed to capture dust at the point of generation, sometimes from multiple pieces of equipment, and convey the particulate to a point of collection. The system includes the collection hood, conveyance ducting, and flexible hoses, exhaust fan, motor, and dust collector. The dust collector, also called an air-material separator, is a device used to separate the particulate material from the air stream, and includes but is not limited to cyclones, baghouse and media-type filter collectors, wet-type collectors, electrostatic precipitators, and enclosureless units.

A *cyclone* is defined in *NFPA 664* as a cylindrical type of dust collector used to separate particulate from the air stream by centrifugal force, having an enclosure of circular cross-section, a tangential air and material inlet, an air exhaust outlet, and a material discharge. In order to determine whether section 5.71(3) is applicable, the internal volume of the dust collector needs to be determined. The internal volume of a cyclone is considered to be the volume of the collector from the tangential inlet through the cylindrical and conical area, and includes the chute and dust container that holds the captured dust.

A *baghouse* dust collector is an air-material separator designed and used to remove dust from the transport air through a filter medium of suspended bags that are contained within an enclosure. The internal volume is considered to be the total volume inside the enclosure from the entrance point of the air-particle mixture, and includes the volume of the container designed to hold the captured dust.

NFPA 664 defines an *enclosureless dust collector* as an air-material separator where filtration is accomplished by passing dust-laden air through filter media, collecting the dust on the inside of the filter media and allowing cleaned air to exit to the surrounding area (Note: See also *Regulation* section 5.70 and guideline [G5.70](#) for information about requirements for discharged air). The filter medium is not enclosed, is hand shaken and is under positive pressure during use. Removal of the collected dust is not continuous or mechanical. The internal volume of an enclosureless dust collector is considered to be the air volume inside all the bags plus the air volume of the container designed to hold the captured dust.

If the manufacturer's specifications for a dust collector do not include the internal volume of the dust collector, this volume can be calculated from measurements of height and area.

What is a combustible dust?

NFPA 654 defines combustible dust as a combustible particulate solid that presents a fire or deflagration* hazard when suspended in air or some other oxidizing medium over a range of concentrations, regardless of particle size or shape. This definition replaces a previous definition that required the particles to be, on average, less than 420 micron (0.017 inch) diameter (capable of passing through a U.S. No. 40 Standard Sieve). The newer definition applies more broadly to include elongated particles such as paper dust and some agglomerates, for which particle diameter is not a useful concept.

*NFPA Standards and this guideline use the term "deflagration." Deflagration is the propagation of a pressure wave (at a speed less than the speed of sound) from the ignition of a combustible dust, and includes both fires and explosions. An explosion can occur if the deflagration occurs in an enclosed space such as a dust collector, duct, or building.

Not all dusts are combustible. For example, substances that are stable inorganic oxides (e.g., silicates, sulphates, phosphates, and carbonates) are not combustible. Therefore dust clouds of Portland cement, sand, limestone, etc. are not combustible.

Materials that are combustible and that can give rise to dust explosions include, but are not limited to

- Food products (e.g., grain, cellulose, powdered milk, sugar, flour, starch, etc.)
- Natural organic materials (e.g., wood dust, wood flour, textiles such as cotton dust and nylon dust, biosolids, etc.)
- Synthetic organic materials (plastics such as phenolics and polypropylene, resins such as lacquer and phenol-formaldehyde, organic pigments, pharmaceuticals, pesticides, etc.)
- Coal and peat
- Metals (e.g., aluminum, magnesium, zinc, iron, etc.)

Combustible dusts have varying limits of flammability. These are usually expressed in terms of grams per cubic metre. For example, aluminum dust may be listed as requiring an airborne concentration of 30 grams per cubic metre for a combustible atmosphere to exist whereas coal dust may require 60 grams per cubic metre. A layer of dust as thin as a dime dispersed throughout a room can create an explosion hazard.

NFPA 499 Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas (2008) includes a table of selected combustible materials. This is not a comprehensive list and a dust should be considered to be combustible unless it is known otherwise. For certain, substances that are combustible as particulates should be considered as combustible dusts. OSHA also publishes a list of substances for which there is a risk of combustible dust explosion, at <https://www.osha.gov/Publications/combustibleposters.pdf>

What is a dust explosion?

A dust explosion/deflagration is essentially the very rapid combustion of a dust cloud or suspension of dust in air, during which heat and pressure is generated at a very high rate. The conditions necessary for an explosion are a sufficiently dense dust cloud of combustible dust in an enclosed area, adequate oxygen/air to support combustion, and an ignition source.

Dust explosions can be very destructive. Often there is a series of explosions in which the primary explosion/deflagration is relatively small. The pressure from the primary explosion can be intense enough to dislodge dust off walls, beams, ledges, machines, and other surfaces. This dislodged dust then mixes with air, creating a much larger dust cloud which can then be ignited and react explosively creating a secondary catastrophic explosion. This secondary explosion/deflagration can be much larger than the primary explosion.

Location and construction of dust collectors

The guidance in this guideline is taken mainly from the five NFPA standards listed above in the Background section. Information provided here represents some of the control measures from the NFPA standards. In addition, *NFPA 69 Standard on Explosion Prevention Systems (2008)* provides information on preventing and controlling deflagrations.

The NFPA standards also contain specifications not directly related to location or construction of the dust collector (e.g., electrical protection, ventilation, control of ignition sources, spark detection and arrest, isolation devices, ductwork, partitioning, preventing dust accumulations on horizontal surfaces, sprinkler and other fire suppression systems, relief venting, etc.). These specifications are not directly related to *Regulation* subsection 5.71(3) but many are related to other regulatory requirements. Employers should not rely solely on the generic information in this guideline to minimize hazards leading to dust explosions. The entire relevant standard(s) should be consulted for complete information.

Location of a dust collector

Regulation section 5.71(3) specifies that a dust collector used to control combustible dust be located so that no worker will be endangered in the event of an explosion inside the collector. Dust collectors used for collection of combustible dust are appropriately located outdoors - this is usually the preferred location with respect to compliance with this section of the *Regulation*. Under certain circumstances and conditions, it is acceptable to locate a dust collector indoors. The relevant B.C. Codes and NFPA standard(s) should be consulted for complete information on these circumstances and conditions, but some general guidance is provided here.

The *BC Fire Code* (2006) specifies in Division B Section 5.3 that a dust collector having a flow capacity greater than 0.5 m³/s be located outside of a building and be equipped with explosion venting to the outdoors of not less than 0.1 m² of vent area for each cubic metre of dust collector enclosure volume.

The *BC Fire Code* allows a dust collector to be located inside a building if it is

- a) Provided with explosion venting to the outdoors
- b) Equipped with an automatic explosion prevention system, or
- c) Located in a room with fire separations having a fire-resistance rating of not less than 1 hr and provided with explosion venting to the outdoors

The *BC Fire Code* also requires, when exhausted air is returned to the building, that the dust-collection system be designed so that the exhaust fan and ancillary equipment are automatically shut down in the event of a fire or an explosion inside the dust collector. Construction of a dust collector

should also include isolation devices where ductwork returning to a building from the dust collector can provide a path for a fireball and a pressure wave to enter the building.

A number of NFPA standards also provide guidance for the location of a dust collector, and this guidance is acceptable as long as it does not contradict British Columbia code requirements such as the *BC Fire Code*. For example, *NFPA 61* Chapter 10 specifies location criteria for dust collectors used in **agriculture and food processing facilities**, including operations involving dry agricultural bulk materials and their by-products, and dusts that include grains, oilseeds, agricultural seeds, legumes, sugar, flour, spices, feeds, and other related materials. An outside location of the dust collector is required, with several exceptions listed in the standard.

NFPA 484 describes specific dust collector location criteria for a number of **combustible metals** and has specific chapters for control of combustible dust hazards from alkali metals, aluminum, magnesium, niobium, tantalum, titanium, zirconium, and other combustible metals.

NFPA 654 provides specifications for control of dust explosions from **materials not specifically addressed by another more specific NFPA standard**. This standard specifies that, where an explosion hazard exists, air-material separators be located outside of buildings. The standard provides some exceptions to this specification in Chapter 7.

NFPA 655 provides general specifications for control of fires and explosions from processes involving **sulfur** dust, and includes specific location criteria for the dust collector.

NFPA 664 provides specifications for selecting the location for a dust collector in **wood processing and woodworking facilities**. Outdoor locations are recommended. The standard recommends that dust collectors not be located on the roof of a building. Indoor locations are permitted by the standard under special circumstances, which are listed in the standard for enclosed and enclosureless dust collectors.

Construction of a dust collector

Dust collectors used for combustible dust need to be designed and constructed entirely of non-combustible material suitable for the use intended (Note: the use of aluminum paint on the inside of a metal dust collector increases the fire hazard and should be avoided. If the aluminum flakes off or is struck by a foreign object, the heat of impact could be sufficient to cause ignition of the aluminum particle, thereby initiating a fire). However, filter bags and explosion vent panels fabricated from combustible material are acceptable. Dust collectors need to be constructed to prevent leakage of dust into the rest of the workplace and to minimize internal ledges or other points of dust accumulation (e.g., hopper bottoms should be sloped; surfaces and seams should be smooth). This is important since an accumulation of as little as 0.8 mm (1/32 inch) thick of combustible dust on horizontal surfaces (both inside and outside the dust collector) may lead to a secondary and more damaging explosion following any primary explosion. Dust collectors need to have independent supporting structures capable of supporting the weight of the collector, the material being collected, and any water from extinguishing systems that will not readily drain from the system.

NFPA 61 Chapter 10 specifies criteria for construction of a dust collector used for **agricultural and food processing** operations.

NFPA 484 describes construction criteria for dust collection in **metal operations**.

NFPA 655 provides general specifications for control of fires and explosions from processes involving **sulfur** dust, and includes specific construction criteria.

NFPA 664 describes location and construction criteria for **wood processing and woodworking** facilities (see especially section 8.2).

Explosion relief venting and suppression

Explosion relief vents are panels or doors that are deliberate points of weakness. If they are of the correct size and construction, and properly positioned, they can help to safely vent an explosion in a dust collector so that workers are not endangered. These relief vents should be designed and constructed by experts. *NFPA 68 Standard on Explosion Protection by Deflagration Venting (2007)* addresses the design, location, installation, maintenance, and use of devices and systems that vent the combustion gases and pressures resulting from a deflagration within an enclosure. The standard specifies that deflagration venting be arranged to avoid injury from the vent discharge and that the material discharged from an enclosure during the venting of a deflagration be directed outside to a safe location.

NFPA 654 includes information on deflagration venting, suppression systems, mechanical and chemical isolation systems, flame front diverters, and abort gates to lower the risk to workers in the event of an explosion inside a dust collector.

Guidelines - Part 5 - Internal Combustion Engines

G5.73 Engine servicing and work area assessment for mobile equipment operated indoors

Issued June 6, 2006; Editorial Revision October 28, 2019; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 5.73 of the *OHS Regulation* ("Regulation") states:

If mobile equipment powered by an internal combustion engine is operated indoors or in an enclosed work area

- (a) the engine must be adequately serviced and maintained to minimize the concentration of air contaminants in the exhaust, and
- (b) the work area must be assessed to determine the potential for exposure of workers to harmful levels of exhaust components.

Section 5.74 of the *Regulation* states:

If a worker is or may be exposed to an exhaust gas component in concentrations exceeding the applicable exposure limits, exhaust gas scrubbers, catalytic converters, or other engineering controls must be installed.

Purpose of guideline

This guideline provides information on

- The scope of application of section 5.73 to equipment with internal combustion engines
- Harmful emissions associated with the operation of internal combustion engines of the major fuel types - gasoline, natural gas, diesel, and propane (also termed liquefied petroleum gas or LPG)
- The importance of adequate servicing and maintenance of internal combustion engines and specific requirements for servicing and maintaining these engines
- The importance of adequately assessing the work area to determine the potential for exposure of workers to harmful levels of exhaust components, along with information on how to do that assessment

Scope of section 5.73

Mobile equipment

"Mobile equipment" is defined in [Part 16 \(Mobile equipment\)](#) of the *Regulation*, as "a prime mover, or a prime mover with a towed component, which towed component moves relative to the ground, or has a rider, for its work function, but does not include (a) a prime mover, or a towed component, that is carried as a load, (b) a commercial passenger vehicle under the *Passenger Transportation Act*, including a bus or a taxi, or (c) a motor assisted cycle, scooter, minibike, skateboard or other miniature vehicle." Based on this definition, section 5.73 applies to ground machines such as ice resurfacers, forklift trucks, excavators, and skidsteer loaders, if powered by an internal combustion engine.

Indoor and enclosed work areas

Section 5.73 applies to mobile equipment used indoors or in an enclosed work area. Refer to OHS Guideline [G5.75](#) for a discussion of the meaning "indoors." For the purposes of this guideline, the term "enclosed" refers to any other work area where the operation of an internal combustion engine may result in the buildup of harmful exhaust gases. Such areas may include, but are not limited to, vehicle parking garages, tractor trailers, ferries with enclosed or partly enclosed car decks, or a building under construction, at a stage when natural air flows may become restricted.

It should be noted that section 5.73 is one of a series of requirements on the use of internal combustion engines, found in sections [5.72 to 5.75](#) of the *Regulation*. Other requirements such as section [5.55](#) on types of controls also apply.

Air contaminants in exhaust emissions

Section 5.73 refers both to "air contaminants" and "exhaust components." For the purposes of this guideline these terms will be considered to be interchangeable.

Although section 5.73 technically applies to a wide range of air contaminants that may be emitted during internal combustion engine operation, for practical purposes the number of exhaust components that need to be considered is usually limited to relatively few components, as discussed below.

Propane/gasoline/natural gas

For engines powered by gasoline, propane, and natural gas, the major harmful emissions are carbon monoxide (CO), hydrocarbons (HC), and oxides of nitrogen (NO_x).

Studies have shown that the HC components of the exhaust are generally not significant until the level of CO produced results in worker exposures well in excess of the applicable exposure limits. As a result, generally only CO or oxides of nitrogen (principally nitrogen dioxide or NO₂), need to be considered when these fuel types are being used.

Diesel

Determining primary air contaminants of concern from diesel powered equipment is more problematic, as the number of contaminants of significance can be considerable. The major components of diesel exhaust include carbon monoxide, hydrocarbons, aldehydes, nitrogen oxides, sulfur dioxide (SO₂), diesel particulate matter and polynuclear aromatic hydrocarbons (PAH). Diesel particulate matter is a complex aggregate of solid and liquid material. Diesel particulate is very fine and as such is totally respirable.

Engine servicing and maintenance - section 5.73(a)

Section 5.73(a) requires that the engine of the mobile equipment be adequately serviced and maintained to minimize the concentrations of air contaminants in the exhaust. Some general considerations related to this requirement are provided below along with recommendations for specific fuel types.

General considerations

This requirement of section 5.73(a) can only be met by implementing an effective program of regular servicing and maintenance of the engine. The levels of exhaust contaminants from engines of all fuel types can be reduced by an effective program of regular servicing and maintenance. The program should consider both the specifics of how the servicing and maintenance is to be performed, as well as the frequency.

Maintenance and servicing should be performed in accordance with the instructions of the manufacturer or those of a qualified mechanic for the

type of equipment being used. The frequency of servicing should be determined by the information from the manufacturer or mechanic, together with the results of workplace assessment and ongoing monitoring.

Minimizing the concentration of one contaminant in an engine's exhaust may result in the increase of another, in addition to potentially adversely compromising engine performance. Hence, "minimizing the concentrations," in the context of this guideline, refers to striking the optimum balance between contaminant emission levels and engine performance.

Experience has shown that specific obligations need to be met, depending on the fuel type, in order to ensure that contaminant levels are minimized in the exhaust.

Propane/gasoline/natural gas

Maintenance involves typical adjustments and parts replacement required to maintain engine performance. However, to ensure that the concentrations of air contaminants in the exhaust are effectively minimized for these fuel types, exhaust emission levels should be directly measured. Exhaust gas measurement completes the preventive maintenance program and gives the employer a good quality control tool for determining an adequate schedule for adjustments and parts replacement.

As a general rule, exhaust emissions should be analyzed before performing any servicing or maintenance, as well as afterwards. The exhaust gas analyzer used for measuring should be at least a four gas model (CO, CO₂, HC, and oxygen) and preferably include NO₂ as well. At a minimum, it should meet BAR-90 specifications of the California Bureau of Automotive Repair. The need to analyze for NO₂ can usually be determined from workplace air monitoring results. Emission levels should be measured both at idle and also under load.

The optimum balance between good power efficiency and emissions will vary depending on the engine and fuel type. This balance will usually be achieved when the ratio of air to fuel is the exact amount required for complete combustion (e.g., about 14 to 1 for propane).

In general, for engines not equipped with specific emission controls such as catalytic converters, the level of carbon monoxide in the exhaust should not exceed about 1% for propane (with the optimum between about 0.5% - 0.8%) and about 2% for gasoline. It should be noted that if CO levels are much below 0.5%, then NO₂ will need to be evaluated as well.

For engines equipped with catalytic converters, a thermocouple installed either downstream of the catalyst or both upstream and downstream, can be used as an indicator of whether the catalyst has reached operating temperature (emissions will be considerably higher until this temperature is reached). Indoor emissions can be reduced by keeping equipment outside until the catalyst has reached operating temperature. Thermocouples can also help determine if the catalytic converter needs replacement, that is, when the operating temperature cannot be reached.

A gasoline powered engine may produce a visible smoke in the exhaust and a significant odour if it is running significantly out of tune or is otherwise in need of servicing or repair. Engines powered by propane or natural gas may not, so the absence of significant odour or smoke haze in the workplace is not a reliable indicator of acceptable air quality.

Diesel

It is essential that diesel engines be serviced and maintained in accordance with the schedule recommended by the manufacturer. Particular attention should be paid to the regular replacement of the fuel filter and to fuel injector servicing. In addition, diesel fuel designed for on-road use (i.e. diesel fuel with the lowest available sulfur level) should be used in order to minimize sulfur related emissions.

Visible smoke from the exhaust of a diesel engine may be an indicator of the need for tuning or servicing as follows:

- Blue smoke (mainly oil and unburnt fuel) - may indicate a badly worn engine in need of servicing.
- Black smoke (soot, oil and unburnt fuel) - indicates mechanical fault with the engine, such as defect in the fuel delivery system or the engine is working near its maximum speed.
- White smoke (water droplets and unburnt fuel) - produced when the engine is started from cold. Where appropriate the engine should be warmed up outside.

NOTE: Where visible smoke is excessive, opacity testing, using the protocol in Society of Automotive Engineers (SAE) smoke test procedure J1667, or other applicable particulate emission test, may be needed in order to demonstrate that emissions have been minimized.

Work area assessment - section 5.73(b)

The extent of the work area assessment required will depend on the circumstances of each workplace. In most cases actual measurement of air contaminants or an indicator of them will be necessary on a regular basis, in order to meet the requirements of section 5.73(b).

Measurement of the air contaminant levels may not be needed in circumstances where contaminant levels measured are minimal and exhaust emission controls have been provided, an effective service maintenance program is in place, and workplace ventilation rates are adequate. If at any time the workplace assessment suggests that workers may be exposed to levels above the applicable exposure limit, then equipment operation should be suspended until additional controls are provided.

Measuring exposure to air contaminants must be conducted using occupational hygiene methods acceptable to WorkSafeBC (refer to OHS Guideline [G5.53](#)). Both the short term exposure limit as well as the 8-hour limit must be considered for contaminants such as CO. Since NO₂ is assigned a ceiling limit, maximum exposure must be anticipated and evaluated. Re-evaluation is required if circumstances of use are altered which could increase exposure.

Preliminary assessment

In most cases, a preliminary assessment to determine the general suitability of equipment should be conducted before the equipment is put into operation. An additional air contaminant assessment may also be required, depending on the results of the preliminary assessment.

The preliminary assessment should consider factors such as

- Is an alternative type of safer equipment available, which is practical to use under the circumstances, such as non-internal combustion engine options, or other equipment and engine fuel type options?
- Can engine exhaust be practicably vented to the outdoors? This may be feasible where the mobile equipment remains essentially in one area for extended periods of time or moves slowly. For example, where mobile equipment such as excavators, concrete saws, or elevating work platforms are being used in construction.
- Frequency and pattern of operation.
- Type of fuel. Gasoline powered engines generally emit higher levels of CO than other fuel types, while propane and diesel emit higher levels of NO₂. In general, unless the equipment is provided with emission controls, a gasoline powered engine is not recommended for use under circumstances where the equipment is regularly operated indoors or in enclosed work areas. Quality of fuel should also be considered.
- Engine size. Small engines generally emit proportionately higher levels of CO.
- Exhaust contaminant levels.
- Types of emission controls. With emission controls, contaminant levels can be expected to be significantly reduced.
- Natural ventilation rate. The larger the work area volume the greater the natural ventilation rate.
- Mechanical ventilation rate. The ACGIH Industrial Ventilation Manual, for example, stipulates a ventilation flow rate of 5000 cubic feet per minute (cfm) per forklift; studies have shown that this same ventilation rate is necessary to control the emissions from some small engines not designed for indoor operation.

Air contaminant assessment

Some guidance is provided below on the circumstances in which an additional air contaminant assessment is needed, and on acceptable levels of air contaminants for specific engine fuel types. In all cases, the employer must ensure that worker exposure does not exceed the exposure limits set out in [section 5.48](#) of the *Regulation*.

The level of air contaminants emitted in the engine's exhaust will generally be significantly higher when the engine is first started from cold. Thus, whenever possible, the equipment should be brought to operating temperature outdoors or with the exhaust vented directly outside, before running the equipment inside.

The initial air testing should be conducted under the conditions in the workplace that are expected to result in the highest exposure levels. If air contaminant levels under these "worst case" conditions are well within the applicable exposure limits (e.g., meets with the low exposure level criteria described below), then additional air testing would not likely be required.

Air testing considerations are provided below for engines operating on different types of fuels. In some cases where more than one fuel type is involved (for example in vehicle parking garages or ferries) a broader range of air contaminants may need to be considered to adequately assess exposure.

Exposure levels are defined as follows:

- *Low exposure* refers to exposure levels of less than one-tenth of the corresponding exposure limit.
- *Moderate exposure* refers to exposure levels of from one-tenth to less than one-half of the exposure limit.
- *High exposure* refers to exposure levels of one-half or more of the exposure limit.

Gasoline/propane/natural gas

For engines not equipped with emission controls, carbon monoxide (CO) can generally be used as a good indicator of overall exposure levels. However, even if CO levels are low, nitrogen dioxide (NO₂) exposure levels will also need to be evaluated. (Very low CO levels usually indicate that engine is running lean, which will result in higher NO₂ emissions.) If the engine is equipped with a catalytic converter (which reduces CO and HC) or 3-way catalytic converter with air/fuel ratio feedback control system (which reduces CO, HC, and NO₂) then it is essential that NO₂ be evaluated as well.

Depending on the level of exposure, the suggested frequency for air contaminant assessment is as follows:

- *Low exposure* - no additional air testing is required provided the service and maintenance program (which includes exhaust gas analysis as outlined previously) is established and maintained. Re-evaluation should be done if conditions of operation change.
- *Moderate exposure* - frequency of air testing will depend on exposure levels, types of controls, and workplace experience. In any case re-evaluation should be done at least every six months.
- *High exposure* - continuous monitoring for contaminant(s) of concern should be conducted. In any case, at least weekly monitoring is required.

Special cases:

1. *Ice arenas* - Experience has shown that significant problems with indoor air quality can arise from the indoor operation of the ice resurfacing machine as well as the ice edger. Such workplaces should be equipped with continuous monitoring equipment for both CO and NO₂ and monitoring should be conducted at 1.8 metres (6 feet) or so above ice level. Periodic evaluations for CO and NO₂ levels should also be conducted in other areas of the arena complex not serviced by continuous monitors.

2. *Construction sites* - Since ventilation options may be limited on construction sites when working in relatively confined areas, consideration should always be given to use of mobile equipment which does not result in the accumulation of exhaust contaminants in the work area. Where this is not practical, ongoing monitoring for CO needs to be conducted to ensure that both the short-term exposure limit and 8-hour limit are not exceeded.
3. *Small engines* - Some small portable equipment such as power washers, concrete saws, floor burnishers, and generators may be powered by internal combustion engines. Such equipment is not considered to be mobile equipment under the *Regulation*, and hence is not subject to section 5.73. However, before using any such equipment indoors the employer should ensure the equipment is designed by the manufacturer for indoor use. Fatalities have occurred as a result of indoor use of equipment designed solely for operation outdoors. If no other options are practical, then the ventilation rate should be measured and shown to be at least 5000 cfm per engine or the engine exhaust must be effectively ventilated directly to the outside. In any case, ongoing monitoring for CO will be required to ensure exposure limits are not exceeded.

Diesel

Although evaluating worker exposure to air contaminants generated by diesel engines tends to be more challenging than with other common fuel types, due to the number of potential air contaminants, diesel exhaust emissions are usually more visible. For example, they contain over ten times more particulate matter or smoke than gasoline engine emissions. In addition they are more directly irritating. As such, a more subjective evaluation can also prove useful as a workplace exposure assessment tool.

Since diesel exhaust generally contains relatively low levels of carbon monoxide, CO alone cannot be used as a reliable indicator of exposure. Nitrogen dioxide (NO₂) is a principal concern, but contaminants such as aldehydes and diesel particulate matter may also be significant.

As a minimum, exposure evaluation will need to include CO and NO₂. Where exposure to both of these contaminants is within the applicable exposure limits, and where particulate (smoke) levels are not significant and workers are not experiencing any irritant or other ill effects that may be attributable to exposure to diesel exhaust, direct evaluation of other air contaminants may not be required. Where diesel powered equipment is being regularly operated indoors or in an enclosed work area, air monitoring for air contaminants other than CO and NO₂ should be conducted, unless contaminant levels are well within their respective exposure limits.

Once the relationship between CO and NO₂ and other diesel exhaust contaminant levels has been established for a given set of workplace circumstances, a single gas such as CO may be used for continuous or ongoing monitoring purposes. In this instance, the CO level to be used as an indicator of acceptable air quality will be significantly less than the 8-hour TWA limit of 25 ppm. Ambient CO levels of less than 10 ppm are to be achieved before other contaminants can be assumed to be within acceptable levels.

For certain applications, such as where heavy duty or larger diesel engines are being operated, carbon dioxide (CO₂) may also be used as an indicator of contaminant levels. For example, where CO₂ levels are less than about 1000 ppm and the subjective criteria referred to above have also been met, then all contaminant levels associated with diesel exhaust are likely within acceptable limits. If representative indicators such as CO₂ are used as the only indicator of harmful exposure to exhaust components, the employer is expected to support this approach using additional assessment criteria.

The following table summarizes how CO₂ levels and/or a combination of CO and NO₂ readings could be used to assess the potential for worker exposure to harmful levels of diesel exhaust components. (The table is adapted from "Control of Diesel Exhaust Emissions in the Workplace" Health & Safety Executive, U.K.)

Table: Exposure levels and emission controls

Low	Medium	High
No visible haze in the workplace	Occasional white, blue, or black smoke visible in the workplace	Permanent white, blue, or black smoke
No visible soot deposits	Soot deposits visible	Heavy soot deposits especially near emission points
No complaints/reports of irritancy or other ill effects	A few complaints of irritancy or other ill effects	Worker complaints widespread
CO ₂ levels less than 800 ppm and/or CO <8 ppm and NO ₂ levels less than 50% of the exposure limit of 1ppm (ceiling)	CO ₂ levels near 800 ppm and/or CO levels approaching 10 ppm or NO ₂ levels approaching the exposure limit	CO ₂ levels in excess of 1000 ppm and/or CO levels in excess of 10 ppm or NO ₂ levels above the exposure limit

Controls likely to be adequate - periodic reevaluation	Controls may not be adequate. Additional assessment for other contaminants will likely be required or additional controls	Controls not likely adequate. Immediately cease operations and decide on new control strategy before resuming. Reevaluation required
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G5.75 Mobile equipment emission controls

Issued: July 27, 2005

Regulatory excerpt

Section 5.75 of the *OHS Regulation* ("*Regulation*") states:

Mobile equipment manufactured after January 1, 1999 that is regularly operated indoors must be

(a) equipped with an emission control system that includes a feedback control for air/fuel ratio, and a three-way catalytic converter if the mobile equipment is powered by gasoline, propane or natural gas, or other measures acceptable to the Board, or

(b) equipped with a scrubber or other emission control system that reduces particulate emissions by at least 70% when tested according to the procedures of the Mine Safety and Health Administration, US Department of Labour, or must meet another standard acceptable to the Board, if the mobile equipment is powered by diesel fuel.

Purpose of guideline

This guideline provides information on the circumstances in which emission controls are expected on mobile equipment powered by internal combustion engines, when used indoors. The guideline deals largely with section 5.75, but also discusses several related requirements. It explains what is meant by the terms "regularly operated" and "indoors" in section 5.75 and also points out a specific requirement in agriculture.

The context of section 5.75

This provision is one of a series of requirements on the use of internal combustion engines indoors, found in [sections 5.72 to 5.75](#) of the *Regulation*.

Section 5.72 addresses the obligation to vent engine exhaust to the outdoors where possible. Typically this requirement applies to engines that are fixed in place and to those locations where vehicles undergo engine repair or maintenance.

For mobile equipment operated indoors or in enclosed areas, section 5.73 requires a risk assessment be done to assess the potential for exposure of workers to harmful levels of air contaminants. It also requires that engines be adequately maintained and serviced.

Section 5.74, which applies to both fixed and mobile equipment used indoors, requires that engineering controls be installed on the equipment, but only if workers are or may be exposed to harmful levels of air contaminants as a result of engine operation.

Section 5.75 is a technology-based requirement that establishes an obligation to install certain emission control equipment on newer mobile equipment manufactured after January 1, 1999, when the equipment is "regularly operated indoors" to help prevent any likelihood of the over-exposure of workers to air contaminants.

Typically employers who own equipment will be expected to ensure any necessary modifications are made to ensure compliance with section 5.75. In cases where suppliers provide equipment in a lease or rental arrangement, and it is known that the equipment would be regularly operated indoors, then under the *Workers Compensation Act*, the supplier also carries responsibilities for compliance.

The remainder of this guideline discusses what is meant by the phrasing "regularly operated indoors" and provides information on its application to agriculture.

What is meant by "regularly operated"?

The term "regularly operated," as it applies to indoor use, means that the equipment is either typically used indoors (that is, for a majority of its use time), or is used indoors on a recurring and substantial basis.

Examples of equipment that is typically used indoors include ice-surfacing equipment at indoor skating rinks, and forklifts used inside warehouses to move product around the warehouse or to handle deliveries in the warehouse to and from loading bays. Such equipment, if manufactured after January 1, 1999, is required to have emission control equipment installed as per section 5.75.

Section 5.75 is also applicable to equipment that is used indoors on a recurring and substantial basis, even though it is typically used outdoors. There are two points of clarification in this case.

- The recurring use should be ongoing to require the installation of emission controls. For example, if a piece of equipment such as a bobcat is used indoors for a week or two to excavate some subsoil during the renovation of a foundation, but is otherwise always used outdoors, then

emission control equipment would not be required.

- Where a piece of mobile equipment is used indoors on an ongoing recurring basis that use must also be reasonably substantial in extent. For example, if a forklift is used indoors on a recurring basis, but for no more than 15-20% of its total use time on a typical day, then normally section 5.75 will not apply. Under this scenario, section 5.75 is not expected to apply to a piece of mobile equipment that is operated indoors only for purposes such as parking the equipment, maintenance or repairs.

However, in both the above cases the areas in which the equipment is used must be assessed to determine the potential for workers to be exposed to harmful levels of exhaust components, as required by section 5.73(b). If usage of a piece of mobile equipment, regardless of its extent, (or date of manufacture) exposes or may expose a worker to concentrations of an exhaust gas component exceeding the applicable exposure limit, then section 5.74 applies and an exhaust gas scrubber, catalytic converter or other engineering controls must be installed.

What is meant by "indoors"?

This term is intended to apply to those buildings or other structures that will tend to prevent natural air flow, and trap exhaust contaminants within the structure. Typically, a four-sided roofed structure that is structurally open on at least two sides where the equipment is being operated will not be considered to be "indoors". If the area in which the equipment is being operated is enclosed on three of the four sides it would likely be considered to be an indoor environment, even if it has a number of doors that could be left open. If the area where the equipment is being operated is substantially open above, it may not be considered to be indoors if at least one side is also open.

Application to agriculture

Note that the requirements of the *Regulation* did not apply to agriculture until January 1, 2005. As a result, [section 28.33](#) makes the requirements of section 5.75 applicable in agriculture only to equipment purchased for first use after January 1, 2006. This guideline also applies to that agriculture equipment.

Guidelines - Part 5 - Hazardous Wastes and Emissions

G5.80 Hazardous wastes and emissions - Sharp-edged waste

Issued August 1999; Editorial Revision February 1, 2008

Regulatory excerpt

Section 5.80 of the *OHS Regulation* ("*Regulation*") states:

Broken glass, metal or similar rigid, sharp-edged waste must be disposed of in separate, puncture proof waste containers and the contents of the containers must be clearly identified.

Purpose of guideline

The purpose of this guideline is to discuss disposal procedures for sharp-edged waste. It also discusses features of an acceptable puncture-proof waste container.

Sharp-edged waste

Under section 5.80 of the *Regulation*, sharp-edged waste must be disposed of in separate, puncture-proof waste containers and the contents of the containers must be clearly identified. This section applies to broken glass, metal, or other similar rigid sharp-edged waste. The requirements for needle sharps contaminated with either biological agents or cytotoxic drugs are addressed under sections [6.36](#) and [6.57](#).

An acceptable "puncture-proof waste container" should be rigid enough to contain whatever waste it was intended to hold. Thus, plastic or paper bags should not be used for broken glass, but metal or fibreboard (thick cardboard) chemical drums would be acceptable. In this section, "clearly identified" normally means affixing an identifier label on the container, for example "broken glassware."

G5.81 Combustible dust - Sawmills and other wood products manufacturing facilities

Issued April 25, 2012; Editorial Revision May 1, 2012; Revised December 19, 2013; Revised August 15, 2014; Revised March 11, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Responsibilities for worker health and safety are established by the *Workers Compensation Act* ("*Act*") and the *OHS Regulation* ("*Regulation*").

Section 21 of the *Act* states in part:

General duties of employers

- (1) Every employer must
 - (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), an employer must

(a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers...

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work...

Section 22 of the *Act* states in part:

General duties of workers

(1) Every worker must

(a) take reasonable care to protect the worker's health and safety and the health and safety of other persons who may be affected by the worker's acts or omissions at work....

Section 23 of the *Act* states in part:

General duties of supervisors

(1) Every supervisor must

(a) ensure the health and safety of all workers under the direct supervision of the supervisor...

Section 3.5 of the *Regulation* states:

General requirement

Every employer must ensure that regular inspections are made of all workplaces, including buildings, structures, grounds, excavations, tools, equipment, machinery and work methods and practices, at intervals that will prevent the development of unsafe working conditions.

Section 3.7 of the *Regulation* states:

Special inspections

A special inspection must be made when required by malfunction or accident.

Section 3.9 of the *Regulation* states:

Remedy without delay

Unsafe or harmful conditions found in the course of an inspection must be remedied without delay.

Section 3.10 of the *Regulation* states:

Reporting unsafe conditions

Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.

Section 5.81 of the *Regulation* states:

Combustible dust

If combustible dust collects in a building or structure or on machinery or equipment, it must be safely removed before accumulation of the dust could cause a fire or explosion.

Prevention Policy Item ("Policy") P2-21-3 states in part:

Reasonable Steps to Address the Hazard

WorkSafeBC considers that reasonable steps by an employer to address the hazards of combustible wood dust include the following:

(a) conducting a risk assessment to identify combustible wood dust hazards at the workplace;

(b) developing and implementing a combustible wood dust management program to effectively address combustible wood dust hazards;

- (c) educating and training workers and supervisors about the hazards and measures in the combustible wood dust management program to control the hazards;
- (d) ensuring that the combustible wood dust management program is fully implemented;
- (e) undergoing a wood dust mitigation and control audit as soon as reasonably possible after implementing the program, then
 - (i) promptly implementing recommendations from the audit, and
 - (ii) conducting a new audit if there is any material change to work processes or equipment;
- (f) reviewing the combustible wood dust management program
 - (i) annually, and
 - (ii) simultaneously with any material changes to work processes or equipment to ensure that these changes are addressed; and
- (g) complying with the employer's combustible wood dust management program.

Policy P2-22-2 states:

A worker's obligation to take reasonable care to protect the health and safety of themselves or others includes:

- (a) reporting unsafe conditions or actions relating to combustible wood dust in the workplace to a supervisor, or to the employer, as soon as possible; and
- (b) complying with the employer's combustible wood dust management program.

Policy P2-23-3 states:

In addition to a supervisor's duties as a worker or employer, a supervisor's obligation to ensure the health and safety of workers includes:

- (a) investigating any reports received by the supervisor or inspection results identifying an unsafe condition or act relating to combustible wood dust and ensuring that necessary corrective action is taken immediately; and
- (b) complying with the employer's combustible wood dust management program.

Purpose of guideline

This purpose of this guideline is to provide information regarding the requirement for employers in the following eight classification units to mitigate the hazards associated with combustible wood dust:

1. Sawmill – 714022
2. Oriented Strand Board Manufacture – 714012
3. Planing Mill – 714015
4. Pressed Board Manufacture (not elsewhere specified and includes pellet plants) – 714019
5. Pulp and Paper Mill – 714044
6. Shake and Shingle Mill – 714023
7. Veneer or Plywood Manufacture – 714027
8. Wooden Component Manufacture (not elsewhere specified) – 714032

The intention of this guideline is as follows:

- Assist employers in understanding the hazards of combustible wood dust
- Provide guidance on developing a combustible wood dust management program, including risk assessment and training of workers and supervisors
- Provide information on conducting a wood dust mitigation and control audit
- Describe WorkSafeBC's inspection and compliance approach to wood product manufacturing operations in the classification units listed above

Background

Combustible wood dusts in the workplace present a risk of both fire and explosion if they are not managed effectively. A dust explosion or serious fire can cause catastrophic loss of life, injuries, and destruction of buildings.

Controlling combustible wood dust hazards requires a systematic long term approach contained in a combustible wood dust management program ("Program"). Following the implementation of the Program, an audit, which provides an objective and comprehensive evaluation of a facility's wood dust management practices and their effectiveness, must be conducted. The foundation for this systematic long term approach is a thorough risk assessment. The employer has the flexibility to evaluate the risk based on relevant criteria and considerations, such as wood dust properties

and ignition potential.

The compliance standard that employers are required to meet will reflect the performance based nature of the obligations in the policies. WorkSafeBC inspections will focus on the quality of the risk assessment, the Program, and the requirement for an audit. The expectation will be that employers will ensure worker safety by identifying combustible wood dust hazards and effectively evaluating and managing the risks. The presence of dust in excess of acceptable limits may indicate non-compliance if that accumulation was not identified in the risk assessment or not adequately accounted for and controlled in the Program.

Understanding combustible wood dust

It is important to understand the science behind the generation of wood dust and how it relates to the risk it may present in wood product manufacturing industries.

Wood dust is a combustible material that can act as fuel in many situations. The combustibility of a given sample of wood dust is determined largely by two properties: the particle size and the moisture content. In the case of wood dust as a bio-fuel, these properties will change over time. The moisture content will continue to decrease in an indoor or covered environment. The rate at which the moisture content declines is impacted by the ambient conditions but it is also directly related to the particle size. A smaller particle loses moisture much faster than a larger particle due to a greater surface area to volume ratio. The greater surface area to volume ratio also increases the ignitability of the particle. This is why kindling is used to start a fire. As a dust particle loses moisture, the mass and volume also decline. This is why smaller particles are particularly dangerous. They are highly combustible, easily ignited, and can be easily mixed in air.

In wood product manufacturing processes, the type and speed of the process along with the characteristics of the wood create different dust profiles. These profiles may range from large particulate and debris (chipping operation) to very fine powdery dust (sanding). In most wood product manufacturing operations the dust produced contains a broad range of particle sizes ranging from several microns to several millimetres.

With many mixed particle size wood dusts, the moisture contained within the particle binds them loosely together; small particles bind to larger ones. However, as the dust dries out and they are subjected to mechanical forces which separate the various particles, the small fine particles will separate, migrate, and settle on surfaces and become a readily available fuel that could result in an explosion. As a result, dust profiles both in terms of moisture content and particle size will vary dramatically as one moves farther downstream and away from the point where the dust was produced or released.

Fire, deflagration, and explosion hazards

Different dust profiles present different hazards. A dust accumulation may present either a fire, deflagration, or explosion hazard. An explosion or deflagration can start with a dust fire that ignites finer dust which is dispersed into the air by some other mechanism.

The dust explosion pentagon

There are five elements of a combustible dust explosion, which are presented in the dust explosion pentagon illustrated below.



Evaluating the risk of fire and explosion requires consideration of each of the components of the pentagon: fuel (dust), dispersion, oxygen, ignition, and confinement.

Deflagration is rapid combustion of fuel mixed with air. The only difference from an explosion is that deflagration does not have an element of confinement. In other words, an explosion is a deflagration in a contained environment.

Fire is the combination of three elements from the pentagon: fuel, oxygen, and ignition and, as set out above, can be the source of ignition for subsequent deflagration or explosion events.

Evaluating dust accumulations

To determine the extent and nature of the risk presented by an existing dust accumulation, the employer must evaluate the characteristics of the dust. The critical properties that determine whether or not the dust is a fire, deflagration, or explosion hazard are the particle size and moisture content. Based on its characteristics, dust can be classified as either "primary" or "secondary."

"Primary" dusts are those found on floors and surfaces near or below the dust producing or waste handling equipment. Primary dusts consist generally of greener, moister, and coarser particulate and can present a fire hazard if not actively managed. Unmanaged primary dusts will, over

time, dry out and spread over a broad area and present a fire hazard. They will also release finer, drier secondary dusts that are often the fuel source for serious fires and explosions. Primary dust accumulations also present a fire hazard when they are in direct contact with equipment that produces heat or that might be a potential ignition source.

"Secondary" dusts are the finer, drier dusts that are broadly dispersed and that settle away from the points from which they are produced or released. "Secondary" dusts are to be considered deflagrable unless the employer has conducted appropriate and representative testing to show otherwise. Where deflagrable secondary dusts are present at a depth of 1/8" or more over 5% of a given work area, they present a fire or explosion hazard.

For the purposes of applying the 5% criteria, a "given work area" is considered to be an area of the workplace, whose boundaries are defined by the various physical structures around it, which may enclose, contain, or compartmentalize the area. These structures may include walls, floors, ceilings, process equipment, or any combination of these which have the effect of either fully or partially enclosing, containing, or compartmentalizing that work area within the facility. The greater the extent of confinement, enclosure, or containment in an area where dust has accumulated, the greater the risk that an explosion may occur.

Examples of fully or partially enclosed, contained, or compartmentalized areas that are commonly found in sawmills and other wood product manufacturing facilities may include, but are not limited to the following:

- Planer enclosures
- Conveyor tunnels or galleries
- Chipper and blower rooms
- Basement areas between enclosed waste conveyance lines
- Log in-feed, cut-off, and de-barker areas

This assessment is to be made with respect to all relevant areas of the facility that may create a deflagration hazard due to their physical properties. In some cases, depending on the circumstances (such as the size and layout of the facility, concentration of dust and other factors), the assessment will need to be made facility wide as the entire plant may constitute the relevant area.

The approach outlined above is informed by the approach taken in the 2012 edition of the NFPA 664: *Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities*. NFPA 664 states that a deflagration hazard will exist where accumulated fugitive deflagrable wood dust (i.e., deflagrable secondary dust) exceeds 1/8" over 5% of an area.

The classification of dust as either "primary" or "secondary" remains an acceptable approach to determine whether wood dusts present a fire, deflagration, or explosion hazard. However, employers may choose to carry out a more thorough or specific analysis of the risk presented by wood dust to gain a more detailed understanding of the nature of the hazard and to more precisely guide their control measures. For example, an employer may undertake representative sampling of wood dusts produced in its facility to more accurately determine particle size and moisture content or carry out a more thorough review of actual ignition potential from equipment in areas that may accumulate dust.

Combustible wood dust management program ("Program")

Prevention Policy Item P2-21-3 sets out the reasonable steps an employer should take to mitigate the hazards of combustible wood dust. Guidance on these steps is set out in the [Combustible Wood Dust Management Program Development Guide](#) ("Guide") available in the online [Mitigation and Control of Combustible Wood Dust Resource Toolbox](#).

The Guide incorporates the policy items and expands on the following considerations that should be included in the development and implementation of the Program to effectively address combustible dust hazards.

The Program should be in writing and should contain the following elements:

1. **Policy statement** to define the overall aims, objectives, and responsibilities.
2. **Risk assessment process** to identify and evaluate combustible wood dust hazards and the impact of changing conditions.
3. **Implementation of controls** to effectively minimize combustible wood dust risks.
4. **Inspections** to ensure combustible dust risks are being effectively managed.
5. **Investigation** of fire incidents, reports of unsafe conditions, and work refusals to prevent the reoccurrence of similar or more serious incidents.
6. **Education, training, and supervision** to ensure workers understand the hazards associated with combustible dust and the measures to control the hazards; and to ensure they work in accordance with applicable rules and procedures.
7. **Program audit and review process** to ensure the Program has been fully implemented and is effective.
8. A **corrective action management process** to ensure that recommendations and remedial action identified through the Program activities are effectively implemented.
9. **Records and statistics** to facilitate internal and external reporting, track program activities and changes, and identify trends.

The online Toolbox also contains a [Combustible Wood Dust Mitigation and Control Checklist](#) that may be used to assist in the development and implementation of the Program. This checklist should not be used in place of an audit but may be used to prepare for an audit.

Wood dust mitigation and control audit

The employer must undergo a wood dust mitigation and control audit for each operating location as soon as reasonably possible after implementing the Program. The employer must promptly implement recommendations from the audit, and conduct a new audit if there are any material changes to work processes or equipment.

The purpose of the audit is to ensure that all elements of the Program have been effectively implemented and are functioning as intended. The audit identifies deficiencies and opportunities for continual improvement.

The online Toolbox contains two documents, made available by the Manufacturers' Advisory Group (MAG), which may be used to conduct an audit of the Program in all manufacturing facilities that produce or utilize combustible wood dust during their manufacturing activities. These documents are the [Wood Dust Mitigation and Control Audit](#) and the [Wood Dust Mitigation and Control Audit Auditor Worksheet, Questionnaire and Guideline](#).

While the audit tool described above provides a useful framework for performing the audit, it is open to employers to use other audit tools. Any audit tool an employer uses should address the following elements:

- Evaluation of facility risk assessment that covers
 - Identification of areas where combustible dust may be produced or may accumulate
 - Identification of potential ignition sources
 - Means of dust dispersion
- Evaluation of combustible dust controls, including
 - Engineering or passive controls
 - Administrative or procedural controls
- Verification of assignment of dust management responsibility and qualifications of workers involved in dust management
- Verification of management review of the Program
- Review of change management plan
- Evaluation of inspection frequency and effectiveness
- Review of emergency management plan
- Evaluation of record keeping
- Evaluation of training and supervision with respect to combustible dust hazards and the Program

Auditors must be qualified to perform the audit. They should have a combination of education, experience, and training to demonstrate that they are knowledgeable about the hazards and mitigation controls related to combustible dust. Some suggested qualifications are found in the Auditor Worksheet referenced above and are based on the following criteria:

- Industry knowledge and work experience in the applicable type of wood product manufacturing facility
- Demonstrated understanding and knowledge of applicable codes, standards, and guidelines
- Relevant education and/or professional designations

WorkSafeBC engagement approach and inspection process

The scope of WorkSafeBC's inspections will primarily be operating areas of the operation that represent production and waste stream activity. WorkSafeBC prevention officers will also selectively examine a representative number of infrequently accessed areas or areas not directly related to the production stream. The intention of this approach is to ensure the inspection covers a representative sample of potential combustible dust hazard areas in the facility.

WorkSafeBC inspections will focus on: evaluating selected areas; paying attention to processes that create, transport, or store combustible wood dust within the area; the risk assessment; and the Program. Where prevention officers observe accumulations of dust, their primary role is to evaluate the risk with consideration of the employer's risk assessment, determine whether all reasonable steps were taken to prevent the occurrence, and then determine if the Program would have controlled the risk within a reasonable period of time.

The presence of an accumulation of dust identified during an inspection is not assumed to be an automatic indication of non-compliance unless that accumulation

- Presents a high risk of fire or explosion
- Is from a source or in an area not identified in the employer's risk assessment
- Was not adequately addressed in the Program
- Resulted either from a failure of the employer to comply with its Program or a lack of worker training or supervision

Prevention officers will utilize the policies and this guideline to reference benchmarks of reasonable inspection, assessment, and control, and will use the necessary enforcement tools to achieve sustained compliance.

Additional resources

In addition to the documents referred to in the guideline, [Mitigation and Control of Combustible Wood Dust Resource Toolbox](#) contains additional combustible wood dust resources.

[Section 4.42](#) of the *Regulation* sets out restrictions on cleaning with compressed air. Refer to [G4.42\(1\) Cleaning with compressed air - Hazards of combustible dusts](#) for guidance on the circumstances under which cleaning equipment or work areas with compressed air is permitted, and the controls that need to be put in place in order to ensure that cleaning with compressed air does not create a hazard due to fire, explosion, or other cause.

Section [5.71](#) of the *Regulation* provides requirements for exhaust ventilation systems and dust collection where operations or work processes present a risk of fire or explosion. Refer to [G5.71\(3\) Location and construction of dust collectors](#) for guidance on locating and constructing dust collectors used to control combustible dusts so that workers will not be endangered in the event of an explosion inside the collector. G5.71(3)

also provides additional information on combustible dusts in general, and dust explosions.

Guidelines - Part 5 - Personal Hygiene

G5.82 Employer's responsibility

Issued August 1, 1999

Regulatory excerpt

Section 5.82 of the *OHS Regulation* ("Regulation") states:

- (1) If a work process may result in harm to a worker from contamination of the worker's skin or clothing by a hazardous substance, the employer must
 - (a) supply appropriate protective clothing,
 - (b) launder or dispose of the protective clothing on a regular basis, according to the hazard,
 - (c) provide adequate wash facilities, and
 - (d) allow time for washing before each work break.
- (2) If work processes involving substances such as lead, mercury, asbestos, silica or pesticides are high hazard, the employer must also ensure that workers are provided with
 - (a) clothing lockers in separate rooms for street clothing and work clothing,
 - (b) heated shower facilities between the rooms, and
 - (c) time for showering and clothing change before the end of the work shift.
- (3) In a remote location where provision of change rooms and shower facilities is not practicable, separate clothing storage and adequate washing facilities must be provided.

Purpose of guideline

The purpose of this guideline is to explain the employer's responsibility to provide effective means of removing hazardous substances defined in [section 5.1](#) from a worker's skin or clothing as outlined in section 5.82 of the *Regulation*.

Contaminant hazard

This section applies to work processes where a worker's skin or clothing may become contaminated with substances that, if not removed prior to the completion of the work shift, would present a hazard from inhalation or ingestion. Examples include finely divided lead or lead compounds, mercury, silica dust, pesticides, and asbestos fibres.

Section 5.82(1)(b) requires the employer to "launder or dispose of the protective clothing on a regular basis, according to the hazard." Note that the provisions of [section 12.157](#) of the *Regulation* also apply. That is, the employer must advise the operator of the laundry or dry cleaning facility in writing of any potential hazards.

If the work process is "high hazard", then the provisions of [section 5.82\(2\)](#) also apply. To determine whether the process is high hazard, the toxicity of the material should be considered, as well as the potential for exposure. If the material is highly toxic and there is a high potential for worker exposure, then the process should be considered high hazard. When evaluating the potential for exposure, the WorkSafeBC prevention officer should take into account that exposure can result not only from direct use of the substance, but also from cross-contamination (of food, clothing, cigarettes) and/or from ongoing contact with contaminated clothing or other personal materials. The requirements of sections [5.55](#) and [5.57](#) of the *Regulation* must also be considered. Under these sections, substitution of less hazardous materials must be considered where possible to reduce the level of hazard. Refer to OHS Guidelines [G5.55](#) and [G5.59](#) for further information.

Examples of high hazard substances include, but are not limited to, asbestos, lead, mercury, cadmium, cobalt, nickel, and pesticides. Examples of operations in which high hazard substances are likely to be handled are as follows:

- Lead or asbestos abatement
- Saw filing
- Battery re-manufacturing
- Smelting operations
- Electrical repair
- PCB handling
- Environmental remediation
- Foundries
- Cathode manufacturing
- Manufacturing operations using radioactive materials
- Coal tar/pitch operations
- Exploratory rock drilling
- Abrasive blasting
- Broadcast spraying of pesticides

- Steel manufacturing

In remote locations where provision of change rooms and shower facilities may not be practicable, the employer is permitted, under section 5.82(3) of the *Regulation*, to provide separate clothing storage and adequate washing facilities. In these circumstances, the employer may need to use personal protective equipment that can be easily decontaminated and implement other contaminant control measures to minimize the likelihood of accidental contact with the high hazard materials. Refer to OHS Guideline [G5.91](#) for additional information on the requirements for emergency washing facilities in remote work sites.

G5.83 Worker's responsibility

Issued August 1, 1999; Editorial Revision April 6, 2020

Regulatory excerpt

Section 5.83 of the *OHS Regulation* ("Regulation") states:

A worker engaged in a work process described in section 5.82 must

- (a) wear the supplied protective clothing,
- (b) wash effectively before each work break and the end of the work shift, and
- (c) shower at the end of the work shift, if required by the hazard.

Purpose of guideline

The purpose of this guideline is to specify the requirements that workers engaged in a work process covered by section 5.82 wear the personal protective equipment supplied by the employer, wash effectively before each work break and at the end of the work shift, and shower at the end of the work shift, if required by the hazard, pursuant to section 5.83 of the *Regulation*.

Compliance

To evaluate compliance with this requirement, the WorkSafeBC prevention officer should first consider whether the employer

- Has fulfilled its responsibility to adequately train, instruct and supervise workers in the required procedures, as per section 21 of the *Workers Compensation Act* ("Act")
- Used disciplinary action to further discourage the use of unacceptable work procedures, where necessary

One can determine if the employer has met its responsibilities for training by asking the worker the following questions:

- Do you work with hazardous materials? If so, what are they?
- What precautions are required to prevent or minimize exposure?
- What do you do to remove the material(s) from your skin or clothing?
- Where are the wash and/or shower facilities?
- What are the consequences of not following the instructions regarding personal hygiene?

It is possible to issue orders on both the worker and the employer if both are at fault. [Section 22](#) of the *Act*, "General duties of workers," also applies. Depending on whether the employer has fulfilled its responsibilities to train and supervise and the worker followed that training and supervision, orders may be issued on the employer and/or the worker for violations of sections 21, 22, and 32 of the *Act*.

Guidelines - Part 5 - Emergency Washing Facilities

G5.85 Where required

Issued August 1, 1999

Regulatory excerpt

Section 5.85 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that appropriate emergency washing facilities are provided within a work area where a worker's eyes or skin may be exposed to harmful or corrosive materials or other materials which may burn or irritate.

Purpose of guideline

The purpose of this guideline is to specify the requirements that the employer provide appropriate emergency washing facilities within a work area pursuant to section 5.85 of the *Regulation*.

Background

This section applies to workplaces where there is a risk of exposure to harmful or corrosive materials or other materials that may burn or irritate. Work activities for which emergency washing facilities will likely be required include, but are not limited to, maintenance of ammonia refrigeration equipment, chlorine unloading operations, and caustic degreasing processes.

The selection of appropriate facilities will depend on the degree of risk associated with the workplace or work activity. Refer to [Table 5-2](#) for guidance in identifying workplaces where emergency washing facilities are required. Before selecting emergency washing facilities, the potential hazard for workers must be identified, followed by an assessment of the level of risk, as required by section 5.88 of the *Regulation*. Refer to OHS Guideline [G5.88](#) for further assistance. [Table 5-3](#) outlines the type of equipment required, as well as where such equipment should be located.

G5.86 Water supply

Issued August 1, 1999; Editorial Revision September 30, 2021

Regulatory excerpt

Section 5.86 of the *OHS Regulation* ("Regulation") states:

- (1) For a plumbed emergency eyewash facility, the employer must ensure that only a potable water supply is used.
- (2) For a portable (non-plumbed) eyewash unit, the employer must ensure that only potable water or an isotonic saline flushing solution is used.

Purpose of guideline

The purpose of this guideline is to specify the water supply requirements for emergency eyewash facilities pursuant to section 5.86 of the *Regulation*.

Water supply

Emergency eyewash facilities may be plumbed or portable (non-plumbed). Under this section, only a potable water supply is to be used for plumbed facilities. For non-plumbed units, either a potable water supply or an isotonic saline flushing solution (such as 0.85% to 1.0% sodium chloride buffered to a pH of 7.3 < 7.4) may be used. Potable water means water fit for human consumption.

Although portable, self-contained emergency eyewash units should deliver a buffered anti-bacterial saline solution over a 15-minute flush. Any effective antibacterial agent, suitable for ophthalmic use, added to tap water will help preserve the water and reduce the possibility of pathogens developing in the flushing solution. Buffered solutions may be less irritating to the eye than tap water and can improve the effectiveness of portable eyewash units because small amounts of these solutions can be very efficient at partially neutralizing the contaminant.

G5.88 Risk assessment

Issued August 1999; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 5.88 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that the selection of emergency washing facilities is based upon an assessment of the risks present in the workplace, according to Table 5-2.

Purpose of guideline

The purpose of this guideline is to describe the factors that are taken into consideration when selecting emergency washing facilities.

Factors to be considered

Section 5.88 of the *Regulation* requires that the employer conduct a risk assessment before selecting emergency washing facilities. Emergency eyewash and/or shower facilities should be selected to address the potential hazard(s) associated with the substances used, the tasks performed, and the work area. Refer to Tables 5-2 and 5-3 respectively for guidance in evaluating risk and selecting appropriate facilities.

The general approach to be taken in conducting a risk assessment is discussed in OHS Guideline [G5.54-3](#) ("[Risk identification, assessment and control](#)"). Some of the specific factors that should be considered when evaluating the need for emergency washing facilities include the nature and the quantities of the hazardous material involved, as well as the potential for contacting the material during work activities. The table below provides some guidelines that may be helpful for assessing whether a work activity poses a risk to the eyes or skin.

Affected Organ	Nature of the Exposure	Risk Level
Eyes	<ul style="list-style-type: none"> • Any volume of "very hazardous materials" splashed into the eyes 	High
Skin	<ul style="list-style-type: none"> • More than 100 mL of "very hazardous materials" splashed above the waist, or • More than 1 litre of "moderately hazardous materials" splashed onto the body, with possible splashing above the waist 	High
Eyes	<ul style="list-style-type: none"> • Any volume of "moderately hazardous materials" splashed into the eyes 	Moderate

Skin	<ul style="list-style-type: none"> • Less than 100 mL of "very hazardous materials" splashed onto unprotected skin above the waist, <u>or</u> • less than 1 litre of "moderately hazardous materials" splashed onto unprotected skin, with possible splashing above the waist 	Moderate
Eyes	<ul style="list-style-type: none"> • Any volume of "low hazard materials" splashed into the eyes 	Low
Skin	<ul style="list-style-type: none"> • Less than 100 mL of "very hazardous materials" splashed below the waist, <u>or</u> • Less than 1 litre of "moderately hazardous materials" splashed below the waist 	Low

Notes:

Very Hazardous Materials: materials classified as Corrosive to Metal, Skin Corrosion/Irritation (Category 1), Serious Eye Damage/Irritation (Category 1), Acute Toxicity (Categories 1 and 2), and Specific Target Organ Toxicity — Single Exposure (Category 1).

Moderately Hazardous Materials: materials classified as Acute Toxicity (Category 3), Serious Eye Damage/Irritation (Categories 2 and 2A), and Specific Target Organ Toxicity — Single Exposure (Category 2).

Low Hazard Materials: materials that may irritate skin or eyes due to physical, as opposed to their chemical, nature (e.g., particulates generated from grinding). For these materials, the availability of emergency flushing equipment is less critical than the availability of first aid.

G5.89 Table 5-3 Provision and location of emergency washing equipment

Issued August 1, 1999; Editorial Amendment November 18, 2009

Regulatory excerpt

Section 5.89 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure, except where it is not practicable to provide a permanent water supply, such as at a remote or transient worksite, that emergency eyewash and shower facilities are provided and located as specified in Table 5-3.
- (2) Requirements for tempered water in Table 5-3 do not apply if the advice of a medical professional indicates that tempered washing would increase the risk of injury in a particular application.

Purpose of guideline

The purpose of this guideline is to describe how to determine whether the water supply for emergency washing equipment must be tempered.

Background

Examples of workplaces where it may be impracticable to provide permanent facilities include remote or transient work sites. Refer to *Regulation* sections [5.90](#) and [5.91](#), and the associated OHS Guidelines, for emergency washing requirements at transient and remote worksites, respectively.

[Table 5-3](#) in the *Regulation* lists the emergency eyewash and shower equipment required for high, moderate, and low risk workplaces. In addition, it prescribes where the required equipment must be located in relation to the hazard area. Equipment should be located in readily accessible, well marked locations, and there must be unobstructed access.

Depending on the outcome of the risk assessment conducted under section 5.88, the employer may be required to install one or more of the following:

- Continuous flow emergency shower facility
- Continuous flow eyewash facility
- Drench hose
- Personal eyewash unit
- Supplementary eyewash facility

Tempered or non-tempered

The results of the risk assessment will also determine whether the water supply must be tempered or non-tempered. Each of these terms has been defined in [section 5.1](#) of the *Regulation*. For more detailed information on emergency washing facilities and design criteria, including acceptable temperature ranges, inlet water pressures, and water flow rates, refer to ANSI Standard Z358.1-1998 (*American National Standard for Emergency Eyewash and Shower Equipment*).

For both high and moderate risk workplaces, Table 5-3 requires the provision of tempered water in primary emergency washing facilities. However, under section 5.89(2), tempered water is not required if the advice of a medical professional indicates that tempered washing would increase the risk of injury in a particular application. A medical professional is a physician registered under the *Medical Practitioners Act*. Examples of situations in which the use of tempered water may not be appropriate include

- **Cryogenic chemicals:** irrigation water should not exceed body temperature
- **Thermal burns:** application of cold water to the burn immediately after contact may be preferable to reduce the potential for tissue damage

- **Caustic soda and potassium:** because both are very reactive with water, an immediate flush with a neutralizing or buffered solution may be appropriate, followed by a tempered water flush

For high and moderate risk work locations, non-tempered drench hoses are not an approved substitute for a tempered continuous flow shower or eyewash facilities, although they can be used as supplementary washing facilities to commence the flush. In moderate risk work areas where the risk assessment conducted under [section 5.88](#) indicates that a hazard exists only for small areas of the body or face, WorkSafeBC would consider non-tempered drench hoses to be acceptable supplemental emergency shower and eyewash facilities. See [Table 5-3](#) for specific information.

G5.90 Mobile shower units

Issued April 1, 2006; Editorial Revision December 14, 2012; Editorial Revision November 21, 2017

Regulatory excerpt

Section 5.90 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that portable self-contained units are provided, where it is not practicable to provide a permanent water supply at transient worksites such as construction sites.
- (2) The employer must ensure that portable self-contained units at these transient worksites are capable of delivering a minimum flush duration of 15 minutes (or more if required by the nature of the material) if there is a high or a moderate risk of injury to the eyes or skin.

Purpose of guideline

This guideline provides recommendations to the oil and gas sector for the use of mobile shower units. This guideline applies only to oil and gas worksites where it is not practicable to provide a permanent water supply but where a portable self-contained unit (e.g., mobile shower unit) is available.

Recommended use of mobile shower units

Energy Safety Canada's DACC (Drilling and Completions Committee) Industry Recommended Best Practice (IRP) Volume #08 "Pumping of Flammable Fluids" (2016), available at https://www.energysafetycanada.com/_Resources/DACC-IRP-Volumes/DACC-IRP-VOLUME-08-PUMPING-OF-FLAMMABLE-FLUIDS) in section 8.10 (attached as [Appendix A](#)) has specifications for mobile shower units related to

- The capabilities and capacities of the mobile shower/eyewash units and drench hoses
- Training requirements for, and responsibilities of, the operators of these units
- Equipment requirements for operators of the mobile shower units
- Personal protective equipment requirements for mobile shower unit operators
- Factors determining the use of mobile shower units

Employers should follow the specifications for mobile shower units outlined in *IRP 8*, where applicable.

Where combination fire-shower truck units are used as portable self-contained units under section 5.90, in addition to the specifications in *IRP 8*, the following should be met:

- Procedures should reflect that the combination fire-shower truck is present at the site primarily for personnel emergencies and that the truck must be positioned in a safe place that provides ready access by workers.
- The combination fire-shower truck unit should be configured so that the onboard water supply is used for emergency washing equipment only. If the fire system can draw from the onboard water storage tank, the fire system should be isolated from the onboard storage tank by physically disconnecting them, installing a blind, or locking a valve.

Note: Where there is any conflict between the requirements of the *Regulation* and *IRP 8* the *Regulation* applies.

Appendix A

Excerpt from "Pumping of Flammable Fluids", Industry Recommended Practice (IRP), Volume 8 - 2009

8.10 Mobile Safety Shower Requirements

8.10.1 Scope

Shower units are intended to provide standby safety services for workers whenever hazardous fluids (see WHMIS guidelines) are being pumped or handled. There are several different designs of shower units available on the market.

The intent of this section is to recommend MINIMUM standards for:

The capabilities and capacities of the shower/eyewash units, and drench hoses

Training requirements for, and responsibilities of, the operators of these units

Equipment requirements for operators of the shower units

Factors determining the use of shower units

8.10.2 Capabilities and Capacities of Mobile Shower Units

In order to meet the requirements set out in the O H & S Code Section 23 and the First Aid Regulation Part 11, suitable on-site facilities shall be provided as defined in Provincial/Territorial Regulations and ANSI - Z358.1 - 1998). On-board water supplies are typically 1.9m³ - 2.3m³ (500 - 600 US gallons). Each person that could be exposed to hazardous fluids requires 1.15m³ (300 US gallons) of potable water available for safety shower use. Seasonal weight restrictions (road bans) may limit the amount of water allowed on-board the mobile shower units. This factor will have to be taken into account when determining the need for a supplemental potable water supply.

ANSI Standard Z358.1 - 1998, Sections 4, 5 and 8, set out the following minimum standards for shower units, eyewash units, and drench hoses:

Each shower head shall be capable of delivering a minimum of 76 liters per minute (20 US gpm) of "flushing solution" for a minimum of 15 minutes. This requires a minimum of 1.14m³ (300 US gallons) for each person exposed to hazardous fluids.

Each eyewash unit shall be capable of delivering flushing fluid to the eyes at a rate of not less than 1.5 liters per minute (0.4 US gpm) for 15 minutes

Each drench hose shall be capable of delivering a minimum of 11.4 liters per minute (3 US gpm) of flushing fluid for a minimum of 15 minutes

The delivered flushing fluid temperature shall be "tepid". Tepid is defined in the ANSI Standard as "moderately warm; lukewarm"

If the number of persons required to be in the **HOT ZONE** exceeds the on-board water supply of a mobile shower unit, supplemental (tepid) potable water shall be required.

Refer to ANSI Standard Z358.1 - (latest edition) for more information on the performance requirements and inspection and maintenance of safety shower equipment.

The following minimum standards should also be observed:

The showering area must be fully enclosed and heated and large enough to comfortably accommodate one adult per shower head

The showering area shall be provided with forced air ventilation

The "recovery area" shall not be used for transportation of the victim, and may only be used for first aid purposes until medical aid arrives at the scene. The shower stalls must not be used as a "recovery area"

A First Aid Kit in accordance with Provincial/Territorial First Aid Regulations

Two self-contained breathing apparatus (SCBA)

The shower unit must be fully mobile in order to change position on location to effectively compensate for changes in wind direction or movement of other equipment on location

The shower unit must be separated from any potential hazard, shall not be located within the **HOT ZONE** and be within 10 second walking distance from the **HOT ZONE**.

Shower units located on tank trucks delivering acid or other fluids to the location are to be used by the tank truck operator only and shall not be factored in when determining the number of shower heads required to provide adequate protection for personnel working in the **HOT ZONE**.

Ordinary showers installed in travel trailers etc. do not meet the ANSI standard and shall not be factored in when determining the number of shower heads required to provide adequate protection for personnel working in the **HOT ZONE**.

8.10.3 Training and Responsibilities of Safety Shower Operators

Operators of shower units shall be competent in the operation of the unit they will be required to operate.

Operators of shower units shall have current and valid training certificates in the following:

Standard First Aid/CPR

H₂S Alive®

Transportation of Dangerous Goods (TDG)

WHMIS

The shower unit operator's duties and responsibilities shall be limited to the following:

The administering of first aid to on-site personnel exposed to chemical/corrosive substances

Provide assistance for on-site first aid

The safe operation of the shower unit; eyewash unit, and drench hose

Review of hazard awareness with all personnel

Instruction of personnel who may be exposed to hazardous materials in the location and proper use of the emergency shower units

8.10.4 Personal Protective Equipment (PPE) Requirements for Safety Shower Operators

Operators of shower units shall be equipped with a complete acid/chemical resistant wet suit including gloves, rubber boots, eye protection, Fire Retardant Clothing (FRC) and a hard hat. FRC must meet CSA or CGSB Standards.

8.10.5 Determining Factors for the Number of Safety Shower Units Required

The following should be taken into account when determining the number of shower units, eyewash units, drench hoses and supplemental supply of potable water required:

The number of personnel working in the HOT ZONE. The HOT ZONE area will differ from job site to job site, and will have to be determined at the job site

Some acid job HOT ZONES are on the rig floor when the treating iron is suspended

The number of pumping units and volume of acid on-site

The shower unit(s), eyewash unit(s), and drench hose(s) should be on location when the acid is being transferred, mixed, or under pressure on the surface. This shall include the time when back pressure is being used to circulate the acid to the bottom

The shower unit(s), eyewash unit(s), and drench hose(s) shall remain on location until all pumping equipment has been rigged out

G5.91 Remote workplaces

Issued August 1, 1999

Regulatory excerpt

Section 5.91 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that effective means to flush the eyes or skin, based upon an assessment of the risk, is reasonably available at a remote worksite if it is not practicable to provide a portable self-contained unit.

Purpose of guideline

The purpose of this guideline is to provide guidance that under section 5.91 of the *OHS Regulation*, the employer is permitted to provide an effective means of flushing the eyes or skin at remote work sites if it is not practicable to provide a portable self-contained unit.

Remote worksites

Examples of remote worksites include remote logging operations, tree-planting activities, other forestry operations, and remote field pumping stations. The selection of "effective means" must be based on the results of a risk assessment conducted in accordance with [section 5.88](#) of the *Regulation*. Factors that would affect the practicability of providing portable units include, but are not limited to, the availability of a plumbed water supply or a source of heat.

In high-risk, remote worksites, the employer should consider the following:

- Substituting a material that reduces the risk to workers, as required under section 5.55(1)(a) of the *Regulation*
- Isolating or enclosing the material to minimize the likelihood of accidental contact with the eyes or skin
- Providing personal protective equipment that is impenetrable, provides good coverage, and can be easily decontaminated or disposed of

Workers should be trained in both the location and use of the emergency facilities.

Regardless of the level of risk, a clean source of water should be provided to wash exposed body parts. Some options that employers in remote and/or transient work locations might consider using include the following:

- Portable, electrically-tempered shower systems (these are available for both indoor and outdoor use and can provide pressurized water meeting ANSI requirements)
- Portable shower trailers
- Collapsible solar bags
- IV saline drip (to permit continuous flush during transport to a plumbed facility),

- Nearby lakes or streams (in the summer months)
- Water baths

G5.93 Testing

Issued August 1, 1999; Editorial Revision August 2004

Regulatory excerpt

Section 5.93(2) of the *OHS Regulation* ("Regulation") states:

(2) The employer must ensure that a plumbed emergency eyewash or shower facility is full flow tested at least once per month, for a sufficient length of time to completely flush the branch of the water line supplying the eyewash.

Purpose of guideline

The purpose of this guideline is to explain the requirement requires that the employer test emergency washing facilities pursuant to section 5.93 of the *Regulation*.

Manufacturer requirements

[Section 4.3](#) of the *Regulation* requires that equipment must be used and maintained in accordance with the manufacturers' requirements. This means that the facility must be tested upon initial installation in accordance with manufacturers' instructions. Where manufacturers' instructions address other issues, such as flushing or otherwise protecting solutions from micro-organisms, those instructions must be complied with as well. Plumbed facilities must be tested after initial installation and on a monthly basis thereafter. Portable (i.e., non-plumbed) eyewash units must be protected from contamination and refilled regularly with fresh solution to prevent the growth of microorganisms.

Record management

It is good practice to maintain records of testing, inspection, and maintenance of plumbed and non-plumbed eyewash facilities. These records could be in the form of a log book, preventative maintenance cards, tagging, or other similar method and should include the date and time of the test, any defects noted, and corrective action taken.

G5.94 Training

Issued August 1, 1999

Regulatory excerpt

Section 5.94 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that workers who are required to use emergency eyewash and shower facilities are adequately trained in their location and proper use.

Purpose of guideline

The purpose of this guideline is to explain the requirement that the employer provides adequate training to workers on the location and proper use of emergency washing facilities pursuant to section 5.94 of the *Regulation*.

Compliance questions

To evaluate compliance with this section, WorkSafeBC prevention officers ask the worker the following questions:

- Do you work with hazardous materials? If so, what are they?
- What precautions are required to prevent or minimize exposure?
- What do you do to remove the material(s) from your skin or clothing?
- Where are the emergency wash and/or shower facilities?
- How do you activate the unit?
- How long should you remain in the shower (or how long should you run the eyewash unit)?

G5.95 Protection from freezing

Issued August 1, 1999

Regulatory excerpt

Section 5.95 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that an emergency eyewash or shower facility and the piping from the supply are protected against freezing.

Purpose of guideline

The purpose of this guideline is to explain that the employer is to ensure that emergency washing facilities, as well as the piping from the water supply, are protected from freezing pursuant to section 5.95 of the *Regulation*.

Protection from freezing

Measures to protect water supply lines from freezing, include the following:

- Heat or steam tracing lines
- Locating water supply lines and actuation valves underground beneath frost line
- Installing special valves that allow water to drain down automatically to a point below the frost line after the equipment is used
- Providing thermostatically controlled induction-heated shower and piping systems
- Circulating warm water in the pipes
- Using dry pipes from a warm building

If emergency washing facilities are attached to an existing building, a pull cable can be installed on the inside valve to bring warm water from the neighbouring building into the facilities on demand. If the washing facilities are not attached, heated, self-contained units are recommended.

Guidelines - Part 5 - Emergency Procedures

G5.97 Emergency procedures — Emergency plan

Issued August 1, 1999; Revised August 29, 2016; Editorial Revision November 21, 2017; Revised April 9, 2019; Editorial Revision September 25, 2019

Regulatory excerpt

Section 5.97 of the *OHS Regulation* ("*Regulation*") states:

- (1) A workplace must have a written emergency plan, appropriate to the hazards of the workplace, that addresses the requirements of sections 5.98 to 5.102.
- (2) The plan must address emergency conditions which may arise from within the workplace and from adjacent workplaces.
- (3) The plan must be developed, implemented and annually reviewed in consultation with the joint committee or the worker health and safety representative, as applicable.

Purpose of guideline

The purpose of this guideline is to provide guidance around the elements of an emergency plan and the various agencies an employer may be required to notify of a workplace emergency.

Elements of an emergency plan

An employer must develop a written emergency plan appropriate to the hazards of the workplace. The plan must include all of the elements set out in [sections 5.98 to 5.102](#) of the Regulation, including the following:

- An inventory of hazardous substances
- An assessment of the risks posed by the hazardous substances from accidental release, fire, or other emergency
- A written evacuation procedure appropriate to the risk; these procedures may include a shelter-in-place or assembling at a safe location
- A written procedure for notifying workers, the fire department, other emergency responders, and adjacent workplaces and residences
- Written safe work procedures for spill cleanup and re-entry
- Training and drills around the emergency procedures, including evacuation and response

For the convenience of employers, WorkSafeBC has compiled a partial list of agencies that may need to be contacted during or after an emergency.

The emergency plan should also identify various emergency response agencies, as well as government and regulatory agencies, to be contacted in the event of an emergency. It is not possible to provide a complete list of agencies to contact, as the requirements will vary depending on the location and nature of the emergency.

The list contained in the emergency plan must include local contact numbers as well as any additional local, provincial, or emergency agencies identified.

- **Local agencies**
Section 11 of the *Fire Services Act* requires that a fire be reported to the local police and fire department
- Municipal bylaws may require notice of certain incidents be provided to local government and bylaw enforcement

Provincial and federal agencies

This summary of agencies that may need to be notified of a workplace emergency has been developed for convenience only. This is not a complete list of agencies nor is it a complete list of reporting obligations required under all legislation and regulation. An employer should make its own inquiries, be familiar with applicable reporting obligations with other agencies, and develop a comprehensive list of agencies and contact numbers to include in the employer's emergency plan.

Agency	You may need to notify this agency when there has been a workplace incident involving ...	Contact information (current as of July, 2021)

WorkSafeBC	<ul style="list-style-type: none"> • Serious injury to or death of a worker • Major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system, or excavation • Major release of a hazardous substance • Fire or explosion with potential for causing serious injury to a worker • Blasting incident causing personal injury • Dangerous incident involving explosives (whether or not there is personal injury) <p><i>Workers Compensation Act</i></p>	https://www.worksafebc.com/en/contact-us Fatalities and serious injuries: call the following numbers, 24 hours a day, 7 days a week: 604-276-3100 in the Lower Mainland 1-888-621-7233 toll-free within B.C. and Alberta
Canadian Coast Guard	<ul style="list-style-type: none"> • Marine pollution or threats of marine pollution <p><i>Vessel Pollution Dangerous Chemicals Regulations, section 132(1)</i></p>	www.ccg-gcc.gc.ca/eng/CCG/Home 1-800-889-8852
Technical Safety BC	<ul style="list-style-type: none"> • Amusement rides; boilers, pressure vessels or refrigeration; electrical systems; passenger ropeways (including ski lifts); elevating devices; and, gas <p><i>BC Safety Standards Act</i></p>	www.technicalsafetybc.ca 1-866-566-7233
Ministry of Environment – Province of BC Environmental Protection & Sustainability	<ul style="list-style-type: none"> • Any escape, spill, or introduction of a polluting substance that threatens the environmental quality of water, land, or air <p><i>Environmental Management Act, section 79</i></p>	https://www2.gov.bc.ca/gov/content/environment Marine spill in international waters 1-800-OILS-911 Environmental emergency in B.C. <i>(Provincial Emergency Program)</i> 1-800-663-3456
Environment and Climate Change Canada	<ul style="list-style-type: none"> • A spill or release of any listed substance, including an oil or chemical spill <p><i>Canadian Environmental Protection Act, 1999, section 201</i></p>	www.ec.gc.ca <i>(Provincial Emergency Program)</i> 1-800-663-3456
Transport Canada	<ul style="list-style-type: none"> • Any accidental release of dangerous goods that occurs in the course of transport, loading, unloading, or handling <p><i>Transportation of Dangerous Goods Regulations, section 8.1</i></p>	www.tc.gc.ca CANUTEC 1-888-226-8832 (613) 996-6666
Transportation Safety Board of Canada (TSB)	<ul style="list-style-type: none"> • Marine, pipeline, rail, and air transport incidents <p><i>TSB Regulations</i></p>	www.tsb.gc.ca TSB reporting hotline at (819) 997-7887
Canada Energy Regulator	<ul style="list-style-type: none"> • Firms under the Canada Energy Regulator's jurisdiction which experience specified events relating to oil and gas drilling, processing, and pipelines <p><i>Canada Energy Regulator Event Reporting Guidelines</i></p>	https://apps.cer-rec.gc.ca/ers
Canadian Nuclear Safety Commission	<ul style="list-style-type: none"> • A nuclear reactor, nuclear fuel facility, or radioactive materials <p><i>Nuclear Security Regulations</i> <i>Nuclear Safety and Control Act</i></p>	www.nuclearsafety.gc.ca 613-995-0479

G5.99 Risk assessment

Issued August 1, 1999; Revised April 9, 2019

Regulatory excerpt

Section 5.99 of the *OHS Regulation* ("Regulation") states:

An employer must ensure that an assessment is conducted of the risks posed by hazardous substances from accidental release, fire or other such emergency.

Purpose of the guideline

The purpose of the guideline is to provide considerations for employers when conducting a risk assessment involving hazardous substances at the workplace.

Under section 5.99 of the *Regulation*, the employer must assess the risks posed by hazardous substances from accidental release, fire, or other such emergency. [Section 5.98](#) of the *Regulation* requires that an inventory of all hazardous substances at the workplace be conducted. The general approach to be taken when conducting a risk assessment is discussed in [OHS Guideline G5.54-3](#). Some of the specific factors that should be considered when performing a risk assessment are outlined in the table below.

Risk assessments should be reviewed and updated as necessary to reflect current conditions of the workplace (i.e., changes to hazardous substances, work processes, procedures, and personnel).

Factors to be considered when evaluating the risks posed by hazardous substances	
General	Specific
What is the nature of the hazard?	<ul style="list-style-type: none">• What are the body systems involved (i.e., eyes, skin, lungs)?• What are the possible effects of exposure (i.e., irritation, burns, breathing difficulties, death)?• Are the effects short-term (i.e., nausea) or long-term (i.e., cancer)?
What is the nature of the exposure?	<ul style="list-style-type: none">• What specific substances are present in the workplace?• What events or circumstances, failures or errors could cause conditions leading to an emergency (i.e., accidental release, fire)?• What would be the range of severity that may be experienced (e.g., size of fire, leak, or explosion, anticipated concentrations)?• If there was an accidental release, how would workers be exposed (e.g., ruptured flange or pipes)?• In the event of a fire, how would workers be exposed (i.e., to substances themselves, to the products of combustion)?• How many workers would be at risk?• Who else might be at risk (i.e., emergency responders, adjacent workplaces, nearby community)?
What control measures are in place to minimize risk?	<ul style="list-style-type: none">• What controls are in place to prevent or mitigate emergency conditions from occurring?• Are engineering controls in place (e.g., pressure release valves, fail-safe valves, sprinklers, gas monitors)?• Has appropriate personal protective equipment been identified and have workers been trained to use it?• Is there a system in place to effectively detect and warn workers of emergency conditions?• Has the capacity to effectively respond to emergency conditions been assessed (i.e., personnel, equipment, training)?• Do the personnel assigned to make critical decisions in an emergency event understand their roles?
What methods of evacuation (e.g., evacuation out of the building, shelter-in-place) were considered for the hazardous substance?	<ul style="list-style-type: none">• Have the evacuation methods been assessed to ensure they are effective under different plausible scenarios (i.e., chosen evacuation methods are appropriate for the hazardous substance and emergency events in different parts of the workplace)?• How was the selected evacuation area(s) determined to be appropriate?• Have the time factors associated with the emergency been considered (i.e., the dynamic nature of the emergency and its effect on the selected evacuation method)?• Is there sufficient time to evacuate in an emergency?• If used, will shelter-in-place provide adequate protection? How was that determined?

G5.101 Procedures for spill cleanup and re-entry

Issued August 1, 1999

Regulatory excerpt

Section 5.101 of the *OHS Regulation* ("*Regulation*") states:

If workers are required to control a release of a hazardous substance, to perform cleanup of a spill, or to carry out testing before re-entry, the employer must provide

- (a) adequate written safe work procedures,
- (b) appropriate personal protective equipment which is readily available to workers and is adequately maintained, and
- (c) material or equipment necessary for the control and disposal of the hazardous substance.

Purpose of guideline

The purpose of this guideline is to provide details on notifying other jurisdictions and agencies in the event of a spill.

Notification of other jurisdictions and agencies

Other jurisdictions and agencies may require notification in the event of a spill.

For instance, in British Columbia, anyone who learns of a hazardous chemical release must immediately contact Emergency Management BC at 1-800-663-3456.

Contents

ASBESTOS

- G6.1 [Analysis of asbestos-containing material](#) [Retired]
- G6.1-1 [Definition of qualified person](#)
- G6.3 [Exposure control plan for asbestos](#)
- G6.4 [Inventory of asbestos-containing materials](#)
- G6.5 [Identification](#)
- G6.6-1 [Risk assessment](#)
- G6.6-2 [Classification of risk](#)
- G6.6-3 [Qualifications](#) [Retired]
- G6.7 [Control of friable asbestos](#)
- G6.8 [Procedures for abatement of asbestos materials during house and building demolition/renovation](#)
- G6.9(3) [Prohibitions - Pressure spraying](#)
- G6.10 [Substitution](#)

Designated Work Areas and Containments

- G6.12(2) [Asbestos monitoring](#)
- G6.13 [Authorized persons - Designated area](#)
- G6.16 [High risk work](#)

Ventilation

- G6.19 [Ventilation - Filter testing](#)

Other Means of Controlling Exposure to Asbestos

- G6.24-1 [Friction materials](#)
- G6.24-2 [Dry removal of friction material dust](#)
- G6.24-3 [Suitable work procedures](#)
- G6.24-4 [HEPA-filtered vacuum enclosure systems](#)

Waste Handling and Disposal

- G6.25 [Sealed containers](#)
- G6.27 [Asbestos waste removal](#)

Personal Protective Clothing and Equipment

- G6.31 [Contaminated personal protective clothing - Information to laundry workers](#)

Documentation

- G6.32 [Documentation - Types of records](#) [Retired]

BIOLOGICAL AGENTS

- G6.34-1 [Exposure control plan](#)
- G6.34-2 [Risk assessment, engineering and administrative controls, and personal protective equipment](#)
- G6.34-3 [Housekeeping and laundry practices](#)
- G6.34-4 [Program to inform workers of the exposure control plan](#)
- G6.34-5 [Record keeping requirements](#)
- G6.34-6 [Exposure control plan - Pandemic influenza](#)
- G6.36 (1.1) [Safety engineered needles](#)
- G6.36 (1.3) [Not clinically appropriate](#)
- G6.36 (1.4) and (1.5) [Highest level of protection](#)
- G6.40 [Medical evaluation](#)

CYTOTOXIC DRUGS

- G6.42 [Cytotoxic drugs - Definition](#)
- G6.43 [Cytotoxic drug - Exposure control plan](#)
- G6.53(1) [Biological safety cabinets \(BSCs\)](#)
- G6.53(2) [Safe work procedures](#)

LEAD

- G6.60 [Lead - Exposure control plan](#)
- G6.61.1 [Exception to monitoring requirements - Objective air monitoring data and associated record-keeping](#)
- G6.67 [Health protection](#)
- G6.68 [Records](#)

PESTICIDES

- G6.70 [Pesticides - Definitions](#)
- G6.74 [Good practices for applying pesticides](#)

General Requirements

- G6.75 [Safety Data Sheets \(SDS\)](#)

Mixing, Loading and Applying Pesticides

- G6.77 [Mixing, loading, and applying pesticides - Qualifications](#)
- G6.79 [Health protection - manner acceptable to WorkSafeBC](#)
- G6.80 [Rescue](#)

Equipment

- G6.82 [Fixed stations](#)
- G6.83 [Equipment - Mobile equipment](#) [Retired]

Pesticide Application

- G6.84 [Safe application practice](#)
- G6.85 [Posting warning signs](#) [Retired]
- G6.86 [Design of warning signs](#)
- G6.89 [Restricted entry intervals](#)
- G6.90 [Authorization to enter - Qualified person](#)
- G6.91 [Exemptions](#) [Retired]

Personal Hygiene

- G6.95 [Personal hygiene - Wash and shower facilities](#)
- G6.96 [Worker cleanup](#)

Antisepstain Applications

- G6.103 [Antisepstain applications - Substitution](#)

RESPIRABLE CRYSTALLINE SILICA AND ROCK DUST

G6.111 [Control of rock dust](#) [Retired]

G6.112.4(2) [Exception to monitoring requirements - Objective air monitoring, the silica control tool, and associated record-keeping](#)

G6.113 [Rock drills](#)

TOXIC PROCESS GASES

G6.116-1 [Definition of "enclosure"](#)

G6.116-2 [Definition of "toxic process gas"](#)

G6.118 [Risk assessment](#)

G6.122-2 [Exhaust ventilation](#)

G6.122-3 [Access and egress](#)

G6.122-4 [Authorized personnel](#)

G6.123 [Testing](#)

G6.124 [Ventilation](#)

G6.127 [Personal protective equipment](#)

Guidelines - Part 6 - Asbestos

G6.1 Analysis of asbestos-containing material

Issued March 25, 2005; Editorial revision May 17, 2006; Preliminary Issue November 21, 2006; Retired consequential to February 1, 2012 Regulatory Amendment

G6.1-1 Definition of qualified person

Issued consequential to February 1, 2012 Regulatory Amendment; Revised May 25, 2016; Editorial Revision December 15, 2017

Regulatory excerpt

Section 6.1 of the *OHS Regulation* ("*Regulation*") includes the following definition:

"*qualified person*" means a person who

- (a) has knowledge of the management and control of asbestos hazards through education and training, and
- (b) has experience in the management and control of asbestos hazards.

Purpose of guideline

This guideline provides information to describe the competencies necessary in a qualified person for Part 6 - Asbestos of the *Regulation*, and provides contact information to assist an employer to locate a qualified person.

Competencies of a qualified person

Appropriate knowledge and experience in the management and control of asbestos hazards are the key competencies required of a qualified person under section 6.1 of the *Regulation*. It is not sufficient for a qualified person to simply demonstrate credentials that certain courses have been taken or certain experience has been obtained. The necessary knowledge and experience must be evident in the quality of the work undertaken. When evaluating the qualifications of a person who has prepared an asbestos inventory, risk assessment, work procedure, or work classification, the primary focus will be the quality and accuracy of the inventory, risk assessment, work procedure, and work classification rather than the person's credentials.

A deficient asbestos inventory, risk assessment, work procedure, or work classification may be an indication that the person selected was not qualified. When such situations arise, WorkSafeBC prevention officers will enquire what steps the employer took to assess the person's competencies as well as his/her credentials.

Credentials of a qualified person

In order to conduct inventory work under section 6.4, conduct risk assessments and activity classifications under section 6.6, or set out procedures under section 6.27, a qualified person must have the appropriate knowledge (through education and training) and experience in the management and control of asbestos hazards. For the purposes of sections 6.4, 6.6, and 6.27, appropriate credentials for qualified persons include the following:

- Certified industrial hygienist (CIH), registered occupational hygienist (ROH), certified safety professional (CSP), Canadian registered safety professional (CRSP), or professional engineer (P. Eng.), provided that the holders of these qualifications have experience in the recognition, evaluation, and control of asbestos hazards, or
- A combination of experience and education/training, as described in (a) and (b) below. Note that education and training, without extensive related experience, is not sufficient

- (a) Extensive occupational health and safety experience within the asbestos abatement industry, as applicable to performing risk assessments, conducting inventories, and writing procedures for asbestos removal e.g.,
 - Experience applying the principles of occupational hygiene

- Experience with specific elements or tasks related to asbestos abatement, such as the following:
 - Asbestos hazard identification and risk assessment
 - Preparation of asbestos work procedures
 - Collection of samples of materials suspected of containing asbestos
 - Collection of air samples during asbestos abatement projects
 - Preparation of inspection reports
 - Conduction of workplace inspections

AND

(b) Knowledge obtained through completion of education and training courses in asbestos consultation and abatement.

Employer due diligence

Employers are responsible for selecting qualified persons and must exercise due diligence in the selection of the qualified person. This includes a review of the person's knowledge and experience as well as his/her accredited credentials. Reliance on a person holding a certification or licence specified herein would normally be considered reasonable as long as the employer also verifies that the person has the requisite experience described above.

Contact with accrediting agencies

An accrediting agency will often maintain a website with contact information on accredited members. For example, the Canadian Registration Board of Occupational Hygienists maintains contact information on persons with an ROH designation and can be accessed at www.crboh.ca. A list of persons with a CIH designation can be found on the American Board of Industrial Hygiene website at www.abih.org. Lists of persons with CRSPs, which are issued by the Board of Canadian Registered Safety Professionals, are available at www.bcrsp.ca

G6.3 Exposure control plan for asbestos

Issued August 1, 1999

Section 6.3(1) of the *OHS Regulation* ("Regulation") states:

If a worker is or may be exposed to potentially harmful levels of asbestos, the employer must develop and implement an exposure control plan meeting the requirements of [section 5.54](#).

Situations in which workers may potentially be exposed to asbestos include active or anticipated disturbance of friable asbestos or asbestos-containing materials or generation of dust from non-friable, asbestos-containing materials. For further information regarding the requirements of an exposure control plan, consult [OHS Guideline G5.54-2, Elements of an Exposure Control Plan](#).

Some workplaces may already have an asbestos management program in place. Components of an asbestos management program include:

- coordination of subcontractors,
- identification, hazard assessment, purchasing policy,
- training,
- written procedures,
- transportation and waste disposal,
- health monitoring, and
- review of program

Some or all of these components may correspond to elements of an exposure control plan and may be accepted as complying with the required elements of an exposure control plan. Under [section 5.54\(2\)](#) of the *OHS Regulation*, the required elements of an exposure control plan are as follows: statement of purpose and responsibilities; risk identification, assessment and control; education and training; written work procedures, when required; hygiene facilities and decontamination procedures, when required; health monitoring, when required; and documentation.

The complexity of the exposure control plan will depend on such factors as the results of the risk assessment, the options available for asbestos abatement and control, whether these options are utilized, and the likelihood of actively disturbing asbestos and/or asbestos-containing materials.

Under [section 6.3\(2\)](#), a "properly trained person" must administer the overall exposure control plan. To comply with this requirement, the "properly trained person" should

- be familiar with the hazards and precautions required for handling and working around asbestos and asbestos-containing materials,
- be well versed in the components of the exposure control plan,
- be familiar with the factors used to assess risk associated with asbestos and asbestos-containing materials, such as friability, location, and damage to material,
- have received instruction and training in the administration of the exposure control plan from a health and safety professional with experience in the practice of occupational hygiene as it relates to asbestos management. Alternatively, the person may have completed a course from a widely recognized training program, which would impart equivalent information, methods, practices and procedures to the recipient, such as NIOSH or other similar training program.

G6.4 Inventory of asbestos-containing materials

Issued April 20, 2012; Revised December 14, 2012; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.1 of the *OHS Regulation* ("*Regulation*") defines asbestos-containing material as:

"*asbestos-containing material*" means the following:

(a) a manufactured article or other material, other than vermiculite insulation, that would be determined to contain at least 0.5% asbestos if tested in accordance with one of the following methods:

(i) [Asbestos, Chrysotile by XRD, Method 9000](#) (Issue 2, dated August 15, 1994) in the NIOSH Manual of Analytical Methods, published by the United States National Institute for Occupational Safety and Health, Centre for Disease Control;

(ii) [Asbestos \(bulk\) by PLM, Method 9002](#) (Issue 2, dated August 15, 1994) in the NIOSH Manual of Analytical Methods, published by the United States National Institute for Occupational Safety and Health, Centre for Disease Control;

(iii) [Test Method for the Determination of Asbestos in Bulk Building Materials](#) (EPA/600/R-93/116, dated July 1993) published by the United States Environmental Protection Agency;

(b) vermiculite insulation that would be determined to contain any asbestos if tested in accordance with the [Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation](#) (EPA/600/R-04/004, dated January 2004) published by the United States Environmental Protection Agency;

Section 6.4 of the *Regulation* states:

(1) The employer and the owner must ensure that a qualified person

(a) collects representative samples of the materials in the workplace that the qualified person suspects contain asbestos

(b) determines whether each of the samples is asbestos-containing material in accordance with,

(i) in the case of a sample that is not vermiculite insulation, one of the methods set out in paragraph (a) (i) to (iii) of the definition of "asbestos-containing material" in section 6.1, and

(ii) in the case of a sample that is vermiculite insulation, the method set out in paragraph (b) of the definition of "asbestos-containing material" in section 6.1, and

(c) prepares an inventory of all asbestos-containing materials in the workplace that includes the following information:

(i) with respect to each representative sample collected under paragraph (a),

(A) the specific location of the sample,

(B) a description of the sample,

(C) whether the sample is asbestos-containing material as determined under paragraph (b),

(D) the method, set out in paragraph (a)(i) to (iii) or (b) of the definition of "asbestos-containing material" in section 6.1, used to determine if the sample is asbestos-containing material, and

(E) if the sample is determined to be asbestos-containing material, the type of asbestos, as determined under paragraph (b), and the percentage of the sample that is comprised of that asbestos;

(ii) with respect to each material that, under subsection (2), is treated under this Part as asbestos-containing material because it is inaccessible or not practicable to sample,

(A) the specific location of the material or, if the specific location is not known, the presumed location of the material,

(B) a description of the material, and

(C) how it is determined that the material is inaccessible or not practicable to sample;

(iii) the location of each of the asbestos-containing materials, including by using drawings, plans or specifications.

(2) If a qualified person suspects that a material in the workplace contains asbestos but determines that the material is inaccessible or not practicable to sample, the material must be treated under this Part as asbestos-containing material unless a qualified person, in accordance with subsection (1), determines that the material is not asbestos-containing material.

(3) The employer or the owner satisfies his or her obligations under subsection (1) if the employer or the owner ensures that an

existing inventory of all asbestos-containing materials in the workplace meets the requirements of subsection (1).

(4) The employer and the owner must

(a) keep the inventory current, and

(b) make a record of any changes made to the inventory.

(5) The employer and the owner must provide each other with a copy of the inventory and record referred to in subsection (4) if the other does not already have a copy.

(6) The employer must ensure that a copy of the current version of the inventory is readily available at the workplace.

(7) The employer and the owner must retain

(a) the current version of the inventory until all the asbestos-containing materials are removed from the workplace, and

(b) the record referred to in subsection (4)(b).

Purpose of guideline

This guideline describes the effect of the definition of asbestos-containing material on an employer's workplace inventory, due to the changes that occurred in 2012.

Update of asbestos-containing materials' inventory

As of February 1, 2012, the definition of asbestos-containing material (ACM) for manufactured articles or other material, other than vermiculite insulation, includes materials that contain at least 0.5% asbestos, as determined by methods referenced in *Regulation* section 6.1. Vermiculite insulation containing any asbestos, as determined by the referenced method, is also asbestos-containing material.

As a result, some additional building materials and commercial products may need to be added to an employer's asbestos inventory and asbestos management program. The employer needs to update the inventory and management program to reflect the ACM definition. Suspect materials previously identified as containing <1% or trace amounts of asbestos need to be re-evaluated to either include them in the inventory or be analyzed to determine if they contain less than 0.5% asbestos.

The time frame for completing the update will depend on the number of buildings/locations surveyed and the overall size of the inventory. Large inventories may require a phased approach for re-evaluation and a longer time to complete. In this case, the employer should develop a plan for the update, in consultation with the joint occupational health and safety committee, and make it available for review if requested by a WorkSafeBC prevention officer.

In the absence of sampling results to the contrary, all suspected building materials must be considered asbestos-containing.

Vermiculite insulation containing any asbestos must be added to the asbestos inventory.

G6.5 Identification

Issued August 1, 1999; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Section 6.5 of the *OHS Regulation* ("*Regulation*") states:

The employer and the owner must ensure that all asbestos-containing materials present in the workplace are identified by signs, labels or, when these are not practicable, other effective means.

Purpose of guideline

The purpose of this guideline is to provide identification means for all asbestos-containing materials present in the workplace.

Identification means

Section 6.5 of the *Regulation* requires that the employer and the owner ensure that all asbestos-containing materials present in the workplace be identified by signs and labels. When the use of signs and labels is not practicable, "other effective means" may be used.

It may be impracticable to post signs and labels in situations where there are aesthetic concerns (such as in building lobbies or public areas) or where they might create an unreasonable level of concern amongst the general public. In these circumstances, "other effective means" could include colour or letter encryption coding, floor plan mapping, or signage placed behind access ways (provided that workers are not placed at risk upon entering the restricted areas).

Whatever the means of identification, it must be coupled with effective training and education of all affected workers. Refer to [section 6.11](#) (Instruction and training). The guiding principle should be that the less information that is presented on signs or labels, the more education and training that will be required to communicate the hazards of and precautions for handling and working around asbestos.

Regulatory excerpt

Section 6.6 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that a risk assessment is conducted by a qualified person on asbestos-containing material identified in the inventory referred to in section 6.4(1)(c) or (3), as applicable, with due regard for the condition of the material, its friability, accessibility and likelihood of damage, and the potential for fibre release and exposure of workers.
- (2) The employer must ensure that a risk assessment has been conducted by a qualified person before any demolition, alteration, or repair of machinery, equipment, or structures where asbestos-containing material may be disturbed.
- (3) Before a work activity that involves working with or in proximity to asbestos-containing material begins, the employer must ensure that a qualified person assesses the work activity and classifies it as a low risk work activity, a moderate risk work activity or a high risk work activity.

Purpose of guideline

The purpose of this guideline is to explain the two-stage process involved in an asbestos risk assessment. This guideline also provides information regarding the requirement to conduct a risk assessment prior to any demolition, alteration, or repair of machinery, equipment, or structures where asbestos-containing materials may be disturbed.

Requirement to conduct an asbestos risk assessment

As required by [section 6.4](#) of the *Regulation*, an inventory of all asbestos-containing materials must be prepared and kept current. Under section 6.6(1), a risk assessment must be conducted by a qualified person on asbestos-containing material identified in the inventory. Assessment of the risk to workers from asbestos materials either used or present in the workplace relies on a two-stage process. The goal of this process is to prioritize materials for abatement control and to assist in selecting appropriate control options.

Risk assessment process – stage 1

The first stage of an asbestos risk assessment involves evaluating parameters that are indicative of the likelihood of worker exposure. The following parameters most commonly looked at include:

Accessibility

How easily will the asbestos fibres become airborne because of architectural design, location, and occupant activities? Are the fibres

- Totally enclosed, such as behind a fixed ceiling? If so, there is a minimal risk of exposure.
- Inaccessible, such as beyond the reach of the public? If so, there is a low risk of exposure.
- Accessible in a low-activity area? If so, there is a moderate risk of exposure.
- Accessible in a high-activity area, such as a hallway or stairway? If so, there is a high risk of exposure.

Condition

- Based on a visual examination, what is the existing state of the material?
- Is the material in good condition, showing no apparent damage at all? If so, there is a minimal risk of exposure.
- Does the material have mild damage? If so, there is a low risk of exposure.
- Does the material have moderate damage? If so, there is a moderate risk of exposure.
- Does the material have severe damage? For example, are areas missing, hanging loose, or water-damaged? If so, there is a high risk of exposure.

Friability

- To what extent can the material be broken apart if a person or object makes contact with it?
- Is the material firmly bound? If so, it is not friable and there is a minimal risk of exposure.
- Is the material slightly friable? If so, there is a low risk of exposure.
- Is the material moderately friable? If so, there is a moderate risk of exposure.
- Does the material break apart easily? If so, it is very friable and there is a high risk of exposure.

Presence in return air plenum

- Is the asbestos-containing material present in the air moving system?

Percentage of asbestos

- What is the percentage of asbestos contained in the material?

Other parameters that may be examined include the extent of water damage and the exposed surface area of friable material, activity, and movement (such as air movement, building vibration from machinery or other sources, and activity levels of workers).

Risk assessment process – stage 2

During the second stage of the risk assessment process, each parameter is assigned a "score" to indicate the potential for exposure. These scores are then combined to derive an overall risk factor that is used to prioritize the control and abatement options to be implemented. Different approaches are used to assign scores to the parameters and to combine the scores into one overall risk factor.

Some examples are briefly described below.

- A numerical rating scale is used in a system developed by the U.S. Environmental Protection Agency (for example, "0" or "1" is assigned to parameters for which there is a low potential of exposure; "4" is assigned to those for which the potential of exposure is high). These scores are then combined using a mathematical formula. The range into which the overall score falls will determine what remedial action is recommended (for example, if the overall score is in the range of 5-9, then the recommended action is to review in two to three years).
- A numerical rating scale need not be used. For example, a different system is described in the Alberta Occupational Health and Safety publication [Alberta Asbestos Abatement Manual](#). In this publication, the need for control is determined by consulting a decision flowchart.

Risk assessment before demolition, alteration, or repair

Section 6.6(2) requires that a risk assessment be conducted "before any demolition, alteration, or repair of machinery, equipment, or structures where asbestos-containing material may be disturbed." This obligation is related to the requirements in [section 20.112](#) of the *Regulation* dealing with hazardous materials on demolition or salvage of equipment, buildings, etc. before work begins. Refer to [OHS Guideline G20.112](#) for further information.

Further information

Further details about asbestos management are provided in the WorkSafeBC manual [Safe Work Practices for Handling Asbestos](#).

G6.6-2 Classification of risk

Issued August 1999; Revised June 4, 2009; Revised consequential to February 1, 2012 Regulatory Amendment; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.6 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that a risk assessment is conducted by a qualified person on asbestos-containing material identified in the inventory referred to in section 6.4(1)(c) or (3), as applicable, with due regard for the condition of the material, its friability, accessibility and likelihood of damage, and the potential for fibre release and exposure of workers.
- (2) The employer must ensure that a risk assessment has been conducted by a qualified person before any demolition, alteration, or repair of machinery, equipment, or structures where asbestos-containing material may be disturbed.
- (3) Before a work activity that involves working with or in proximity to asbestos-containing material begins, the employer must ensure that a qualified person assesses the work activity and classifies it as a low risk work activity, a moderate risk work activity or a high risk work activity.

Section 6.1 of the *Regulation* states, in part:

"*low risk work activity*" means a work activity that involves working with or in proximity to asbestos-containing material if, at the time the work activity is being carried out, both of the following apply:

- (a) the asbestos-containing material is not being
 - (i) cut, sanded, drilled, broken, ground down or otherwise fragmented, or
 - (ii) disturbed such that the asbestos-containing material may release airborne asbestos fibre;
- (b) it is not necessary to use personal protective equipment or engineering controls in respect of that activity to prevent exposure of a worker to airborne asbestos fibre;

"*moderate risk work activity*" means a work activity, other than a high risk work activity, that involves working with or in proximity to asbestos-containing material if, at the time the work activity is being carried out, one or both of the following apply:

- (a) the asbestos-containing material is being
 - (i) cut, sanded, drilled, broken, ground down or otherwise fragmented, or
 - (ii) disturbed such that the asbestos-containing material may release airborne asbestos fibre;
- (b) it is necessary to use personal protective equipment or engineering controls, or both, in respect of that activity to prevent exposure of a worker to airborne asbestos fibre;

"*high risk work activity*" means a work activity that involves working with or in proximity to asbestos-containing material if a high level of control is necessary in respect of that activity to prevent exposure of a worker to airborne asbestos fibre;

Purpose of guideline

The purpose of this guideline is to provide information regarding the intent of the requirement in section 6.6(3) of the *Regulation* to classify work involving asbestos-containing material according to the level of risk to workers.

Classification of risk

Under section 6.6(3) of the *Regulation*, the employer must ensure that before the commencement of work involving asbestos-containing material, a qualified person assesses the work activity and classifies it as a low-, moderate- or high-risk activity. The intent of this requirement is to assess the likelihood of asbestos fibres being released during handling activities and to select appropriate work precautions, according to the level of the risk to workers.

Further details about asbestos management are provided in the WorkSafeBC manual [Safe Work Practices for Handling Asbestos](#).

G6.6-3 Qualifications

Issued August 1, 1999; Editorial Revision October 2004; Revised June 18, 2008; Retired consequential to February 1, 2012 Regulatory Amendment

G6.7 Control of friable asbestos

Issued August 1999; Revised consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 6.7 of the *OHS Regulation* ("*Regulation*") states

The employer must ensure that all friable asbestos-containing materials in the workplace are

- (1) controlled by removal, enclosure or encapsulation so as to prevent the release of airborne asbestos fibre.
- (2) The employer must not allow any work that would disturb asbestos-containing material unless necessary precautions have been taken to protect workers.

Purpose of guideline

The purpose of this guideline is to provide guidance on abatement and control options, specifically for drop ceilings.

Control options

Abatement and control options should eliminate or reduce all moderate- and high-risk factors identified in the risk assessment required under [section 6.6](#). Drop ceilings are not an appropriate or effective system of permanently enclosing asbestos-containing materials as it does not eliminate access to the treated area and services are not likely to be removed to the outside of the ceiling system.

G6.8 Procedures for abatement of asbestos materials during house and building demolition/renovation

Issued July 5, 2002; Revised November 23, 2005; Editorial Revision January 1, 2009; Editorial Revision June 10, 2010; Revised consequential to February 1, 2012 Regulatory Amendment; Revised September 20, 2013; Revised April 30, 2015; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.8 (Procedures) of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that procedures for handling or using asbestos- containing material prevent or minimize the release of airborne asbestos fibres.
- (2) The employer must ensure that the procedures for control, handling or use of asbestos are in accordance with procedures acceptable to the Board.
- (3) The procedures must address
 - (a) containment of asbestos operations where applicable,
 - (b) control of the release of asbestos fibre,
 - (c) provision, use and maintenance of appropriate personal protective equipment and clothing,
 - (d) means for the decontamination of workers, and
 - (e) removal of asbestos waste and cleanup of asbestos waste material.
- (4) The procedures must provide a worker with task-specific work direction that addresses both hazards and necessary controls.

Purpose of guideline

In the past, a wide variety of building materials contained asbestos. During renovation or demolition of buildings and other structures constructed of such materials, workers and other persons may be at risk of harmful exposure to airborne asbestos if safe work procedures are not followed.

This guideline provides information to assist with the development of task-specific work procedures required by section 6.8 of the *Regulation* during the renovation or demolition of a house, building, or similar structure involving asbestos-containing material ("ACM"). It also provides information on some of the other requirements in the *Regulation* for asbestos control, particularly in [Part 6 \(Substance Specific Requirements — Asbestos\)](#) and [Part 20 \(Construction, Excavation and Demolition\)](#). Procedures meeting regulatory requirements and based on criteria and measures in the scenarios described in this guideline are acceptable to WorkSafeBC.

The requirements relating to asbestos in Part 6 apply to any workplace where a worker is or may be exposed to potentially hazardous levels of asbestos fibre including, but not limited to, the following:

- A workplace where ACM is present or is used
- An operation involving the abatement of ACM

The provisions of Part 6 are in addition to those in [Part 5 \(Chemical Agents and Biological Agents\)](#), which, among other things, establishes the exposure limit for asbestos and general measures for control.

Part 20 applies to any construction project as defined in Part 20, including demolition, alteration, and repair. Provisions in Part 20 on notice of project (NOP) and hazardous materials are particularly applicable to asbestos control.

This guideline should be used with the WorkSafeBC manual, [Safe Work Practices for Handling Asbestos](#), and other applicable [safety information on asbestos](#).

Preplanning and notice of project

Renovation and demolition work involving materials containing asbestos requires proper planning. A risk assessment for asbestos must be done before demolition or other work begins, as required by [sections 6.6](#) and [20.112](#) of the *Regulation*.

In addition, an NOP must be submitted, as required by [section 20.2.1\(1\)](#), before beginning any work that involves either of the following:

- A work activity that involves working with or in proximity to ACM that is moderate-risk work activity or a high-risk work activity, as defined in section 6.1
- The alteration, repair, dismantling, or demolition of all or part of a building or structure in which ACM has been processed, manufactured, or stored

All employers responsible for the work activity and either the owner or prime contractor must ensure that WorkSafeBC receives the NOP at least 48 hours before starting the project, not just the day before the project and less than 48 hours before work is due to begin. NOPs can be sent to WorkSafeBC either by [online form](#) on the WorkSafeBC website or by fax to 604-276-3247.

In some emergency circumstances such as flooded or fire-damaged buildings that contain or are suspected of containing ACM, immediate work may be necessary to prevent injury to workers or other persons, the risk of occupational disease or damage to property. In such cases, [section 20.2.1\(6\)](#) of the *Regulation* permits work to begin as long as an NOP is submitted to WorkSafeBC as soon as possible. Section 20.2.1(6) of the *Regulation* does not relieve the employer of the obligation to comply with any other requirement of the *Regulation*, including the obligation to conduct a pre-demolition risk assessment for asbestos. Work must be done safely.

Renovation and demolition scenarios

Ten common renovation and demolition scenarios are outlined in the Table "Guide for handling and removal of ACM during demolition and renovation." The scenarios range from removal of spray-on friable asbestos insulation within a structure to demolishing a structure using mechanical demolition equipment.

For each scenario, the Table provides information on the following five aspects of hazard control:

- The type of containment, from restricted access to partial or full containment
- Work area controls to minimize the generation of dust and to otherwise control it if present
- Personal protective equipment, particularly respiratory and body protection
- Personnel decontamination, ranging from simple wash-up to full shower provisions
- Site decontamination

The control measures outlined in the Table vary according to risk factors, and are intended to be consistent with the risk-based principles in the manual [Safe Work Practices for Handling Asbestos](#).

One of the risk factors in the Table deals with whether or not the structure will be reoccupied. "Reoccupancy" refers to a circumstance where one or more workers or other building occupants without appropriate personal protective equipment will be returning into the abatement area following the abatement work. Reoccupancy involves a higher level of risk and typically a more stringent standard of work area control and decontamination.

For most scenarios a "Comments" section is included to outline the differences in control measures where no reoccupancy is expected or to provide further technical information.

There are several precautions when using the Table.

1. **The Table does not include all possible scenarios.** Sections 6.5 and 20.112 of the *Regulation* establish the employer's obligation to identify ACM at the work site. Section 6.6 requires that a risk assessment be done of any identified ACM and before any demolition, alteration, or repair of machinery, equipment, or structures where asbestos may be disturbed. It also requires that the level of risk be established, which will typically be high or moderate risk for renovation and demolition work. The assessment of ACM must be done by a qualified person. Refer to sections 6.6 and 6.1 of the *Regulation* and [G6.1-1 Definition of a qualified person](#) for information on qualifications.

Measures to identify and assess asbestos may reveal additional scenarios and types of ACM. For any scenario, section 6.8 of the *Regulation* requires that proper procedures be in place.

2. **The measures in the Table are considered only to be a guide to the expected standard of protection.**

(a) There may be circumstances at a site where the assessment demonstrates a need to include additional or more stringent measures.

(b) There may also be situations where the qualified person determines that effective exposure control can be maintained without following all the measures listed in the Table. These situations could include the following:

- A small area of texture coat (no more than 2 or 3 square feet) must be removed from a ceiling to allow for repairs e.g., following a water leak
- Texture coat is removed by removing large intact sections of the drywall substrate using a saw equipped with local exhaust ventilation

For these situations, an employer needs to contact a WorkSafeBC prevention officer who, if satisfied by the risk assessment rationale, can accept the control measures (by accepting the procedures). When considering acceptability of the procedures, the prevention officer will consider factors such as the following:

- A written risk assessment that includes consideration of at least the following factors:
 - Friability
 - Amount of disturbance during the work activity
 - Adhesion to a substrate
 - Proximity to unprotected workers
 - Asbestos content (%)
 - Air monitoring data provided by the employer for equivalent situations
 - Size and duration of the project
 - The applicability of new or emerging asbestos abatement technology or techniques
 - Reoccupancy versus demolition
- Industry experience and compliance history of the contractor and supervisor
- Involvement of an independent third party consultant
- Matters required by section 6.8(3) of the *Regulation*

If the procedures are accepted, and prior to abatement work proceeding, the prevention officer will issue an inspection report which includes an acceptance of the work procedures for that project only.

(c) In all cases, it is necessary to ensure that the control measures properly protect workers from exposure to asbestos. Measures must be in compliance with the *Regulation*.

3. **The Table does not cover all aspects of asbestos controls required by the *Regulation*.**

Several examples are provided below.

- **Air monitoring:** Air monitoring must be done if a worker may be exposed to asbestos, and in certain high-risk circumstances specified in the *Regulation*.
- **Some procedures are prohibited:** Examples include pressure spraying to remove asbestos, and dry sweeping or using compressed air for cleanup. Procedures such as sanding of asbestos-contaminated flooring and similar surfaces should be avoided where possible, given the requirement in section 6.8 of the *Regulation* to prevent or minimize the release of airborne asbestos. Any sanding is considered to be high risk and requires a corresponding high level of control.
- **Before starting work, all workers and supervisors must be properly trained:** Training is required on matters including the hazards of asbestos, the means of identifying asbestos-containing materials at the worksite, the correct use and maintenance of personal protective equipment, the operation of required engineering controls, and the site-specific work procedures to be followed. Workers must be properly supervised.

Table: Guide for handling and removal of asbestos-containing materials during demolition and renovation projects

Note: Explanations of the terms used in this Table are provided at the end of the guideline.

Work area designation and containment	Work area controls	Personal protective equipment <i>(Refer to Note 1 at the end of the Table)</i>	Personnel decontamination <i>(Refer to Note 2 at the end of the Table)</i>	Site decontamination comments and explanation <i>(Refer to Note 3 at the end of the Table)</i>
Scenario 1: Spray-on friable asbestos insulation or fire-proofing materials, with reoccupancy				
Full containment	Material saturation procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; and HEPA-equipped ventilation unit ("negative-air" unit)	Air supplied respirator; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Full shower decontamination facility	Impervious waste containers; HEPA-equipped vacuum to ensure removal of all visible ACM (Wet wash-down also recommended); and Fibre sealant on exposed surfaces after cleaning
<p>Comment: <i>If there will be no reoccupancy, the above measures apply except that partial containment is acceptable as a means of work area containment. Also, the recommendation for wet wash-down would not apply as part of site decontamination as long as decontamination methods ensure removal of all visible ACM.</i></p>				
Scenario 2: Asbestos-containing textured ceiling or wall removal, with reoccupancy				
Full containment	Material saturation procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; and HEPA-equipped ventilation unit ("negative-air" unit)	Powered air-purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Full shower decontamination facility	Impervious waste containers; HEPA-equipped vacuum to ensure removal of all visible ACM (Wet wash-down also recommended); and Fibre sealant on exposed surfaces after cleaning
<p>Comment: <i>If there will be no reoccupancy, the above measures apply except that partial containment is acceptable as a means of work area containment. Also, the recommendation for wet-wash down would not apply as part of site decontamination as long as decontamination methods ensure removal of all visible ACM.</i></p>				
Scenario 3: Asbestos cement products, with reoccupancy				
Designated work area	Material saturation procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; and Controlled manual procedures	Half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Wash-up decontamination facilities	Impervious waste containers, or polyethylene-lined disposal bin; and HEPA-equipped vacuum to ensure removal of all visible ACM (Wet wash-down also recommended)
<p>Comment: In some cases it may not be practicable to apply material saturation techniques. In such cases an alternative is to wet exposed surfaces of the ACM and mist the air during removal. <i>If there will be no reoccupancy then the above measures apply except that the recommendation for wet wash-down would not apply as part of site decontamination procedures, as long as decontamination methods ensure removal of all visible ACM.</i></p>				
Scenario 4: Asbestos-containing joint tape or paper on ductwork, with or without reoccupancy				

Designated work area	Glove bag and material saturation procedures, or encapsulation (e.g., with duct tape) designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; and HEPA-equipped vacuum	Half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Wash-up decontamination facilities	Impervious waste containers; and HEPA-equipped vacuum to ensure removal of all visible ACM
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Scenario 5: Asbestos-containing filling compound on gypsum board, with reoccupancy

Partial containment; or Full containment (level of containment dependent on risk assessment)	Material saturation procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; HEPA-equipped vacuum or ventilation unit ("negative-air" unit); Use of hand tools, (e.g., knives, hammers, crowbars); or power tools equipped with HEPA-filtered local exhaust ventilation; and Power tools equipped with HEPA-filtered local exhaust ventilation systems can only be used if supported by air monitoring results	Half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters; or powered air purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Wash-up decontamination facilities; and HEPA-equipped vacuum	Impervious waste containers; and HEPA-equipped vacuum to ensure removal of all visible ACM (Wet wash-down also recommended)
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Comment:

In some cases it may not be practicable to effectively apply material saturation techniques to joint filling material, for example, if water resistant paints or coatings had previously been applied to the material. In such cases an alternative is to wet exposed surfaces of ACM and mist the air during removal.

If there will be no reoccupancy then the above measures apply except that the recommendation for wet wash-down would not apply as part of site decontamination as long as decontamination methods ensure removal of all visible ACM.

Scenario 6: Vinyl asbestos floor tile or vinyl asbestos sheet flooring - with asbestos in the matrix of the flooring or adhesive, with reoccupancy

Partial containment	Material wetting procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; Use of hand tools (e.g., scrapers, knives); or power tools equipped with HEPA-filtered local exhaust ventilation; and Power tools equipped with HEPA-filtered local exhaust ventilation systems can only be used if supported by air monitoring results	Half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Wash-up decontamination facilities	Impervious waste containers or Polyethylene-lined disposal bin; and HEPA-equipped vacuum to remove all visible ACM
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Comment:

During renovation work avoid sanding asbestos-contaminated surfaces wherever possible. In some cases it may not be practicable to effectively apply material saturation techniques. In such cases an alternative is to wet the exposed surfaces and mist the air during removal.

If there will be no reoccupancy then the above measures apply except that the use of a HEPA-equipped vacuum in site decontamination is not necessary as long as decontamination methods ensure removal of all visible ACM.

Scenario 7: Vinyl sheet flooring - with asbestos in backing or underlay, with reoccupancy

7a) Partial containment (small areas less than 10 square metres, approx. 100 square feet);	Material saturation procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; HEPA-equipped vacuum; and Use of hand tools only (e.g., scrapers, knives)	Half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters; or powered air purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Wash-up decontamination facilities and HEPA-equipped vacuum	If the backing is difficult to remove or firmly adhered to the substrate, then full containment procedures must be used as per scenario 7b; Impervious waste containers; HEPA-equipped vacuum to ensure removal of all visible ACM (Wet wash-down also recommended); and Fibre sealant on exposed surfaces after cleaning
7b) Full containment (areas greater than 10 square metres, approx. 100 square feet);	Material saturation procedures designed to eliminate or reduce the release of dust before and during disturbance and handling of materials; HEPA-equipped ventilation unit ("negative-air" unit); Use of hand tools (e.g., scrapers, knives); or power tools equipped with HEPA-filtered local exhaust ventilation; and Power tools equipped with HEPA-filtered local exhaust ventilation systems can only be used if supported by air monitoring results	Powered air purifying respirator with NIOSH 100 Series filters; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Full shower decontamination facility	Impervious waste containers; HEPA-equipped vacuum to ensure removal of all visible ACM (Wet wash-down also recommended); and Fibre sealant on exposed surfaces after cleaning

Comment:

Where feasible, remove vinyl flooring and subfloor as a unit, without de-lamination. If this is possible then application of fibre sealant is not necessary. Also, if procedures involve immediate application of a new flooring surface on top of the subfloor then sealant would not be needed. During renovation work avoid sanding asbestos contaminated surfaces wherever possible.

If there will be no reoccupancy then the above measures apply except that the recommendation for wet wash-down would not apply as part of site decontamination as long as decontamination methods ensure removal of all visible ACM.

Scenario 8: Loose-fill vermiculite attic or wall cavity insulation containing asbestos, with reoccupancy

Designated work area; Partial containment or Full containment (level of containment dependent on risk assessment)	HEPA-equipped vacuum suction system (e.g., Vec loader); Wetting of vermiculite and air misting if manual removal methods (e.g., scooping and bagging) are used; and For locations such as attics, maintain negative pressure to prevent fibre spread. Do not use compressed air to blow vermiculite	Powered air purifying respirator with NIOSH 100 Series filters if manual removal procedures are used in attics and similar spaces; Protective clothing; and Laceless rubber boots or other appropriate footwear designed to be easily decontaminated	Full shower decontamination facility if manual removal procedures are used in attics and similar spaces	Impervious waste containers for waste removal; HEPA-equipped vacuum to ensure removal of all visible ACM; and Fibre sealant on exposed surfaces after cleaning
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Comment:

Vermiculite itself does not contain asbestos. However, some vermiculite is contaminated with asbestos, typically tremolite or actinolite. Representative bulk sample collection and analysis of asbestos-contaminated vermiculite, by a qualified person, is needed to determine the type and amount of asbestos, and to establish any required safe work procedures for preventing harmful exposure.

For bulk sample collection, take samples from the top to bottom of the insulation. This is because any asbestos will likely be present in greater amounts at the bottom due to the settling out of asbestos fibers from the vermiculite particles. Sampling only the top of the vermiculite may result in a false negative analysis for asbestos.

While most vermiculite is likely to be found in attics and similar spaces, the product may also be found in locations such as hollow concrete block walls. In all cases, safe removal procedures are required. A heat stress assessment must be conducted if workers are or may be exposed to thermal conditions that could cause heat stress, for example, in enclosed attics.

If there will be no reoccupancy then the above measures apply except that site decontamination may not require the application of sealant. In such cases misting of surfaces may be an appropriate alternative. Also, the use of a HEPA-equipped vacuum may not be necessary in site decontamination as long as decontamination methods ensure removal of all visible ACM.

Scenario 9: ACM asphalt roofing materials, with or without reoccupancy

Designated work area; or Partial containment where required to prevent wind dispersion	Controlled manual procedures, or HEPA-filtered local exhaust ventilation on equipment	Half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters; and Protective clothing	Wash-up decontamination facilities	Polyethylene-lined disposal bin; and Decontamination methods that will ensure the removal of all visible ACM
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Scenario 10: Using mechanical demolition equipment (for example, a backhoe) to demolish all or part of a house, building, or other structure in proximity to publicly accessible areas

Designated work area	Remove asbestos cement products and friable ACM; Presoak remaining non-friable ACM, and use water dust suppression (a residential watering hose would not typically provide sufficient water volume); and Monitor wind and control any potential for fibre spread offsite	Half-facepiece dual cartridge air-purifying respirator with NIOSH 100 Series filters; and Protective clothing for affected workers including equipment operators	Wash-up decontamination facilities	Polyethylene-lined disposal bin; and Decontamination methods that will ensure the removal of all visible ACM
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Comment:

In scenario 10, all friable ACM (for example, textured ceiling and wall material, and sprayed-on insulation or fireproofing) is to be removed before mechanical demolition of a structure. Containment of asbestos by enclosure or encapsulation is typically not an option. It is also appropriate to remove all asbestos cement products, which can become friable during demolition. Selective sorting of waste materials can significantly reduce the quantities of asbestos waste.

If the structure is in such a condition that it is dangerous to workers to undertake prior removal, the employer is expected to provide a risk assessment demonstrating such removal is unsafe and take necessary control measures that properly protect workers and others, including transportation and landfill personnel. Where the project involves removal of asbestos by means other than mechanical demolition equipment, then the applicable controls in scenarios 1-9 apply.

Notes to the Table**Note 1 — Personal protective equipment (PPE)**

The equipment noted in the Table is for the protection against exposure to asbestos. Other hazards may also be present that require other PPE, for example, eyewear and hearing protection. One of the main issues in the selection of PPE for protection against asbestos is respiratory protection.

The selection of an appropriate respirator, including the facepiece, is based on the assurance that the maximum use concentration for that respirator is not exceeded (refer to [section 8.34](#) of the *Regulation*; [OHS Guideline G8.34-1](#)).

Single use or disposable respirators sometimes known as "dust masks" are not acceptable for any work with asbestos materials. The half-facepiece dual cartridge air purifying respirator with NIOSH 100 Series filters is the minimum standard and is noted for some scenarios. In other scenarios with higher levels of risk, powered air purifying respirators (PAPRs) with NIOSH 100 Series filters or air supplied respirators are required.

The guidance on respiratory protection in the Table is based on the understanding that effective measures are in place to control the release of airborne asbestos. If the risk posed in a scenario is higher than anticipated in the Table, a more stringent level of protection is required.

For example, if exposure to asbestos-containing dust is expected to be substantial during the removal of drywall filling compounds, or if the removal of asbestos cement products generates substantial dust because of the methods used or condition of the material, then PAPRs may be required in place of half-facepiece cartridge respirators. In all cases, the employer must ensure the level of risk is properly assessed, and that protective equipment addresses that risk.

In some cases the risk may be lower than presumed in the Table. For example, if a mechanical method such as a Vec loader is used to remove vermiculite from wall cavities, a half-facepiece dual cartridge air purifying respirator may be sufficient. A lesser standard of respiratory protection may also be permitted in some other cases, if supported by the on-site risk analysis and application of [section 8.34](#) of the *Regulation*. Risk depends on factors such as removal methods, extent of disturbance of material, and the amount and concentration of asbestos.

Note 2 — Personnel decontamination facilities

The expectations for these facilities are based on estimates of typical conditions. There may be some variation in required facilities depending on the level of risk. In some cases more substantial facilities may be required. Examples include procedures that involve extensive overhead work to remove ACM, and circumstances where substantial dust can be generated, such as when pulverizing non-friable ACM. The need for a full shower decontamination facility in several scenarios is due to the anticipated ACM contamination inside protective clothing. In some cases a full shower facility may not be necessary if the hazard is sufficiently controlled. An example is scenario 8, if HEPA-vacuuming is used to remove vermiculite from hollow concrete block walls.

Note 3 — Site decontamination measures

For most of the scenarios in the Table, HEPA-vacuuming is noted as the appropriate means of site decontamination. This is because of its effectiveness. Where removal involves wet methods, it is good practice to HEPA-vacuum the surface after it has dried. In some cases, wet wash-down is recommended as an additional measure, for increased assurance of protection.

All asbestos-containing and asbestos contaminated wastes generated are to be placed in impervious containers. The containers must be labeled as asbestos waste material. The employer must ensure that hazardous wastes are handled in compliance with the *Regulation* and the requirements of provincial and municipal authorities.

Explanation of terms used in the table

ACM (Asbestos-containing material)

Section 6.1 of the *Regulation* states:

(a) a manufactured article or other material, other than vermiculite insulation, that would be determined to contain at least 0.5% asbestos if tested in accordance with one of the following methods:

(i) [Asbestos, Chrysotile by XRD, Method 9000](#) (Issue 2, dated August 15, 1994) in the NIOSH Manual of Analytical Methods, published by the United States National Institute for Occupational Safety and Health, Center for Disease Control;

(ii) [Asbestos \(bulk\) by PLM, Method 9002](#) (Issue 2, dated August 15, 1994) in the NIOSH Manual of Analytical Methods, published by the United States National Institute for Occupational Safety and Health, Center for Disease Control;

(iii) [Test Method for the Determination of Asbestos in Bulk Building Materials](#) (EPA/600/R-93/116, dated July 1993) published by the United States Environmental Protection Agency;

(b) vermiculite insulation that would be determined to contain any asbestos if tested in accordance with the [Research Method for Sampling and Analysis of Fibrous Amphibole in Vermiculite Attic Insulation](#) (EPA/600/R-04/004, dated January 2004) published by the United States Environmental Protection Agency;

The potential for such conditions must be assessed. Safe work procedures and other necessary controls must be implemented to ensure asbestos fibre concentrations are controlled to levels at or as low as reasonably achievable below the Exposure Limit as per [section 5.57\(2\)](#) of the *Regulation*.

Asbestos cement products

Include asbestos cement shingles, roofing tiles, siding (transite panels), and pipe, as well as non-friable cementitious stucco and plaster materials.

Asbestos waste

Any waste material generated on a worksite which meets the criteria for special waste set out by the Ministry of Environment or which contains 0.5% or more by weight of asbestos as determined by the required analytical procedures (refer to ACM - "Asbestos-containing material" above).

Controlled manual procedures

Manual removal procedures that are designed to minimize or prevent breakage and disturbance of asbestos materials, and do not involve the use of powered equipment or power tools.

Designated work area

A work area that includes the following measures:

(a) The boundaries of the work area identified by barricades, fences, or similar means, with signs posted at all entrances to the work area indicating that asbestos abatement work is in progress, the hazards of asbestos exposure, and the precautions that are required for entering into the work area.

(b) The work area cleared of all moveable objects, equipment, and materials that are not required during the work.

(c) Polyethylene drop sheets placed on the floor of the work area beneath the asbestos materials that are being removed, and over objects and materials that cannot be removed from the work area.

(d) All windows, doorways, and other openings including ducts and vents sealed to prevent the release of asbestos fibres into areas beyond the boundaries of the work area.

(e) Access to an Asbestos Abatement Work Area restricted to trained, authorized, and supervised workers wearing appropriate respiratory protection and protective clothing.

with due regard for the level of risk to workers of the employer and any other workers present at the workplace at which the employer's work is being carried out.

Friable

Section 6.1 provides, in reference to asbestos-containing material, that friable means material that is crumbled or powdered or can be crumbled or powdered by hand pressure.

Note: Non-friable material, including asbestos cement products, can become friable as a result of deterioration, mechanical destruction, or abrasion forces.

Full containment	<p>Involves all of the requirements of the "Designated Work Area," as well as the following:</p> <p>(a) Complete airtight isolation of the work area to prevent the escape of asbestos fibres by use of polyethylene sheeting (at least 0.15 mm (0.006 inch, or 6 mil) thickness and duct tape, or similar impermeable materials.</p> <p>(b) All floors, walls, and other surfaces in the work area covered with polyethylene sheeting of the same thickness sealed with tape.</p> <p>(c) The work area containment inspected and repaired as necessary on at least a daily basis, and otherwise as required, to ensure that an airtight seal is maintained during asbestos abatement work.</p>
Full shower decontamination facility	The facility will include a physical connection to the containment, a shower facility and provision for the safe entry and exit of workers. It will also meet the applicable requirements of section 5.82(2) & (3) of the <i>Regulation</i> .
HEPA filter	High Efficiency Particulate Aerosol filter that is at least 99.97% efficient at collecting an aerosol particle 0.3 micrometer in size.
HEPA-equipped local exhaust ventilation	Local exhaust ventilation with HEPA filter used for the control of contaminants at the source; for example, a HEPA-equipped vacuum mounted on a power tool. Note the requirements of section 6.19 of the <i>Regulation</i> to assess and maintain filters.
HEPA-equipped vacuum	HEPA filter-equipped vacuum used for cleanup and decontamination procedures or for local exhaust ventilation where appropriate. Note the requirements of section 6.19 of the <i>Regulation</i> to assess and maintain filters.
HEPA-equipped ventilation unit or ("negative-air" unit)	Portable ventilation unit equipped with HEPA filtration used to ventilate a containment and create a slight negative-air pressure differential that ensures net air movement from outside the containment into it. This air movement reduces the risk of asbestos-contaminated air moving out of the containment. Note the requirements of section 6.19 of the <i>Regulation</i> to assess and maintain filters.
Impervious waste container	<p>Any container designed and made of a material which will contain all asbestos waste and will prevent the release of asbestos wastes and fibre during transport to and disposal at an approved disposal site. Examples include double sealed polyethylene plastic bags, each with a nominal thickness of at least 6 mil, and fibre barrels. Procedures that use thinner plastic bags are not procedures acceptable to WorkSafeBC under section 6.8(2) or 6.27(2)(a) of the <i>Regulation</i>.</p> <p>The outside of the waste container must be labeled as asbestos-containing waste, as required by section 6.25 of the <i>Regulation</i>. Tight-fitting lids or other covers that seal the container must be used with rigid containers such as barrels and bins.</p> <p>Disposal site operators may require specific types of containers or may have restrictions on the type of containers they will accept.</p> <p>The requirement for double sealed plastic bags to be at least 6 mil is consistent with clause 40(2)(b)(i)(B) of the Environmental Management Act Hazardous Waste Regulation requirements for waste asbestos.</p>
Laceless rubber boots or other appropriate footwear	<p>Appropriate footwear will be in compliance with section 8.22 of the <i>Regulation</i>, which requires among other things that footwear be of a design, construction, and material appropriate to the protection required. Typically, wherever asbestos-containing dusts or debris are present, footwear is expected to be of a design that permits it to be easily decontaminated. Laceless rubber boots are an example of such a design.</p> <p>If other risks are present, such as slipping, uneven terrain, crushing potential, or puncture hazards then the footwear must address those issues. Footwear must not create hazards greater than those it is intended to protect against.</p>
Material saturation procedures	Procedures that involve the sufficient wetting of asbestos-containing material before and during removal to eliminate or substantially control airborne dust. Note that amended water containing surfactants (wetting agents) increases the capability for effective dust control, and is to be used particularly in high-risk operations. The obligation to wet materials is found in section 6.22 of the <i>Regulation</i> , and applies whenever such procedures are practicable
Mechanical demolition	Demolition methods and practices in which heavy machinery and equipment is used to tear down buildings and structures safely by use of a systematic plan of demolition.

Non-friable	<p>Following from the section 6.1 of the <i>Regulation</i> definition for friable, non-friable means material that is not crumbled or powdered nor can it be crumbled or powdered by hand pressure.</p> <p>This term is used to describe any asbestos-containing material that binds the fibre into the composition matrix in a manner that prevents the release of the fibre under normal daily usage conditions.</p> <p>Normal daily usage conditions do not include situations such as installation, alteration, maintenance, or removal practices. For example, floor tile can be walked on without changing its classification as non-friable, but removal may generate friable asbestos wastes.</p>
Partial containment	<p>Involves all of the requirements of the "Designated Work Area," as well as isolation of the work area using polyethylene sheeting and duct tape or other impermeable materials to seal openings such as windows, doorways, stairways, elevators, heating ducts, and vents.</p> <p>A partial containment will create an airtight work area that prevents the escape of asbestos fibres, without the complete draping of walls, floors, and ceilings as required by a full containment.</p>
Presoaking of non-friable ACM	<p>Presoaking of all non-friable ACM prior to mechanical demolition being done which may disturb the ACM, for example, by flooding asbestos-containing flooring material or other ACM.</p>
Protective clothing	<p>Clothing which is made of a material resistant to penetration by asbestos fibres, fits snugly at the neck, wrists, and ankles, and as necessary to protect against the risk covers the head and feet as well as the body.</p> <p>Disposable protective clothing is recommended. Reusable coveralls are to be cleaned and laundered as required by sections 6.30 and 6.31 of the <i>Regulation</i>. Protective clothing is to be immediately repaired or replaced if torn. Street clothes are not to be worn under protective clothing if work is conducted inside a containment or in circumstances that require the use of full shower decontamination facilities. Heat stress potential must be considered and properly addressed.</p>
Reoccupancy	<p>A circumstance where one or more workers or other building occupants will be returning into the abatement area following the abatement work.</p>
Stationary drop sheets	<p>Drop sheets taped in place to prevent lifting.</p>
Wash-up decontamination facilities	<p>Facilities for wash-up and decontamination, with provision for soap and water, changed regularly after use to ensure cleanliness.</p>
Water dust suppression	<p>Use of water for dust suppression, for example, area water spraying to suppress dust during mechanical demolition procedures.</p>

G6.9(3) Prohibitions - Pressure spraying

Issued July 23, 2014

Regulatory excerpt

Section 6.9(3) of the *OHS Regulation* ("Regulation") states:

Pressure spraying equipment of any type must not be used to remove asbestos insulation or other asbestos-containing material from buildings or structures.

Purpose of guideline

The purpose of this guideline is to provide clarification regarding the difference between wetting for the purpose of saturating asbestos-containing material (ACM) with water versus pressure spraying to remove ACM.

Pressure spraying

In the context of section 6.9(3) of the *Regulation*, pressure spraying equipment is any piece of equipment that sprays a liquid or water-ice with sufficient force that any ACM is removed from any surface. It does not refer to the application of water through misting or low pressure wetting procedures used to dampen ACM prior to removal.

While not inclusive, some of the reasons for the prohibition of pressure spraying to remove ACM include the following:

- Pressure spraying of ACM can result in increased contamination both inside and outside of abatement areas, as well as pose difficulties with the cleanup of contaminated water and slurry.
- Pressure spraying can produce large volumes of contaminated slurry and/or water that can be difficult to retain (can leak from the enclosure) and properly contain and remove from the site.
- Wet spray can degrade the seal along the edges of enclosures and force asbestos contamination outside of the enclosure into "clean" areas.

- Within abatement enclosures, asbestos contamination can be sprayed from the original source and forced into small areas that can be difficult to clean.

G6.10 Substitution

Issued August 1, 1999; Revised consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 6.10 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must substitute material less hazardous than asbestos-containing material when practicable.
- (2) If such substitution is not practicable, the employer must document the reasons why less hazardous material cannot be substituted for asbestos-containing material, and make this documentation available to workers and to the joint committee or the worker health and safety representative, as applicable.

Section 5.55(2) of the *OHS Regulation* ("Regulation") states:

When selecting a suitable substitute, the employer must ensure that the hazards of the substitute are known, and that the risk to workers is reduced by its use.

Purpose of guideline

This guideline describes factors to consider when selecting a substitute for asbestos-containing material.

Selection of a substitute for asbestos-containing material

Section 6.10 of the *Regulation* requires that, when practicable, the employer must substitute asbestos-containing material with less hazardous material. In selecting a substitute, the requirements of section 5.55(2) of the *Regulation* apply. That is, the employer must ensure that the hazards of the substitute are known and that the risk to workers is reduced. In addition, the substitute should not create a significant hazard that the asbestos-containing product or material would otherwise abate or control. For example, some gaskets made of alternate material may blow out under certain conditions of use, thereby creating a safety hazard. OHS Guideline [G5.55 Type of Controls](#) contains a list of factors that should be considered when selecting a suitable substitute.

Designated Work Areas and containments

G6.12(2) Asbestos monitoring

Issued July 23, 2014; Revised April 30, 2015

Regulatory excerpt

Section 6.12(2) of the *OHS Regulation* ("Regulation") states:

- (2) During a high risk work activity, except where glove bags are used as the containment, the employer must sample for airborne asbestos fibre in
 - (a) areas outside of the containment but in its vicinity, at least daily if there are unprotected workers in the area,
 - (b) the clean room, at least daily during removal and cleanup operations, and
 - (c) contaminated areas inside the containment, as necessary during removal and cleanup to ensure that workers are adequately protected.

Section 5.53(4) of the *Regulation* states:

- (4) Workplace exposure monitoring and assessment must be conducted using occupational hygiene methods acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to describe acceptable methods for keeping workers under observation when conducting airborne asbestos monitoring during high-risk work activities.

Sampling strategy

Section 5.53(4) of the *Regulation* requires workplace exposure monitoring and assessment to be conducted using occupational hygiene methods acceptable to WorkSafeBC. As stated in OHS Guideline [G5.53-4 Occupational hygiene methods acceptable to WorkSafeBC](#), WorkSafeBC accepts methods detailed in standard occupational hygiene references published by a number of agencies, including the National Institute for Occupational Safety and Health (NIOSH). Those acceptable methods include observing and sampling on the worker closest to the source of the hazardous material being generated, as this would be the worker presumed to have the highest exposure risk (refer to NIOSH's *Occupational Exposure Sampling Strategy Manual* for more information).

In order to properly monitor asbestos exposure during high-risk work activities, a technician will need to keep the worker under observation at all times. The technician may choose to enter and remain in the work area, or observe the worker from the outside. The technician will be educated and trained in the sampling methods used, and will not be the same person as the worker who is being monitored.

Entering the containment

If the technician chooses to enter the containment as a means of keeping the worker under observation, the technician must wear the same personal protective equipment and clothing that workers in the containment are required to wear. The technician must also follow the employer's decontamination and housekeeping procedures required under [section 6.8](#) of the *Regulation*.

Observation from outside of the containment

If the worker will be kept under observation from the outside of the containment, one option is to use viewing windows. In that case, the containment (including negative pressure containments) will need to include at least one viewing window. Each viewing window should be sufficiently large (a minimum of two feet by two feet is recommended) and be made of a material, such as transparent polyethylene, that will allow a clear view inside the containment.

Existing sealed windows can also serve as viewing windows provided they are clean, undamaged, and allow a clear view of the containment. In the case of large containments, there should be a sufficient number of viewing windows to allow a clear view of all areas of the containment where there are workers.

Another option for keeping the worker under observation from outside of the containment is to use a live video system. The system can either be wired (in which case wires should be properly sealed where they enter or leave the containment) or wireless. The employer must ensure that the worker closest to the source of the hazardous material being generated is accurately being monitored. Also the worker should be in view of the camera during the entire sampling period.

Sampling results

Whether the worker is observed from the inside or the outside of the containment, the name or job description of the worker should be recorded, as well as the activity the worker was undertaking during sampling. In addition, the technician is expected to provide an interpretation of the results (for example, those that are abnormally high or low).

G6.13 Authorized persons - Designated area

Issued August 1, 1999

Section 6.13(3) of the *OHS Regulation* provides that the employer must restrict entry into designated work areas to "authorized persons who are adequately protected against the level of risk within the designated work area."

In the context of this section, "authorized persons" are workers who are qualified to perform the work, have been designated by the employer as being permitted to do so, and are permitted to be present within the designated work area(s).

G6.16 High risk work

Issued August 1, 1999

For high risk work activities, section 6.16(2) of the *OHS Regulation* ("*Regulation*") provides that the employer must inspect a containment and a decontamination facility at least daily to ensure that their effectiveness is maintained. [Section 6.1](#) of the *Regulation* defines both high and low risk work activities.

Containment and decontamination facilities will be considered to be effective if they can be reasonably expected to confine asbestos materials and fibres within a contained and controlled area. In particular, the system should:

- be airtight in design (see [section 6.14](#)),
- be of substantial construction to support the anticipated stresses likely to be encountered in the course of work (see [section 4.2](#) of the *Regulation*), and
- utilize recognized design considerations common to the industry norms or follow reasonable parameters of control supported by occupational hygiene principles (e.g. good ventilation design, overlap of plastic poly sheet joints and water-resistant duct tape).

When evaluating compliance with this requirement, the system should be checked to see if it is under negative pressure. Smoke or air current tubes can be used for this purpose.

Additional information regarding procedures for removal or encapsulation of asbestos or asbestos-containing materials can be found in the WorkSafeBC publication [Safe Work Practices for Handling Asbestos](#).

Ventilation

G6.19 Ventilation – Filter testing

Issued August 1, 1999; Editorial Revision April 2005; Editorial Revision February 1, 2008; Revised August 28, 2015.

Regulatory excerpt

Section 6.19(1) of the *OHS Regulation* ("Regulation") states:

The employer must assess the effectiveness of HEPA filters by DOP (dioctyl phthalate) testing or similar means at least annually, after a HEPA filter is replaced in a vacuum cleaner or ventilation system, and before use in high risk work activity.

Section 6.1 of the *Regulation* includes the following definition:

"high risk work activity" means a work activity that involves working with or in proximity to asbestos-containing material if a high level of control is necessary in respect of that activity to prevent exposure of a worker to airborne asbestos fibre.

Section 1.1 of the *Regulation* includes the following definition:

"HEPA" means, in reference to air filtration, a high efficiency particulate air filter meeting the specifications of a nuclear grade filter, providing a 99.97% filtration efficiency at a 0.3 micrometre particle size.

Purpose of guideline

This guideline explains why it is necessary to assess HEPA filter effectiveness, describes how to assess effectiveness of a HEPA filter under section 6.19(1), and clarifies the requirement to test filters before use in a high risk work activity.

Purpose of HEPA filtration

HEPA-filtered negative-air units (referred to as *ventilation systems* in section 6.19(1)) operate to reduce air pressure within a work containment and decrease the concentration of airborne particulate. The slightly lower air pressure maintained within the containment will act to prevent the accidental release of contaminants if the containment seal is not completely effective or if the containment material is damaged (e.g., perforated or torn). In addition, the HEPA units will remove particulate from the air and reduce potential worker exposure.

HEPA-filtered vacuum cleaners (called HEPA vacuums) may act as both negative-air machines for very small containments and vacuum cleaners during abatement work. Unlike HEPA-filtered negative-air units (which usually discharge filtered air to the outdoors), HEPA vacuums discharge air into occupied work areas or buildings. HEPA vacuums used within a high risk work area may release significant concentrations of contaminants into the containment if the HEPA filtration systems are not working properly. HEPA vacuums used for glove bag work typically exhaust into a moderate risk work area, where the respiratory protection worn by workers may not be adequate protection if the HEPA filter leaks. It is very important that employers ensure effectiveness of HEPA filter units.

Assessing effectiveness of HEPA filters

The fan in a negative-air or HEPA-vacuum unit draws air through a sequence of filters (including a HEPA filter) at low static pressure. Effectiveness of collection relies on intact and well-sealed filters. Damage to a filter/seal can occur during transportation from the contractor's equipment storage facility to a worksite or from worksite to worksite. The filters can come loose in the unit housing, or a projectile (e.g., rock, nail, or screw) can penetrate the filter material. Annual testing of the units is necessary but insufficient to assure that the units are working properly.

Section 6.19(1) of the *Regulation* requires the employer to *assess the effectiveness* of the HEPA filter. HEPA filters will be considered to be effective if the filter can pass a visual inspection of the filter media and seal, as well as a filter testing protocol. The visual inspection is intended to identify any apparent damage and to examine the integrity of the seal in the filter frame. The filter testing protocol must use dioctyl phthalate (DOP) or similar means. Where the HEPA unit(s) are moved, handled, or transported in a manner that could compromise the integrity of the HEPA filter, the units need to be tested in situ prior to any disturbance of asbestos materials (see also below, "*Before use in high risk work activity*"). The methods used for testing should be consistent with the HEPA filter leak test requirements of *National Sanitation Foundation (NSF) Standard 49-2002, Class II (Laminar Flow) Biohazard Cabinetry*. These requirements are found in Annex F of the NSF standard. Other requirements for testing include the equipment manufacturer's instructions for operation and calibration of the test equipment.

It is recommended that the following information be clearly posted (e.g., an affixed label) on the equipment following the test:

- Model and serial number of the tested unit
- Testing agency
- Name of the tester
- Date of testing
- Nature of the test (e.g., DOP, PAO)
- Results of the test

The employer is also required under [section 4.3\(2\)](#) of the *Regulation* to maintain all HEPA filters in ventilation systems and HEPA vacuums in accordance with manufacturer's instructions, or as specified by a professional engineer, to ensure that they remain effective.

When must HEPA filters be tested?

Section 6.19(1) of the *Regulation* requires the employer to assess the effectiveness of HEPA filters by DOP (dioctyl phthalate) testing or similar means at least as follows:

- Annually
- After a HEPA filter is replaced in a vacuum cleaner or ventilation system
- Before use in high risk work activity

The references to annual and filter-replacement testing are self-explanatory. The reference to testing before use in high risk work activity may require some explanation.

Before use in high risk work activity

The following guidance can be used to help determine when to perform DOP (or similar) testing before use in a high risk work activity.

To ensure maximum effectiveness of the test, DOP (or similar) testing needs to be conducted once the unit has been installed on-site, immediately before use in high risk work activity (i.e., just before the negative-air unit or HEPA vacuum is used on each worksite). Only if this is not practicable due to reasons such as a lack of local availability of testing contractors, the employer may be able to rely on the comprehensive HEPA equipment maintenance program outlined below. The employer must have demonstrated that the HEPA equipment is maintained, stored, handled, and transported in accordance with an effective, comprehensive, and written maintenance program. This program needs to be supervised by a qualified person and should consist of the following:

The detailed reasons why DOP (or similar) testing is not practicable at every worksite immediately prior to use of the equipment.

A qualified person, usually employed by the abatement contractor, who is responsible for arranging necessary inspection and service of the HEPA equipment to minimize the potential for filter failure, and is responsible for maintaining all written records regarding the equipment. This individual requires adequate education and training to understand the hazards from asbestos, how HEPA-ventilation equipment functions and malfunctions, and the techniques required for cleaning, inspecting, repairing, and maintaining the equipment.

Written inventory of HEPA-filtration equipment, including model, age, location (on-site or in storage), when last DOP tested, etc.

Written procedures for the proper storage, transportation, handling, and use of HEPA- filtration equipment. These procedures must address the potential for damage during transport on bumpy roads, or drops (e.g., from the bed of a truck, from platforms, down stairs) or during installation. They must also include detailed instructions for changing of the filter and the criteria for filter change.

Written procedures for visual inspection of HEPA-filtration equipment, including inspection of the exterior case, HEPA filter, and pre-filter for physical damage (e.g., dents, scrapes, holes). Rejection criteria for the removal of damaged equipment from service should be included. Visual inspections need to be performed immediately before use at the abatement worksite.

Worker training on the inspection and transportation procedures, rejection criteria, and operation of the units.

Written records of the above worker training, equipment use (equipment log, including dates and locations of use), visual and DOP inspection results (for both passed and failed units), filter change and maintenance. These records need to be available to WorkSafeBC prevention officers upon request.

If the above criteria are fully met it would be considered reasonable for the abatement contractor to have DOP tested the HEPA-filtration equipment off-site, and then safely stored the equipment until needed at a high risk work site. The utilization of the above criteria is not intended to imply the suitability of using a single DOP (or similar) test for more than one high risk abatement worksite. Each piece of HEPA-filtration equipment must be tested before use in each high risk work activity. However, the use of the maintenance program outlined above, if fully implemented, could allow employers to safely extend their understanding of the term "before use."

If the type of criteria above have not been fully met, or if there is any incident that could affect the filter seal or integrity (e.g., unit is dropped or if the on-site visual inspection detects any anomalies), the requirement to assess the effectiveness of HEPA filters by DOP (or similar) testing before use in high risk work activity refers to testing at the high risk worksite immediately prior to use of the HEPA equipment.

Other Means of Controlling Exposure to Asbestos

G6.24-1 Friction materials

Issued August 1, 1999; Revised consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 6.24 of the *OHS Regulation* ("Regulation") states:

If automotive service procedures may involve friction material that is asbestos-containing material or dust arising from such material, the employer must ensure that the following control measures are implemented:

(a) dry removal of friction material dust from automotive assemblies using compressed air, brushes, or other similar means is prohibited;

(b) service work areas where friction material is handled are posted with signs to advise workers of the hazards and required precautions;

(c) suitable work procedures are followed to minimize the generation of airborne dust;

(d) a worker handling equipment or assemblies contaminated with dust from friction material, outside of a HEPA-filtered vacuum enclosure system, wears suitable personal protective equipment, including disposable coveralls and at least a HEPA-filtered dual

cartridge half face respirator;

(e) waste material that may be contaminated with asbestos is promptly collected and disposed of in accordance with applicable requirements;

(f) contaminated tools, equipment and work surfaces are cleaned after work is completed.

Purpose of guideline

This guideline provides guidance regarding the application of this section of the *Regulation*.

Application of the requirements

Section 6.24 of the *Regulation* prescribes the control measures that an employer must implement in automotive service procedures involving asbestos-containing friction material or the dust arising from such material. This section applies primarily to the servicing of brakes and clutches involving (or potentially involving) asbestos-containing friction materials. For asbestos gaskets and muffler seals, other general duty requirements for controlling exposure to asbestos apply. Refer to relevant sections of [Part 6](#) of the *Regulation* for controlling exposure to asbestos, as well as the sections in [Part 5](#) on controlling exposure, ventilation, personal hygiene, and emergency washing facilities.

The term "may involve friction material that is asbestos-containing material" in section 6.24 is intended to address the uncertainty associated with determining where asbestos-containing friction materials are or have been used. The automotive service industry is not expected to test every material for the presence of asbestos. This would clearly be impracticable. However, in situations where it is unclear whether the friction material contains asbestos, the industry is expected to implement control measures to protect workers from being potentially exposed to asbestos.

G6.24-2 Dry removal of friction material dust

Issued August 1, 1999; Revised consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 6.24(a) of the *OHS Regulation* ("*Regulation*") states:

If automotive service procedures may involve friction material that is asbestos-containing material or dust arising from such material, the employer must ensure that the following control measures are implemented:

(a) dry removal of friction material dust from automotive assemblies using compressed air, brushes, or other similar means is prohibited;

Purpose of guideline

This guideline provides guidance regarding the dry removal of friction material dust.

Use of HEPA-filtered vacuum enclosure systems

Section 6.24(a) of the *Regulation* prohibits the dry removal of friction material dust from automotive assemblies using compressed air, brushes, or other similar means. This prohibition is intended to cover open shop procedures or methods of dry removal. It is not intended to prohibit the dry removal of friction material in HEPA-filtered vacuum enclosure systems. It is recognized that some systems specify the use of brushes and "controlled" compressed air within the enclosure systems. However, to ensure that the seal is not compromised, these systems must be used according to the manufacturer's instructions (see [section 4.3](#) of the *Regulation*). Further information regarding HEPA-filtered vacuum enclosure systems is provided in [G6.24-4 "HEPA-filtered vacuum enclosure systems."](#)

Examples of "other similar means" of dry removal include any practice, method, or procedure that is not designed to control the release and spread of dusts likely to contain asbestos fibre into areas where unprotected workers may be present.

G6.24-3 Suitable work procedures

Issued August 1, 1999; Revised consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 6.24(c) of the *OHS Regulation* ("*Regulation*") states:

If automotive service procedures may involve friction material that is asbestos-containing material or dust arising from such material, the employer must ensure that the following control measures are implemented:

(c) suitable work procedures are followed to minimize the generation of airborne dust;

Purpose of guideline

The purpose of this guideline is to provide examples of suitable work procedures if automotive service procedures may involve friction material that is asbestos-containing material or dust arising from such material.

Suitable work procedures

Section 6.24(c) of the *Regulation* requires suitable work procedures be followed to minimize the generation of airborne dust. NIOSH has published recommended procedures to minimize exposure to asbestos and asbestos-containing dust during servicing of motor vehicle brake and

clutch assemblies.

Suitable work procedures would include the following:

- Negative pressure enclosure/HEPA vacuum system methods (see OHS Guideline [G6.24-4](#))
- Low pressure/wet cleaning methods
- Wet methods.

For further information, refer also to OSHA Regulations [Standard 1910.1001 Appendix F: "Work practices and engineering controls for automotive brake and clutch inspection, disassembly, repair and assembly."](#) This 1995 document is available on the OSHA website.

G6.24-4 HEPA-filtered vacuum enclosure systems

Issued August 1, 1999

"HEPA-filtered vacuum enclosure systems" refer to any number of enclosure systems designed to effectively isolate brake assemblies inside a cabinet, which is continuously vented through a vacuum system. A HEPA-filtered vacuum enclosure system is acceptable if

- there is a tight-fitting collar or seal system, which provides a close fit around the brake assembly and wheel backing plate or rotor,
- an inward air flow through the system can be demonstrated,
- the vacuum filters have been tested as required under section [6.19](#) of the *OHS Regulation*,
- the manufacturers' instructions for the assembly, use, maintenance and repair of the system are followed, and
- workers are adequately instructed and trained in its use and operation.

Waste Handling and Disposal

G6.25 Sealed containers

Issued September 20, 2013; Revised December 9, 2021

Regulatory excerpt

Section 6.25 of the *OHS Regulation* ("*Regulation*") states:

The employer must ensure that all asbestos waste and other waste contaminated with asbestos, including disposable protective clothing and cleanup equipment, is placed into sealed containers which are labelled as containing asbestos.

Purpose of guideline

This guideline provides guidance for selection of sealed containers for asbestos-containing waste materials.

Sealed containers

For the purposes of section 6.25, a sealed container is any container designed and made of a material which will contain all asbestos-containing waste and will prevent the release of asbestos waste and fibre during transport to and disposal at an approved disposal site. Examples include double sealed polyethylene plastic bags, each with a nominal thickness of at least 6 mil (0.006 inches), and fibre barrels. Procedures that use thinner plastic bags are not procedures acceptable to WorkSafeBC under section 6.8(2) or 6.27(2)(a) of the *Regulation*.

The outside of the waste container must be labelled as asbestos-containing waste, as required by section 6.25 of the *Regulation*. Tight-fitting lids or other covers that seal the container must be used with rigid containers such as barrels and bins.

Disposal site operators may require specific types of containers or may have restrictions on the type of containers that will be accepted.

The requirement for double sealed plastic bags to be at least 6 mil is consistent with clause 40(2)(b)(i)(B) of the [Environmental Management Act — Hazardous Waste Regulation](#) requirements for asbestos-containing waste.

During supply shortage of 6 mil asbestos waste bags

In times of extensive flooding or other emergency situations, there may be a supply shortage of commonly used 6 mil polyethylene asbestos waste bags. One way to reduce the number of 6 mil bags is for single-bagged 6 mil bags to be sealed in non-reusable containers such as bins, totes, or drums (metal, plastic, or polyethylene).

When these supply issues are critical, WorkSafeBC accepts the following alternatives as "sealed containers" that contain asbestos waste and fibres from being released during transport and disposal:

- Construct a "bag" from polyethylene sheet by placing the waste in the middle of a single sheet of at least 6 mil polyethylene and seal it in such a way that prevents asbestos waste and fibres from being released: bring all edges together, twist, and tightly tape together. Repeat this process to double-bag, or place the bag in another non-reusable sealable container.
- If a larger "bag" needs to be constructed:
 1. Tape two pieces of 6 mil polyethylene sheets together to form a larger piece to wrap the waste (two sheets are taped on both sides at the seam with at least 30 cm overlap to be adequately sealed) using sheathing tape or similar.
 2. Gather the edges, twist, and tightly tape together.

3. Repeat the process so that the seam of the inner bag and of the second bag are offset from each other.
4. Wrap and seal the bagged waste with a larger sheet of reinforced polyethylene (commonly used outside of asbestos enclosures) or place it inside a bag of reinforced polyethylene (e.g., forklift sandbag, disposal bin, disposal bin liner) to increase mechanical integrity.

If any of the above alternatives are used, the employer must ensure the following measures are followed:

- The method prevents the release of asbestos waste and fibre during transport to and disposal at an approved site.
- Workers have been instructed on the safe handling of the waste in alternative containers.
- Workers must visually inspect the sealed container to assess its integrity.
- All sealed containers are labelled as containing asbestos as required by the *Regulation*.
- The alternative container method is not to be used if the integrity of the alternative container is observed to be compromised. The employer must determine the cause and resolve the issue before continuing.
- The disposal site operator and the transporter are notified of these alternatives and that the waste is able to be accepted in this manner. Disposal site operators may have to change their dumping and covering procedures to accommodate these different types of packaging.

Disposal site operators and transporters

- The disposal site operator and transporter are to conduct a risk assessment for handling asbestos waste in alternative containers, and then conduct work using procedures based on the risk assessment.
- Disposal site operators and transporters are to inspect the loads to verify that asbestos waste is properly contained in sealed container and labelled appropriately. If upon arrival to the disposal site the containment has been observed to be compromised, the disposal site operator must investigate the matter to ensure worker health and safety. The originator of the waste is to be notified to rectify the issue.

A WorkSafeBC prevention officer may order an employer to cease the use of alternative methods of containment if the use of these methods is observed to be causing health and safety issues at a worksite.

In addition, the asbestos waste must be confined during handling, storage, and transportation in a manner that is compliant with the Hazardous Waste Regulation.

G6.27 Asbestos waste removal

Issued May 24, 2002; Editorial Revision October 2004; Editorial Revision October 26, 2011; Editorial Revision consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 6.27 of the *OHS Regulation* ("*Regulation*") states:

- (1) Before any work involving asbestos takes place, the employer must ensure that procedures for the safe removal of asbestos dust and debris from the work area are set out in writing by a qualified person.
- (2) The written procedures must
 - (a) comply with the requirements set out in section 6.8,
 - (b) provide for removal of asbestos dust and debris from the work area
 - (i) while work is in progress, at intervals necessary to eliminate or minimize the risk of exposure,
 - (ii) at the end of each work shift, and
 - (iii) at the completion of work involving asbestos, and
 - (c) consider the nature of the asbestos dust and debris to be removed and provide specific direction regarding which of the following removal methods, or combination of the following removal methods, is most appropriate for safe removal of that asbestos dust and debris in relation to each of the times set out in paragraph (b) (i), (ii) and (iii);
 - (i) using a vacuum cleaner, or similar device, that is equipped with a HEPA-filtered exhaust;
 - (ii) wiping surfaces with a damp cloth or sponge to remove residual amounts of asbestos dust and debris;
 - (iii) wet sweeping or wet mopping to remove larger amounts of asbestos dust and debris;
 - (iv) using a shovel or similar device to place larger amounts of dampened asbestos debris into the sealed container required by section 6.25;
 - (v) using another method that is acceptable to the Board.
- (3) The employer must ensure that

(a) every worker who is engaged in asbestos dust and debris removal at the work area is adequately instructed and trained in the written procedures of the qualified person under this section, and

(b) the written procedures of the qualified person are followed.

Purpose of guideline

The purpose of this guideline is to provide guidance for situations where an employer wishes to use removal methods other than those listed in the *Regulation*.

Removal methods

When the *Regulation* refers to asbestos waste removal, this activity is expected to be carried out only in a controlled environment such as a designated work area or a containment area as described by [section 6.13](#), with workers wearing the appropriate personal protective equipment.

Note that practices such as dry sweeping or dry dusting, blowing with compressed air, and washing with high-pressure water, are not acceptable means for asbestos waste cleanup and removal.

If employers wish to use removal methods other than those specified in section 6.27(2), they are to send their request to OHS Practice and Engineering Support department of WorkSafeBC for consideration. Only methods specified in section 6.27 or approved by OHS Practice and Engineering Support prior to the commencement of work may be used.

Further information on safe work practices for asbestos is provided in the WorkSafeBC publication [Safe Work Practices for Handling Asbestos](#) (BK27).

Personal Protective Clothing and Equipment

G6.31 Contaminated personal protective clothing - Information to laundry workers

Issued August 1, 1999

Section 6.31 of the *OHS Regulation* states:

The employer must ensure that workers who launder clothing contaminated with asbestos are informed of the hazards of asbestos and the precautions required for handling the clothing.

Under section [5.82\(1\)\(b\)](#) of the *OHS Regulation*, the employer is responsible for laundering protective clothing contaminated with asbestos (see OHS Guideline [G5.82](#)). However, before protective clothing contaminated with asbestos can be sent to an acceptable laundry facility, the employer must, under section [6.30\(5\)](#) of the *OHS Regulation*, ensure that it is cleaned with a vacuum cleaner, equipped with a HEPA-filtered exhaust, and placed in a water-soluble plastic bag. This plastic bag must be sealed and labelled. A commercial laundry or linen service would be considered an "acceptable" laundry facility if they are capable of handling contaminated laundry.

The requirements of sections [12.157](#) and [12.158](#) of the *OHS Regulation* also apply.

Documentation

G6.32 Documentation - types of records

Issued August 1, 1999; Retired consequential to February 1, 2012 Regulatory Amendment

Guidelines - Part 6 - Biological Agents

G6.34-1 Exposure control plan

Issued August 1999; Editorial Revision July 2004; Editorial Revision February 2, 2006; Revised February 1, 2008; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial revision April 9, 2019

Regulatory excerpt

Section 6.34(1) of the *OHS Regulation* ("*Regulation*") states:

(1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:

(a) a risk assessment conducted by a qualified person to determine if there is a potential for occupational exposure by any route of transmission;

(b) a list of all work activities for which there is a potential for occupational exposure;

(c) engineering controls and administrative controls to eliminate or minimize the potential for occupational exposure;

(d) standard or routine infection control precautions and transmission-based precautions for all work activities that have been identified as having a potential for occupational exposure, including

(i) housekeeping practices designed to keep the workplace clean and free from spills, splashes or other accidental contamination,

(ii) work procedures to ensure that contaminated laundry is isolated, bagged and handled as little as possible, and

(iii) work procedures to ensure that laboratory or other samples containing a biological agent designated as a hazardous substance in section 5.1.1 are handled in accordance with the *Laboratory Biosafety Guidelines 3rd edition, 2004*, issued by the Public Health Agency of Canada;

(e) a description of personal protective equipment designed to eliminate or minimize occupational exposure;

(f) a program to inform workers about the contents of the exposure control plan and to provide them with adequate education, training and supervision to work safely with, and in proximity to, a biological agent designated as a hazardous substance in section 5.1.1;

(g) a record of all training and education provided to workers in the program described in paragraph (f);

(h) a record of all workers who have been exposed, while performing work activities, to a biological agent designated as a hazardous substance in section 5.1.1.

Purpose of guideline

The purpose of this guideline is to provide some examples of workplaces which are likely to require an exposure control plan (ECP).

Occupational exposure

The requirement to develop and implement an ECP applies to all workplaces where a worker has or may have occupational exposure.

"Occupational exposure," as defined in [section 6.33](#) of the *Regulation*, is the reasonably anticipated contact with a biological agent, that is designated as a hazardous substance in [section 5.1.1](#) of the *Regulation*, resulting from the performance of a worker's duties.

Most health care workers, lab workers, emergency responders, fire fighters and occupational first aid attendants in general industry, are likely to have occupational exposure.

In addition, some non-health-related or other occupations in high-risk areas may also have such exposure. These include some janitorial or custodial staff in hospitality industries, public utility or municipal workers with outside jobs, and social service agency workers.

Some workplaces in which workers typically have occupational exposure include, but are not limited to those listed below.

Partial list of workplaces which are likely to require an exposure control plan

- Physicians' offices
- Medical and dental laboratories
- Hospitals
- Hemodialysis centers
- Blood and tissue banks
- Nursing homes
- Home health care
- Fire and rescue
- Ambulance services
- Funeral homes and crematories
- Commercial laundries serving health care and public safety institutions
- Schools
- Workers employed in the woods involving potential exposure to ticks and Lyme Disease
- Workers who may have exposure to hantavirus when handling rodents or cleaning up dust contaminated with rodent urine and feces
- Dental offices
- Medical & dental equipment repair
- Outpatient facilities (including renal dialysis clinics and cancer treatment centers)
- Drug treatment centers
- Research labs
- Residential care facilities
- Hospices
- Law enforcement
- Correctional institutions
- Health clinics in industrial facilities
- Personnel services
- Removal of regulated waste or sewage
- Workers in agriculture where there is potential exposure to mouldy hay, or who are exposed to zoonotic diseases (for example, brucellosis)

Elements of an ECP are listed in [section 5.54](#) and section 6.34(1) of the *Regulation*. Required elements of an ECP will depend on the circumstances of the workplace and the outcome of the risk identification required by section 6.34(1)(a) of the *Regulation*.

Work procedures for a biological agent designated as a hazardous substance in section 5.1.1 of the *Regulation* must be in accordance with the manual titled [Laboratory Biosafety Guidelines 3rd edition, 2004](#), issued by the Public Health Agency of Canada.

Formerly issued as G6.35, G6.36(1), and G6.36(2); Issued as G6.34-2 February 1, 2008. (Note: Former G6.34-2 on pandemic influenza has been renumbered as G6.34-6.)

Regulatory excerpt

Section 6.34(1) of the *OHS Regulation ("Regulation")* states:

- (1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:
 - (a) a risk assessment conducted by a qualified person to determine if there is a potential for occupational exposure by any route of transmission;
 - (b) a list of all work activities for which there is a potential for occupational exposure;
 - (c) engineering controls and administrative controls to eliminate or minimize the potential for occupational exposure;

And section 6.34(1)(e) of the *Regulation* states:

- (1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:
...
 - (e) a description of personal protective equipment designed to eliminate or minimize occupational exposure;

And section 5.55(3) of the *Regulation* states:

- (3) The use of personal protective equipment as the primary means to control exposure is permitted only when
 - (a) substitution, or engineering or administrative controls are not practicable, or
 - (b) additional protection is required because engineering or administrative controls are insufficient to reduce exposure below the applicable exposure limits, or
 - (c) the exposure results from temporary or emergency conditions only.

Purpose of guideline

The purpose of this guideline is to provide information on what should be included in a risk assessment required under 6.34(1)(a), and discuss ways to control risks using engineering and administrative controls under section 6.34(1)(c). The guideline also discusses appropriate personal protective equipment (PPE) under section 6.34(1)(e).

Risk assessment

The objective of the risk assessment is to determine the jobs, tasks, and procedures for which occupational exposure is anticipated and to evaluate the likelihood that such exposure would occur. The factors to be considered will be dictated by the circumstances of the workplace and the type of biological agents designated as hazardous substances that workers are potentially exposed to.

A qualified person is required to conduct the risk assessment. A qualified person may be a medical or non-medical professional. This could include infection control practitioners, registered nurses, and physicians, occupational hygienists, microbiologists, or other individuals with specialized training in the area of biological agents designated as a hazardous substance under [section 5.1.1](#) of the *Regulation*.

As part of the risk assessment, the job classifications should be reviewed within the workplace and categorized according to those jobs in which all workers have occupational exposure and those jobs in which some of the workers have occupational exposure. Where all workers have occupational exposure, such as scrub room nurses, clinical dental hygienists, and paramedics, it is not necessary to list individual work tasks, as long as it is made clear that all work activities have such exposure. Where only some workers have exposure, the specific tasks and procedures causing exposure need to be listed. All first aid attendants are considered to have occupational exposure.

When evaluating the potential for exposure, as well as the risk associated with exposure, the following sources of information should be considered:

- History of firm, including first aid records and accident/incident investigation reports
- WorkSafeBC claims records and statistics
- History of similar industries, similar exposure conditions, history of other firms in the same geographical area, and industries dealing with the same client group
- Information from other jurisdictions or agencies, such as Occupational Safety and Health Administration (OSHA) or National Institute for Occupational Safety and Health (NIOSH).

The potential for occupational exposure must be evaluated without regard to the availability or use of personal protective clothing and equipment. That is, the risk to an unprotected worker must be assessed.

If there is a question regarding the potential for exposure one should

- Determine whether the worksite requires an exposure control plan (refer to [OHS Guideline G6.34-1](#))
- Consult the employers' risk assessment to determine if the occupation or task has been identified
- Evaluate the risk of occupational exposure. If necessary, contact the WorkSafeBC occupational health physicians for assistance
- If there is a risk of occupational exposure, determine whether the risk has been minimized with any of the following:
 - Engineering controls
 - Administrative controls
 - PPE
 - Adequate training and supervision of the workers

Engineering controls

Section 6.34(1)(c) requires an employer to use either engineering controls or administrative controls to eliminate or minimize the potential for occupational exposure. Part 1 of the *Regulation* defines "engineering controls" as follows:

the physical arrangement, design or alteration of workstations, equipment, materials, production facilities or other aspects of the physical work environment, for the purpose of controlling risk.

Engineering controls for occupational exposure include, but are not limited to

- Safety-engineered needles (e.g. syringes that include a needle retraction mechanism or other type of integral needle guard mechanism)
- Blunt tip sutures
- Needleless devices (devices that do not use a needle for the collection of body fluids, administration of medication or fluids, or any other procedures with potential exposure to a bloodborne pathogen; e.g. needleless intravenous connectors)
- Retracting lancets
- Automatic re-sheathing of disposable scalpels
- Puncture-resistant containers for sharps (sharps include anything that might produce a puncture wound that would expose a worker to blood or other potentially infectious material, such as broken glass, scalpels, contaminated ends of orthodontia wire, and suture needles)
- Splatter guards
- Biological safety cabinets
- Mechanical pipetting systems
- Negative pressure isolation, which is an isolation and ventilation control for biological agents that are transmitted via the airborne route and that pose an inhalation hazard. This involves isolating infectious patients in an isolation room under negative pressure through an independent air supply and exhaust system for the isolated area/room
- Triage stations - isolating medical staff from potentially infectious persons requiring medical attention through installation of protective barriers

Engineering controls must be properly selected, used, inspected, maintained, and replaced as needed to ensure their effectiveness. Selected engineering controls must eliminate or minimize the risk of an exposure incident. [Section 4.3](#) requires that each tool be selected, used, and operated in accordance with the manufacturer's instructions (if available), safe work practices, and the requirements of the *Regulation*.

For other engineering controls necessary in the laboratory, see sections [30.12 \(Biological safety cabinets\)](#), [30.13 \(Centrifuges\)](#), [30.16 \(Transport of containers\)](#), and [30.17 \(Personal protection\)](#) of the *Regulation*. For ventilation of isolation rooms refer to sections [4.72 to 4.78](#).

Administrative controls

Section 6.34(1)(c) requires an employer to use either engineering controls or administrative controls to eliminate or minimize the potential for occupational exposure. Part 1 of the *Regulation* defines "administrative controls" as follows:

the provision, use and scheduling of work activities and resources in the workplace, including planning, organizing, staffing and coordinating, for the purposes of controlling risk.

Administrative controls for occupational exposure include, but are not limited to

- Adopting general infection control measures
- Washing hands with a suitable, non-abrasive cleansing agent and running water immediately after removal of gloves and as soon as possible after skin contact with blood or other potentially infectious material
- Disposing of contaminated needles immediately after use in a readily available sharps container specifically designed for such use
- Applying the "hands-free" method of passing scalpels during a surgical procedure, such as using a small hand tray to transfer scalpels and other sharps to and from the surgeon's hand
- Placing contaminated reusable sharps in containers that are puncture-resistant and leak-proof, such as stainless steel trays
- Using tongs or other suitable means, such as a dust pan and disposable brush, to pick up broken glass contaminated with blood
- Prohibiting the bending, manual recapping, or removing of contaminated needles
- Preventing the storage of food and/or drink in refrigerators or other locations where biological agents designated as hazardous substances under section 5.1.1 are present
- Keeping the number of workers potentially exposed to a biological agent to a minimum
- Restriction of visitors
- Restricting contact between workers and potentially infectious persons during an epidemic or pandemic outbreak - refer to OHS [G6.34-6](#)

- Limiting and controlling patient transportation/transfers
- Isolating infectious persons once hospitalized
- Medical surveillance for persons entering a medical facility
- Quarantining exposed staff
- Worker education and training, including drills

Personal protective equipment

The *Regulation* does not dictate what kind of PPE should be used for a given circumstance. This decision rests with each employer and must be based on the specific exposure circumstances in the workplace. The results of the risk assessment required under section 6.34(1)(a) and [Part 8](#) of the *Regulation* can help the employer to determine appropriate levels of protection. Under [section 8.4](#), the workplace evaluation to determine appropriate PPE must be done, where practicable, in consultation with the occupational health and safety committee or the health and safety representative, as applicable and with the worker who will use the equipment.

Workers must use appropriate PPE to prevent occupational exposure. Appropriate PPE may include, but is not limited to gloves, gowns, lab coats, coveralls, booties, face shields, eye protection, and respirators. For airborne or aerosolized occupational exposure, a NIOSH-approved, particulate respirator may be required.

Appropriate PPE for occupational first aid attendants includes an approved particulate face piece respirator and latex or other waterproof gloves to prevent accidental contact with blood or body fluids.

To evaluate compliance, the following questions should be considered:

- Under normal conditions and time of use, does the PPE prevent a biological agent designated as a hazardous substance under section 5.1.1 from
 - Passing through a worker's work clothes, street clothes, undergarments?
 - Reaching an employee's skin, eyes, nose, mouth, or other mucous membranes?
 - Being inhaled into the respiratory tract?
- Has the PPE been selected and used in accordance with the manufacturer's instructions and recognized standards? Does it provide effective protection? See [section 8.3\(1\)\(a\)](#) of the *Regulation*
- Does the PPE in itself create a hazard to the wearer? See section 8.3(1)(b)
- Does the PPE cause allergenic or other adverse health effects? See [section 8.2\(3\)](#)

Some workers may be allergic to natural rubber latex gloves. The WorkSafeBC pamphlet, [Dealing with Latex Allergies at Work](#), should be consulted for more information and used as a resource by workers exposed to natural rubber latex products. The Laboratory Centre for Disease Control (a branch of Health Canada) considers disposable, good quality, non-latex gloves made of vinyl, nitrile, neoprene, copolymer, and polyethylene to be adequate barriers to bloodborne pathogens.

Additional resources

For additional information on the prevention of occupational exposure, refer to the WorkSafeBC website <https://www.worksafebc.com/en/health-safety/industries/health-care-social-services> or <https://www.worksafebc.com/en/health-safety/injuries-diseases/infectious-diseases> (e.g. this site contains information on common injuries and illnesses in the health care industry and a booklet entitled [Controlling Exposure: Protecting Workers from Infectious Disease](#)).

G6.34-3 Housekeeping and laundry practices

Formerly Issued as G6.36(3) and G6.36(4); Issued as G6.34-3 February 1, 2008

Regulatory excerpt

Section 6.34(1) of the *OHS Regulation* ("*Regulation*") states:

(1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:

...

(d) standard or routine infection control precautions and transmission-based precautions for all work activities that have been identified as having a potential for occupational exposure, including

(i) housekeeping practices designed to keep the workplace clean and free from spills, splashes or other accidental contamination,

(ii) work procedures to ensure that contaminated laundry is isolated, bagged and handled as little as possible, and

Purpose of guideline

The purpose of this guideline is to provide information on housekeeping and laundry practices.

Housekeeping practices

The requirements of section 6.34(1)(d)(i) of the *Regulation* apply to a broad range of fixed and non-fixed workplaces, including labs, operating rooms, accident scenes, ambulances, and refrigerated blood transfer vehicles.

To keep the workplace clean and sanitary, the employer must develop and implement appropriate methods of decontamination. This would include details on

- Location within the facility (indoor vs. outdoor)
- Type of surfaces to be cleaned
- Size of the spill (for example, gross, splatter, smear) or type of organism present
- Tasks or procedures to be performed, including
 - What kind of sterilant or disinfectant is to be used
 - How much should be used
 - How often it should be applied

Decontamination is the use of physical or chemical means to remove viable microorganisms from surfaces or materials. Three methods are available: sanitization, disinfection, and sterilization.

Sanitization: Reduces microbial contamination to levels judged safe by public health authorities.

Disinfection: Destroys specific infectious microorganisms. There are three levels of disinfection.

- **High:** Destroys all forms of microbial life except high numbers of bacterial spores
- **Intermediate:** Destroys *Mycobacterium tuberculosis*, vegetative bacteria, most viruses, and most fungi. It does not kill bacterial spores
- **Low:** Destroys most bacteria, some viruses, some fungi, but not *Mycobacterium tuberculosis* or bacterial spores

A high level of disinfection should be used for items that contact mucous membranes during use but do not usually penetrate normally sterile areas of the body. Intermediate and low level disinfection should be used for items that contact only intact skin during routine use.

Sterilization: Destroys all forms of microbial life including high numbers of bacterial spores. This method of decontamination should be used for items that routinely penetrate the skin or mucous membranes, enter normally sterile areas of the body or come into direct contact with recirculating body fluids, such as blood.

When used at recommended dilutions, chemical germicides approved for use as "hospital disinfectants" that are capable of killing *Mycobacterium tuberculosis* can be used to decontaminate spills of blood and other body fluids. Workers must ensure the recommended disinfectant is used according to the manufacturer's instructions. The frequency with which housekeeping practices are performed will vary depending on the nature of the spill and the type of organism and may be

- Immediate (for example, blood spilled on laboratory bench)
- After specific procedures involving patient care (for example, surgical operation)
- At the end of the work shift (for example, routine department cleaning)

Laundry

Section 6.34(1)(d)(ii) of the *Regulation*, requires worker exposure to contaminated laundry be prevented by isolating the laundry and minimizing manual handling. This section applies to all contaminated laundry whether provided by the employer or personal laundry (such as contaminated work clothes).

The material will be considered as "isolated" if laundry is

- Effectively bagged or containerized at the location of use
- Not sorted or rinsed in the location of use
- Handled as little as possible

When contaminated laundry is wet and there is a reasonable likelihood of soak-through or leakage, the laundry should be placed and transported in other leak-resistant bags or containers.

Bags and other containers containing laundry contaminated with a biological agent designated as a hazardous substance in [section 5.1.1](#) must be labelled according to section 6.37(1).

Where laundry contaminated with a biological agent designated as a hazardous substance in section 5.1.1 is sent for processing to a laundry or dry cleaning facility, the employer sending the articles (the supplier) and the employer receiving the articles (the operator) must follow the requirements of sections [12.157](#) and [12.158](#) of the *Regulation*.

G6.34-4 Program to inform workers of the exposure control plan

Formerly Issued as G6.38; Issued as G6.34-4 February 1, 2008; Editorial Revision April 6, 2020

Regulatory excerpt

Section 6.34(1)(f) of the *OHS Regulation* ("*Regulation*") states:

- (1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:

...

(f) a program to inform workers about the contents of the exposure control plan and to provide them with adequate education, training and supervision to work safely with, and in proximity to, a biological agent designated as a hazardous substance in section 5.1.1;

Purpose of the guideline

The purpose of this guideline is to provide information on what should be included in a program to inform workers about the exposure control plan, required under section 6.34(1)(f). This guideline updates content from former G6.38 *Education and training* following amendments to the *Regulation*.

Program to inform workers about the exposure control plan (ECP)

Section 6.34(1)(f) of the *Regulation* requires the employer to inform workers about the contents of the ECP and to provide them with adequate education and training to work safely with and in proximity to a biological agent designated as a hazardous substance in [section 5.1.1](#).

This section applies to any worker (including part-time, full-time, temporary, and casual) who has or may have occupational exposure. No worker with potential occupational exposure is exempt from this section. The instruction requirement for lab workers who handle biohazardous materials is covered under [section 30.14](#) of the *Regulation*.

Education and training must be provided before a worker begins work with or in proximity to a biological agent designated as a hazardous substance in section 5.1.1. Specifically, training needs to be given when a worker is initially assigned to the task and when changes are made that affect a worker's occupational exposure, such as when a task is modified or new procedures are being instituted. Education and training is an element of an ECP, as required by [section 5.54\(2\)](#). To comply with the requirements of section 5.54(3) of the *Regulation*, the employer must review the ECP at least annually and update it as necessary. Consequently, the employer may need to provide refresher training annually or whenever the ECP is updated.

Education and training material must be appropriate to the educational level, literacy, and language of workers. The content will generally include discussion and explanation of the following items:

- Applicable sections of the *Regulation* - applicable sections include section [3.19\(1\)](#); sections [5.2](#), [5.54](#), and [5.55](#); sections [6.33 to 6.41](#); sections [8.2](#) and [8.3](#); sections [12.157](#) and [12.158](#); [Part 30](#)
- Applicable sections of the *Workers Compensation Act* - including [section 69](#) on incidents that must be investigated
- Definition of a biological agent designated as a hazardous substance in section 5.1.1
- Occupational exposure
 - How it occurs, such as modes of transmission
 - How to identify tasks and other activities, such as routine and emergency spills, that may involve worker exposure to a biological agent designated as a hazardous substance in section 5.1.1
 - Effects of exposure
 - What to do in the event of exposure, such as emergency procedures to be followed, and post-exposure treatment
- Use and limitations of control measures to prevent or minimize exposure
 - Engineering controls
 - Work practice, or administrative, controls
 - Personal protective equipment (PPE). This element should address selection, care, use, storage, limitations, maintenance, inspection, decontamination, and availability of PPE
- Employers ECP and where to access it
- Required labels and identification for a biological agent designated as a hazardous substance in section 5.1.1
 - When necessary, information on the vaccines required under [section 6.40](#) of the *Regulation*

The training session should also include the opportunity for an interactive question and answer period.

The person providing the education and training must have knowledge about a biological agent designated as a hazardous substance in section 5.1.1, particularly in the context of workplace exposure and control. Trainers may be medical or non-medical professionals. Medical professionals could include infection control practitioners, registered nurses, and physicians. Non-medical professionals could include occupational hygienists or other individuals with specialized training in the area of biological agents designated as a hazardous substance in section 5.1.1. In some workplaces, such as medical and dental offices, the employer, who is often a physician, may do the training, provided he or she is familiar with exposure control measures.

To evaluate compliance with this section, it needs to be verified that education and training was provided before a worker was placed in a position where occupational exposure may occur. A WorkSafeBC prevention officer should, by observation and interviews, determine if workers work safely with and in proximity to a biological agent designated as a hazardous substance in section 5.1.1. Informed workers can be identified by their ability to answer the following questions:

- Do you work with biological agents designated as a hazardous substance? If so, what are they?
- What precautions are required for preventing exposure?
- What do you do in case of an emergency?
- Where would you go for further information?

Formerly Issued as G6.41-2 and G6.41-3; Issued as G6.34-5 February 1, 2008; Editorial Revision April 6, 2020

Regulatory excerpt

Section 6.34(1) of the *OHS Regulation* ("*Regulation*") states:

(1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:

...

(g) a record of all training and education provided to workers in the program described in paragraph (f);

(h) a record of all workers who have been exposed, while performing work activities, to a biological agent designated as a hazardous substance in section 5.1.1.

Purpose of the guideline

The purpose of this guideline is to provide information on what should be included in a record of training and a record of exposure referred to in section 6.34(1)(g) and (h) of the *Regulation*. This guideline consolidates and updates content from former G6.41-2 *Records of exposure* and G6.41-3 *Records of training* following amendments to the *Regulation*.

Records of training

The intent of section 6.34(1)(g) of the *Regulation* is to provide a way to document compliance, to determine who attended each training session and, when necessary, to assess the adequacy of the training. Accurate and sufficiently detailed records of education and training should be maintained by the employer and should include

- Date(s) of training
- Content or a summary of the training sessions
- Type of education and training (for example classroom, video, interactive, or on-the-job)
- Names and qualifications of those conducting the training
- Names, job titles, and work locations (departments) of workers attending the sessions

Education and training records should be kept for at least three years after the training session. Unlike medical records, training records are not confidential and can be inspected and copied as required by a WorkSafeBC prevention officer.

Records of exposure

Under section 6.34(1)(h), employers must keep a record of all workers who have been exposed to a biological agent designated as a hazardous substance under [section 5.1.1](#). Incidents of occupational exposure may be documented in the following ways:

- Accident/incident reports (such as an incident report regarding a needlestick injury)
- First aid treatment records - see [section 3.19](#) of the *Regulation*
- Medical records (including documentation of post-exposure medical evaluation, treatment, and counselling, as well as records of hepatitis B and other vaccinations)
- Inspection reports of documented exposures
- Claim forms
- Worker complaints
- Results of the risk assessment performed in compliance with [section 6.35](#)
- Records required as part of the exposure control plan, as per [section 6.34](#), regarding risk identification, assessment, and control

The employer must ensure that records are kept as required. A physician usually maintains such records (some large firms may have their own on-site occupational physician). Worker medical records are to be kept confidential and not disclosed or reported without the worker's written consent to any person within or outside the workplace except as required by law.

Records of vaccination and other exposure records should be kept for the period of employment plus 10 years or such earlier time if the employer ceases to do business. (Note that [section 3.19\(2\)](#) of the *Regulation* specifies that the first aid record of an injury or illness must be kept for at least three years. First aid records are distinct from records of occupational exposure [section 6.34\(1\)\(h\)](#).)

Under section 75 of the *Workers Compensation Act*, a WorkSafeBC prevention officer has the authority to inspect and inquire with respect to health and safety matters at any workplace and may make inquiries and inspect documents considered necessary. Sections [3.19\(3\)](#), [\(4\)](#), and [\(5\)](#) of the *Regulation* specify the conditions for access to first aid records and maintaining their confidentiality. A prevention officer should consult with a WorkSafeBC occupational health physician before any worker medical records are requested. Prevention officers must protect the confidentiality of such records or any other personal medical information received.

G6.34-6 Exposure control plan - Pandemic influenza

Issued February 8, 2007 as G6.34-2; Revised February 1, 2008 and renumbered as G6.34-6; Revised April 27, 2009; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial revision April 9, 2019; Editorial Revision April 6, 2020

For some time, health authorities have advised of the possibility of an influenza pandemic arising from a mutated strain of a virus currently found primarily in birds (technically referred to as the H5N1 virus). WorkSafeBC has issued this guideline to assist with workplace planning in the event of such an influenza pandemic. It addresses the expectations for exposure control plans to protect workers from possible exposure to such a virus in B.C. workplaces.

The guideline has been developed following consideration of recent documents adopted by agencies such as the U.S. Center for Disease Control and the World Health Organization. Also, it is intended to be consistent with the primary themes of the SARS Commission Report by Justice A. Campbell (January 2007), and with the report on the role of personal protective equipment on influenza transmission issued by the Council of Canadian Academies (December 2007).

This guideline was initially issued in February 2007 in consultation with workplace stakeholders and following a period of consultation with other parties. It was revised, primarily to reflect regulatory amendments that became effective on February 1, 2008 following public hearings. As is the case with other guidelines, it may be revised from time to time based on evolving evidence on the nature of the virus and appropriate means of control.

Regulatory excerpt

Section 6.34(1) (Exposure control plan) of the *OHS Regulation* ("Regulation") states:

- (1) If a worker has or may have occupational exposure, the employer must develop and implement an exposure control plan, based on the precautionary principle, that meets the requirements of section 5.54 and that includes the following:
 - (a) a risk assessment conducted by a qualified person to determine if there is a potential for occupational exposure by any route of transmission;
 - (b) a list of all work activities for which there is a potential for occupational exposure;
 - (c) engineering controls and administrative controls to eliminate or minimize the potential for occupational exposure;
 - (d) standard or routine infection control precautions and transmission-based precautions for all work activities that have been identified as having a potential for occupational exposure, including
 - (i) housekeeping practices designed to keep the workplace clean and free from spills, splashes or other accidental contamination,
 - (ii) work procedures to ensure that contaminated laundry is isolated, bagged and handled as little as possible, and
 - (iii) work procedures to ensure that laboratory or other samples containing a biological agent designated as a hazardous substance in section 5.1.1 are handled in accordance with the *Laboratory Biosafety Guidelines 3rd edition, 2004*, issued by the Public Health Agency of Canada;
 - (e) a description of personal protective equipment designed to eliminate or minimize occupational exposure;
 - (f) a program to inform workers about the contents of the exposure control plan and to provide them with adequate education, training and supervision to work safely with, and in proximity to, a biological agent designated as a hazardous substance in section 5.1.1;
 - (g) a record of all training and education provided to workers in the program described in paragraph (f);
 - (h) a record of all workers who have been exposed, while performing work activities, to a biological agent designated as a hazardous substance in section 5.1.1.

Section 5.54 (Exposure control plan) states:

- (1) An exposure control plan must be implemented when
 - (a) exposure monitoring under section 5.53(3) indicates that a worker is or may be exposed to an air contaminant in excess of 50% of its exposure limit,
 - (b) measurement is not possible at 50% of the applicable exposure limit, or
 - (c) otherwise required by this Regulation.
- (2) The exposure control plan must incorporate the following elements:
 - (a) a statement of purpose and responsibilities;
 - (b) risk identification, assessment and control;
 - (c) education and training;
 - (d) written work procedures, when required;

(e) hygiene facilities and decontamination procedures, when required;

(f) health monitoring, when required;

(g) documentation, when required.

(3) The plan must be reviewed at least annually and updated as necessary by the employer, in consultation with the joint committee or the worker health and safety representative, as applicable.

Purpose of guideline

The purpose of this guideline is to discuss the application of the *Regulation* to the protection of workers in the event of an influenza pandemic. It provides background information on regulatory context, the nature of pandemic influenza, routes of transmission, and adverse health effects.

It also provides information on exposure control plans in the workplace, and guidance on specific types of controls, including engineering measures, work procedures, and personal protective equipment.

The guideline does not specifically address issues related to the health of the public and any medical procedures used for the treatment of patients, which are within the mandate of public health and medical authorities. Internet locations for accessing further information on pandemic planning, whether for the workplace or the community, are provided at the end of this guideline.

Regulatory context

Sections 6.34 and 5.54 of the *Regulation* are basic requirements that apply in the circumstances of a pandemic influenza. However, they operate in the context of other requirements.

For example, the OHS provisions of the *Workers Compensation Act* ("Act") and [Part 3](#) of the *Regulation* address issues such as employer and worker responsibilities, occupational health and safety programs, correction of unsafe conditions, undue risk, and the procedures related to any work refusals. The general requirements for chemical and biological safety in [Part 5](#) of the *Regulation* help round out the framework.

What is pandemic influenza?

Pandemics are worldwide outbreaks of disease such as influenza. Three outbreaks of pandemic influenza (as opposed to seasonal influenza) occurred in the 20th century: 1918 (Spanish influenza), 1957 (Asian influenza), and 1968 (Hong Kong influenza). One outbreak of pandemic influenza (2009 H1N1 influenza) has occurred thus far in the 21st century.

Predicting the impact of an influenza pandemic on people is difficult until the time the actual outbreak occurs. Some pandemics have had a relatively minor impact, usually affecting the very old and young, and immuno-compromised persons. Others such as the Spanish influenza pandemic have involved exceptionally high morbidity and death among normally healthy persons. The concern with a pandemic based on a virus such as the H1N1 or H5N1 variety is the possibility of a new and highly virulent form of the virus for which the general population has no immunity, capable of effective person-to-person transmission, and causing high morbidity and mortality.

The World Health Organization (WHO), Health Canada, and in British Columbia, the BC Centre for Disease Control (BCCDC), have recommended that all jurisdictions and workplaces develop influenza pandemic preparedness plans to reduce the potential for adverse effects arising from a pandemic. The WHO has advised that there is a risk of pandemic influenza that could cause widespread illness and death in humans.

Seasonal, pandemic, and avian influenzas can be differentiated as follows:

- Seasonal influenza - A disease caused by influenza viruses carried and spread among humans, typically on a seasonal basis.
- Pandemic influenza - A disease caused by a new strain (or subtype) of influenza virus that quickly spreads among humans worldwide because humans have little or no pre-existing immunity against it.
- Avian (Bird) influenza - A disease caused by influenza viruses carried and spread among birds. There are some cases where the virus has been transmitted from birds to humans.

There are a number of phases that a pandemic is likely to go through, as shown in the following Table.

Table 1: Pandemic influenza phases (adapted from the *WHO global Pandemic Influenza Preparedness and Response 2009 guidance document*)

Phase	Characteristics
Phase 1 - Pre-Pandemic	No animal influenza virus circulating among animals has been reported to cause infection in humans.
Phase 2 - Pre-Pandemic	An animal influenza virus is known to have caused infection in humans and is therefore considered a specific potential pandemic threat.
Phase 3 - Pandemic Alert	An animal or human-animal influenza virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.

Phase 4 - Pandemic Alert	Human-to-human transmission of an animal or human-animal influenza virus able to sustain community level outbreaks has been verified.
Phase 5 - Pandemic Alert	The same identified virus has caused sustained community level outbreaks in two or more countries in one World Health Organization region. ¹
Phase 6 - Pandemic	In addition to the criteria defined in Phase 5, the same virus has caused sustained community level outbreaks in at least one other country in another WHO region.
Post-Peak Period	Levels of pandemic influenza in most countries have dropped below peak levels.
Possible New Wave	Level of pandemic influenza activity in most countries is rising again.
Post-Pandemic Period	Levels of influenza activity have returned to levels seen for seasonal influenza in most countries.

¹World Health Organization regions can be found at <http://www.who.int/about/regions/en/>.

What are the symptoms of pandemic influenza?

The effects of a future pandemic influenza are expected to be much more severe than for seasonal influenza, due to a lack of immunity to the virus. Seasonal influenza affects people to varying degrees, with symptoms including headache, fever, fatigue, sore throat, and runny nose. In some cases, secondary infections such as pneumonia may develop. Symptoms of pandemic influenza are likely to include high fever (higher than 38 degrees Celsius), chest pain, and difficulty breathing.

In its materials on pandemic influenza, the BCCDC advises influenza is communicable for 24 hours before onset of symptoms, and 3-5 days afterwards (but may be longer in some children and some adults).

How can pandemic influenza be spread?

Pandemic influenza would be spread in the same way that seasonal influenza is spread, typically by exposure to ill persons or contact with surfaces that an infected person has handled or touched.

Exposure to a pandemic influenza virus may occur in a variety of ways such as the following:

- Breathing airborne droplets or particles containing influenza viruses (generated, for example, from coughing, sneezing, and aerosol-generating medical procedures used with infected patients)
- Infectious droplets (from a coughing or sneezing infected person) landing in the eye or onto the mucosa (moist inner surface) of the nose or mouth
- Shaking hands with an infected person or touching a surface contaminated with the virus followed by touching one's eyes, nose, or mouth
- Sharing food items or utensils with an infected person

Is there a vaccine or a treatment for pandemic influenza?

At present, there is no vaccine for the prevention of a future pandemic influenza. It is only possible to develop a vaccine after the actual pandemic influenza virus has been identified. In addition, it typically requires 4-6 months to produce a new influenza vaccine.

Antiviral drugs (that slow down or kill the virus) have been shown to be beneficial against seasonal influenza. However, their effectiveness against a pandemic influenza virus is not known. There is evidence that some of these products can reduce or stop influenza viruses from spreading throughout the body and improve the prospects of survival.

What is "occupational exposure" to pandemic influenza?

"Occupational exposure," as defined in [section 6.33](#) of the *Regulation*, is the reasonably anticipated contact with a biological agent that is designated as a hazardous substance, resulting from the performance of a worker's duties. A pandemic virus is likely to be a hazardous substance under [section 5.1.1](#) of the *Regulation*.

The possibility of contact varies depending on the specific organism and its route of transmission. For a virus causing pandemic influenza, contact resulting from the performance of a worker's duties may occur, for example, when caring for, or having other close contact with a person who has pandemic influenza. Examples of workplaces where contact may occur include hospitals, community care facilities, group homes, private homes, and ambulances.

What do you need in an exposure control plan (ECP)?

An ECP is a plan for preventing harmful exposure of workers to a pandemic influenza virus in the workplace.

Section 6.34 of the *Regulation* requires that if a worker has or may have occupational exposure, then an exposure control plan must be developed and implemented, based on the precautionary principle.

The precautionary principle, as defined in section 6.33 of the *Regulation*, means adopting provisional precautions covering all routes of transmission, based on a higher level of protection when the identity, causation, or routes of transmission of the biological agent designated as a hazardous substance have not been established. *The use of this principle was one of the key recommendations of the Justice Campbell SARS Commission Report released in January 2007. The Commission recommended that in any future infectious disease crisis including pandemic influenza, the precautionary principle should guide the development, implementation, and monitoring of the means of protecting workers. In practical terms, the application of the precautionary principle to the protection of workers in an influenza pandemic will mean that in some cases respirators meeting an N95 standard or equivalent will need to be worn.*

The ECP must incorporate the applicable elements outlined in section 5.54 of the *Regulation*, and be consistent with the provisions listed in section 6.34. In many workplaces of lower risk, the ECP may involve relatively few types of protective measures, such as provision and use of hand washing facilities and use of cough/sneeze etiquette. More extensive measures will be required for protection of workers in higher risk circumstances, such as health care personnel involved in direct patient care, emergency response personnel, and first aid attendants.

Elements of the ECP

An ECP will need to incorporate the following elements, as specified in section 5.54 of the *Regulation*:

- A statement of purpose and responsibilities
- Risk identification, assessment, and control
- Education and training
- Written work procedures, when required
- Hygiene facilities and decontamination procedures, when required
- Health monitoring, when required
- Documentation, when required

Section 5.54(3) of the *Regulation* requires that the ECP be reviewed at least annually and updated as necessary by the employer, in consultation with the joint OHS committee or worker health and safety representative, as applicable. To assist with communication and understanding, it is recommended the employer consult with workplace parties in the initial development of the ECP.

The elements of the ECP are discussed below.

1. **Statement of purpose and responsibilities:** While individual workplaces may state the purpose of this ECP in different ways, an underlying purpose of the ECP is to prevent harmful exposure of workers to a pandemic influenza virus in the workplace. Assignment of responsibilities for implementation of the ECP in a small workplace is likely to be straightforward, typically involving one person. In a larger workplace, there may be some division of responsibilities for implementing aspects of the ECP.
2. **Risk identification and assessment:** The extent of control measures included in the ECP will depend on the level of risk to worker health and safety. Thus a key step in assembling the exposure control plan is the proper identification and assessment of risk.

Section 6.34(b) of the *Regulation* requires that the risk assessment be conducted by a qualified person to determine the potential for occupational exposure by any route of transmission. Under [section 1.1](#) of the *Regulation* "qualified" means being knowledgeable of the work, the hazards involved, and the means to control the hazards, by means of education, training, experience, or a combination.

Risk identification and assessment for exposure to the pandemic influenza virus should be based on factors such as routes of transmission, work activities, and workers who may be at risk.

a. Routes of transmission by which the virus can infect a worker: In the case of pandemic influenza it is anticipated there will be three primary routes of transmission, all of which need to be controlled. Based on the use of traditional terminology, the routes are as follows:

- *Airborne transmission:* Airborne (inhalable) particles can be generated from coughs and sneezes. They can also be generated from some medical procedures such as endotracheal intubation, bronchoscopy, nebulizer treatment, or airway suctioning.

Both coughs and sneezes produce large droplets and smaller airborne particles. The smaller particles remain suspended in air for longer periods, and can be inhaled. In addition, large droplets can evaporate quickly to form inhalable particles. As the distance from the person coughing or sneezing increases, the risk of infection from airborne exposure is reduced, but can still be a concern in smaller, enclosed areas, especially where there is limited ventilation. As the number of infected people in a room increases, all things equal, the risk of infection can increase.

- *Droplet transmission:* Large droplets may be generated by an infected person through coughing or sneezing, and also through medical procedures such as cough induction. Droplets travel a short distance through the air and can be deposited on inanimate surfaces, or in the eyes, nose, or mouth.
- *Contact transmission, both direct and indirect:* Direct contact involves direct skin-to-skin contact, such as when a worker performs patient care or emergency response activity that requires direct personal contact (such as turning or bathing a patient). Indirect contact involves a worker's contact with a contaminated intermediate object such as a contaminated table top, door knob, or a computer keyboard used by an infected worker and then touching the eyes, nose, or mouth. Contact transmission is important to consider because influenza viruses can persist for minutes to hours on surfaces.

Note: The above discussion is based on the use of traditional terminology to describe routes of transmission. While the terms have general utility, it should be noted that a report of the Council of Canadian Academies report titled ["Influenza Transmission and the Role of Personal Protective Respiratory Equipment: an Assessment of the Evidence"](#) issued in December 2007 advises that it

may be useful to update terminology. For example, the report notes that the diameter of a particle determines its ability to enter the respiratory tract. It advises that particles/droplets with diameters up to 100 μm (0.1 mm) can be inhaled, terming these as "inhalable particles." Particles larger than 100 μm are considered non-inhalable, and are termed "ballistic particles." The report also concludes that the current weight of evidence suggests that transmission of influenza by inhalation is more probable than by indirect contact.

b. Work activities that may result in exposure: The potential for workplace exposure will vary from sector to sector, and will also depend on work activities in a sector. For example, in the health care sector, direct patient care involves a higher potential for exposure to the virus than activities which involve work at a distance, such as delivery of supplies, or maintenance in areas where patients are not present. In the former case, all routes of transmission are possible; in the latter, the routes are more likely to be restricted to avenues such as indirect contact.

Note: Section 6.34(b) of the *Regulation* requires that a list be assembled of all work activities for which there is a potential for occupational exposure.

c. Identification of the workers at risk of exposure: Appropriate protective measures will vary according to the kinds of activities the workers perform and the relationship of those activities to routes of transmission and proximity to sources of infection.

- 3. Risk control:** The required controls may range from simple hand washing and cough/sneeze etiquette, to more extensive measures requiring administrative and engineering controls as well as personal protective equipment (PPE). Control measures need to address all possible routes of transmission. Exposure controls must meet the requirements of sections 6.34(c), (d), and (e) of the *Regulation*.

Engineering and administrative controls: Section 6.34(c) requires engineering and administrative controls to eliminate or minimize the potential for occupational exposure. An example of an engineering control in a hospital could include a well-ventilated isolation room with a directed airflow that ensures the safety of workers. An example of an employer's administrative work practice control is a policy of encouraging sick workers to remain at home. Work practices would also include the procedures established in the workplace to eliminate or minimize the potential for exposure. Such work practices may be substantial in higher-risk workplaces (refer to [Table 2](#)).

Standard precautions: Section 6.34(d) requires the implementation of both standard infection control and transmission-based precautions, to address issues such as housekeeping practices to keep the workplace free from accidental contamination, as well as measures to ensure safety when handling laundry or samples of biological agents. Ensuring the workplace is free from accidental contamination is a fundamental measure for protection against the pandemic influenza virus. Procedures for safety with laundry or diagnostic samples will be needed where applicable, for example, in health care facilities that provide such services.

Personal protective equipment (PPE): Section [6.34\(e\)](#) requires a description of PPE designed to eliminate or minimize occupational exposure. Depending on the circumstances of risk and the effectiveness of other controls, required PPE may include respirators, gloves, gowns, goggles, surgical masks, and face shields. The proper donning, fit checking, doffing, and disposal of the PPE and training in these practices must also be considered. Requirements for PPE are also found in [Part 8 \(Personal protective clothing and equipment\)](#) of the *Regulation*. [Table 2](#) at the end of this guideline provides information on basic measures related to personal hygiene and PPE for several types of work circumstances.

- 4. Education and training:** Under section 6.34(f) of the *Regulation*, the employer must ensure that workers are informed about the content of the ECP and provided with adequate education, training, and supervision to work safely with, and in proximity to, the pandemic influenza virus. Information provided should ensure an understanding of the means of transmission of the virus and applicable control measures. Information on the use of PPE should include instruction on the means of donning and doffing the equipment.

Supervisors need to ensure that instruction has been provided to workers in procedures, and that procedures are followed, including the use of PPE. Where PPE is required, supervisors need to lead by example.

- 5. Written procedures, hygiene and decontamination facilities, health monitoring, and documentation:** Section 5.54 of the *Regulation* requires these elements of the ECP where necessary to protect workers. In the event of a pandemic influenza, the expectations are as follows:

Written procedures would be required if the complexity of the procedure and risks involved, or the size of the workplace merit instructions being written. For example, written procedures might be required for a hospital isolation ward, but not in a small workplace of low risk as long as worker education and training addresses basic issues of worker protection.

Hygiene facilities to permit proper hand washing whenever needed are a basic expectation under all ECPs. **Decontamination procedures** will be needed in some higher-risk workplaces, for example, when cleaning reusable personal protective equipment such as gowns, aprons, face shields, and goggles.

In all workplaces workers should be **monitored** for possible symptoms of pandemic influenza. If a worker develops symptoms, appropriate measures should be taken to minimize exposure of other workers, and the worker should be referred to the appropriate medical authority.

Sections 6.34(g) and (h) of the *Regulation* establish requirements for **documentation** of worker training and education, and of exposure to the virus when performing work activities. It is expected that documentation of the job positions that would involve exposure to the pandemic influenza virus coupled with the identity of workers who are in those positions will meet the intent of the requirement for records of

worker exposure.

Where to get more information

Both WorkSafeBC and various public health authorities have web sites with further information on infectious diseases, pandemic planning, and protection from exposure.

- WorkSafeBC - worksafebc.com
- The BC Centre for Disease Control - bccdc.ca
- The Public Health Agency of Canada - phac-aspc.gc.ca
- The World Health Organization - who.int
- The U.S. Centers for Disease Control - cdc.gov

Table 2: Personal protective measures for pandemic influenza

This Table provides basic information for personal protection of workers in some but not all types of work situations.¹ **A risk analysis will need to be done in all cases**, including those covered by this Table, to ensure that control measures properly protect workers. The Table focuses on PPE and personal hygiene, but does not address work procedures or engineering controls, which also need to be considered in the exposure control plan.

	Low risk: Workers who typically have no contact with pandemic influenza-infected persons²	Moderate risk: Workers who may be exposed to infected persons from time to time in relatively large, well ventilated workspaces³	High risk: Workers who may have contact with infected patients, or with infected persons in small, poorly ventilated workspaces⁴
Hand hygiene	Yes (washing with plain or antimicrobial soap and water; or use of hand wipes that contain effective disinfectant)	Yes (washing with plain or antimicrobial soap and water; or use of hand wipes that contain effective disinfectant)	Yes (washing with plain or antimicrobial soap and water; or use of hand wipes that contain effective disinfectant)
Disposable gloves	Not required	Not required (unless handling contaminated objects on a regular basis)	Yes in some cases- e.g., when working directly with pandemic influenza patients
Apron, Gown, or similar body protection	Not required	Not required	Yes in some cases- e.g., when working directly with pandemic influenza patients
Eye protection - Goggles or Face shield	Not required	Not required	Yes in some cases- e.g., when working directly with pandemic influenza patients
Airway Protection - respirators	Not required	Not required (unless likely to be exposed to coughing and sneezing)	Yes (minimum N95 respirator or equivalent)

1. For example, lab work is an activity not covered by the Table. Lab workers will require appropriate hand, body, and eye protection when handling specimens that are or may be contaminated with the pandemic influenza virus. Also, approved respiratory protection would be required where there may be exposure to contaminated aerosols.
2. This category would typically apply to workers who do not have contact with the public, for example, in locations such as production facilities or administrative clerical areas.
3. This category would typically include workers who routinely deal with the public, some of whom may be infected with the pandemic influenza virus, in circumstances where typically the contact is of a short duration, and the workspace is relatively large and well ventilated. Examples include cashiers, tellers, receptionists, and sales persons. Protective measures may be required if workers handle, on a regular basis, objects that may be contaminated (e.g., money, paperwork, or ticket stubs), or are exposed to coughing or sneezing.
4. High-risk activities typically involve workers (e.g., health care, first aid, and emergency response) who treat patients with pandemic influenza, or who do other work in isolation wards, rooms, or home settings where such patients are present. They may also include other circumstances where there is extensive contact with the public in small enclosed areas where ventilation is poor.

G6.36(1.1) Safety engineered needles

Issued January 1, 2007; Editorial Revision October 2, 2007; Editorial Revision February 1, 2008; Editorial Revision April 6, 2020

Regulatory excerpt

Section 6.36(1.1) of the *OHS Regulation ("Regulation")* states:

(1.1) On and after January 1, 2008, a needleless device or safety-engineered hollow bore needle must be used for the following procedures performed to care for or treat a person:

- (a) withdrawal of body fluids;
- (b) accessing a vein or artery;
- (c) administration of medications or fluids;
- (d) any other procedure involving the potential for an exposure to accidental parenteral contact for which a needleless system or safety-engineered hollow bore needle system is available.

Purpose of guideline

This guideline explains the implementation period under section 6.36(1.1) and provides some examples of workplaces where the s. 6.36 requirements apply.

Implementation period

The requirements of sub-section 1.1 as well as the requirements in sub-sections 1.3, 1.4, 1.5, and 1.6 that apply to subsection 1.1, are effective on and after January 1, 2008, to provide sufficient time for employers to commit funds, adopt safety-engineered devices, change workplace policy and practices, and educate and train workers.

Definition of "workplace"

Section 13 of the *Workers Compensation Act* defines a workplace as any place where a worker is or is likely to be engaged in any work and includes any vessel, vehicle, or mobile equipment used by a worker in work. Some examples of workplaces where section 6.36(1.1) may apply include, but are not limited to

- Hospitals
- Ambulances
- Homecare sites where a community health nurse visits
- Blood collection clinics
- Correctional institutes
- Dental offices
- Medical and dental laboratories
- Health clinics, including those located in industrial facilities
- Outpatient facilities (including renal dialysis clinics and cancer treatment centers)
- Hemodialysis centers
- Drug treatment centers
- Blood banks
- Hospices
- Residential care facilities
- Assisted living residences
- Physicians' offices
- Naturopaths' offices
- Acupuncture clinics
- Tattoo parlours

G6.36(1.3) Not clinically appropriate

Issued October 2, 2007; Editorial Revision February 1, 2008; Revised March 7, 2011; Revised May 17, 2012

Regulatory excerpt

Sections 6.36(1.1) to (1.3) of the *OHS Regulation ("Regulation")* state:

(1.1) On and after January 1, 2008, a needleless device or safety-engineered hollow bore needle must be used for the following procedures performed to care for or treat a person:

- (a) withdrawal of body fluids;
- (b) accessing a vein or artery;
- (c) administration of medications or fluids;
- (d) any other procedure involving the potential for an exposure to accidental parenteral contact for which a needleless system or safety-engineered hollow bore needle system is available.

(1.2) On and after October 1, 2008, any medical sharp used to care for or treat a person must be a safety engineered medical sharp.

(1.3) Subsections (1.1) and (1.2) do not apply if

- (a) use of the required device, needle or sharp is not clinically appropriate in the particular circumstances, or

(b) the required device, needle or sharp is not available in commercial markets.

And section 6.36(1.6) of the *Regulation* states:

Safe work procedures and practices relating to the use of a safety-engineered hollow bore needles and safety-engineered medical sharps must be developed and implemented before use of these devices.

And section 6.33 of the *Regulation* states:

"*medical sharp*" means a needle device, scalpel, lancet, or any other medical device that can reasonably be expected to make parenteral contact;

"*safety-engineered medical sharp*" means a medical sharp with a built-in safety feature or mechanism that eliminates or minimizes the risk of accidental parenteral contact while or after the sharp is used;

And section 6.34(1)(c) of the *Regulation* states:

5.54 and that includes the following:

...

(c) engineering controls and administrative controls to eliminate or minimize the potential for occupational exposure

Purpose of guideline

The purpose of this guideline is to clarify the meaning of the term "not clinically appropriate", and the application of this exemption under section 6.36(1.3) of the *Regulation*.

Not clinically appropriate

Under section 6.36(1.3) of the *Regulation*, the requirement to use a safety-engineered medical sharp under section 6.36(1.1) does not apply if the sharp is not clinically appropriate for a specific step in a medical or dental procedure.

Factors to be considered

A safety-engineered medical sharp is considered not clinically appropriate if the use of that device will unreasonably compromise patient safety or the success of a specific medical or dental procedure. For example, the safety-engineered mechanism may in some instances restrict:

- a device (e.g. scalpel) from reaching a tight space (e.g. nasal cavity, ear canal, or a deep cavity, such as a hip joint); or
- a clinician's line of sight.

The use of a safety-engineered medical sharp may necessitate the modification of steps of a medical procedure. This does not necessarily mean that the use of a safety-engineered medical sharp will compromise patient safety or the success of a specific medical or dental procedure. It may be clinically appropriate to use a safety-engineered medical sharp even though its use requires modification of procedural steps.

If a specific safety-engineered medical sharp is determined to be not clinically appropriate for a particular step in a procedure, all other commercially available safety-engineered medical sharps for that specific step in the procedure need to be assessed for clinical appropriateness.

Making a determination

The employer's determination of whether the use of a safety-engineered medical sharp is not clinically appropriate should include persons who are knowledgeable of:

- performing the procedure in question;
- assessments by others performing the procedure in question; and
- the safety-engineered medical sharps that are commercially available and their applicability to the procedure.

The employer should document the reasons why the use of a safety-engineered medical sharp required under section 6.36(1.1) of the *Regulation* is not clinically appropriate. The documented reasons should, at a minimum, include the following information:

- the safety-engineered medical sharp(s) assessed;
- the non-safety-engineered medical sharp currently used;
- the part of the procedure where the use of a safety-engineered medical sharp has been deemed to be not clinically appropriate;
- the reason(s) why the safety-engineered medical sharp would compromise patient safety or the success of a specific medical or dental procedure;
- additional safe work procedures used to minimize the risk of injury to workers (if appropriate);
- the name(s) of the person(s) who approved the use of the non-safety-engineered medical sharp; and
- the date of decision.

This documentation should be readily available to workers who procure, prepare and use medical sharps.

Periodic review

The approval to use a non-safety-engineered medical sharp should be reviewed when new technology becomes commercially available, and at

least annually.

In situ determinations

Following a determination that a safety-engineered medical sharp is clinically appropriate for a particular medical or dental procedure, there may be individual cases where the use of the safety-engineered medical sharp is not clinically appropriate.

In these unique cases, the person making that determination should document that situation, including the medical procedure, the safety-engineered medical sharp, and reasons why the safety-engineered medical sharp would compromise patient safety or the success of the specific medical or dental procedure. The documentation should be included as part of the periodic review of determinations about the use of non-safety-engineered medical sharps.

Safe work practice controls

The use of safety-engineered medical sharps is only one part of the employer's overall exposure control plan. Section 6.34(1)(c) of the *Regulation* requires that engineering controls and work practice controls be established to eliminate or minimize the potential for occupational exposure.

For further information on other engineering and work practice controls that may be appropriate for use under section 6.34(1)(c), refer to OHS Guideline [G6.34-2 Risk assessment, engineering and administrative controls, and personal protective equipment](#).

G6.36(1.4) and (1.5) Highest level of protection

Issued October 2, 2007; Editorial Revision February 1, 2008; Editorial Revision April 6, 2020

Regulatory excerpt

Sections 6.36(1.4) and 6.36(1.5) of the *OHS Regulation* ("*Regulation*") state:

(1.4) If more than one type of safety-engineered hollow bore needle or safety-engineered medical sharp is available in commercial markets, the needle or sharp that provides the highest level of protection from accidental parenteral contact must be used.

(1.5) For purposes of subsection (1.4), an employer must make a determination of the highest level of protection available based on information provided by manufacturers, independent testing agencies, objective product evaluation, or other reliable sources.

Regulation section 6.33 includes the following definitions:

"medical sharp" means a needle device, scalpel, lancet, or any other medical device that can reasonably be expected to make parenteral contact;

"parenteral contact" means piercing of mucous membranes or the skin;

"safety-engineered medical sharp" means a medical sharp with a built-in safety feature or mechanism that eliminates or minimizes the risk of accidental parenteral contact while or after the sharp is used;

Purpose of guideline

The purpose of this guideline is to discuss the requirements and considerations for selecting safety-engineered medical sharps (SEMS), including safety-engineered hollow bore needles, that provide workers the highest level of protection. The guideline also highlights some of the obligations of suppliers of these devices.

Considerations for "highest level of protection"

SEMS with similar or different engineering controls may provide comparable levels of protection. However, where evidence suggests that one device provides a higher level of protection than another in a particular circumstance, the employer is required to select the SEMS affording the highest level.

To determine which SEMS provides the highest level of protection, consideration should be given to

- Evidence that other devices would reduce accidental contact in that workplace and for that task more effectively
- Consideration and review of the different types of engineering controls that are commercially available for the relevant devices
- Information provided by manufacturers, independent testing agencies, "objective product evaluation" (see below), or other reliable sources, as specified in section 6.36(1.5)
- Conducting a periodic review to ensure that the devices selected are appropriate based on the most current scientific knowledge of protection from sharps injuries. For example, a review may identify technological developments that may eliminate or reduce exposure to a biological agent designated as a hazardous substance under [section 5.1.1](#), as well as any new information on the efficacy of the selected devices.

Note: Review of exposure control plans

- [Section 6.34](#) requires the employer to develop and implement an exposure control plan (ECP) meeting the requirements of [section 5.54](#) if a worker has or may have occupational exposure.
- Section 5.54(3) requires the employer to review the ECP at least annually and update the ECP as necessary in consultation with the joint health and safety committee or the worker's health and safety representative as applicable.

- Section 5.54(2)(b) requires that the ECP incorporates the element of risk control, which includes the selection of devices under section 6.36(1.5) where applicable.

Objective product evaluation

Section 6.36(1.5) allows an employer to make a determination of the highest level of protection available based on an objective product evaluation. An objective product evaluation should enable the employer to assess the extent to which the SEMS eliminates or minimizes the risk of parenteral contact while or after the device is used. An objective product evaluation should assess the factors that are relevant to determining the effectiveness of SEMS and be applicable to the groups of devices and procedures under consideration. Anecdotal evidence alone is not sufficient to determine that a device provides the highest level of protection.

The following are examples of criteria for employers to consider when using an objective product evaluation to determine which SEMS provide the highest level of protection:

- The device includes built-in protection of the needle or other sharp
- The user can easily tell whether the safety feature is activated
- The device performs reliably
- The device is easy to use and is self-evident
- The safety feature is in effect before disposal and remains in effect after disposal

Sample evaluation forms for safety engineered needles and IV systems were developed through the training for Development of Innovative Control Technologies (TDICT) Project and are available at <http://www.osha.gov/>. Type in the search term "TDICT" and click on the document noted as the [2001 -- 11/27/2001 CPL 02-02-069 \[CPL-2-2-69\] - Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens](#).

Consideration of both "highest level of protection" and "clinically appropriate"

Section 6.36(1.3) recognizes that the use of SEMS affording the highest level of protection to a worker may not be clinically appropriate for certain clinical situations.

Consider the following example where an employer is initially considering three SEMS for use in a procedure:

	What level of protection from accidental parenteral contact does the SEMS provide the worker?	Is the SEMS clinically appropriate for the procedure in question?
SEMS #1	High	No
SEMS #2	Medium	Yes
SEMS #3	Low	Yes

In this case, although SEMS #1 may provide the highest level of protection to the worker, it has been determined that it is not clinically appropriate to use it in the procedure in question. Therefore, for the purposes of section 6.36(1.4), SEMS #2 must be used because it provides the highest level of protection among those SEMS that are commercially available and clinically appropriate to use in the procedure in question.

Suppliers' OHS obligations and highest level of protection

[Section 26](#) of the *Workers Compensation Act ("Act")* places obligations on suppliers. For example, section 26 requires that every supplier must

Ensure that any tool, equipment, machine, or device, or any biological, chemical, or physical agent, supplied by the supplier is safe when used in accordance with the directions provided by the supplier and complies with the OHS provisions and the regulations

Provide directions respecting the safe use of any tool, equipment, machine, or device, or any biological, chemical, or physical agent, that is obtained from the supplier to be used at a workplace by workers

For example, if a supplier fails to provide directions respecting the safe use of SEMS, then the supplier is in contravention of section 26. In this case, even if the SEMS could potentially provide the highest level of protection, the workers may not receive the highest level of protection because they are without adequate directions from the supplier.

Health Canada is the federal regulator that administers the [Medical Devices Regulations](#), issued under the [Food and Drugs Act](#). The [Medical Devices Regulations](#) apply to the sale and advertising for sale of a medical device and the importation of a medical device for sale or use on individuals. Under the [Medical Devices Regulations](#), manufacturers have obligations regarding the safety and effectiveness of the devices. Manufacturer's compliance with this regulation alone does not guarantee that the use of the device provides the highest level of protection in general or in particular circumstances.

G6.40 Medical evaluation

Issued August 1999; Revised February 1, 2008

Regulatory excerpt

Section 6.40 of the *OHS Regulation ("Regulation")* states:

If a worker may have been exposed to the human immunodeficiency virus (HIV), hepatitis B virus or any other biological agent designated as a hazardous substance in section 5.1.1, the employer must advise the worker to seek immediate medical evaluation.

Purpose of guideline

The purpose of this guideline is to provide suggested management protocol in the event a worker is exposed to HIV, hepatitis B, or other biological agent designated as a hazardous substance under [section 5.1.1](#). The guideline also provides information about the confidentiality of test results.

Management protocol

In the event that a worker has been, or may have been, exposed to HIV, hepatitis B, or any other biological agent designated as a hazardous substance in section 5.1.1, the management protocol typically will include immediate first aid, reporting, and documentation of the incident, followed by medical assessment at a hospital emergency department as soon as possible. The times in which a worker should receive a medical assessment for various types of occupational exposure should be included in the exposure control plan under section 6.34(1). For HIV, for example, this would be preferably within two hours of the incident.

Confidentiality

Medical personnel need informed consent in writing before blood tests are taken and before results regarding either the source or the exposed worker can be released. Blood tests include those for HIV, hepatitis B and C, and/or liver function status. Because all results are confidential, a WorkSafeBC prevention officer must respect the confidentiality of any information received in this regard from any source.

Guidelines - Part 6 - Cytotoxic Drugs

G6.42 Cytotoxic drugs - Definition

Issued August 1, 1999; Editorial Revision October 2004

Regulatory excerpt

Section 6.42 of the *OHS Regulation* ("*Regulation*") states:

In sections 6.43 to 6.58

"*cytotoxic drug*" means an agent that possesses a specific destructive action on certain cells or that may be genotoxic, oncogenic, mutagenic, teratogenic, or hazardous to cells in any way and includes most anti-cancer drugs.

Purpose of guideline

The purpose of this guideline is to outline the criteria in which drugs in health-care settings meet the definition as stated in section 6.42 of the *Regulation*.

Cytotoxic drugs

A number of drugs used in health care settings (e.g., hospitals, physician's offices, home healthcare agencies) may pose a risk to workers through acute or chronic occupational exposure. The degree of risk is dependent on the inherent toxicity of the drug, as well as the extent of exposure. Workers may be exposed via inhalation of dusts or aerosols, absorption through the skin, and ingestion (e.g., as a result of contact with contaminated food). Compliance with the personal hygiene requirements (sections [5.82 to 5.84](#) of the *Regulation*) should eliminate ingestion as a source of exposure.

Specific tasks that increase the potential for exposure due to splattering, spraying or aerosolization include, but may not be limited to:

- Withdrawal of needles from drug vials
- Transfer of drugs from one container to another using syringes, needles or filter straws
- Breaking ampules open
- Expulsion of air from drug-filled syringes

The American Society of Hospital Pharmacists (ASHP) considers a drug to be hazardous if it is any of the following:

- Genotoxic
- Carcinogenic
- Teratogenic (a substance that is capable of causing physical defects in a developing embryo) or impairs fertility
- Causes serious organ or other toxic manifestations at low doses in experimental animals or treated patients

Some common drugs that meet these criteria are listed below.

Altretamine	Dactinomycin	Leuprolide	Streptozocin
Aminoglutethimide	Daunorubicin	Levamisole	Tamoxifen
Azathioprine	Diethylstilbestrol	Lomustine	Testolactone
L-Asparaginase	Doxorubicin	Mechlorethamine	Thioguanine
Bleomycin	Estradiol	Medroxyprogesterone	Thiotepa
Busulfan	Estramustine	Megestrol	Uracil Mustard

Carboplatin	Ethinyl Estradiol	Melphalan	Vidarabine
Carmustine	Etoposide	Mercaptopurine	Vinblastine
Chlorambucil	Floxuridine	Methotrexate	Vincristine
Chloramphenicol	Fluorouracil	Mitomycin	Zidovudine
Chlorotianisene	Flutamide	Mitotane	
Chlorozotocin	Ganciclovir	Mitoxantrone	
Cyclosporin	Hydroxyurea	Nafarelin	
Cisplatin	Idarubicin	Pipobroman	
Cyclo-phosphamide	Ifosfamide	Plicamycin	
Cytarabine	Interferon-A	Procarbazine	
Dacarbazine	Isotretinoin	Ribavirin	

For drugs not included on this list, professional judgement by personnel trained in pharmacology and/or toxicology is needed to designate a drug as cytotoxic. The primary factors to be considered are as follows:

- Is the drug designated an antineoplastic agent in the American Hospital Formulary Service Drug Information? (An agent is antineoplastic if it inhibits or prevents the development of tumours.)
- Does the manufacturer suggest the use of special isolation techniques in its handling, administration, or disposal?
- Is the drug known to be a human mutagen, carcinogen, teratogen, or reproductive toxicant? (An agent is mutagenic if it is capable of inducing genetic mutation.)
- Is the drug known to be carcinogenic or teratogenic in animals? (A drug known to be mutagenic in multiple bacterial systems or animals should also be considered cytotoxic.)
- Is the drug known to be acutely toxic to an organ system?

For further information, consult a WorkSafeBC occupational health physician.

G6.43 Cytotoxic drug - Exposure control plan

Issued August 1, 1999

Regulatory excerpt

Section 6.43 of the *OHS Regulation* ("*Regulation*") states:

If a worker is or may be occupationally exposed to a cytotoxic drug, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54.

Purpose of guideline

The purpose of this guideline is to outline where a worker is or may be occupationally exposed to a cytotoxic drug, section 6.43 of the *Regulation* requires that the employer implement an exposure control plan meeting the requirements of section 5.54 of the *Regulation*.

Occupationally exposed

In the context of this section, "occupationally exposed" refers to reasonably anticipated harmful contact with cytotoxic drugs that may result from the performance of a worker's regular or assigned job duties. This covers situations where a worker may be exposed via a needlestick injury or absorption through the skin.

For further information on the required elements of an exposure control plan, refer to OHS Guideline [G5.54-2](#).

G6.53(1) Biological safety cabinets (BSCs)

Issued August 1, 1999; Editorial revision May 17, 2006

Section 6.53(1) (Preparation and administration) of the *OHS Regulation* ("*Regulation*") states:

All mixing, preparation and priming of administration sets with a cytotoxic drug must be performed in one centralized area in a specially designated Class II Type B biological safety cabinet that

- (a) is exhausted to the outside atmosphere in a manner that prevents recirculation into any work area,
- (b) has exhaust and ventilation systems that remain in operation for a sufficient period of time to ensure that no contaminants escape from the biological safety cabinet into the workplace, and
- (c) is equipped with a continuous monitoring device to permit confirmation of adequate airflow and cabinet performance.

Purpose of guideline

This guideline provides information on BSCs, including some design differences with equipment such as fume hoods, and a key design feature of Class II, Type B cabinets.

Fume hoods and BSCs

Fume hoods, "clean benches" and other laminar flow devices, such as horizontal flow cabinets that direct the air toward the operator, are not the same as biological safety cabinets. A Class II biological safety cabinet is a ventilated cabinet designed to afford a combination of worker, product, and environmental protection. A downward, laminar flow of filtered air is supplied vertically to the cabinet. As well, air flows into the cabinet through the front opening. Contaminated air is first filtered and then exhausted to the outside atmosphere through a dedicated, sealed exhaust duct. Both supply and exhaust air is filtered using high efficiency particulate air (HEPA) filters.

Class II, Type B BSCs

Class II, Type B cabinets are "total exhaust." That is, they do not recirculate exhaust air to the work area. Only Class II Type B BSCs are acceptable for the handling of cytotoxic drugs. Class III cabinets would also be acceptable, but are not a specific requirement of the *Regulation*.

The certification requirements of sections 30.12(2) and 30.12(3) for biological safety cabinets also apply. For further detail, consult OHS Guideline [G30.12](#).

G6.53(2) Safe work procedures

Issued May 17, 2006

Regulatory excerpt

Section 6.53(2) of the *OHS Regulation* ("Regulation") states:

The administration of cytotoxic drugs must be done by following safe work procedures.

Purpose of guideline

This guideline outlines a set of work procedures considered safe for the administration of cytotoxic drugs.

The administration of cytotoxic drugs to patients is a step that follows the mixing, preparation, and initial priming of administration sets. An administration set includes a syringe, IV set, or other device used for the delivery of cytotoxic drugs via injection. The administration of cytotoxic drugs may take place in a formal health care setting, or at distance, for example, in a patient's home.

Safe work procedures

The following work procedures are considered safe practices for the administration of cytotoxic drugs:

- Administer cytotoxic drugs by using protective medical devices such as needle-less and closed systems, and techniques such as priming of intravenous (IV) tubing by pharmacy personnel inside a Class II Type B biological safety cabinet or priming in-line with non-drug solutions.
- Ensure the availability of an appropriate spill kit at or near the administration area.
- Wear personal protective equipment, including double gloves, goggles, and protective gowns, for all activities associated with drug administration, such as opening the outer bag, assembling the delivery system, delivering the drug to the patient, and disposing of all equipment used to administer drugs.
- Attach drug administration sets to the IV bag, and prime them before adding the drug to the bag.
- Never remove tubing from an IV bag containing a cytotoxic drug.
- Do not disconnect tubing at other points in the system until the tubing has been thoroughly flushed.
- Remove the IV bag and tubing intact when possible.
- Place disposable items directly in a waste container used for cytotoxic drugs and close the lid. Note: requirements for waste containers are found in [section 6.57](#) of the *Regulation*.
- Remove outer gloves and gowns for disposal in the waste container for cytotoxic drugs at the site of drug administration. It is also considered to be safe practice to bag the gloves and gowns before placing them in the waste container, to double bag cytotoxic drug wastes, removing inner gloves after doing so, and to consider double bagging contaminated equipment.
- Wash hands with soap and water before leaving the drug administration site.

Guidelines - Part 6 - Lead

G6.60 Lead - Exposure control plan

Issued August 1, 1999; Editorial Amendment October 2004; Editorial revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.60 of the *OHS Regulation* ("Regulation") states:

- (1) If a risk assessment indicates that a worker is or may be exposed to lead dust, fumes or mist, the employer must
 - (a) ensure that a qualified person develops an exposure control plan meeting the requirements of section 5.54 and subsection (3) of this section, and

(b) implement the exposure control plan.

Purpose of guideline

This guideline provides some explanation of when an exposure control plan is required for lead dust, fumes or mist.

Determining whether an exposure control plan is required

Section 6.60 of the *Regulation* requires the employer to develop and implement an exposure control plan meeting the requirements of section 5.54 and 5.57(2) of the *Regulation* if a worker is or may be exposed to lead. The International Agency for Research on Cancer (IARC) has categorized inorganic lead as group 2A (probably carcinogenic to humans). Inorganic lead is a designated substance under section 5.57 of the *Regulation*.

This requirement for an exposure control plan is primarily intended to address exposure from two routes of entry — inhalation and ingestion. Exposure to lead via inhalation can be quantitatively assessed in the field by air sampling and this monitoring is useful in the determination of control measures. Refer to section 6.61 of the *Regulation*.

Exposure to lead via ingestion can be assessed in the field by inspection and surface sampling. Items that should be evaluated include, but may not be limited to, the following:

- Housekeeping procedures
- Location of lunchrooms in relation to production areas
- Personal hygiene and habits of workers (such as use of washing facilities, change of clothing, nail biting, and smoking),
- Effectiveness of local exhaust ventilation
- Cleanliness of personal protective equipment

There are no WorkSafeBC regulatory limits for lead on surfaces. However, other jurisdictions have developed acceptable levels for lead on various surfaces and these levels can be useful in helping determine whether a worker is or may be exposed to lead. A summary of these values can be found in the WorkSafeBC publication [Safe Work Practices for Handling Lead](#).

Further information on the elements of an exposure control plan can be found in the OHS Guidelines for section 5.54 of the *Regulation* and in *Safe Work Practices for Handling Lead*.

G6.61.1 Exception to monitoring requirements - Objective air monitoring data and associated record-keeping

Issued consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.61.1 of the *OHS Regulation* ("*Regulation*") states, in part:

(2) Despite section 6.61, an employer is not required to monitor the concentration of airborne lead if a qualified person determines that

(a) existing control measures are effective in keeping worker exposure as low as reasonably achievable below the exposure limit, and

(b) the employer

(i) has previously monitored for airborne concentrations of lead during equivalent work operations and there is no reason to believe that the results of the previous monitoring would not continue to apply, or

(ii) has objective air monitoring data that was collected during equivalent work operations through industry surveys or peer-reviewed or scientific studies that use sampling and analytical methods, referred to in section 6.61(2).

(3) An employer must keep, for at least 10 years, a record documenting the following, as applicable:

(a) the previous monitoring data used for the purpose of subsection (2)(b)(i);

(b) the source of the objective air monitoring data, and the data itself, referred to in subsection (2)(b)(ii).

Section 6.61(2) of the "*Regulation*" states:

(2) Acceptable sampling and analytical methods for the purpose of subsection (1) are as follows:

(a) a method detailed in a standard occupational hygiene reference published by

(i) the National Institute for Occupational Safety and Health, or

(ii) the Occupational Safety and Health Administration;

(b) another method acceptable to the Board.

Purpose of guideline

This guideline provides an example of how to comply with the requirement to rely on objective air monitoring data for airborne lead, and the necessary retention of associated records.

Objective monitoring data

Section 6.61.1(2) describes an exception to the requirement for an employer to perform workplace air monitoring if a qualified person has determined that the employer has objective air monitoring data. The data must have been collected

- During equivalent work operations through industry surveys or peer-reviewed or scientific studies
- Using sampling and analytical methods referred to in section 6.61(2)

Equivalent work operations are activities that closely match the lead processes, types of materials, products or coatings, work practices, control measures, and environmental conditions that are present in the employer's current work operations.

WorkSafeBC has published recommended control measures and personal protective equipment (PPE) for work activities involving lead in paints and other coatings. These measures and PPE are specified in Part 3 of the WorkSafeBC publication [Safe Work Practices for Handling Lead](#). The control measures and PPE are based on objective monitoring data from reliable scientific sources; this is further explained in the WorkSafeBC publication.

If a qualified person verifies that the employer's work operations and activities are equivalent to those described in Part 3 of *Safe Work Practices for Handling Lead*, then the employer will have relied on appropriate objective monitoring data and will be in compliance with the intent of section 6.61.

In order for section 6.61.1(2) to be satisfied, a qualified person must have also determined that the control measures are effective in keeping worker exposures as low as reasonably achievable below the exposure limit. If the risk assessment and the exposure control plan are properly completed by a qualified person, this requirement for effectiveness will be satisfied.

Note that the control measures and PPE described in Part 3 of the publication are only for paints and other coatings and do not apply to work activities involving other lead-containing materials.

Employers are not required to follow the example of compliance described in this guideline. An employer can choose to perform air monitoring as per section 6.61, can rely on previous monitoring under section 6.61.1(2)(b)(i), or can use other objective air monitoring data as described in section 6.61.1(2)(b)(ii).

Record keeping

Section 6.61.1(3) of the Regulation specifies that the source of the objective exposure monitoring data, and the data itself, must be kept for at least ten years. When a qualified person has made the necessary determinations under section 6.61.1 relying on the WorkSafeBC publication *Safe Work Practices for Handling Lead* as the source of objective monitoring data, this information should be documented and retained for ten years. This will satisfy the employer's obligation under section 6.61.1(3)(b).

G6.67 Health protection

Issued August 1, 1999; Editorial Revision April 14, 2022

Regulatory excerpt

Section 6.67 of the *OHS Regulation* ("Regulation") states:

The employer must develop and implement an effective health protection program, in a manner acceptable to the Board, if a worker is exposed to potentially hazardous levels of lead.

Purpose of guideline

The purpose of this guideline is to establish the manner acceptable to WorkSafeBC for developing and implementing an effective health protection program if a worker is exposed to potentially hazardous levels of lead.

Health protection program

If an exposure control plan is required, as determined by section 6.60(1) of the *Regulation*, then sections [5.54](#), [5.57\(2\)](#), and [6.60\(3\)](#) must be met.

The development and implementation of a health protection program in keeping with the guidance in OHS Guideline [G5.54-5 Health monitoring](#) are acceptable to WorkSafeBC.

G6.68 Records

Issued August 1, 1999; Editorial Revision October 26, 2011

Regulatory excerpt

Section 6.68 of the *OHS Regulation* ("Regulation") states:

The employer must

- (a) maintain records of risk assessments, worker exposures and worker training, and
- (b) ensure that health monitoring records are maintained in a manner acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to establish the manner acceptable to WorkSafeBC for maintaining health monitoring records.

Record keeping

Section 6.68 of the *Regulation* requires that the employer maintain records of risk assessments, worker exposures, worker training, and health monitoring. Health monitoring records maintained in keeping with the guidance in OHS Guideline [G5.54-5](#) and in keeping with the instructions of an occupational health physician or nurse are acceptable to WorkSafeBC.

If the employer wishes to keep records in any other manner, they are to send their request to the OHS Practice and Engineering Support department for consideration.

No other manner may be used until written acceptance has been given by that department.

Guidelines - Part 6 - Pesticides

G6.70 Pesticides — Definitions

Issued August 1999; Revised March 31, 2010; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 6.70 of the *OHS Regulation* ("*Regulation*") states, in part:

"*toxic*" in reference to a pesticide, means a formulation or a pesticide containing active ingredients that, by oral or dermal routes of entry, have acute mammalian toxicities expressed as the Lethal Dose 50% (LD₅₀), and, for this purpose, a pesticide is considered to be

- (a) very toxic, if the LD₅₀ is less than 500 mg/kg,
- (b) moderately toxic, if the LD₅₀ is 500 mg/kg or more but less than or equal to 1 000 mg/kg, and
- (c) slightly toxic, if the LD₅₀ is more than 1 000 mg/kg but less than or equal to 2 000 mg/kg;

Purpose of guideline

The purpose of this guideline is to assist stakeholders in obtaining the acute mammalian toxicity information expressed as LD50 to determine whether the toxicity category for a pesticide is "very toxic," "moderately toxic," or "slightly toxic." This information is required to apply the requirements of sections 6.77, 6.80, 6.85, 6.87, 6.89, and 6.91 of the *Regulation*.

Sources of information

Section 6.70 of the *Regulation* defines certain terms relating to toxicity, including the terms: "slightly toxic," "moderately toxic," and "very toxic." These terms relate to a pesticide "containing active ingredients which have acute mammalian toxicities expressed as the Lethal Dose 50% (LD₅₀) ..."

The Pest Management Regulatory Agency (PMRA), a part of Health Canada, provides information on pesticide labels as signal words which corresponds to the relative Lethal Dose 50% and the toxicity descriptor as slightly toxic, moderately toxic, or highly toxic.

Current PMRA Hazard Categories

Lethal Dose - 50%	Descriptor	Primary Display Panel Label Signal Words
Oral Toxicity (mg/kg bw)		
< 500	Highly acutely toxic	DANGER POISON
500 - 1000	Moderately acutely toxic	WARNING POISON
1000 - 2000	Slightly acutely toxic	CAUTION POISON
> 2000 (commercial)	Low acute toxicity	[no labelling required]
> 2000 (domestic)	Low acute toxicity	a) CAUTION POISON b) [no labelling required]
Dermal Toxicity (mg/kg bw)		
< 500	Highly acutely toxic	DANGER POISON
500 - 1000	Moderately acutely toxic	WARNING POISON
1000 - 2000	Slightly acutely toxic	CAUTION POISON
> 2000	Low acute toxicity	[no labelling required]

For example, if a pesticide label states "DANGER POISON," then the LD₅₀ for that pesticide is less than 500 mg/kg and will be considered to be very toxic under section 6.70 of the *Regulation*.

Typically, safety data sheets (SDSs) for chemicals contain toxicity information such as LD₅₀. However, because pesticides are covered by other federal legislation, pesticides are exempt from WHMIS requirements for SDS. The PMRA advises registrants of pesticides to develop SDSs and make them available to the public. Section 6.75 of the *Regulation* requires employers to make readily available to workers an SDS or its equivalent for all pesticides used at the workplace (refer to [OHS Guideline G6.75](#)). The LD₅₀ information on an SDS can also be used to determine the toxicity level of pesticides.

Although toxicity is defined by reference to active ingredients, this does not mean that other ingredients can be ignored. The employer will have to consider all ingredients in fulfilling the general requirements under [section 5.2](#) of the *Regulation*, as well as the requirements for controlling exposure under sections [5.48 to 5.59](#).

G6.74 Good practices for applying pesticides

Issued September 21, 2012

Regulatory excerpt

Section 6.74 of the *OHS Regulation* ("Regulation") states:

The employer must ensure that a pesticide for use in the workplace is used in accordance with the requirements stated on the label and with good application practice.

Purpose of guideline

This guideline lists some sources of good application practice for pesticides.

Good application Practice

For information on pesticide application practices refer to the following:

- [Standard Practices for Pesticide Applicators, BK35](#) published by WorkSafeBC
- Handbook for Pesticide Applicators And Dispensers, published by the BC Ministry of Environment
- BC [Integrated Pest Management Act](#) and [regulations](#) under it
- [Pest Control Products Act \(Canada\)](#) and [regulations](#) under it

For information on antisapstain application practices refer also to the following:

- [Recommendations for the Design and Operation of Wood Preservation Facilities](#), published by Environment Canada

G6.75 Safety data sheets (SDS)

Issued August 1999; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 6.75 of the *OHS Regulation* ("Regulation") states:

The employer must make readily available to workers an SDS or its written equivalent for all pesticides used at the workplace.

Purpose of guideline

The purpose of this guideline is to set out the minimum information that an SDS written equivalent should contain.

Regulatory requirements

For all pesticides used at the workplace, section 6.75 of the *Regulation* requires the employer to make an SDS or its written equivalent readily available to workers. Because pesticides are covered by other legislation, pesticides are exempt from WHMIS requirements for labels and SDS. However, pesticides cannot be sold or used in Canada unless registered by Health Canada, a requirement of the federal *Pest Control Products Act*. Health Canada advises registrants to make an SDS available.

Written equivalent

At a minimum, the "written equivalent" of an SDS should contain the following:

- Trade name (such as the manufacturer or selling agent's name for the product)
- Use (for example herbicide, insecticide) and classification (permit-restricted, restricted, commercial, domestic or exempted)
- Registration number
- Product identification number (PIN)
- Formulation or net content, indicating total pesticide formulation
- Guarantee which identifies the active ingredient and concentration
- Directions for pesticide use (where to be used and rates of application)

- Precautionary symbol (such as toxic, flammable, explosive or corrosive)
- Precautions to be taken during use to prevent worker exposure and environmental contamination
- First aid requirements
- Toxicological information
- Disposal requirements
- Name and address of the pesticide manufacturer or selling agent

G6.77 Mixing, loading, and applying pesticides — Qualifications

Issued August 1, 1999; Revised consequential to February 1, 2012 Regulatory Amendment; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 6.77 of the *OHS Regulation* ("Regulation") states:

(1) The employer must ensure that a worker or applicator who mixes, loads or applies a moderately or very toxic pesticide for use in a workplace or who cleans or maintains equipment used in the operations

(a) is 16 years of age or over, and

(b) holds a valid pesticide applicator certificate issued under the *Integrated Pest Management Act*.

(2) Subsection (1)(b) does not apply to any of the following:

(a) the use of biocides or slimicides in pulp and paper operations,

(b) antispain materials;

(c) the use of a pesticide by an assistant applicator within the meaning of, and in accordance with, the *Integrated Pest Management Act* and the regulations made under it.

(3) Workers involved in training for the purposes of obtaining a valid pesticide applicator certificate who are directly supervised by a qualified person are exempt from the requirement of subsection (1) (b) during the training period.

Purpose of guideline

The purpose of this guideline is to clarify the meaning of the term "qualified person" as in section 6.77 of the *Regulation*.

Assistant applicator

This section permits a worker or applicator who meets the "assistant applicator" qualifications in accordance with the provincial *Integrated Pest Management Act* (IPMA) and its regulation to mix, load, or apply a moderately or very toxic pesticide for use in a workplace; or may clean or maintain equipment used in the operations, if permitted as an assistant applicator under the IPMA and its regulation.

Assistant applicators work under the supervision of a certified applicator and must undergo training as prescribed by the BC Ministry of Environment and Climate Change Strategy. They are restricted from performing certain activities, such as mixing pesticide concentrates, handling or using fumigants, or using permit-restricted or restricted class pesticides.

Detailed explanation and qualifications of an assistant applicator under the IPMA are found on the BC Ministry of Environment and Climate Change Strategy [website](#).

"Qualified person" under section 6.77(3)

Under section 6.77(3), workers who are being trained to obtain a valid pesticide applicator certificate are exempt from section 6.77(1)(b) for the duration of the training period, provided they are directly supervised by a "qualified person" as defined by section 1.1 of the *Regulation*.

"Qualified person" in the context of this section means a person who

- Meets the requirements of sections 6.77(1)(a) and (b)
- Is responsible for the proper instruction of the trainees, as well as ensuring their work is performed without undue risk
- Will be in compliance with sections 46 and 59.3 of the *Integrated Pest Management Regulation*
- Along with other requirements, the qualified person must supervise the trainees by:
 - Being physically present when the service is provided (in the federal *Pesticide Control Act Regulation*, "service" means a service involving the use of pesticides)
 - Either by performing the use of the pesticides or supervising no more than four uncertified assistant applicators at one time
 - Being not be more than 500 m from and maintaining continuous visual or auditory contact with the uncertified assistant applicators

Refer to the [Integrated Pest Management Regulation](#) for the full explanation of the supervisor's requirements.

Regulatory excerpt

Section 6.79 of the *OHS Regulation* ("Regulation") states:

Where, in the opinion of the Board, it is necessary to provide health monitoring for workers exposed to pesticides, employers and workers must participate as required by the Board, and records must be maintained in a manner acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to establish the manner acceptable to WorkSafeBC under which records must be maintained.

Record keeping

Where WorkSafeBC deems it necessary that health monitoring be provided for workers exposed to pesticides, section 6.79 of the *Regulation* requires that employers and workers participate in such programs, as required by WorkSafeBC. Records of the health monitoring program must be maintained in a manner acceptable to WorkSafeBC.

As prescribed by section [5.54\(2\)\(f\)](#) of the *Regulation*, health monitoring may be a required element of an exposure control plan. Health monitoring is discussed in OHS Guideline [G5.54-5](#). Health monitoring records maintained in accordance with the guidance in OHS Guideline [G5.54-5](#) and in keeping with the instructions of an occupational health physician or nurse are acceptable to WorkSafeBC.

Records may not be kept in any other manner without the written acceptance of WorkSafeBC. The OHS Practice and Engineering Support department is the contact for acceptance of alternative record keeping methods.

G6.80 Rescue

Issued August 1, 1999

Section 6.80 of the *OHS Regulation* ("Regulation") states:

If a worker applies a moderately or very toxic pesticide in a greenhouse or similar enclosed space and the worker may be incapacitated during the application, the work must be done in such a manner that a rescue can be effected by another worker equipped and able to do so.

OHS Guideline [G6.85](#) discusses what is an "enclosed space".

The requirements of [Part 32 \(evacuation and rescue\)](#), as well as sections [4.13 to 4.18 Emergency preparedness and response](#) and sections [5.97 to 5.102](#), also apply. In accordance with sections 4.13 and 32.1, the employer must conduct a risk assessment to determine the need for rescue when pesticides are applied in enclosures. Workers designated to provide rescue must be adequately trained and equipped, as per sections [32.2 and 32.3](#).

During the application of pesticide in an enclosure provision for rescue will likely be required when:

- required on the label or by available hazard information,
- very and moderately toxic pesticides are applied,
- the pesticide can be absorbed through the skin (this is a factor for exposure to organophosphate, carbamate, dithiocarbamate, organochlorine, nitrophenol pesticides),
- the formulation consists of emulsifiable concentrates and wettable powders that increase the potential for skin contact,
- the formulation consists of fogs, fine dusts, wettable powders, or gas or vapour fumigants that increase the potential for inhalation,
- high pressure spraying that produces fine particles and increased drift is used,
- there is the potential for accidental spillage, rupturing of containers or equipment failure due to worn pipe couplings, hose lines or hose connections,
- ventilation of an enclosure during pesticide application is not possible or is inadequate,
- there is frequent body contact with treated surfaces because of limited space,
- there is the potential for failure of a respiratory protective device due to improper facial seal, cartridge breakthrough, or disruption of the apparatus providing breathing air to a respirator facepiece,
- a worker could potentially be overcome by thermal stress as a result of wearing protective clothing, or
- there is the possibility of entrapment or engulfment.

G6.82 Fixed stations

Issued August 1999; Revised February 11, 2004

Section 6.82 of the *OHS Regulation* lists the required features of a fixed pesticide mixing, loading or application station. When required by the Board under section 6.82(c), the fixed station must have a closed system for mixing, loading or transferring pesticides.

Closed pesticide mixing systems are recommended under the following conditions:

- when required on the pesticide labels or by available hazard information,

- if the pesticide can be absorbed through the skin (this is a factor for exposure to organophosphate, carbamate, dithiocarbamate, organochlorine or nitrophenol pesticides),
- when very toxic and moderately toxic pesticide formulations (see section [6.70](#) for the definitions of "very toxic" and "moderately toxic" pesticides) that are easily inhalable are handled (for example from exposure to dusts, fogs, gas fumigants and wettable powders in their dry form),
- when emulsifiable pesticide concentrates are diluted with volatile diluents,
- when volatile liquid pesticides are handled in poorly ventilated enclosures,
- if the pesticide is a designated substance, or if the pesticide formulation contains an "inert" or "adjuvant" substance that is designated. Designated substances are identified under section [5.57\(1\)](#) and in the [Table of Exposure Limits for Chemical and Biological Substances](#) (see OHS Guideline [G5.48-2](#)) by any of the following notations, abbreviations, or endnotes:
 - ACGIH A1 or A2, or IARC 1, 2A, or 2B carcinogen,
 - reproductive critical effect,
 - sensitization critical effect, or SEN notation, or
 - L endnote.

G6.83 Equipment — Mobile equipment

Issued August 1999; Retired March 10, 2022

This guideline has been retired as it contained outdated or redundant material.

G6.84 Safe application practice

Issued August 1999; Editorial Revision July 15, 2019

Regulatory excerpt

Section 6.84 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that a pesticide is applied in a manner that controls the risk of adverse health effect or injury to any person.
- (2) Before a pesticide is applied, the employer must ensure that all workers in the area that is to be treated and who are not required for the application of pesticides are moved to a safe location.
- (3) If practicable, the employer must schedule a pesticide application in a building for a time when the building is unoccupied.

Purpose of guideline

This guideline provides further explanation for section 6.84(3) of the *OHS Regulation* where it requires that, where practicable, the employer schedule a pesticide application in a building for a time when the building is unoccupied.

Pesticide application should be conducted in unoccupied areas following termination of work such as in the evenings, and during weekends and holidays. Advance precautions, such as moving or storing personal items or protecting office surfaces, should be taken. For assistance in scheduling pesticide application in buildings, the employer should refer to municipal, regional and district legislation and bylaws, as well as pesticide labels and available hazard information.

Under [section 6.76](#) of the *Regulation*, the employer must inform workers or occupants of the intent to use the pesticide, the hazards associated with its use, and any precautions required during the application. In addition, the employer should advise workers or building occupants of the application schedule, as well as the relevant re-entry intervals.

Areas adjacent to a building section where a pesticide is applied may be occupied if the following occurs:

- The pesticide label and available hazard information permit this practice
- A hazard assessment by a qualified applicator considers it safe
- The occupied area is protected from the pesticide application by physical barriers or other effective means
- The ventilation system in the application area is isolated from the central HVAC system
- Signs are posted outside the treatment area to restrict access
- The 're-entry interval' is of sufficient duration to ensure occupants and other building areas do not become contaminated with pesticide residue

G6.85 Posting warning signs

Issued August 1999; Retired March 10, 2022

This guideline has been retired as it contained outdated or redundant material.

G6.86 Design of warning signs

Issued August 1999

Section 6.86 of the *OHS Regulation* requires warning signs be "of a design, construction and durability to be clearly identifiable for the prescribed posting period, and must provide information in a manner that can be readily understood by workers."

The "prescribed posting period" in this section refers to the "restricted entry interval." It does not refer to the "days-to-harvest interval." This interval, which is intended to protect consumers, represents the time that must elapse between pesticide application and crop harvest to allow pesticide residue to fall below a specific tolerance level. The restricted entry interval, on the other hand, is intended to protect workers. It represents the time that must elapse after the pesticide is applied, before an unprotected worker is permitted to enter the treated workplace (or portion of the workplace). Restricted entry intervals are addressed under section 6.89 (see OHS Guideline [G6.89](#)).

G6.89 Restricted entry intervals

Issued August 1999; Revised February 11, 2004; Revised April 9, 2019; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 6.70 of the *OHS Regulation* ("*Regulation*") states, in part:

"*restricted entry interval*" means the length of time representing a period of precaution that must elapse after the application of a pesticide, before an unprotected worker may be authorized to enter the treated area;

Section 6.89 of the *Regulation* states:

- (1) Except as permitted under section 6.90, an employer must ensure that a person does not enter a treated area until the restricted entry interval has expired.
- (2) The length of the restricted entry interval required by subsection (1) is as follows:
 - (a) if the label of the applied pesticide states a single restricted entry interval, the time period stated on the label;
 - (b) if the label of the applied pesticide states different restricted entry intervals for different activities, the time period stated on the label for the activity most closely resembling the activity being conducted;
 - (c) if more than one pesticide is applied and the labels of each state different restricted entry intervals, the longest time period stated;
 - (d) if the label of an applied pesticide does not state a restricted entry interval,
 - (i) 24 hours if the pesticide is classified as slightly toxic, or
 - (ii) 48 hours if the pesticide is classified as moderately or very toxic or is part of a mixture in which a moderately or very toxic pesticide is present;
 - (e) if more than one pesticide is applied and the label of at least one pesticide does not state a restricted entry interval, the longer of
 - (i) the longest time period stated on any label of the other pesticides, and
 - (ii) the time period required by paragraph (d)(i) or (ii), as applicable.
- (3) An employer must ensure that, in addition to not entering a treated area until the applicable restricted entry interval has expired, workers comply with all safety information, including user directions and safety precautions, stated on any label of the pesticides being applied.

Purpose of guidelines

The purpose of the guideline is to provide an overview of restricted entry intervals and their use in protecting workers.

Restricted entry interval

Unless entry is permitted under sections 6.90 or 6.91, section 6.89(1) of the *Regulation* ("*Regulation*") requires the employer to ensure that no one enters a treated area where a pesticide has been applied until the restricted entry interval (REI) has expired. This requirement is to allow residues and vapours to dissipate to safe levels for work to be performed in the treated area.

Section 6.89(2) of the *Regulation* explains how to apply the REI on the label for various situations such as where multiple REIs are found on labels, where multiple pesticides are applied, or if a label does not state an REI for a pesticide.

The term "restricted entry interval" is defined in [section 6.70](#) of the *Regulation*. Entry to treated areas by unprotected, unauthorized workers is prohibited during the REI because of the hazards associated with entering a treated area that has been applied with certain pesticides or fumigants. Entry into treated areas by authorized protected workers may be permitted under certain circumstances, such as an emergency to prevent or mitigate injury to persons or substantial damage to crops or property as described in section 6.90. Also, section 6.91 details an exemption for certain structural applications from the REI requirements.

A Health Canada webpage provides an overview of REIs: [Understanding Restricted-Entry Intervals for Pesticides](#). This overview also explains the difference between an REI and a preharvest interval (PHI), which is the minimum amount of time between the last application of a pesticide and when the crop can be harvested. It is important to read the pesticide label to follow the REI and the PHI.

On a rare occasion, an REI may not have been assigned for a conventional pesticide as it may be currently under review by Health Canada (Pest Management Regulatory Agency). For those situations, section 6.89(2)(d) of the *Regulation* prescribes REIs if a label does not state an REI. Unless specified on the label, REIs do not apply to biopesticides such as microbials, pheromones, or other semiochemicals and non-conventional pesticides.

Pesticides as designated substances under section 5.57

Some pesticides may be designated by the American Conference of Governmental Industrial Hygienists (ACGIH) as a carcinogen, reproductive toxin, or a sensitizer. For these pesticides, [section 5.57](#) would apply for employers to replace the pesticide with a safer alternative, if practicable. If it is not practicable to substitute the pesticide, the employer must develop and implement an exposure control plan, in accordance with sections 5.57(2) and (3) of the *Regulation*, and implement necessary control measures. For example, pesticides such as dichlorvos and formaldehyde have the potential to cause skin sensitization as listed in the [Table of Exposure Limits for Chemical and Biological Substances](#) (refer to [OHS Guideline G5.48-2](#)). In those cases, additional measures may be necessary to protect worker health and safety, in addition to following the REI. For further information, refer to OHS Guidelines [G5.54-2](#), [G5.54-3](#), [G5.55](#), and [G5.57](#).

G6.90 Authorization to enter - Qualified person

Issued August 1999; Revised April 9, 2019; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 6.90 of the *OHS Regulation* ("*Regulation*") states:

(1) In this section:

"emergency" means any sudden occurrence or set of circumstances

(a) that an employer could not have anticipated,

(b) over which an employer has no control, and

(c) that requires a worker to enter a treated area during a restricted entry interval because no alternative practices would prevent or mitigate

(i) injury to persons, or

(ii) substantial damage to crops or property;

"hand labour activity"

(a) subject to paragraph (b), means an activity or task performed by hand or using hand tools that causes a worker to have substantial dermal contact with plants or parts of plants, soil or a surface that may contain pesticide residues, and

(b) does not include operating, moving or repairing

(i) irrigation or watering equipment, except hand-set irrigation, or

(ii) other equipment that is not directly used to apply pesticides.

(2) If an employer authorizes a worker to enter a treated area before the restricted entry interval expires, the employer must ensure all of the following:

(a) that the worker

(i) does not enter the treated area earlier than 4 hours after the pesticide application is completed,

(ii) is not in the treated area for more than one hour in a 24 hour period, and

(iii) does not perform a hand labour activity until the expiry of the restricted entry interval;

(b) that hazards to the worker have been assessed by a qualified person;

(c) that the treated area is effectively ventilated using either natural or mechanical means, and

(i) the atmosphere has been tested, if practicable, or

(ii) evaluated by a qualified person and declared safe to enter;

(d) that the worker is provided with, wears and uses correctly personal protective clothing and equipment appropriate to the hazards assessed under paragraph (b);

(e) that the worker follows safe work procedures;

(f) that, if the worker may be incapacitated after entry, provision has been made for rescue in a manner that meets the requirements of section 6.80.

(3) If an employer authorizes a worker to enter a treated area during an emergency before the restricted entry interval expires, the employer must ensure all of the following:

(a) that the requirements of subsection (2)(b) to (f) are met;

(b) that emergency washing facilities as required under section 5.85 are available.

Purpose of guideline

The purpose of this guideline is to set out the competencies of the qualified person who will perform the hazard assessment under section 6.90 of the *Regulation* when the employer authorizes a worker to enter a treated area.

Restricted entry interval (REI)

Section 6.89(2) of the *Regulation* prescribes the REIs for pesticides. A "restricted entry interval," as defined in section 6.70 of the *Regulation*, is the length of time representing a period of precaution that must elapse after the application of a pesticide, before an unprotected worker may be authorized to enter the treated area. The intent of an REI is to define a period of time after a pesticide has been applied during which restrictions on entry are in effect, to protect workers from potential exposure to hazardous levels of pesticide residue and vapours. However, entry into treated areas is permitted in certain situations and may be necessary under special circumstances as long as all of the requirements of section 6.90 of the *Regulation* have been met.

Qualified person under sections 6.90(2)(b) and (c)(iii)

Under sections 6.90(2)(b) and (c) of the *Regulation*, entry into treated areas requires that the hazards to workers have been assessed by a qualified person, and the ventilated treated area has been evaluated by a qualified person.

In order to be considered *qualified*, a person must be knowledgeable of the work, the hazards involved, and the means to control the hazards by reason of education, training, experience, or a combination thereof, as defined in section 1.1 of the *Regulation*. The qualified person who assesses the hazards under section 6.90(3)(b) and evaluates the treated area after ventilation under 6.90(2)(c) of the *Regulation* will need to be able to read, understand, and implement all information and instructions provided on the pesticide label. This includes the hazards involved with entering the area where the pesticide has been applied, first aid, required personal protective equipment (PPE), and re-entry procedures. A person with a valid pesticide applicator certificate will typically meet this requirement.

G6.91 Exemptions

Issued August 1999; Retired consequential to September 1, 2021 Regulatory Amendment

G6.95 Personal hygiene — Wash and shower facilities

Issued August 1999; Revised February 11, 2004

Section 6.95 of the *OHS Regulation* ("*Regulation*") requires the employer to supply and maintain adequate wash facilities. This section applies to all workers who

- mix, load or apply pesticides,
- handle concentrates or wet-treated lumber,
- clean, maintain or handle equipment, materials or surfaces contaminated with pesticide residues, or
- enter fields where pesticides have been applied and where contact with pesticide residues may contaminate protective clothing and body areas.

If there is the risk of body contamination, shower facilities must be provided in accordance with [section 5.82](#) of the *Regulation*. Heated shower facilities are required under section 5.82(2) if the work process is "high hazard". The following may be helpful in determining whether an operation involving pesticides is high hazard, and, therefore, whether heated shower facilities need to be considered.

- **Mixers and loaders** are at risk of contacting a pesticide through spills or splashing and through contact with contaminated equipment. The hazard of being splashed with a pesticide is higher during open mixing. The potential for skin contact increases with pesticide formulations that use emulsifiable concentrates and wettable powders.
- **Applicators** are at risk of contacting a pesticide as it is being sprayed and while the pesticide remains airborne. Spray pressures in excess of 200–275 kPa (30 psi) for herbicides and 500–2100 kPa (75–300 psi) for insecticides and fungicides generate fine spray particles that remain airborne for long periods and increase the potential for skin contact. Body areas may also become contaminated with pesticide through contact with surfaces of equipment and plants.
- Body contact with pesticides by applicators may increase during application in poorly ventilated enclosures. Depending on the application,

inadequate ventilation may exist when cross-sectional velocity is less than

- 15.24 metres/min (50 feet/minute) outdoors,
- 30.48 metres/min (100 feet/minute) through an area of less than 14 square metres (150 square feet), or
- 15.24 metres/min (50 feet/minute) through an area of greater than 14 square metres (150 square feet).

High hazard activities include:

- **Any mixing (open or closed) or applying of pesticides that can be absorbed through the skin.** (Substances that can contribute to exposure by skin absorption are identified in the Table of Exposure Limits for Chemical and Biological Substances with the designation "SKIN". Refer to OHS Guideline [G5.48-2](#) for the table and to [G5.52](#) for further information on the "SKIN" notation.) This may include any work involving organophosphorus, carbamate, dithiocarbamate, organochlorine, and nitrophenol pesticides.
- **Any open mixing or applying in an enclosure of pesticides that can irritate the skin.** This includes phenoxy, benzonitrile, bipyridine, organonitrogen and inorganic pesticides and fumigants.
- **Any open mixing or applying in an enclosure of corrosive pesticides.**

Because a worker's eyes or skin may be exposed to harmful or corrosive materials or other materials which may burn or irritate, the employer must also consider the requirements for emergency washing facilities provided under sections [5.85 to 5.96](#) of the *Regulation*. Further information on these requirements is found in the operating instructions on emergency washing facilities.

G6.96 Worker cleanup

Issued August 1999; Editorial Revision April 6, 2020

Section 6.96 of the *OHS Regulation* ("*Regulation*") requires that a worker immediately cleanse any body area contaminated with pesticide.

To evaluate compliance with this requirement, consider whether the employer

- has fulfilled the responsibility to adequately train and instruct workers in the required procedures (The development and implementation of safe work procedures is required under [section 6.78](#) of the *Regulation*. Training and instruction of workers is required under [section 21](#) of the *Workers Compensation Act.*),
- provided an acceptable level of supervision to ensure that established safe work procedures are followed, and
- used disciplinary action to further discourage the use of unacceptable work procedures, where necessary.

To determine if the employer has met his responsibilities for training, ask the worker the following questions:

- Do you work with pesticides?
- What precautions are required to prevent or minimize exposure?
- What do you do to remove pesticides from your skin or clothing?
- Where are the wash and/or shower facilities?
- Are there any consequences of not following safe work procedures or of not cleansing any body area contaminated with pesticide?

G6.103 Antisapstain applications — Substitution

Issued August 1999

Section 6.103 of the *OHS Regulation* requires an employer investigate antisapstain materials and, wherever practicable, substitute an alternative material for a material in use, if the hazards of the substitute are known and the risk to the workers is reduced.

Refer to [OHS Guideline G5.55](#) for a list of factors that should be considered when selecting a suitable substitute. For pesticides, a suitable substitute may have one or more of the following characteristics: low toxicity, low vapor pressure of the active ingredient or diluent, water-based or chlorinated (as opposed to a volatile organic) diluent, is pre-mixed and requires no preparation, and/or does not persist in the environment.

To demonstrate compliance with this requirement, the employer should

- provide documentation indicating whether or not substitutes are available,
- specify the criteria used to identify a suitable antisapstain agent, and
- specify why a substitute is not suitable for their application purposes.

Guidelines - Part 6 - Respirable Crystalline Silica and Rock Dust

G6.111 Control of rock dust

Issued August 1, 1999; Revised February 11, 2004; Retired consequential to May 1, 2017 Regulatory Amendment

G6.112.4(2) Exception to monitoring requirements - Objective air monitoring data, the silica control tool, and associated record-keeping

Issued consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.112.4 of the *OHS Regulation* ("Regulation") states, in part:

- (2) Despite section 6.112.3, an employer is not required to monitor the exposure of workers to RCS dust if a qualified person determines that
 - (a) existing control measures are effective in keeping worker exposure as low as reasonably achievable below the exposure limit, and
 - (b) the employer
 - (i) has previously monitored for RCS dust exposure during equivalent work operations and there is no reason to believe that the results of the previous monitoring would not continue to apply, or
 - (ii) has objective air monitoring data that was collected during equivalent work operations through industry surveys or peer-reviewed or scientific studies that use sampling and analytical methods referred to in section 6.112.3(2).
- (3) An employer must keep, for at least 10 years, a record documenting the following, as applicable:
 - (a) the previous monitoring data used for the purpose of subsection (2)(b)(i);
 - (b) the source of the objective air monitoring data, and the data itself, referred to in subsection (2)(b)(ii).

Purpose of guideline

This guideline provides an example of how to comply with the requirement to rely on objective air monitoring data for silica levels, and for retention of the associated records.

Objective monitoring data

Section 6.112.4(2)(b)(ii) describes an exception to the requirement for an employer to perform workplace air monitoring if a qualified person has determined that the employer's work operations have objective air monitoring data. The data must have been collected as follows:

- During equivalent work operations through industry surveys or peer-reviewed or scientific studies
- Using sampling and analytical methods referred to in section 6.112.3(2)

Equivalent work operations are activities that closely match the silica processes, types of materials, work practices, control measures, and environmental conditions that are present in the employer's current work operations.

The BC Construction Safety Alliance has developed an [online silica control tool](#). The tool relies on scientific studies and research data collected from many jurisdictions around the world by the UBC School of Population and Public Health at the Faculty of Medicine.

If a qualified person verifies that the employer's work operations and activities are equivalent to those described in the silica control tool, then the employer will have relied on appropriate objective monitoring data and will be in compliance with the intent of section 6.112.3.

In order for section 6.112.4(2) to be satisfied, a qualified person must have also determined that the control measures are effective in keeping worker exposures as low as reasonably achievable below the exposure limit. If the risk assessment and the exposure control plan are properly completed by a qualified person, this requirement for effectiveness will be satisfied.

Employers are not required to follow the example of compliance described in this guideline. An employer can choose to perform air monitoring as per section 6.112.3 or can rely on previous monitoring under section 6.112.4(2)(b)(i).

Record keeping

Section 6.112.4(3)(b) of the *Regulation* specifies that the source of the objective exposure monitoring data, and the data itself, be kept for at least ten years. When an employer appropriately uses the online silica control tool published by the BC Construction Safety Alliance, the employer should retain the created exposure control plan summary for ten years. This will satisfy the employer's obligation under section 6.112.4(3)(b).

Note that there are further requirements for an exposure control plan prescribed in section 6.112.1 of the *Regulation*. This guideline focuses on the use and retention of objective monitoring data.

G6.113 Rock drills

Issued August 1, 1999; Revised February 11, 2004; Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 6.113 of the *OHS Regulation* ("Regulation") states:

- A rock drill, other than a manually-powered rock drill, must be equipped with a dust suppression system, acceptable to the Board, that
- (a) uses water jet, spray, or other equally effective means to suppress drilling dust effectively, and

(b) operates whenever the drill is in use.

Purpose of guideline

This guideline describes how an employer can check for compliance.

Dust suppression

Under section 6.113 of the *Regulation*, rock drills must be equipped with a dust suppression system that is acceptable to WorkSafeBC. This requirement for a dust suppression system does not apply to manually powered rock drills.

To determine if an effective dust suppression system is available, the employer should consult with an equipment supplier. A system will be considered to be "effective" if it maintains dust levels at or below the exposure limits listed in the Table of Exposure Limits for Chemical and Biological Substances (see OHS Guideline [G5.48-2](#)).

Personal exposure monitoring may be required to ensure that worker exposure to designated substances (e.g., crystalline silica) is maintained as low as reasonably achievable below the exposure limit.

Guidelines - Part 6 - Toxic Process Gases

G6.116-1 Definition of "enclosure"

Issued August 1, 1999; Editorial Revision May 2005

Section 6.116 of the *OHS Regulation* ("*Regulation*") defines enclosure to mean "a room, cabinet or separation designed to contain equipment, machinery and vessels and to isolate accidental releases of toxic gas." This definition is distinct from that of "confined space," which is provided in [section 9.1](#) of the *Regulation*. The requirements for enclosures are found under [section 6.122](#) of the *Regulation*. See OHS Guideline G6.122.

G6.116-2 Definition of "toxic process gas"

Issued May 25, 2005; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 6.116 of the *OHS Regulation* ("*Regulation*") states, in part:

"toxic process gas" means a gas which

(a) meets the HPR Health Hazard Class - Acute Toxicity, Categories 1, 2 and 3 or the categories set out in the following table:

HPR Health Hazard Classes	Hazard categories						
		1A	1B	1C	2		
Skin corrosion/irritation		1A	1B	1C	2		
Serious eye damage/irritation	1					2A	2B
Respiratory or skin sensitization		1A	1B				
Mutagenicity		1A	1B		2		
Carcinogenicity		1A	1B		2		
Reproductive toxicity		1A	1B		2		
Specific organ toxicity (repeated exposure)	1				2		

and

(b) is used for purposes of

- (i) an industrial process in which a precursor is changed into a product,
- (ii) refrigeration by means of a piped installation, or
- (iii) treatment of materials, for example, in a disinfection system.

Purpose of this guideline

This guideline is intended to clarify the application of the definition of "toxic process gas."

Basic explanation of the definition of toxic process gas

To be considered a toxic process gas in Part 6 of the *Regulation*, the gas and the nature of its use must meet the criteria in paragraphs (a) and (b)

of the definition.

Paragraph (a) refers to the gas meeting certain WHMIS toxicity criteria. To be considered a toxic process gas, the gas must also be used in a manner described in paragraph (b) of the definition. Ammonia used in refrigeration systems; chlorine, ethylene oxide, or ozone used in disinfection systems; and chlorine dioxide in pulping systems are examples of toxic process gases.

G6.118 Risk assessment

Issued August 1999

Section 6.118 of the *OHS Regulation* requires a risk assessment for toxic process gases. The general factors that must be considered when performing a risk assessment are provided in OHS Guideline [G5.54-3](#).

G6.122-2 Exhaust ventilation

Issued August 1999

Section 6.122(b) of the *OHS Regulation* ("*Regulation*") requires that an enclosure be provided with exhaust ventilation to ensure an effective inward flow of air at all times. In the context of this section, "at all times" means at all times that the system is in normal operation. However, the system must be designed to exhaust discharging toxic process gases directly to the outdoors in a safe manner. See section [6.124](#) of the *Regulation* and OHS Guideline [G6.124](#).

It is not necessary for employers to install high volume ventilation systems to comply with this section. So long as the system maintains adequate negative pressure, the employer will be in compliance. Officers can use smoke tubes to evaluate whether the system is under negative pressure. The requirements for ventilation systems are provided in section [6.124](#) of the *Regulation*. Refer to the standard practice manual for the toxic process gas of interest, including ammonia, ozone and ethylene oxide.

G6.122-3 Access and egress

Issued August 1999

The enclosure must be provided with a safe means of entry and exit, in accordance with section 6.122(c) of the *OHS Regulation*. Depending on the size of the enclosure, it may be necessary to have more than one door. Building design criteria, including the required number of doors, are listed in Standard Practice Manuals, published by WorkSafeBC. Refer to the standard practice manual for the toxic process gas of interest, including ammonia, ozone and ethylene oxide.

G6.122-4 Authorized personnel

Issued August 1999

Section 6.122(d) requires the employer designate the enclosure as a restricted work area, with entry limited to authorized personnel. In the context of this section, "authorized personnel" are workers who are qualified to perform the work, have been designated by the employer as being permitted to do so, and are required to be present within the designated work area(s).

G6.123 Testing

Issued August 1999

Before authorized workers are permitted to enter an enclosure, they must be provided with a safe means to check and test conditions inside an enclosure, in accordance with section [6.123](#) of the *OHS Regulation*. For the definition of "authorized workers," refer to OHS Guideline [G6.122-4](#).

Section 6.128(1) requires the employer to install continuous monitoring systems that "...effectively determine work conditions within the restricted access area," where practicable.

G6.124 Ventilation

Issued August 1999

Section 6.124(a) of the *OHS Regulation* ("*Regulation*") requires the employer ensure that "ventilation systems are designed to exhaust toxic process gases directly to the outdoors in a safe manner." Care must be taken to avoid discharging toxic process gases into adjacent occupied areas such as work areas, evacuation routes, schools, private homes, or shopping areas. The risk assessment conducted under section 6.118 of the *Regulation* may help to identify the most appropriate location for putting the discharge.

When evaluating compliance with this section, the following factors should be considered:

- whether the ductwork is under negative pressure (to prevent leaks),

- the location of the exhaust fan and stack heights,
- the proximity of the system to heating, ventilation and air conditioning intakes, and
- the potential for other occupied areas to be contaminated by the discharge.

The requirements of sections [5.60 to 5.71](#) of the *Regulation* for industrial ventilation also apply. Contaminated exhaust air discharged to the outdoor air is subject to the requirements of the BC Ministry of Environment, Lands and Parks. Ambient air quality standards are to be considered when determining the applicable limit that will be applied to the discharge air stream. For a summary of federal and provincial ambient air standards, refer to OHS Guideline [G5.70](#). For additional information, contact the appropriate authority in your region. For assistance, contact the BC Ministry of Environment. In the Lower Mainland, contact the Pollution Prevention, Industrial & Air Discharge Section; outside the Lower Mainland, contact the Environmental Protection Branch.

G6.127 Personal protective equipment

Issued August 1999

Section 6.127(3) of the *OHS Regulation* states:

A worker entering a restricted access enclosure must wear or carry an escape respirator.

The requirements for emergency escape respirators are provided in section [8.36](#) of the *Regulation*.

[Section 6.120\(1\)](#) of the *Regulation* requires that the employer prepare written work procedures. These work procedures should identify those circumstances where a worker will require an escape respirator as a condition of entry to the enclosure. Under [section 6.128](#), the employer must install continuous monitoring systems, where practicable. Workers can assure that it is safe to enter a restricted access enclosure by reading the monitor. The requirements for testing an enclosure are provided under [section 6.123](#).

Under [section 6.122\(d\)](#), only authorized personnel can enter a restricted access enclosure. Refer to OHS Guideline [G6.122-4](#) for discussion of "authorized personnel".

Contents

DIVISION 1 - NOISE EXPOSURE

- G7.2 [Exposure limits](#) [retired]
- G7.3-1 [Noise measurement - when required and performance](#) [retired]
- G7.3-2 [Noise exposure data collected by prevention officers](#) [retired]
- G7.4 [Exemption](#) [retired]
- G7.5-1 [Program - education and training](#) [retired]
- G7.5-2 [Annual program review](#) [retired]
- G7.6-1 [Investigating controls](#) [retired]
- G7.6-2 [Implementing controls](#) [retired]
- G7.7-1 [Selection of hearing protection](#) [retired]
- G7.7-2 [Warning signs and hearing protection](#) [retired]
- G7.7(1)(c) [Hearing protection](#)
- G7.8-1 [Annual hearing tests](#)
- G7.8-2 [Authorized hearing testers](#)
- G7.8-3 [Hearing test results](#)
- G7.8-4 [Construction industry](#)
- G7.9 [Test records](#)

DIVISION 2 - VIBRATION EXPOSURE

- G7.11-1 [Exposure limits - Hand-arm vibration](#)
- G7.11-2 [Exposure limits - Whole-body vibration](#)
- G7.12 [Evaluation](#)
- G7.13 [Exposure control plan](#)
- G7.14 [Information on adverse effects](#)
- G7.15 [Labels](#)
- G7.16 [Exposure to cold](#)

DIVISION 3 - RADIATION EXPOSURE

- G7.17 [Definitions - Calculation of the equivalent dose and the effective dose](#)
- G7.18 [Application for ionizing and non-ionizing radiation - Agencies having jurisdiction](#)
- G7.19-1 [Exposure to ionizing radiation - Exposure limits and exposure period](#)
- G7.19-2 [Notification of worker overexposure to ionizing radiation](#)

[G7.19\(4\)-1 Exposure to non-ionizing radiation - Radiofrequency](#)
[G7.19\(4\)-2 Exposure to non-ionizing radiation - Lasers](#)
[G7.19\(5\) Exposure to non-ionizing radiation - Ultraviolet radiation](#)
[G7.20\(1\)-1 Exposure control plan - General requirements](#)
[G7.20\(1\)-2 Exposure control plan - Control measures](#)
[G7.20\(1\)-3 Exposure control plan - Personal protective equipment](#)
[G7.20\(1\)-4 Exposure control plan - Education and training](#)
[G7.20\(2\) Exposure control plan - Posting of instructions](#)
[G7.21 Reproductive Hazards](#)
[G7.22 Monitoring exposure](#)
[G7.23 Acceptable standards](#)
[G7.23\(a\)\(i\) and \(vi\) Radiation protection in radiology - Large facilities](#)
[G7.24 Radiation surveys](#)
[G7.24\(a\) Radiation surveys - Clarification of how often to conduct and who can conduct](#)
[G7.25 Records](#)

DIVISION 4 - THERMAL EXPOSURE

Heat Exposure

[G7.27\(1\) Heat exposure - Application](#)
[G7.27\(2\) Firefighting](#)
[G7.28\(1\) Exposure limits - Using the ACGIH Standard](#)
[G7.28\(2\) Clothing correction values](#)
[G7.29-1 Heat stress assessment](#)
[G7.29-2 Environmental parameters](#)
[G7.29-3 Physiological measures](#)
[G7.29-4 Heat stress assessment using a dry bulb thermometer or Humidex index](#)
[G7.29-5 Exposure control plan](#)
[G7.30-1 Engineering controls](#)
[G7.30-2 Administrative controls](#)
[G7.30-3 Personal protective equipment](#)

Cold Exposure

[G7.33-1 Cold exposure - Application](#)
[G7.33-2 Cooling power of wind \(imperial units\)](#)
[G7.33-3 Cooling power of wind \(metric units\)](#)
[G7.34-1 Cold stress assessment](#)
[G7.34-2 Conversion](#)
[G7.34-3 Exposure control plan](#)
[G7.35-1 Engineering controls](#)
[G7.35-2 Administrative controls](#)
[G7.35-3 Work/warm-up schedule for a 4-hour shift](#)
[G7.35-4 Personal protective equipment](#)
[G7.36 Heated shelters](#)
[G7.37-1 Clothing \(whole body\)](#)
[G7.37-2 Clothing \(extremities\)](#)

Guidelines - Part 7 - Division 1 - Noise Exposure

G7.2 Exposure limits

Issued August 1999; Revised January 1, 2005; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.3-1 Noise measurement - When required and performance

Issued August 1999; Revised January 1, 2005; Revised April 4, 2007; Editorial Revision June 6, 2007; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.3-2 Noise exposure data collected by prevention officers

Issued August 1999; Revised January 1, 2005; Editorial Revision February 6, 2006; Retired November 29, 2021

This guideline has been retired as it contained outdated or redundant material.

G7.4 Exemption

Issued August 1999; Revised January 1, 2005; Editorial Revision October 2005; Editorial Revision February 6, 2006; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.5-1 Program - Education and training

Issued January 1, 2005; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.5-2 Annual program review

Issued August 1999; Revised January 1, 2005; Editorial Revision October 2005; Editorial Revision February 6, 2006; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.6-1 Investigating controls

Issued August 1999; Revised January 1, 2005; Revised January 1, 2005; Editorial Revision October 2005; Editorial Revision February 6, 2006; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.6-2 Implementing controls

Issued August 1999; Revised January 1, 2005; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.7-1 Selection of hearing protection

Issued August 1999; Revised January 1, 2005; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.7-2 Warning signs and hearing protection

Issued August 1999; Revised January 1, 2005; Retired April 9, 2019

This guideline is being retired due to duplication of resources available to employers through www.worksafebc.com.

G7.7(1)(e) Hearing protection

Issued June 3, 2019

Regulatory excerpt

Section 7.7(1)(c) of the *OHS Regulation ("Regulation")* states:

(c) give to affected workers hearing protection that meets the requirements of *CSA Standard Z94.2-02, Hearing Protection Devices - Performance, Selection, Care, and Use*, as amended from time to time, except as otherwise determined by the Board, and maintain the hearing protection so that it continues to meet those standards, and

Section 4.4(2) of the *Regulation*:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

The purpose of this guideline is to specify, for the purpose of section 7.7(1)(c) an alternate standard acceptable to WorkSafeBC for hearing

protection devices.

Acceptable standard

Section 4.4(2) permits WorkSafeBC to accept another standard as an alternative to one referred to in the *Regulation*. WorkSafeBC has determined that the [CSA Standard Z94.2-14, Hearing Protection Devices - Performance, Selection, Care, and Use](#), is an acceptable alternative to the standard listed in section 7.7(1)(c).

G7.8-1 Annual hearing tests

Issued August 1999; Revised January 1, 2005; Editorial Revision April 4, 2007; Editorial Revision April 9, 2019

Regulatory excerpt

Section 7.8(1) of the *OHS Regulation* ("*Regulation*") states:

The employer must give workers who are exposed to noise that exceeds noise exposure limits

(a) an initial hearing test as soon as practicable after employment starts, but not later than 6 months after the start of employment, and

(b) a test at least once every 12 months after the initial test.

Purpose of guideline

The purpose of this guideline is to describe the application of section 7.8(1) of the *Regulation* to industries in which workers may not be employed continuously for more than six months.

Background

There are a number of industries where noise levels are known to exceed the exposure limits in [section 7.2](#) of the *Regulation* and in which workers may not be employed continuously for more than six months; however, workers are usually employed in these industries for many months each year. Examples of such industries are fish processing, shipbuilding, logging, construction, and oil and gas.

Level of risk

Some industries, such as agriculture, involve workforces that are a mix of established and seasonal workers, who may be exposed to a range of noise levels. Typically, fieldworkers who do not operate or consistently work near equipment with high noise levels, will be exposed to low noise levels and would not need to be tested. Persons most at risk would likely include those farmers, ranchers, and workers who operate equipment with high noise levels, and those who work in some indoor operations involving raising of animals or fowl.

Program options for testing workers

Section 7.8(1) of the *Regulation* establishes an obligation to test any new worker who is exposed above the noise exposure limits, not just those workers who stay for six months with the employer. If the employment lasts less than six months, the test should be done within that timeframe or period. In this context, the employer should have a reasonably effective program for testing workers. Two common ways of doing this are as follows:

- Arrange for a hearing testing provider to visit the place of workplace
- Set up an in-house testing program

With regard to the first option, the visits may be at regular intervals selected by the employer, such as every three months. Alternatively, the employer might arrange the visits for a convenient time in a project, such as before workers leave town to go to a remote area. In either case, if the employer sets up a reasonable program, WorkSafeBC will not be concerned if some workers missed the testing because they started work just after, or finished employment just before, a testing provider arrived.

In some situations, for example in rural agricultural operations, options other than the two listed above may be appropriate. For example, workers may be sent to a testing facility where available in a nearby town; or workers from a number of farms or ranches may be tested at a location common to them, or at another workplace in the area with an in-house testing program.

Out-of-province employers

A similar issue arises for out-of-province employers who operate in B.C. for short periods of time. If the workers are working in B.C. for a total of six months or more in a year, then hearing tests meeting the requirements of section 7.8 of the *Regulation* are required for those workers.

G7.8-2 Authorized hearing testers

Issued August 1999; Revised January 1, 2005; Editorial Revision April 9, 2019; Editorial Revision April 6, 2020

Regulatory excerpt

Section 7.8(2) of the *OHS Regulation* ("*Regulation*") states:

Hearing tests must be administered by a hearing tester authorized by the Board.

Purpose of guideline

The purpose of this guideline is to identify the facilities and industrial audiometric technicians who are authorized by WorkSafeBC as meeting minimum requirements for conducting hearing tests, and the employers' responsibilities around the maintenance of worker health records under this section.

Authorized testing facilities

A list of authorized hearing test providers is available on worksafebc.com.

Maintenance of medical history

The employer must not disclose or publish a worker's medical history information except as permitted by the Board, in accordance with section 53(1)(a) of the *Workers Compensation Act*. Section 53 states in part:

(1) A person must not disclose or publish the following information, except for the purpose of administering this Act and the regulations or as otherwise required by law:

(a) information obtained in a medical examination, test or X-ray of a worker made or taken under the OHS provisions, Part 7 [Appeals to Appeal Tribunal] or the regulations, unless the worker consents or the information is disclosed in a form calculated to prevent the information from being identified with a particular person or case;

...

An employer should also not retain a copy of a worker's medical history.

G7.8-3 Hearing test results

Issued August 1999; Revised January 1, 2005; Editorial Revision 2005; Editorial Revision February 6, 2006; Editorial Revision April 9, 2019

Regulatory excerpt

Section 7.8(3) of the *OHS Regulation* states:

The employer must ensure that the authorized hearing tester sends the test results to the Board.

Purpose of guideline

The purpose of this guideline is to describe the process by which hearing tests can be submitted to WorkSafeBC and accessed by employers.

Accessing hearing tests

Authorized testers are required to submit the hearing tests to WorkSafeBC in the manner prescribed by WorkSafeBC. WorkSafeBC maintains a database of hearing tests. Employers are able to access these test results and reports through the [employer portal](http://worksafebc.com) on worksafebc.com. It is expected that the employers will use this report to determine the rate and extent of occupational hearing loss in their workers when reviewing the hearing conservation program on an annual basis.

G7.8-4 Construction industry

Issued August 1999; Revised January 1, 2005; Editorial Revision April 9, 2019; Editorial Revision April 6, 2020

Regulatory excerpt

Section 7.8 of the *OHS Regulation* ("Regulation") states:

(1) The employer must give workers who are exposed to noise that exceeds noise exposure limits

(a) an initial hearing test as soon as practicable after employment starts, but not later than 6 months after the start of employment, and

(b) a test at least once every 12 months after the initial test.

(2) Hearing tests must be administered by a hearing tester authorized by the Board.

(3) The employer must ensure that the authorized hearing tester sends the test results to the Board.

Purpose of guideline

The purpose of this guideline is to describe the application of hearing test programs in the construction industry.

Hearing test programs in the construction industry

In October 1987, an agreement was established between WorkSafeBC and the construction industry (joint worker/employer representation through the BC Construction Association) that workers employed in some construction industry classifications are routinely exposed to noise in excess of the exposure limits. The agreement applies to the classification units (CUs) beginning with 72.

A worker in a 72 CU should normally be part of a hearing test program meeting the requirements of section 7.8 of the *Regulation*. If any worker in a 72 CU is not part of a hearing test program, orders may be written on the employer without measuring noise exposure of the worker. There is

an extensive noise database documenting exposures for these occupations; the database was established in the mid-1980s and updated in the late 1990s. However, the WorkSafeBC prevention officer will consider any evidence presented by the employer showing that a particular worker need not be on a hearing test program.

Payment for a construction worker's hearing tests

To assist construction industry employers in the above CUs to comply with the hearing test program requirements, WorkSafeBC has established the following:

- A central registry of hearing test results
- A card validation system so each construction workers can show when their hearing was tested
- A program to pay an authorized hearing test agency a fee per hearing test performed

WorkSafeBC sets the fee paid to the hearing test agency for each test. The funding for this program is collected from the construction industry as a whole by charging an additional assessment to the CUs referred to above. This is pursuant to section 107 of the *Workers Compensation Act*, which provides that WorkSafeBC may charge a class or subclass with the cost of investigations, inspections, and other services provided to the class or subclass for the prevention of injuries and illness.

An employer in one of the above CUs may comply with the requirements of section 7.8 of the *Regulation* without using the WorkSafeBC-administered program if the employer wishes. However, employers who participate in and comply with WorkSafeBC's program are exempt from the obligation to conduct noise exposure measurement under section 7.4 of the *Regulation*.

G7.9 Test records

Issued August 1999; Revised January 1, 2005; Editorial Revision October 2005; Editorial Revision February 6, 2006; Editorial Revision April 9, 2019

Regulatory excerpt

Section 7.9 of the *OHS Regulation* ("*Regulation*") states:

The employer must keep records of

- (a) the annual hearing test results for each worker, which must
 - (i) be kept as long as the worker is employed by the employer, and
 - (ii) be kept confidential and not released to anyone without the written permission of the worker, or as otherwise required by law,
- (b) the education and training provided to workers, and
- (c) the results of noise exposure measurements taken under section 7.3.

Purpose of guideline

The purpose of this guideline is to describe how employers should maintain and access hearing test records for their employees.

Hearing test records

The employer does not have to maintain the original hard-copy hearing test results, but must have access to them. Employers can access hearing test results online through the [employer portal](#) on worksafebc.com, or may choose to have the hearing testing business that conducted the tests maintain the hearing test records on behalf of the employer. Such arrangements should be set out in a written agreement and must be in accordance with *Freedom of Information and Protection of Privacy Act* requirements.

A prevention officer may ask for other evidence of compliance with [section 7.8](#) of the *Regulation* (provision of annual hearing tests to noise exposed workers) such as a copy of the report from worksafebc.com. The report includes a list of all workers and a statistical breakdown of tests into various categories.

On construction sites, noise exposed workers should carry a current Record of Hearing Test card validating that they have been tested. The worker may be asked by a prevention officer to show the test record card.

A prevention officer may ask the employer to obtain actual copies of hearing tests from the hearing test provider if the prevention officer feels this is necessary to verify compliance. The provider should provide these to the employer on request.

Guidelines - Part 7 - Division 2 - Vibration Exposure

G7.11-1 Exposure limits - Hand-arm vibration

Issued August 1999; Revised January 1, 2005; Revised October 30, 2018

Regulatory excerpt

Section 7.11(a) of the *OHS Regulation* states:

The employer must ensure, to the extent practicable, that workers are not exposed to vibration in excess of the limits specified in

(a) for hand-arm vibration, the American Conference of Governmental Industrial Hygienists publication entitled *Threshold Limit Values and Biological Exposure Indices*, dated 2003, as amended from time to time;

...

except as otherwise determined by the Board

Purpose of guideline

The purpose of this guideline is to outline the exposure limits for hand-arm vibration ("HAV") mentioned in section 7.11(a) as prescribed in the latest edition of the American Conference of Governmental Industrial Hygienists' publication entitled *Threshold Limit Values and Biological Exposure Indices*.

Potential health effects of hand-arm vibration

It is recognized that exposure to vibration may lead to Hand-Arm Vibration Syndrome, a set of upper extremity disorders that include vascular, sensorineural, and musculoskeletal signs and symptoms. Vibration induced health effects could occur both with acute exposures and chronic exposures over time. Some of the signs and symptoms of vibration exposures are tingling, numbness, pain, and reduced sensory perception and dexterity in the hand. Sources of exposure to HAV are commonly associated with rotating or percussive hand-held power tools, vibrating workpieces, and hand-held vibrating controls.

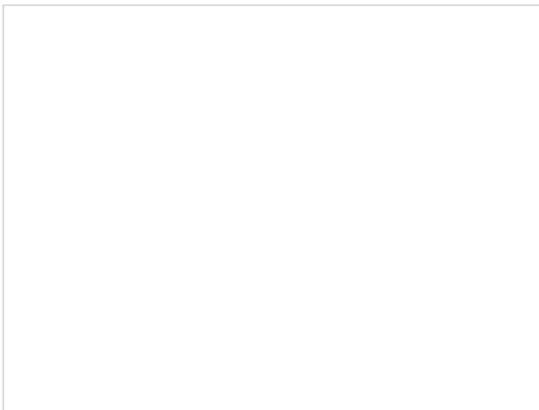
Hand-arm vibration exposure limit

The HAV exposure limit (8-hour energy equivalent total value) of 5 metres/sec² is expressed as an equation and in Figure 1 below. The ACGIH states that due to individual susceptibility, the exposure limit should not be regarded as defining a boundary between safe and unsafe exposure levels. The evaluation of vibration, including measurements, must be performed in accordance with the procedures and instructions specified by ISO 5349-1 and ISO 5349-2 as required by section 7.12 of the *Regulation*.

$$t_{exp} = 8h(5ms^{-2}/a)^2, \text{ where } a = \text{acceleration}$$

Using the equation, the table below provides some examples of HAV exposure limits for different exposure durations, as reflected in Figure 1 below.

Exposure Duration (in hours)	HAV Exposure Limits in metres per second squared (m/s ²)
8	5
6	5.8
4	7.1
2	10
1	14.1
0.5	20



Source: ACGIH

For more information about evaluating HAV exposures, refer to the OHS Guideline [G7.12, Evaluation](#).

The *Regulation* recognizes, in the phrase "to the extent practicable" in section 7.11, that there are circumstances with which the exposure limit cannot be fully complied. In such circumstances, section 7.11 requires the employer to reduce the exposure to the lowest extent using all practicable means currently available, even if the exposure limit cannot be achieved. Employers will be considered to have complied with section 7.11(a) if they can demonstrate that they have developed and implemented an exposure control plan in accordance with sections 7.13 and 5.54.

Refer to the [OHS Guideline G7.13, Vibration exposure control obligations](#) for more information about developing and implementing an exposure control plan for the exposure to vibration.

G7.11-2 Exposure limits - Whole-body vibration

Issued August 1999; Revised January 1, 2005; Editorial Revision January 17, 2022

Regulatory excerpt

Section 7.11 of the *OHS Regulation* states, in part:

An employer must ensure, to the extent practicable, that workers are not exposed to vibration in excess of the limits specified in

(b) whole-body vibration, ANSI Standard S3.18-2002/ISO 2631-1-1997, Mechanical Vibration and Shock - Evaluation of Human Exposure to Whole Body Vibration - Part 1: General Requirements, as amended from time to time;

except as otherwise determined by the Board.

Purpose of guideline

The purpose of this guideline is to outline the exposure limits for whole-body vibration mentioned in section 7.11(b) of the *Regulation*, and specified in ANSI Standard S3.18-2002/ISO 2631-1-1997.

Whole-body vibration exposure limits

With respect to section 7.11(b), Annex B of *ANSI S3.18-2002/ISO 2631-1-1997, Mechanical Vibration and Shock - Evaluation of Human Exposure to Whole-Body Vibration - Part 1: General Requirements*, addresses the health effects of vibration on the human body and defines a "health caution guidance zone" for daily exposures of 4 to 8 hours, as follows:

- **In the zone** - caution is indicated with respect to potential risks for adverse health effects
- **Above the zone** - adverse health risks are likely
- **Below the zone** - adverse health effects have not been clearly documented and/or objectively observed

Whole-body vibration exposure limits in x, y, or z directions

Daily Exposure Duration	Values of the dominant, frequency-weighted (rms), component acceleration, ms ⁻²		
	No clear effects	Caution	Health risks likely
4 hours	Less than 0.6	0.6 to 1.1	Greater than 1.1
8 hours	Less than 0.5	0.5 to 0.9	Greater than 0.9

(rms = root mean square, ms⁻² = metres per second squared)

The *OHS Regulation* recognizes, in the phrase "to the extent practicable" in section 7.11, that circumstances may arise in which the exposure limit cannot be fully complied with. In such circumstances, section 7.11 requires the employer to reduce the exposure using all practicable means currently available (refer to [OHS Guideline G7.13](#) for information about developing and implementing an exposure control plan), even if the exposure limit cannot be achieved.

Assessment of whole-body vibration

Employers will be considered to have complied with section 7.11(b) if they can demonstrate that they have carried out an assessment of the risk of whole-body vibration (WBV) by:

1. Establishing a competent estimate of worker exposure in comparison with the exposure limits by using:
 - Valid vibration databases and the technical or scientific literature
 - Vibration data provided by the equipment manufacturer
 - On-site vibration measurements made by a consultant, or competent person
 - Relevant data obtained through an industry association
 - Duration of daily vibration exposure
2. Identifying the main contributors to the worker's risk. This involves using the data collected in the estimate to rank-order the sources of WBV to which the worker is exposed.
3. Identifying and considering all available WBV risk controls. For example (refer to [OHS Guideline G7.13](#)):
 - Selecting new vibration mitigating equipment (e.g., suspended cabs and suspended seats)
 - Investigating alternative ways of working that reduce the magnitude of WBV exposure
 - Ensuring workers always use equipment appropriately
 - Ensuring surfaces on which vehicles operate are regularly graded and free of irregularities (potholes, bumps, etc.)
 - Ensuring the equipment is maintained in accordance with the manufacturer's technical specifications

- Minimising the worker's daily exposure time by spreading the job over more days and by the use of job rotation with other workers
4. Monitoring the effects of the implemented risk control measures, and adjusting control measures as necessary.
 5. Completing a written record of the above steps.

G7.12 Evaluation

Issued August 1999; Revised January 1, 2005; Revised October 30, 2018

Regulatory excerpt

Section 7.12 of the *OHS Regulation* states:

The evaluation of hand-arm vibration and whole-body vibration must be conducted by the employer in accordance with

(a) for hand-arm vibration, *ISO Standard 5349-1:2001, Mechanical Vibration - Measurement and Evaluation of Human Exposure to Hand-transmitted Vibration - Part 1: General Requirements* and *ISO Standard 5349-2:2001, Mechanical Vibration - Measurement and Evaluation of Human Exposure to Hand-transmitted Vibration - Part 2: Practical Guidance for Measurement at the Workplace*, as amended from time to time;

(b) for whole-body vibration, *ANSI Standard S3.18-2002/ISO 2631-1-1997, Mechanical Vibration and Shock - Evaluation of Human Exposure to the Whole Body Vibration - Part 1: General Requirements*, as amended from time to time;

except as otherwise determined by the Board.

Purpose of guideline

The exposure limits presented in OHS Guidelines G7.11-1 and G7.11-2 for hand-arm vibration (HAV) and whole-body vibration (WBV) acceleration limits are listed according to one or more axes. The reason for this is that the body's response to vibration depends on the direction along which vibration enters the body. For both HAV and WBV, three perpendicular "biodynamic" axes (the x-, y-, and z-axis) are defined. The directions of these axes are described as follows:

Axes of vibration

Axis	Hand-arm vibration (HAV)	Whole-body vibration (WBV)
x-axis	Through the hand, from top towards the palm	Through the body, from the back towards the chest
y-axis	From the right side to the left side, parallel to the knuckles	From the right side to the left side
z-axis	From the wrist through to fingers, parallel to top of the hand	From the feet (or buttocks) to the head

Usually acceleration is dominant along one axis; for whole-body vibration this is often the z-axis.

For the measurement of vibration (HAV and WBV), measured accelerations are frequency-weighted according to the frequency weightings defined in the latest ISO and ANSI standards. The frequency-weighted accelerations can then be compared with criterion values/exposure limits, which are also expressed in terms of frequency-weighted acceleration. (Refer to OHS Guidelines [G7.11-1](#) and [G7.11-2](#) for exposure limits for HAV and WBV, respectively.)

G7.13 Exposure control plan

Issued August 1999; Revised January 1, 2005; Editorial Revision April 27, 2010; Editorial Revision January 17, 2022

Regulatory excerpt

Section 7.13 of the *OHS Regulation* ("Regulation") states:

The employer must, if a worker is or may be exposed to vibration in excess of the vibration exposure limits, develop and implement an exposure control plan that meets the requirements of section 5.54(2).

Purpose of guideline

The purpose of this guideline is to provide guidance on evaluating the potential for vibration hazards as well as suggested options to control the risk of exposure to vibrations.

Vibration hazards

A basic element of an exposure control plan is to determine the severity of the exposure to the agent. Not all equipment presents a hazard from vibration. Examples of equipment that may present a hazard to workers from either hand-arm vibration or whole-body vibration are listed below.

Some equipment that may present a vibration hazard

Hand-arm vibration	Whole-body vibration
--------------------	----------------------

- Chainsaws, brush cutters, mowers
- Power saws for cutting metal, wood, and stone
- Percussive tools (such as air-driven drills, wrenches, chisels, hammers, pavement breakers, and riveters; or in swaging and flanging)
- Concrete vibrators
- Concrete surface preparation equipment
- Grinders, sanders, polishers, screwdrivers and other rotary tools
- Sand and aggregate compactors

- Log decks
- Operator cabs for heavy equipment commonly used in construction and forestry (e.g., construction and mine haul & logging trucks, skidders)
- Forklift trucks, dump trucks
- Tracked vehicles, excavators, bulldozers, backhoes, scrapers, graders, and front-end and log loaders
- Snow removal vehicles
- Farm tractors
- Helicopters

When there is a reasonable expectation that vibration presents a significant hazard, the exposure limits in section 7.11 of the *Regulation* should be considered in the purchase and design of new equipment. In determining whether an exposure control plan is required, the duration of daily exposure and the operating conditions should be taken into consideration, as well as any reports of injury and disease from workers using existing equipment. Equipment that is used less than 0.5 hour per day is not likely to present a significant long-term hazard from vibration, except for the most highly vibrating equipment. It is prudent to regard regular prolonged use of any high-vibration tool or machine as hazardous, especially if it causes tingling or numbness in the user's fingers after about 5 to 10 minutes of continuous operation.

Some useful references in assessing equipment for vibration are the following publications by the Health Safety Executive in the United Kingdom: [Hand-arm vibration. The Control of Vibration at Work Regulations 2005 \(L140\)](#) and [Vibration Solutions â€“ Practical Ways to Reduce the Risk of Hand-Arm Vibration Injury \(HSG170, 1997\)](#).

Evaluating equipment for potential for vibration

To evaluate the potential for vibration with respect to the exposure limits referred to in section 7.11, information on the vibration characteristics of the equipment or machinery is to be obtained. For example:

- *Obtaining information from the supplier of the equipment:* The employer should ask the following questions to obtain information from a supplier or designer:
 - Does the equipment meet the exposure limits in the referenced standards?
 - What is the frequency-weighted acceleration of the equipment?
 - Under what operating conditions were the measurements made?
 - Which published standard was used when conducting the evaluation?
- *Researching the relevant literature and available databases.*
- *Measuring frequency-weighted acceleration values of designed equipment or of equipment before purchase:* These determinations are to be conducted in accordance with a standard acceptable under [section 7.12](#) of the *OHS Regulation*.

Options for control measures

When considering how to reduce the risk, there's a certain order that should be followed. This is called the hierarchy of controls. It's important to start by considering eliminating the hazard, or finding substitutes to replace the hazard, before considering engineering and administrative controls or personal protective equipment.

Control measures to protect against hand-arm vibration (HAV) may include the following:

- Substitute a process which eliminates or reduces the need for vibrating tools.
- Replace an old tool with a new tool having lower vibration.
- Ensure the tool is properly maintained, serviced, and adjusted, and anti-vibration mounts and suspended handles are replaced before they deteriorate.
- Keep tools (e.g., chisels) sharpened.
- Fit grinders with effective, balanced, grinding discs properly centred on the arbour.
- Ensure rotary tools are dynamically balanced.
- Reduce vibration entering the hand by suspending the tool's weight on a balancer.
- Control the length of a worker's daily exposure by job rotation.
- Grip the tool handle with the least hand strength practicable.
- Cover handles with a resilient wrapping layer. Wrapping handles can offer thermal insulation as well as vibration isolation - especially for steel handles.
- Wear full-fingered, "antivibration" gloves meeting the requirements of *ISO Standard 10819-1996, Mechanical Vibration and Shock - Hand-Arm Vibration - Method for the Measurement and Evaluation of the Vibration Transmissibility of Gloves at the Palm of the Hand*.

Control measures to protect against whole-body vibration (WBV) include the following:

- Choose a suspended seat containing a vibration-damping mechanism.
- Choose a suspended seat adjustable for the worker's weight.

- Isolate booths, cabs, etc., by setting them on their own separate foundations.
- Dynamically balance vehicle wheels.
- Fit tires with a low vibration tread pattern.
- Fit vibration-damping mechanisms where possible.
- Maintain shock absorbers on vehicles.
- Regularly grade the surface over which vehicles operate.
- Reduce speed when moving over bumpy surfaces.
- Avoid sudden load changes (pick up, drop off).
- Avoid bumping into obstacles while driving.
- Train workers not to jump in order to exit equipment, particularly from an elevation, as the intervertebral discs may have been softened by the vibrating equipment; jumping can more easily cause shock and damage to the body.

G7.14 Information on adverse effects

Issued January 1, 2005

Regulatory excerpt

Section 7.14 of the *OHS Regulation* ("Regulation") states:

The employer must, if a worker is exposed to levels of vibration above the vibration exposure limits, inform the worker of the nature of the hazard and possible adverse effects.

Purpose of guideline

The purpose of this guideline is to provide background and educational information to enhance understanding of the hazard of vibrations and possible adverse effects.

Vibration hazards and adverse effects

Excessive exposure to hand-arm vibration (HAV) can cause vascular, neurological, and musculoskeletal damage to workers' fingers and hands. The symptoms of hand-arm vibration syndrome (HAVS) include circulatory pain (notably triggered by cold), loss of dexterity, and development of bone cysts and joint abnormalities. Workers may complain of episodes of pale, white fingers often triggered by exposure to cold. It is believed that vibration can adversely affect the blood circulation, making fingers sensitive to the vasoconstriction due to cold. Initially, only the tips of one or more fingers are "blanched," but more segments and fingers are affected with further vibration exposure.

Workers also may experience tingling or numbness in the fingers and hands. With continued exposure, the sensations worsen and can interfere with work and result in the loss of the normal sense of touch. Some vibration-exposed workers (rock drillers, forestry workers) may show signs of carpal tunnel syndrome (CTS) suggesting that vibration can combine with repetitive motion, forceful gripping, and awkward postures (all ergonomic stressors) to contribute to hand and wrist disorders.

Higher occurrences of osteoarthritis in the wrist and elbow have been observed in workers using hand-held, pneumatic percussive tools (miners, construction, metal workers). Workers may also complain of muscular weakness, pain in the hands and/or arms, and reduced grip strength. In some cases, muscle fatigue can cause disability. Other occupational disorders in vibration-exposed workers include tendonitis and tenosynovitis (inflammation of tendons and their sheaths) in the upper limbs.

Whole-body vibration (WBV) may be associated with an increased risk for low back pain, sciatic pain, and degenerative changes in the spinal column including lumbar intervertebral disc disorders.

For the vibration magnitudes in all but the most severe occupational situations, the adverse health conditions of WBV and HAV may not develop until there has been a prolonged period of time (measured in years) of regular daily exposure.

G7.15 Labels

Issued August 1999; Revised January 1, 2005

Regulatory excerpt

Section 7.15 of the *OHS Regulation* ("Regulation") states:

If the manufacturer of equipment that produces levels of vibration in excess of the vibration exposure limits does not label the equipment to identify the hazard, the employer is responsible for doing so.

Purpose of guideline

The purpose of this guideline is to provide information about complying with legal requirements.

Labelling equipment

Section 7.15 of the *Regulation* requires that equipment producing levels of vibration in excess of recommended limits be labelled to identify the hazard. Ideally, this label will be permanently affixed by the equipment manufacturer during assembly. In many cases, however, the manufacturer will not have permanently affixed a label identifying the hazard. In these cases, the employer is required to affix the label.

The intent of section 7.15 of the *OHS Regulation* is to have the employer contact the manufacturer or supplier to obtain a label if one has not already been provided. The intent of section 7.15 is not to require the employer to measure the vibration level of the equipment.

There is no required format for the label. Any means that effectively communicates the vibration hazard is acceptable. For example, the employer could use a symbol instead of words as long as workers are trained to know what the symbol means.

It will be difficult for an employer to securely apply a label to some small pieces of equipment. For example, an adhesive label applied to a chainsaw used in the woods will likely be damaged beyond legibility before long. In such cases, where a label will likely not stay intact on a piece of equipment, it is acceptable for an employer to keep the label in a location where it will not easily be damaged or destroyed. The label is to be kept near the equipment and be readily available to the worker. Acceptable locations include the equipment's storage case or an accompanying operations manual.

Where the label cannot be applied directly to the equipment, workers should receive instruction in the location of the label.

G7.16 Exposure to cold

Issued January 1, 2005

Regulatory excerpt

Section 7.16 of the *OHS Regulation* ("Regulation") states:

When a worker is exposed to hand-arm vibration, the employer, to the extent practicable, must ensure that the worker's hands or arms are not exposed to cold, either

- (a) from the environment in which the worker is working or as a result of using equipment, or
- (b) from coming into contact with cold objects.

Purpose of guideline

This guideline provides options for reducing worker exposure to cold when exposed to hand-arm vibration.

Hand-arm vibration syndrome

Hand-arm vibration can inflict vascular damage to workers' fingers - a condition known as hand-arm vibration syndrome (HAVS). To reduce the incidence of HAVS (and the onset of pain for workers who already have HAVS), workers using vibrating tools should keep their hands warm to improve circulation. Refer to OHS Guideline [G7.14](#) for further information about HAVS and exposure to cold.

The following examples are some ways for workers to keep their hands warm:

- Insulate handles of vibratory tools in cold environments.
- Redirect exhaust air from pneumatic tools away from the hands. Compressed air released from pneumatic tools' exhaust ports has a strong cooling effect as it expands to atmospheric pressure.
- Provide dry towels and a change of dry gloves for workers using vibratory tools when their hands may become wet from rain or perspiration.

Guidelines - Part 7 - Division 3 - Radiation Exposure

G7.17 Definitions - Calculation of the equivalent dose and the effective dose

Issued January 1, 2005; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 7.17 of the *OHS Regulation* ("Regulation") states:

In this Division:

"*action level, ionizing radiation*" means an effective dose of 1 milliSievert (mSv) per year;

"*action level, non-ionizing radiation*" means the exposure limits for the general public referred to in section 7.19(4), or if no public limit is referred to, it means the maximum exposure limit for workers in section 7.19(4);

"*effective dose*" means the amount of ionizing radiation, measured in mSv, absorbed by the worker's whole body, adjusted for the energy level and type of radiation and the differing susceptibilities of the organs and tissues irradiated, and if only part of the body is exposed the effective dose is the sum of the weighted equivalent doses in all irradiated tissues and organs;

"*equivalent dose*" means the amount of ionizing radiation, measured in mSv, absorbed by a specific body part and adjusted for the energy level and type of radiation.

Purpose of guideline

This guideline assists employers and qualified persons in calculating equivalent dose and effective dose as defined in section 7.17 of the

Regulation.

Radiation and tissue weighting factors

The amount of ionizing radiation dose absorbed by a worker's body is expressed in effective dose and equivalent dose, as defined in section 7.17 of the *Regulation*. To calculate these doses, the radiation weighting factors (used in determining equivalent dose) and the tissue weighting factors (used in converting equivalent dose to effective dose) are needed. These weighting factors are found in [ICRP Publication 103, The 2007 Recommendations of the International Commission on Radiological Protection](#), and are included here in Tables 1 and 2.

The *equivalent dose* (in mSv) is calculated by multiplying the absorbed dose (in milligrays) by the radiation weighting factor (see Table 1). A typical exposure may include more than one type of radiation, and the total equivalent dose is the sum of the components calculated for each type of radiation.

Table 1: Radiation weighting factors

Type of radiation	Radiation weighting factor (W_R)
Photons (e.g., x-rays or gamma)	1
Electrons	1
Protons and charged pions	2
Alpha particles, fission fragments, heavy ions	20
Neutrons	A continuous curve as a function of neutron energy (approximately 2.5 - 21; see ICRP document)

The *effective dose* (in mSv) is then calculated by adding up each tissue's equivalent dose multiplied by the tissue weighting factor (see Table 2) for the part of the body exposed.

Table 2: Tissue weighting factors

Organ or tissue	Tissue weighting factor (W_T)
Bone marrow (red), colon, lung, stomach, breast, remainder tissues ^{*,2}	0.12
Gonads	0.08
Bladder, esophagus, liver, thyroid	0.04
Bone surface, brain, salivary glands, skin ¹	0.01
Whole body	1

Special notes:

* Remainder tissues: Adrenals, extrathoracic (ET) region, gall bladder, heart, kidneys, lymphatic nodes, muscle, oral mucosa, pancreas, prostate, small intestine, spleen, thymus, uterus/cervix.

1. The weighting factor for skin only applies when the whole body is exposed.

2. Hands, feet, or lens of the eye have no tissue weighting factors.

Determining equivalent doses for hands, feet, or lens of the eye

In cases where the exposure to these parts of the body is anticipated to be substantially different from the equivalent dose quantities measured, the employer may use the methods described in recognized standards and guidance documents such as the following to assess worker exposures:

- [Canadian Nuclear Safety Commission - REGDOC-2.7.2, Dosimetry, Volume 1: Ascertain Occupational Dose](#)
- [IAEA TECDOC 1731, Implications for Occupational Radiation Protection of the New Dose Limit for the Lens of the Eye](#)

G7.18 Application for ionizing and non-ionizing radiation - Agencies having jurisdiction

Issued August 1999; Revised January 1, 2005; Revised July 15, 2019

Regulatory excerpt

Section 7.18 of the *OHS Regulation* ("Regulation") states:

- (1) This Division applies to all sources of ultrasonic energy, non-ionizing and ionizing radiation, including radiation sources governed by the *Nuclear Safety and Control Act* (Canada), except as otherwise determined by the Board.
- (2) This Division does not apply to medical or dental radiation received by a patient, or to natural background radiation, except as specified by the Board.

Purpose of the guideline

Agencies having jurisdiction over exposure to radiation include WorkSafeBC and the Canadian Nuclear Safety Commission (CNSC). The mandates of these agencies with respect to radiation are briefly described within this guideline.

WorkSafeBC

WorkSafeBC administers the *Regulation*, which includes provisions for protecting workers from exposure to ionizing radiation, electromagnetic fields, lasers, ultraviolet radiation, and ultrasound. The *Regulation* does not differentiate between ionizing radiation in the form of x-rays or from radioactive sources - the requirements apply equally to both. This differs from the CNSC regulations, which only apply to ionizing radiation from radioactive materials or particle accelerators.

A WorkSafeBC inspection is not restricted to issues of radiation, but a WorkSafeBC prevention officer may also check for compliance with the other applicable sections of the *Regulation*, such as the requirement for an occupational health and safety program.

The prevention officer will normally review a radioisotope licence at the worksite in order to determine the nature and quantity of any radioactive materials at the workplace.

Canadian Nuclear Safety Commission (CNSC)

CNSC, previously known as the Atomic Energy Control Board of Canada, is a federal authority that focuses primarily on the control of the health, safety, and environmental consequences of nuclear activities. CNSC does not have a mandate for x-ray machines or for non-ionizing radiation such as radiofrequency, microwave, or ultraviolet radiation.

The CNSC replaced the Atomic Energy Control Board in May 2000 when the *Nuclear Safety and Control Act* and its regulations came into effect. The internet site for CNSC is nuclearsafety.gc.ca/.

CNSC inspectors perform routine compliance inspections of organizations (referred to as "licensees") that have received a licence from the CNSC to work with radioactive material. The licence will state what isotopes and devices can be possessed, as well as where and how they are to be handled and maintained. The licence will also list the prescribed (for example, radioactive) substances and devices to which the licence applies and may specify a number of conditions with which the licensee is required to comply. These may include conditions with respect to allowable radiation levels, signage, leak tests, dosimetry, disposal, and reporting of accidents.

The CNSC requires that the licence be available at any location where the prescribed substances are used or stored. A CNSC inspector's primary responsibility is to measure compliance with the conditions on the licence and with the regulations, which apply to the handling of radioactive material. These regulations include CNSC Transport of Nuclear Substances and Transportation of Dangerous Goods.

A routine inspection entails checking for and ensuring the accuracy of all records, such as inventory, leak tests, dosimetry, training, and shipping documents. Inspectors would also check that the radioactive material is stored properly and that appropriate signs are posted, such as radiation warning signs and contact details. They also check to see that the appropriate monitoring equipment is available and that it is being properly maintained. Similar to the process followed by WorkSafeBC prevention officers, CNSC inspectors leave a report identifying items of non-compliance and then follow up to ensure compliance is achieved.

CNSC inspectors are also involved in investigating incidents. These investigations can lead to a variety of actions, including the suspension of a licence or prosecution.

G7.19-1 Exposure to ionizing radiation - Exposure limits and exposure period

Issued August 1999; Revised January 1, 2005; Revised consequential to December 1 Regulatory Amendment

Regulatory excerpt

Section 7.19(1) to (3) of the *OHS Regulation* ("*Regulation*") state:

- (1) A worker's exposure to ionizing radiation must not exceed any of the following:
 - (a) an effective dose of 20 mSv over any period of 12 consecutive months;
 - (b) with respect to exposure to the lens of an eye,
 - (i) an equivalent dose of 50 mSv over any period of 12 consecutive months that starts on or after December 1, 2021, and
 - (ii) an equivalent dose of 100 mSv over any period of 60 consecutive months that starts on or after December 1, 2021;
 - (c) with respect to exposure to the skin, averaged over any 1 cm² area at a nominal depth of 7 mg/cm², regardless of the area exposed, an equivalent dose of 500 mSv over any period of 12 consecutive months;
 - (d) with respect to exposure to the hands and feet, an equivalent dose of 500 mSv over any period of 12 consecutive months.
- (2) If a worker declares her pregnancy to the employer, her effective dose of ionizing radiation, for the remainder of the pregnancy, from external and internal sources, must be limited by the employer to the lesser of
 - (a) 4 mSv, or

(b) the dose limit specified for pregnant workers under the *Nuclear Safety and Control Act* (Canada).

(3) The employer must ensure that the exposure of workers to ionizing radiation is kept as low as reasonably achievable below the exposure limits.

Purpose of guideline

The purpose of the guideline is to provide clarity about the exposure periods associated with the dose limits prescribed in section 7.19.

Dose limits for ionizing radiation

Section 7.19(1) provides dose limits for all workers exposed to ionizing radiation over the specified exposure period. The time period for measurement is over any period of 12 consecutive months (and over 60 consecutive months for lens of the eye), and not a calendar year. As workers can begin their employment at any time of the year, the worker's exposure must not exceed the stated dose limits over any 12 consecutive months (and 60 consecutive months for the lens of the eye).

Dosimetry reports provided by a dosimetry service provider or by the [National Dose Registry \(NDR\)](#) typically provide dosimetry results for a calendar year. Where possible, employers and workers should request their dosimetry service providers to reflect the aforementioned exposure periods in the dosimetry reports.

Further information can be found on Health Canada's Radiation Protection Bureau (RPB) [website](#).

Effective dose of pregnant workers

Section 7.19(2) provides the dose limits for pregnant workers. The external dose referred to in section 7.19(2) is measured at the abdomen. The time period over which the dose limits apply is the duration of the pregnancy from the date the pregnancy is declared. In order for an employer to ensure that a pregnant worker's dose is limited to the designated exposure limit for the remainder of the pregnancy, the employer needs to know the time period involved, which is from the date the worker declared her pregnancy to the expected date of delivery.

ALARA (as low as reasonably achievable)

The International Agency for Research on Cancer classifies ionizing radiation as a Group 1 carcinogen (i.e., causes cancer in humans). Although there are exposure limits prescribed, section 7.19(3) requires employers to ensure that exposure to workers to ionizing radiation is kept as low as reasonably achievable below the exposure limits.

G7.19-2 Notification of worker overexposure to ionizing radiation

Issued August 1999; Revised January 1, 2005; Revised April 30, 2015; Editorial Revision April 6, 2020; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 7.19(1) of the *OHS Regulation* ("Regulation") states:

- (1) A worker's exposure to ionizing radiation must not exceed any of the following:
 - (a) an effective dose of 20 mSv over any period of 12 consecutive months;
 - (b) with respect to exposure to the lens of an eye,
 - (i) an equivalent dose of 50 mSv over any period of 12 consecutive months that starts on or after December 1, 2021, and
 - (ii) an equivalent dose of 100 mSv over any period of 60 consecutive months that starts on or after December 1, 2021;
 - (c) with respect to exposure to the skin, averaged over any 1 cm² area at a nominal depth of 7 mg/cm², regardless of the area exposed, an equivalent dose of 500 mSv over any period of 12 consecutive months;
 - (d) with respect to exposure to the hands and feet, an equivalent dose of 500 mSv over any period of 12 consecutive months.

Purpose of guideline

This guideline describes the process for notification to WorkSafeBC of high ionizing radiation exposures, and describes factors to consider when a worker is exposed to levels above the exposure limit.

Notification of high exposures

Reports of worker ionizing radiation overexposure (notifications) to WorkSafeBC may come from an accident investigation report, from the employer, from the National Dose Registry (NDR), or by other means. High Exposure Notifications reported by the NDR are sent by NDR to WorkSafeBC's Risk Analysis Unit (RAU). In other situations, if a WorkSafeBC prevention officer receives notification of a worker exceeding the annual dose limit, the prevention officer will notify the manager of RAU without delay. This applies to both the effective dose and to an equivalent dose to the skin, eyes, or limbs.

After a high exposure notification

The manager of RAU may seek input from occupational health physicians and/or radiological medical advisors and will generally forward a request for an incident investigation to the local WorkSafeBC occupational hygiene officer. This information will be used to help determine the acceptability

of the worker's continued employment in the same job category for the remainder of the exposure period (any consecutive 12 months, and 60 consecutive months for the lens of the eye).

Note that any WorkSafeBC investigation is in addition to an employer's incident investigation required under section 69 of the *Workers Compensation Act*.

A worker whose effective dose exceeds 20 mSv over any period of 12 consecutive months, as noted under section 7.19(1)(a) of the *Regulation*, should be protected from further exposure until the following occurs:

- An investigation is completed into the causes of the overexposure
- Required corrective actions are determined and implemented
- A medical opinion is given as to the suitability of further work in the occupation during the control period (over 12 consecutive months)

In deciding the suitability of a worker continuing in the occupation after a reported overexposure, the employer (in conjunction with WorkSafeBC) should consider factors such as the following:

- **The reliability and accuracy of the reported result.** Dosimetry service providers offer different types of dosimeters for various exposure scenarios. Commonly used dosimeter types include optically stimulated luminescence (OSL) dosimeters and thermoluminescent dosimeters (TLDs). Consult with the dosimetry service providers for their dosimeters' performance specifications. Also, the incident investigation must determine whether the reading is a real dose to the worker (such as the worker being accidentally exposed to an industrial radiography source without protective equipment) or if the dosimeter measured a dose to which the worker was not exposed (such as improper storage of the dosimeter when not in use).
- **The magnitude of the dose received.** A worker with an effective dose exceeding 20 mSv in 12 consecutive months will be restricted from working further in the occupation that led to the high dose for the remainder of the control period. Similar restrictions will apply if a worker exceeds the stated equivalent doses for the hands and feet, skin, as well as the lens of the eye.
- The lifetime dose of the worker. This information can be obtained from the [National Dose Registry](#).
- **The extent of any injury received from the overexposure and the degree of recovery.** It is important to establish any adverse health effects associated with the overexposure. Even if there is no indication of acute effects, workers should still be informed of the possibility of long-term adverse health effects resulting from this exposure.
- **Adequacy of control measures implemented by the employer.** These may include protective reassignment, implementation of more protective work procedures, and the increased use of dose monitoring and personal protective equipment.

For some dose levels, no other special restrictions may be required if WorkSafeBC is satisfied that the employer is able to adequately control future exposures.

G7.19(4)-1 Exposure to non-ionizing radiation — Radiofrequency

Issued August 1999; Revised January 1, 2005; Revised April 30, 2015; Editorial Revision October 28, 2019

Regulatory excerpt

Section 7.19(4)(a) of the *OHS Regulation* ("*Regulation*") states:

The employer must ensure that a worker's exposure to non-ionizing radiation does not exceed the exposure limits specified in

(a) for radiofrequency:

(i) *Health Canada Safety Code 25, Short-Wave Diathermy Guidelines for Limiting Radiofrequency Exposure*, 1983, as amended from time to time;

(ii) *Health Canada Safety Code 26, Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems*, 1987, as amended from time to time;

(iii) *Health Canada Safety Code 6, Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz*, 1999, as amended from time to time, and

...

except as otherwise determined by the Board.

Purpose of guideline

This guideline describes exposure limits for radiofrequency radiation.

Radiofrequency (RF) radiation

Radiofrequency is the portion of the electromagnetic spectrum that is between 3 kHz and 300 GHz. This frequency range is below that of visible light and above that of extremely low frequency electromagnetic fields, and includes microwaves, radio, and radar.

In workplaces, RF fields are potentially produced by sources such as television and radio broadcasting facilities, rooftop transmitters, medical equipment, microwave ovens, and RF induction heaters.

Exposure limits

Section 7.19(4)(a) references Health Canada's Safety Codes for exposure limits. The Safety Codes are available on the Health Canada web site: <http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/index-eng.php>

The key exposure limits for RF radiation are the reference levels specified in Health Canada Safety Code 6, published in 2015. They are based on Health Canada's evaluation of the scientific literature related to thermal and non-thermal health effects of RF fields.

The measurement process for exposure to radiofrequency radiation is complex. Health Canada has published the *Technical Guide for Interpretation and Compliance Assessment of Health Canada's Radiofrequency Exposure Guidelines*.

Another guidance document for these measurements is the Industry Canada publication *Guidelines for the Measurement of Radio Frequency Fields at Frequencies From 3 kHz to 300 GHz*.

G7.19(4)-2 Exposure to non-ionizing radiation - Lasers

Issued August 1999; Revised January 1, 2005

Section 7.19(4)(b) of the *OHS Regulation* ("Regulation") states:

(4) The employer must ensure that a worker's exposure to non-ionizing radiation does not exceed the exposure limits specified in ...

(b) for lasers:

(i) *ANSI Standard Z136.1-2000, Safe Use of Lasers*, as amended from time to time;

(ii) *ANSI Standard Z136.2-1997, Safe Use of Optical Fiber Communication Systems Utilizing Laser Diode and LED Source*, as amended from time to time;

(iii) *ANSI Standard Z136.3-1996, Safe Use of Lasers in Health Care Facilities*, as amended from time to time;

(iv) *CSA Standard Z386-01, Laser Safety in Health Care Facilities*, as amended from time to time,

except as otherwise determined by the Board.

Section 7.19(4) refers to applicable ANSI and CSA standards. *CSA Standard Z386-01* is a reproduction of *ANSI Standard Z136.3* but with a few pages of "Canadian Deviations," which make the standard more applicable to the health care environment in Canada.

The determination of worker exposure to non-ionizing radiation from lasers is very complex. Calculation of the exposure limit is dependent on the type of laser being assessed; there is no generic calculation covering all laser sources. Neither a WorkSafeBC prevention officer nor an employer would normally be expected to measure the radiation being emitted by a laser. Rather, compliance with this section will normally be determined by an evaluation of the laser safety program, as required by the applicable standard - such as the program outlined in Table 10 of *ANSI Standard Z136.1-2000*. In this instance, an effective laser safety program is equivalent to an effective exposure control plan, and both are equivalent to actually measuring exposures. In other words, workers cannot be overexposed to laser radiation if there is an effective laser safety program in place.

The employer should establish and maintain an adequate program for the control of laser hazards to the eyes and skin. For class 2 and 3a lasers and laser systems, a laser safety program meeting the requirements of *ANSI Standard Z136.1-2000*, or a program providing an equivalent level of worker protection, constitutes an effective exposure control plan. For class 3b and 4 lasers and laser systems, a laser safety program meeting the requirements of *ANSI Standard Z136.1-2000* constitutes an effective exposure control plan. The requirements of a laser safety program are summarized in Table 10 of *ANSI Standard Z136.1-2000*.

G7.19(5) Exposure to non-ionizing radiation - Ultraviolet radiation

Issued August 1999; Revised January 1, 2005

Section 7.19(5) of the *OHS Regulation* ("Regulation") states:

A worker's exposure to ultraviolet radiation produced by equipment or industrial processes must not exceed the threshold limit values specified in the American Conference of Governmental Industrial Hygienists publication entitled *Threshold Limit Values and Biological Exposure Indices*, dated 2003, as amended from time to time.

Ultraviolet radiation from the sun is not included within the scope of this requirement. Nevertheless, workers and employers should be aware of the hazards associated with solar radiation. Effective means to limit worker exposure include wearing appropriate dress and the use of sun-block creams.

The American Conference of Governmental Industrial Hygienists (ACGIH) requires that the threshold limit values (TLVs) be applied to sources which subtend an angle of less than 80 degrees at the measuring instrument's detector (i.e., the source subtends less than an 80 degree cone with

its vertex at the detector). Most industrial sources, such as lamps or welding arcs, subtend a much smaller arc, so the angular restriction does not apply to them. In these cases, the measurements are simply carried out with the detector at the position of the worker's eye or skin, and no further angular considerations are required.

This restriction becomes important when there is exposure to an extended source, such as a tanning bed, or solar exposure at a sandy beach, in snow, or from another large reflective surface. In these situations, ACGIH prescribes that only the contributions within an 80-degree cone be considered. The reason for this is a practical one. Most instruments use interference filters on their detectors and these filters are inaccurate at large angles. The ultraviolet radiation from large angles contributes little to the effect on the eyes or skin because of geometric and physiological considerations.

G7.20(1)-1 Exposure control plan – General requirements

Issued August 1999; Revised January 1, 2005; Revised September 22, 2015; Revised April 30, 2020; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 7.20(1) of the *OHS Regulation* ("*Regulation*") states:

If a worker exceeds or may exceed an action level, ionizing radiation or action level, non-ionizing radiation, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54(2).

Purpose of guideline

An exposure control plan is required if a worker's radiation exposure exceeds or may exceed the applicable action level. This guideline discusses ways to determine whether a worker's exposure exceeds or may exceed the action level for ionizing or non-ionizing radiation. For further information on exposure control plans, refer to OHS Guideline [G5.54-1](#).

Exposure to ionizing radiation

The action level for ionizing radiation is defined in [section 7.17](#) of the *Regulation* as "an effective dose of 1 milliSievert (mSv) per year." In order to determine whether a worker's effective dose exceeds or may exceed 1 mSv per year, an employer may use one or more of the following methods:

- Until it is determined with confidence whether a worker's effective dose could exceed 1 mSv per year, an employer must ensure that the worker is provided with and properly uses a personal dosimeter acceptable to WorkSafeBC. Refer also to [section 7.22](#) of the *Regulation* and OHS Guideline [G7.22 Monitoring exposure](#). When dosimetry has been conducted for at least one year and the incurred doses are properly documented, the employer can use the results to determine whether a worker's effective dose is likely to exceed 1 mSv per year.
- The [National Dose Registry](#) of the [Radiation Protection Bureau \(RPB\)](#) of Health Canada maintains records of occupational exposures to ionizing radiation in Canada based on dose information submitted to the RPB by approved dosimetry service providers for Canadian workplaces. The NDR publishes an annual [Report on Occupational Radiation Exposures in Canada](#) (Report) that could be used to determine a worker's general dose profile by job category where the equipment and work practices currently in use are likely the same as those in use when the Report was published.

Using the Report, an employer could determine that exposure control plan would not be required if the effective dose incurred by a worker averaged less than 1 mSv per year (over the most recent five years). Note that there is a statistical spread of annual exposures for each job sector and category. Even if the average dose for an occupation is less than 1 mSv per year, a portion of the population may accumulate doses greater than 1 mSv. Therefore, if an employer's work practices or conditions are less protective with respect to radiation standards acceptable to WorkSafeBC (e.g., Health Canada Safety Codes), then the employer must develop and implement an exposure control plan.

- An evaluation of occupational exposures either by calculation or experimental simulation can be carried out by health physicists or other qualified persons and/or professionals, based on the characteristics of the radiation source being used, weekly workload, the worksite's exposure control strategy, and other relevant factors. The results of such evaluation can be used to determine whether a worker's exposure could exceed 1 mSv per year. Sample methodologies for conducting such calculations are described in some of the Health Canada Safety Codes (e.g., the addendum to *Safety Code 32 Safety Requirements and Guidance for Analytical X-ray Equipment*).
- An employer may rely on a determination made at another workplace setting provided that the workplaces are equivalent in terms of radiation sources used and potential for exposure (e.g., the same number and type of radiation-emitting units, substantially the same equipment parameters being used, workplace configuration and shielding plans, safe work procedures).

For the above methods, the determination of expected exposure levels only remains valid if the radiological conditions remain the same as they relate to radiation sources used, operational settings, workloads, and other relevant factors (e.g., worker practices and experience; worker training, supervision, and instruction). A new assessment of the radiological situation must be performed by a health physicist or other qualified person whenever the working conditions change.

Exposure hands, feet, and lens of the eye

If an exposure control plan is required for a worker, then the employer should also include considerations of equivalent dose limits to the tissue of concern for protection of the worker.

For more guidance in determining the ionizing radiation dose for the hands, feet, or lens of the eye, refer to the recognized standards and guidance

documents such as the following to assess worker exposures:

- [Canadian Nuclear Safety Commission - REGDOC-2.7.2, Dosimetry, Volume 1: Ascertaining Occupational Dose](#)
- [IAEA TECDOC 1731, Implications for Occupational Radiation Protection of the New Dose Limit for the Lens of the Eye](#)

Exposure to non-ionizing radiation

The action level for non-ionizing radiation is defined in section 7.17 of the *Regulation* as "the exposure limits for the general public referred to in section 7.19(4) or, if no public limit is referred to, it means the maximum exposure limit for workers referred to in section 7.19(4)."

WorkSafeBC accepts that an exposure control plan is not required if any one of the following conditions is met:

- Equipment capable of emitting non-ionizing radiation is being used, maintained, and regularly controlled according to the manufacturer's instructions; and monitoring of field strengths, power densities, irradiance levels, radiant intensities, or ultrasonic sound pressure levels shows that these values cannot exceed the action level in the course of a worker's regular duties.
- Documentation from the equipment manufacturer demonstrates that the radiation exposures incurred by workers cannot exceed the action level.
- For lasers, the class of the laser or laser system is less than class 3, as defined in the latest edition of *ANSI Standard Z136.1, Safe Use of Lasers*.

G7.20(1)-2 Exposure control plan - Control measures

Issued August 1999; Revised January 1, 2005

Section 7.20(1) of the *OHS Regulation* ("*Regulation*") states:

If a worker exceeds or may exceed an action level, ionizing radiation or action level, non-ionizing radiation, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54(2).

Section 7.20(1) requires an exposure control plan if a worker's level of exposure exceeds or may exceed the applicable action level. For both ionizing and non-ionizing radiation, adequate engineering and administrative control measures, as specified in the applicable Safety Code or Standard, must be in place in order to control the radiation dose received by any worker to less than the action level. Applying these control measures ensures that the requirements for an exposure control plan are met. Note that under [section 5.54\(2\)\(b\)](#) of the *Regulation*, control measures are a required element of an exposure control plan.

In assessing the adequacy of control measures for ionizing radiation, the employer is to use all available exposure information (from personal dosimetry and radiation surveys) to compare the effectiveness of the controls with controls in similar industry facilities. If there is an indication of a single high-exposure situation (for one or more workers), a radiation survey under [section 7.24\(c\)](#) of the *Regulation* applies.

When reviewing the results of personal dosimetry, the employer will compare the exposure information with workers in similar groups. If there is a significantly higher dose profile than the industry averages indicate is achievable, the employer is to examine the work practices and other conditions of exposure at the workplace, and alter them to reduce the unusually high doses to the acceptable levels as per [section 7.19\(3\)](#). Data from the National Dose Registry (published annually by Health Canada) is available for the purpose of reviewing worker exposure information.

It should also be noted that section 7.19(3) of the *Regulation* states the "ALARA" principle: "The employer must ensure that the exposure of workers to ionizing radiation is kept as low as reasonably achievable below the exposure limits." For the purposes of section 7.19(3), an employer whose operation demonstrates a significantly higher dose profile than the industry average is expected to reduce worker exposure to the industry average, as that would be considered "reasonably achievable."

G7.20(1)-3 Exposure control plan - Personal protective equipment

Issued August 1999; Revised January 1, 2005; Editorial Revision March 11, 2009; Editorial Revision August 4, 2015

Regulatory excerpt

Section 7.20(1) of the *OHS Regulation* ("*Regulation*") states:

If a worker exceeds or may exceed an action level, ionizing radiation or action level, non-ionizing radiation, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54(2).

Purpose of guideline

The purpose of this guideline is to clarify the requirements relating to radiation exposure control measures and to summarize the Health Canada Safety Code references to personal protective equipment.

Exposure control plan

Section 7.20(1) requires an exposure control plan if a worker's level of exposure exceeds or may exceed the applicable action level. Section 5.54(2)(d) addresses the need for written work procedures as part of the exposure control plan. Key to any written work procedure is specific information on any personal protective equipment that may be required to be supplied by the employer for worker protection while undertaking specific hazardous tasks. [Section 8.2](#) of the *Regulation* specifies the responsibility for the employer to provide this type of personal protective equipment.

The preferred control measures for protecting workers from the hazards of radiation involve three key considerations: shielding, distance, and time. Shielding involves placing a mass (a shield) between the radiation source and the worker; the more mass that is placed, the less radiation that the worker receives. Distance also protects workers; the further away a worker is from the source of radiation, the less radiation the worker receives. The less time the worker is exposed to radiation, the smaller the dose of radiation received and the lesser chance for radiation injury. Where these protective measures cannot be used, or are insufficient, personal protective equipment is the minimum requirement.

Personal protective equipment

[Section 7.23](#) of the *Regulation* requires compliance with a number of standards. For ease of reference, the personal shielding protective equipment required by these standards to protect against exposure to radiation is summarized in the table below. Where these standards describe personal protective equipment that is not intended for protection from the hazards of radiation (for example, hearing or respiratory protection), other sections of the *Regulation* apply. Refer to [Part 8](#) of the OHS Guidelines for further information.

Table 1: Personal protective equipment listed in the standards referenced in section 7.23 of the *Regulation*

Standard	Recommended PPE (from Standard)	Relevant sections of the Standard	Additional notes or comments
Ionizing:			
Safety Code 20A (Medical X-ray equipment) ¹	Protective gauntlets, gonad shields, protective gloves, protective clothing, protective aprons, protective glasses	6.3.1; 6.3.2; 6.3.3; 8.1.5; 8.1.6; 8.2.1; 8.3.1; 8.3.2; 8.3.3; 8.4.4; 8.6.1; 8.6.2(2)	
Safety Code 27 (Industrial X-ray equipment) ²			Discontinued
Safety Code 28 (Veterinary X-ray equipment)	Protective clothing, protective devices, protective aprons, gloves, thyroid shields	6.2; 7.1.5; 7.1.7; 7.1.8; 7.1.9; 7.1.12	Protective aprons, gloves, and thyroid shields used for veterinary X-ray examinations must provide attenuation equivalent to at least 0.5 mm of lead at X-ray tube for voltages up to 150 kVp. There are other labelling and design requirements in the Safety Code.
Safety Code 29 (Baggage-check X-ray equipment)	None identified		
Safety Code 30 (Dental X-ray equipment)	Protective devices	8.1.4	
Safety Code 31 (Computed tomography) ¹			Discontinued
Safety Code 32 (Analytical X-ray equipment)	Protective apparel	3.6.4	There is no reference in the Safety Code to a requirement for protective apparel. However, there is a cited requirement that all protective apparel and safeguards must be tested regularly.
Safety Code 33 (Mammography)	Protective clothing	9.1.3; 9.1.6	Discontinued
Safety Code 34 (Industrial x-ray equipment) ²	None identified	2.2.1(3)	There is no reference in the Safety Code to specific items of personal protective equipment. The RSO "must ensure that all protective and safety equipment... are available."
Safety Code 35 (Large Facilities) ¹	Lead aprons, protective gowns, thyroid shields, protective and leaded glasses, gonad shields, gloves, gauntlets	Section B 4.1	

Safety Code 36 (Mammography) ³	None identified		There is no reference in the Safety Code to specific items of personal protective equipment. Section 2.1(10) states that "when a protective apron is worn, the dosimeter must be worn underneath the apron." Section 2.1(5) states that "All personnel must use available protective devices."
Radiofrequency:			
Safety Code 26 (Magnetic resonance systems)	None identified		
Safety Code 6 (Radiofrequency fields)		Appendix IV	Electrical safety shoes are referenced, but not required, in Appendix IV.
Safety Code 25 (Short-wave diathermy)	None identified		
Lasers:			
ANSI Standard Z136.1-2014 (Lasers)	Protective equipment, laser eye protection, clothing, gloves, skin protection (such as skin covers or sunscreen creams), respirators, hearing protection	4.4.4; 4.4.4.1; 4.4.4.2; 4.4.4.3; 7.3.4.3; Table 11c; Appendix B8; Appendix D3	Laser eye protection to be used for Class 3B and Class 4 lasers or laser systems. Clothing and gloves that have been specifically selected for suitable protection against laser radiation should be considered for Class 3B and 4 lasers and laser systems. Note that PPE may have serious limitations when used with higher-power Class 4 lasers or laser systems; for example, the protective equipment may not adequately reduce or eliminate the hazard and may be damaged by the incident laser radiation.
ANSI Standard Z136.2 (Optical fibre systems)	Personal protective equipment to protect against non-laser hazards (such as glass fragments, solvents)		Refer to Part 8 of the <i>Occupational Health and Safety Regulation</i> .
ANSI Standard Z136.3-2011 (Safe Use of Lasers in Health Care) Also CSA Standard Z386-01 (Health Care lasers)	Protective equipment, face shields, laser protective eyewear (e.g., goggles, spectacles, face shields, barriers, windows, and similar protective devices), protective clothing, skin protection (e.g., clothing, gowns, gloves and other devices), shields, helmets, hearing protection	4.6.1; 4.6.2; 4.6.3; 4.6.4; 7.4.2.3 Appendix B: B1.6; B1.6.1; B1.6.2; B1.6.3; B1.6.5 Appendix C: C2.4.1; C6.3.2; C13.4.2	Laser protective eyewear (LPE) shall be accompanied by the following information: (1) Optical density at appropriate wavelengths; (2) Manufacturer's recommendations on shelf life, storage conditions, and appropriate cleaning methods. At present, there is no suitable half-mask respirator used for the specific purposes of excluding all laser generated air contaminants (LGAC). Surgical masks are not designed to provide protection from plume contents. Therefore, the health care facility shall rely on appropriate local exhaust ventilation (LEV) techniques as the first line of protection for occupational exposure to LGAC.

CSA Standard Z386-14 (Laser Safety in Health Care Facilities)	Protective equipment, ocular control measures (e.g., protective eye wear), skin control measures (e.g., applicable and appropriate control measures)	5.3.1.3, 5.3.2.3, 6.3.1.3.(f), 6.3.1.4.1.(c), 6.3.2.3.(b).(iii), 8.2.1.(c) Annex B: B.3 Annex F: F.1; F.2; F.3; F.4; F.5	The laser safety officer to assess potential ocular and skin exposure hazards and implement applicable and appropriate control measures for the application and practice setting. All protective eyewear and filters shall be selected with an optical density (OD) sufficiently high to protect against the wavelengths of the laser in use in the nominal ocular hazard area (NOHA). The protective eyewear shall be: (1) permanently labelled with the applicable OD and wavelengths; (2) worn by all personnel in the NOHA during laser use; (3) maintained according to manufacturer's instructions; (4) have side guards to protect against the beam entering between the eye and the eyewear; and (5) inspected prior to use.
Infrared and Ultraviolet:			
CSA Standard CAN/CSA-C22.2 (Non medical IR and UV lamps)	Protective eyewear	3.3; Appendix C1.1	General requirements: All tanning equipment must be accompanied by sufficient sets of protective eyewear that meet Clause 6.17 of this standard to at least equal the maximum number of persons exposed to UV radiation from the tanning equipment.
Ultrasound:			
Safety Code 23 (Medical ultrasound)	None identified		
Safety Code 24 (Industrial and commercial ultrasound)	None identified		

Notes:

1. Safety Code 35 has replaced Safety Code 20A (only as it relates to large medical radiological facilities) and Safety Code 31 (refer to OHS Guideline G7.23)
2. Safety Code 34 has replaced Safety Code 27 (refer to OHS Guideline G7.23)
3. Safety Code 36 has replaced Safety Code 33 (refer to OHS Guideline G7.23)

G7.20(1)-4 Exposure control plan - Education and training

Issued August 1999; Revised January 1, 2005

Section 7.20(1) of the *OHS Regulation* ("Regulation") states:

If a worker exceeds or may exceed an action level, ionizing radiation or action level, non-ionizing radiation, the employer must develop and implement an exposure control plan meeting the requirements of section 5.54(2).

Section 7.20(1) requires an exposure control plan if a worker's level of exposure exceeds or may exceed the applicable action level. [Section 5.54\(2\)\(c\)](#) specifies that education and training are a component of an exposure control plan.

An employer or a WorkSafeBC prevention officer may choose to evaluate compliance with this section by asking the worker the following questions:

- What is the hazard?
- What precautions are required to protect against exposure?
- What do you do in the event of an emergency?
- Where do you get further information?

If the worker has received an acceptable level of education and training, the worker will be able to provide information such as following in response to the preceding questions.

The hazard

- Type of radiation, route of exposure, as well as general knowledge of the applicable exposure limits

- Potential health effects from overexposure to radiation, such as the potential for thermal and photochemical effects and skin cancer from ultraviolet radiation
- Any risks or hazards associated with the specific type of radiation to which the worker is exposed - for example, the risks associated with any contamination or leakage of ionizing radiation, the hazard associated with radiofrequency radiation near electro-explosives or flammable substances, and the fire hazard associated with class 4 lasers

How to protect against exposure

- Any shielding requirements
- Minimizing exposure time
- Maximizing distance from the source and staying clear of a collimated or directed beam
- Required safe work procedures
- Required personal protective equipment

What to do in the event of an emergency

For *ionizing* radiation, an emergency might be the uncontrolled release of radioactive material. Actions expected of a worker might include the following:

- Notify the employer.
- Control the spread of contamination.
- Evacuate the area as necessary.
- Notify the appropriate agencies as necessary.

For minor spills or releases, the worker might be expected to follow spill cleanup procedures.

For *non-ionizing* radiation, what constitutes an emergency depends on the type of radiation. For radiofrequency or microwave radiation, an emergency might be an extraordinarily high exposure that might be evident, for example, if a worker gets a severe shock through contact current or if a monitoring procedure shows immediately dangerous field strengths in an area where workers are, or may access. A worker complaining of eye pain should also be considered an emergency. For lasers and for ultraviolet or ultrasound radiation, an acute injury might constitute an emergency situation, such as an eye injury from ultraviolet radiation or a laser source.

In an emergency, actions expected of a worker should include the following:

- Notify the employer.
- Seek first aid and medical attention if necessary.
- Evacuate the area if necessary.
- Implement corrective procedures if necessary (for example, if appropriate, shut off the equipment).
- Notify appropriate agencies as required.

Where to get further information

Sources of information might include:

- Equipment operating instructions
- Written safe work procedures
- CNSC licence and regulations (for work with radioactive sources)
- Relevant standards (such as Health Canada Safety Codes or ANSI standards)
- Radiation Protection Services, WorkSafeBC, CNSC, Health Canada
- Supervisor or employer

G7.20(2) Exposure control plan - Posting of instructions

Issued January 1, 2005

Section 7.20(2) of the *OHS Regulation* ("*Regulation*") states:

The instructions to workers developed under section (1) must be posted or otherwise available in the work area or near the applicable equipment controls.

If a worker's level of exposure exceeds or may exceed the applicable action level, the employer is to prepare written instructions and make them available in the work area. The written instructions should include written work procedures (such as the safe use of the equipment), emergency procedures, and specifications for personal protective equipment. The boundaries of the (radiation) hazard area are to be indicated through written instructions, signage, or other effective means.

Which was applicable prior to the regulatory amendments effective January 1, 2005.

G7.21 Reproductive hazards

Issued August 1999; Revised January 1, 2005

Section 7.21 of the *OHS Regulation* ("Regulation") states:

- (1) The employer must ensure that every worker who exceeds, or may exceed, the action level, ionizing radiation is fully informed of any potential reproductive hazards associated with the worker's exposure to ionizing radiation.
- (2) When requested by a pregnant worker or by a worker intending to conceive a child, the employer must make counselling available with respect to the reproductive hazards associated with exposure to ionizing radiation.

The requirements of section 7.21 apply to workers who exceed, or may exceed, an effective dose of 1 mSv per year, the action level for ionizing radiation as defined under [section 7.17](#) of the *Regulation*. See also [OHS Guidelines for section 7.20](#) for additional information.

Counselling should address the specific concerns of the worker with respect to exposure to ionizing radiation and pregnancy outcome. Topics that should be covered during counselling include:

- The specific exposure limits for pregnant workers, as specified by [section 7.19\(2\)](#) of the *Regulation*
- Levels of radiation that may affect fetal development and cancer induction
- Levels of radiation that may cause sterility
- Relative risks of birth defects and childhood cancer associated with radiation exposure
- The importance of the ALARA principle for pregnant workers and for workers intending to conceive a child
- Control measures for preventing inhalation or ingestion of, or contamination by, radioactive materials

Because information about the risks of ionizing radiation is changing rapidly, the material used for counselling workers should be periodically reviewed and updated.

G7.22 Monitoring exposure

Issued August 1999; Revised January 1, 2005; Editorial Revision June 8, 2011; Editorial Revision August 4, 2015; Editorial Revision December 1, 2021

Regulatory excerpt

Section 7.22 of the *OHS Regulation* ("Regulation") states:

Unless exempted by the Board, if a worker exceeds or may exceed the action level, ionizing radiation, the employer must ensure that the worker is provided with and properly uses a personal dosimeter acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to describe a personal dosimeter acceptable to WorkSafeBC.

Acceptable personal dosimeter

The standard method for monitoring *external* alpha, beta, gamma, x-radiation, and neutron radiation dose is to use a personal dosimeter, such as a whole-body or extremity badge worn by a worker. These devices are supplied by a dosimetry service provider who will also perform the post-exposure analysis of the device. Commonly used personal dosimeters for x-ray, beta, and gamma radiation include thermoluminescent dosimeters (TLDs) and optically stimulated luminescence (OSL) dosimeters.

Employers participating in a personal monitoring program, using dosimetry, are to ensure that the program is effectively managed. Workers must wear the dosimeters correctly and return them to the employer for submission to the service provider for analysis. It is the responsibility of the service provider to submit the results to Health Canada's [National Dose Registry](#) (NDR), as well as to the employer.

A personal dosimeter supplied by a dosimetry service provider who submits the dosimetry data to the NDR is acceptable to WorkSafeBC. If an employer wants to use a different personal dosimeter, an [application for acceptance](#) must be made to the OHS Practice and Engineering Support department of WorkSafeBC. Employers also need to verify that the personal dosimeter is acceptable to any other involved regulatory authority (e.g., Canadian Nuclear Safety Commission).

For detailed technical information on acceptable methods of detection and monitoring procedures, the employer should contact the dosimetry service provider, the Canadian Nuclear Safety Commission, or any successor agency, the Health Protection Branch of Health Canada (Radiation Protection Bureau).

Note: "Internal radiation dose" refers to the dose received by ingestion inhalation, or injection through the skin and would be monitored by such means as urinalysis or by thyroid scan.

G7.23 Acceptable standards

Issued August 1999; Revised January 1, 2005; Editorial Revision March 11, 2009; Editorial Revision March 9, 2012; Editorial Revision September 21, 2012; Editorial Revision March 31, 2015; Editorial Revision September 25, 2019

Regulatory excerpt

Section 7.23 of the *OHS Regulation* ("Regulation") states:

Equipment producing ionizing or non-ionizing radiation or ultrasonic energy must be installed, operated and maintained in accordance with the following:

(a) for ionizing radiation:

(i) *Health Canada Safety Code 20A, X-Ray Equipment in Medical Diagnosis Part A: Recommended Safety Procedures for Installation and Use*, 1980, as amended from time to time;

(ii) *Health Canada Safety Code 27, Requirements for Industrial X-Ray Equipment Use and Installation*, 1987, as amended from time to time;

(iii) *Health Canada Safety Code 28, Radiation Protection in Veterinary Medicine - Recommended Safety Procedures for Installation and Use of Veterinary X-Ray Equipment*, 1991, as amended from time to time;

(iv) *Health Canada Safety Code 29, Requirements for the Safe Use of Baggage X Ray Inspection Systems*, 1993, as amended from time to time;

(v) *Health Canada Safety Code 30, Radiation Protection in Dentistry - Recommended Safety Procedures for the Use of Dental X-Ray Equipment*, 1999, as amended from time to time;

(vi) *Health Canada Safety Code 31, Radiation Protection in Computed Tomography Installation*, 1994, as amended from time to time;

(vii) *Health Canada Safety Code 32, Safety Requirements and Guidance for Analytical X-Ray Equipment*, 1994, as amended from time to time;

(viii) *Health Canada Safety Code 33, Radiation Protection in Mammography*, 1995, as amended from time to time;

(b) for radiofrequency:

(i) *Health Canada Safety Code 25, Guidelines for Limiting Radiofrequency Exposure - Short-Wave Diathermy*, 1983, as amended from time to time;

(ii) *Health Canada Safety Code 26, Guidelines on Exposure to Electromagnetic Fields from Magnetic Resonance Clinical Systems*, 1987, as amended from time to time;

(iii) *Health Canada Safety Code 6, Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz*, 1999, as amended from time to time;

(c) for lasers:

(i) *ANSI Standard Z136.1-2000, Safe Use of Lasers*, as amended from time to time;

(ii) *ANSI Standard Z136.2-1997, Safe Use of Optical Fiber Communication Systems Utilizing Laser Diode and LED Sources*, as amended from time to time;

(iii) *ANSI Standard Z136.3-1996, Safe Use of Lasers in Health Care Facilities*, as amended from time to time;

(iv) *CSA Standard Z386-01, Laser Safety in Health Care Facilities*, as amended from time to time;

(d) for infrared and ultraviolet:

(i) *CSA Standard CAN/CSA-C22.2 No. 224-M89 (R1994), Radiant Heaters and Infrared and Ultraviolet Lamp Assemblies for Cosmetic or Hygienic Purposes in Nonmedical Applications*, as amended from time to time;

(e) for ultrasound:

(i) *Health Canada Guidelines for the Safe Use of Diagnostic Ultrasound*, 2001, as amended from time to time;

(ii) *Health Canada Safety Code 24, Guidelines for the Safe Use of Ultrasound: Part II - Industrial and Commercial Applications*, 1991, as amended from time to time,

except as otherwise determined by the Board.

Purpose of guideline

The purpose of this guideline is to provide general information regarding the safety codes and standards that must be complied as required by section 7.23 of the *Regulation*.

Safety codes and standards for the use of equipment

Unless otherwise stated in this guideline, the most recent edition of the safety code or standard listed under section 7.23 of the *Regulation* applies.

Health Canada Safety Codes

The Safety Codes are available on the [Health Canada website](#).

The Safety Codes can also be ordered from Health Canada (1-866-225-0709).

Safety Codes for ionizing radiation

- Health Canada has published *Safety Code 35, Safety Procedures for the Installation, Use and Control of X-Ray Equipment in Large Medical Radiological Facilities* to replace *Safety Code 20A, X-Ray Equipment in Medical Diagnosis Part A: Recommended Safety Procedures for Installation and Use* (only as it relates to large medical radiological facilities) and *Safety Code 31, Radiation Protection in Computed Tomography Installation*. *Safety Code 20A* continues to apply to small radiological facilities.
- *Safety Code 27, Requirements for Industrial X-Ray Equipment Use and Installation* has been replaced by *Safety Code 34, Radiation Protection and Safety for Industrial X-Ray Equipment*.
- Health Canada has published an addendum to *Safety Code 32*, dated 2014. This addendum is part of *Safety Code 32*.

As a result, equipment producing ionizing radiation must be installed, operated, and maintained in accordance with Safety Codes 20A, 28, 29, 30, 32, 33, 34, and 35, as applicable. The *Regulation* no longer requires compliance with Safety Codes 20A (for large medical radiological facilities), 27, or 31. As stated above, Safety Code 20A continues to apply to small radiological facilities.

Safety Code for radiofrequency

Safety Code 6, published in 1999, was rewritten in 2009 and 2015 to address current research regarding allowable limits for RF exposure.

Allowable exposure limits defined in the 2015 version are significantly more conservative than those identified in both the 1999 and 2009 versions. The rewriting of the code involved moving the procedural specifications for installation, operation, and maintenance of radiation equipment into a Technical Guide for Interpretation and Compliance Assessment of Health Canada's Radiofrequency Exposure Guidelines, to assist users in understanding and assessing the safety of electromagnetic exposures in working and living environments. The employer is responsible for ensuring that the installation, operation, and maintenance of radiation equipment provides protection to workers from radiofrequency fields for Uncontrolled Environments defined by the 2015 Code. WorkSafeBC considers the information in the Technical Guide to be an acceptable means to provide this protection. Copies of the Technical Guide may be obtained from Health Canada through a request to:

HC.ccrpb-pcrpcc.SC@canada.ca

Or at:

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/safety-code-6-health-canada-radiofrequency-exposure-guidelines-environmental-workplace-health-health-canada/technical-guide.html>

Additional standards

Safe operating requirements for radioactive materials are specified under the licensing requirements of the Canadian Nuclear Safety Commission.

From time to time, Radiation Protection Services of the BC Centre for Disease Control issues standards and guidelines it has developed. It may also recommend standards and guidelines issued by other agencies related to installation, operation, or maintenance of radiation-producing equipment. WorkSafeBC will normally consider these to be a "standard acceptable to the Board." These additional documents may provide guidance to a WorkSafeBC prevention officer reviewing a particular facility for compliance. In such a situation, a prevention officer should consult with one of WorkSafeBC's subject matter experts before making a formal decision based on a non-referenced standard.

G7.23(a)(i) and (vi) Radiation protection in radiology - Large facilities

Issued December 21, 2009; Revised June 8, 2011; Editorial Revision April 6, 2020

Regulatory excerpt

Sections 7.23(a)(i) and (vi) of the *OHS Regulation* ("*Regulation*") state:

Equipment producing ionizing or non-ionizing radiation or ultrasonic energy must be installed, operated and maintained in accordance with the following:

(a) for ionizing radiation:

(i) *Health Canada Safety Code 20A, X-Ray Equipment in Medical Diagnosis Part A: Recommended Safety Procedures for Installation and Use*, 1980, as amended from time to time;

...

(vi) *Health Canada Safety Code 31, Radiation Protection in Computed Tomography Installation*, 1994, as amended from time to time;

...

except as otherwise determined by the Board.

Purpose of guideline

Health Canada has published *Safety Code 35, Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities* to replace *Safety Code 20A, X-ray Equipment in Medical Diagnosis Part A: Recommended Safety Procedures for Installation and Use* (as it relates to large medical radiological facilities) and *Safety Code 31, Radiation Protection in Computed Tomography Installation*.

This guideline provides guidance on the application of the occupational health and safety requirements in Health Canada *Safety Code 35 (SC35)* to large radiological facilities.

Facilities within the scope of *Safety Code 35*

SC35 applies to large medical radiological facilities where diagnostic and interventional radiological procedures are routinely performed using radiographic, radiosopic or computed tomography (CT) equipment. Large facilities are those that operate more than one type of radiological equipment, or have at least three suites of the same type of equipment. Most hospitals and CT facilities fall within this category.

The requirements of SC35 do not apply to radiation therapy facilities and the equipment used in radiotherapy, including radiation therapy simulators, for localization and treatment planning. SC35 does not apply to dental (addressed in SC 30) or mammography (addressed in SC 33) facilities.

SC35 does not apply to small radiological facilities such as most chiropractic, podiatry, physical therapy, and bone densitometry facilities.

Note: Health Canada is preparing a safety code specific to small facilities. As described in OHS Guideline [G7.23](#), SC20A continues to apply to small radiological facilities until the new safety code for small facilities is published.

Health and safety requirements of SC35

WorkSafeBC has consulted with the Diagnostic Accreditation Program, College of Physicians and Surgeons of BC, and the Ministry of Health, and has determined that only certain clauses of SC35 are concerned with occupational health and safety and are requirements under *Regulation* sections 7.23(a)(i) and (vi). These clauses, and any necessary explanatory notes, are listed below in this guideline. The Table may be updated from time to time, based on further consultation with health care sector representatives and possible future amendments to SC35.

Table: Health Canada *Safety Code 35* occupational health and safety (OHS) requirements

Description	Clauses with OHS requirements administered by WorkSafeBC
SC35 Section A - Responsibilities and Protection	
Responsibility of Personnel	1.0, 1.1, 1.2, 1.2.1 (Refer to Note 1), 1.2.2 (Refer to Note 1), 1.2.4, 1.2.5 (Refer to Note 2), 1.2.6 - 1.2.11, 1.3, 1.3.1 (Refer to Note 3), 1.3.2 (Refer to Note 3), 1.3.3(i), 1.3.3(v), 1.3.4 - 1.3.7, 1.3.11, 1.4, 1.4.1 (Refer to Note 4), 1.4.2 (Refer to Note 4), 1.4.3(i), 1.4.3(ii) (Refer to Note 5), 1.4.3(iii), 1.4.4 - 1.4.15, 1.4.17
Procedures for Minimizing Radiation Exposure to Personnel	2.1.2 - 2.1.8, 2.1.11, 2.1.12, 2.2.2 - 2.2.4, 2.3.3, 2.4(1), 2.4.1, 2.4.1.1 - 2.4.1.4
SC35 Section B - Facility and Equipment Requirements	
Facility Requirements	1.1, 1.2.1, 1.2.2 (subclauses 1,2,5,6,7,9 - Refer to Note 6), 1.2.3 (Refer to Note 7), 1.3 (Refer to Note 8)
Medical X-ray Equipment Requirements	2.5.1 (Refer to Note 9), 2.5.2.3, 2.5.3.2, 2.5.3.3, 2.5.3.5, 2.5.3.7, 2.5.4.1
Other Equipment	4.0, 4.1.1, 4.1.5 - 4.1.11
Radiation Protection Surveys	5.0, 5.1 (Refer to Note 10), 5.2 Paragraph 1, 5.2.1 - 5.2.8, 5.2.11, 5.2.12, 5.2.14

Note 1: Clauses A1.2.1 and A1.2.2 set out requirements for qualification and re-qualification of a responsible user (RU). WorkSafeBC will accept qualifications as outlined in *Safety Code 35*. If the RU is a physician, WorkSafeBC will also accept qualifications that are acceptable to the Diagnostic Accreditation Program. For non-physicians, WorkSafeBC will consider the RU to be qualified if the RU has the authority to fulfill the duties outlined in SC35 clause A1.2.

The RU is typically a person who is stationed on-site; for smaller facilities, an off-site RU may also be acceptable if the duties are being adequately fulfilled with the assistance of an on-site qualified and competent person. Assessment of compliance will include an assessment of whether the assigned duties are being fulfilled.

Note 2: There is currently no provision in B.C. for licensing or certification of x-ray equipment operators. WorkSafeBC will not require specific licensing or certification for x-ray equipment operators at this time. Adequate supervision, instruction, and training of staff are required under existing sections of the *Workers Compensation Act* ("Act"), including sections [21](#) and [23](#).

Note 3: Clauses A1.3.1 and A1.3.2 set out requirements for qualification and re-qualification of x-ray equipment operators. WorkSafeBC will accept qualifications as outlined in *Safety Code 35*. If the operator is a physician, WorkSafeBC will also accept qualifications that are acceptable to the Diagnostic Accreditation Program.

Note 4: Clauses A1.4.1 and A1.4.2 set out requirements for qualification and re-qualification of medical physicists and radiation safety officers (RSO). This typically needs to be a person who is stationed on-site; some duties can be contracted as required, and some duties can be done regionally or corporately.

Under these clauses, WorkSafeBC will accept qualifications for a medical physicist that are acceptable to the Diagnostic Accreditation Program.

Until a training course for RSOs in B.C. is readily available, qualifications for an RSO will be assessed as the person's knowledge of the work, the hazards, and the control measures necessary to perform the duties. This knowledge may be obtained by way of education, training, experience, or a combination thereof.

A responsible user can also be the RSO, if qualified as above.

Note 5: Clause A1.4.3(ii) refers to registration of new x-ray equipment. The Diagnostic Accreditation Program's (DAP) Radiation Safety Accreditation Standard specifies that new and replaced medical x-ray equipment be registered with the DAP. Registration forms are available on the DAP website, <https://cpsbc.ca/programs/dap>.

Note 6: Clause B1.2.2 sets out general recommendations that must be considered by the employer when designing the layout of an x-ray facility. The employer may be asked by a WorkSafeBC prevention officer to explain why a recommendation is not implemented. Evidence of consideration of a recommendation would include a written rationale explaining how the recommendation was incorporated or why the recommendation was rejected.

Note 7: Clause B1.2.3 sets out parameters that must be considered during calculation of barrier thicknesses. None of these parameters are mandatory for implementation, since they must only be considered. However, an employer may be asked to provide a rationale as to why a recommendation was not implemented. Evidence of consideration would include a written rationale explaining how the recommendation was incorporated or why the recommendation was rejected.

Note 8: Clause B1.3 sets out requirements for shielding calculations and requires submission of facility and installation plans as well as evidence of factor consideration to the appropriate government agency. WorkSafeBC does not require such submission to WorkSafeBC on a routine basis, but prevention officers may inquire into the determination and effectiveness of shielding in the event of an inquiry by an employer, a high exposure investigation, or a complaint.

Note 9: Clause B2.5.1 sets out construction and performance requirements for x-ray equipment. These requirements are administered by WorkSafeBC to the extent that they address worker health and safety. WorkSafeBC will not address these requirements as part of acceptance testing, which are under the scope of the Diagnostic Accreditation Program, but may assess them as part of the safe operation of the equipment.

Note 10: Clause B5.0 specifies that the survey is conducted by an expert. This is an individual who is qualified by education and experience to perform advanced or complex procedures in radiation protection that generally are beyond the capabilities of most personnel within the facility. These procedures include evaluation of the facility design to ensure adequate shielding is in place, inspection and evaluation of the performance of x-ray equipment and accessories, and evaluation of, and recommendations for, radiation protection programs.

Clause B5.1 requires the owner (or delegate) to contact WorkSafeBC to ascertain inspection (survey) procedures and inspection frequency. Inspection procedures are acceptable if they result in a survey report that covers all required information items described in clause B5.2. The required frequency for x-ray surveys is described in OHS Guideline [G7.24\(a\)](#).

G7.24 Radiation surveys

Issued August 1999; Revised January 1, 2005; Editorial Revision March 11, 2009; Editorial Revision April 6, 2020

Regulatory excerpt

Section 7.24 of the *OHS Regulation* ("Regulation") states:

Except as otherwise determined by the Board, the employer must conduct a radiation survey for ionizing radiation in accordance with the standard practice specified under the applicable Safety Code listed in section 7.23 (a) or the regulations under the *Nuclear Safety and Control Act* (Canada),

- (a) at the times required by the Safety Code or regulations, as the case requires,
- (b) if equipment has been damaged or modified, or
- (c) if there is an indication of an unusually high exposure of a worker to ionizing radiation.

Purpose of guideline

The purpose of this guideline is to clarify the requirement to conduct radiation surveys.

General survey requirements

For the purposes of section 7.24(b), the term *modified* includes moving the equipment from one permanent location to another. Exempt from this requirement is equipment that is designed to be mobile, such as a portable x-ray unit; a radiation survey is not required every time mobile equipment is moved.

For underground workings, the requirements for a radiation survey are specified in [section 22.33](#) of the *Regulation*.

Specific survey requirements

The specific requirements for a radiation protection survey are listed in each Safety Code (codes are listed in [section 7.23](#) of the *Regulation* and in OHS Guideline [G7.23](#)). Only those parts of the radiation protection survey that relate to worker protection are considered mandatory. Not completing the specific items listed for the protection of the patient and for the protection of the public will not be deemed to constitute non-compliance with section 7.24 of the *Regulation*. Table 1 lists the number of requirements in the relevant Safety Code.

Table 1: Requirements for a radiation protection survey

Safety Code	Application	Requirements for radiation survey	Radiation protection survey
20A	Medical ¹	5.1; 5.2	11 specific items
27	Industrial ²		
28	Veterinary	5.1; 5.2	6 specific items
30	Dentistry ³	4.3	3 specific items
31	Computed Tomography ¹		
32	Analytical	3.5	15 specific items
33	Mammography ³	4.3	4 specific items
35	Large Facilities	5.1; 5.2	14 specific items

1. *Safety Code 35* has replaced *Safety Code 20A* (only as it relates to large medical radiological facilities) and *Safety Code 31* (see OHS Guideline [G7.23](#)).
2. *Safety Code 34* has replaced *Safety Code 27* (see OHS Guideline [G7.23](#)).
3. While there is no specific section on "radiation protection survey" in *Safety Codes 30* and *33*, the general requirement for a "radiation protection inspection" is intended to cover the same situation. The expectation of the standard is that the employer will take the appropriate measurements to ensure that workers are not at risk of exposure to ionizing radiation resulting from damage to a piece of equipment.

In all cases, the radiation protection survey or the radiation protection inspection is intended to determine the extent of any damage to the equipment or the facility; thus it is part of an incident investigation. It should be noted that [section 69\(1\)\(c\)](#) of the *Workers Compensation Act* also applies, when a particular incident had the potential for serious injury (e.g., cancer development) to a worker. Any investigation of such an incident would be expected to include an inspection of the equipment and measurement of any possible leakage of radiation.

The survey should include leak testing, which is an assessment of potential points or areas for escape of ionizing radiation or radioactive material from a piece of equipment. For sealed sources, leakage tests meeting the requirements of the Canadian Nuclear Safety Commission ("CNSC") are acceptable to WorkSafeBC. One common such test is a wipe test, using a filter paper or a cotton-tipped swab to wipe possible areas of leakage, and then measuring the wipe sample for radiation. Situations involving spillage of radioisotopes or other radioactive materials are covered by the provisions of the CNSC licence held by the user. For X-ray equipment (diagnostic, analytical, etc.), a suitable survey meter can be used to identify any leak locations (e.g., an ion chamber monitoring device for accurate results or a Geiger-Mueller counter for estimations).

G7.24(a) Radiation surveys - Clarification of how often to conduct and who can conduct

Issued February 8, 2007; Editorial Revision December 1, 2021

Regulatory excerpt

Section 7.24(a) of the *OHS Regulation* ("*Regulation*") states:

Except as otherwise determined by the Board, the employer must conduct a radiation survey for ionizing radiation in accordance with the standard practice specified under the applicable Safety Code listed in section 7.23(a) or the regulations under the Nuclear Safety and Control Act (Canada),

(a) at the times required by the Safety Code or regulations, as the case requires,

Purpose of guideline

The purpose of this guideline is to provide information on how often to perform a radiation survey, and who can conduct a radiation survey.

Maximum intervals for radiation surveys

The Health Canada safety codes referenced in section 7.23(a) typically state that a radiation survey (called an inspection in some safety codes) is required at regular intervals. Safety Code 29 (*Requirements for the Safe Use of Baggage X-ray Inspection Systems*) is the only safety code that specifies a time period (2–3 years) between required surveys.

For all other x-ray equipment, the employer must determine the appropriate interval between radiation surveys of the x-ray equipment. In making this determination, the employer should consider the following factors:

- Manufacturer's specifications
- Requirements of the relevant professional association
- Nature of shielding used (e.g. lead or drywall)
- Frequency, nature, and conditions of use of the equipment
- Nature of patient (animal or human)
- Single or multiple users of the x-ray equipment
- Power levels used (kVp and mA settings)
- Results of personal exposure monitoring
- Type of x-ray unit (e.g. fixed or portable, radiographic, or fluoroscopic)
- Age and performance history of the equipment

It is expected that the interval between radiation surveys will not normally be more than three years, except in the case of a typical dental bite-wing x-ray unit operating only at or below 70 kVp, where a maximum period of five years between surveys is acceptable because of the low power levels and the nature of usage.

This guideline does not alter the requirements of *Regulation* sections 7.24(b) and (c) which require a survey to also be conducted if the equipment has been damaged or modified, or if there is an indication of an unusually high exposure of a worker to ionizing radiation.

Performance of a survey

Several of the safety codes state that the surveys should be done by the regulatory authority but in BC, the *Regulation* requires the employer to conduct the radiation surveys. The employer may contract with a specialist to perform the survey, but remains responsible for the survey being done with the required frequency and in accordance with accepted standard practice. WorkSafeBC prevention officers may review survey reports to ensure that the terms of the Safety Code and the *Regulation* have been met.

G7.25 Records

Issued August 1999; Revised January 1, 2005

Section 7.25 of the *OHS Regulation* ("*Regulation*") states:

The employer must

- (a) maintain and make available to the Board,
 - (i) for at least 10 years, records of radiation surveys, and
 - (ii) for the period that the worker is employed plus 10 years, records of exposure monitoring and personal dosimetry data, and
- (b) make the records available to workers.

WorkSafeBC's requirements for record keeping may be different from the time period required by other regulatory agencies. Where this is the case, the longer of the time periods will prevail in order to satisfy the regulatory requirement of that agency. For example, regulations of the Canadian Nuclear Safety Commission (CNSC) currently specify that survey and monitoring records are to be retained indefinitely until written permission is obtained from the CNSC to discard them, whereas section 7.25 of the *Regulation* indicates that they be kept for at least 10 years. In some cases, however, the CNSC may allow records to be discarded after 3 years, and the licence may so stipulate. In this circumstance, section 7.25 of the *Regulation* provides clear indication that WorkSafeBC requires a longer period, that is, 10 years or the period of employment plus 10 years (for personal dosimetry records).

Under protection of privacy legislation personal information cannot be made available to persons other than the monitored worker without express written consent from that worker. This applies to both medical records and the results obtained from dosimetry.

When exposure data is presented in an Inspection Report specific persons will not be identified by name; only their positions will be indicated (except in exceptional circumstances).

Guidelines - Part 7 - Division 4 - Thermal Exposure

G7.27(1) Heat exposure - Application

Issued August 1999; Revised January 1, 2005

75 - 100% work	31	28	-	-	28	25	-	-
50 - 75% work	31	29	27.5	-	28.5	26	24	-
25 - 50% work	32	30	29	28	29.5	27	25.5	24.5
0 - 25% work	32.5	31.5	30.5	30	30	29	28	27

WBGT means the wet bulb globe temperature measured with a black globe thermometer (GT), wet bulb thermometer (WB), and a dry bulb (air) thermometer (DB), and measured according to the following equations:

For indoor or outdoor environments without direct exposure to sunlight,

$$\text{WBGT}^{\circ}\text{C} = 0.7\text{WB} + 0.3\text{GT}$$

For outdoor environments with direct exposure to sunlight,

$$\text{WBGT}^{\circ}\text{C} = 0.7\text{WB} + 0.2\text{GT} + 0.1\text{DB}$$

The WBGT is based on environmental conditions (air temperature, radiant heat, and humidity). Table 1 also considers other criteria based on

- Acclimatization - whether or not workers are acclimatized to heat
- Work demands (metabolic rate category for the work) - light, moderate, heavy, or very heavy
- Approximate proportion of work within an hour — 75 - 100% work, 50 - 75% work, etc., with the remaining fraction of the hour allocated to recovery or "rest"

This guideline will help clarify the ACGIH table for heat stress exposure by explaining the various screening criteria and providing formulae for calculating the WBGT where the work demands or work environments vary. Further assistance may be obtained by contacting a [WorkSafeBC office](#).

The values in this table were developed for a traditional work uniform of a long-sleeved shirt and pants. If workers are required to wear clothing that would not fit in this category, then adjustments need to be made to the measured WBGT; see OHS Guideline [G7.28\(2\)](#), Clothing Correction Values before comparing to the heat stress exposure screening criteria. For workers wearing clothing that restricts the movement of air or is impermeable to air or water vapour, the above criteria cannot be used and may necessitate physiological monitoring to ensure adequate protection. See OHS Guideline [G7.29-3](#) for further information.

Work demands

To compare a worker's exposure with the screening criteria, an estimate of the worker's work demands (i.e., metabolic rate) needs to be determined as well as a measurement of the WBGT associated with each task performed during a 1-hour time period.

Four different work demand categories are listed in Table 1: light, moderate, heavy, and very heavy. Table 2 gives examples of activities within each category. The representative metabolic rate in watts for light to very heavy work has been added as this is needed to calculate the work demand when a worker carries out different tasks.

Table 2: Metabolic rate categories and the representative metabolic rate with example activities

Category	Metabolic Rate (W)*	Examples
Rest	115	Sitting
Light	180	Sitting with light manual work with hands or hands/arms, and driving. Standing with some light arm work and occasional walking.
Moderate	300	Sustained moderate hand and arm work, moderate arm and leg work, moderate arm and trunk work, or light pushing and pulling. Normal walking.
Heavy	415	Intense arm and trunk work, carrying, shoveling, manual sawing; pushing and pulling heavy loads; walking at a fast pace.
Very Heavy	520	Very intense activity at fast to maximum pace.

* The effect of body weight on the estimated metabolic rate can be accounted for by multiplying the estimated rate by the ratio of actual body weight divided by 70 kg (154 lb).

Calculations to use if work demands vary

If a worker is assigned different tasks within the hour, it is necessary to determine a time-weighted average (TWA) for the work demands. An acceptable way of doing this is to assign a metabolic rate to each task performed during the averaging period (1 hour), using the values in Table 2, and multiply it by the duration of each task. The product of work demand and duration for each task is then added up, and the sum is divided by the total duration of all tasks performed during the averaging period. The averaging period should be one hour, the same period of time that is used to calculate the time-weighted average WBGT.

The time-weighted average work demand is given by the following formula:

Time-weighted average workload formula

With work demand (TWA) in watts, Table 2 can be used to select the appropriate column (i.e., work demand level: light, moderate, heavy, or very heavy) to use in Table 1. The work demand (TWA) and the WBGT (calculated earlier) are then compared to the heat stress exposure values listed in Table 1.

Proportion of work and recovery

Table 1 gives four work/recovery patterns, and the most appropriate one should be used for comparison with the WBGT calculated earlier. The recovery period percentage does not necessarily mean a complete break from work, but could include "resting" or light tasks such as those listed in Table 2.

Note that the table does not provide exposure values for "heavy" and "very heavy" work demands in a continuous (75 - 100% work) pattern and "very heavy" work demands for a 50 - 75% work pattern. This is because of the high physiological strain associated with "very heavy" work among less fit workers, regardless of WBGT. In such cases, the screening criteria values are not recommended, and a detailed analysis and/or physiological monitoring should be used. (See also OHS Guideline G7.29-3).

Calculations to use if environments vary

If a worker is employed in two or more different work or recovery areas during the hour, a time-weighted average WBGT should be calculated in order to apply the heat stress exposure screening criteria. The time-weighted average is determined by measuring the WBGT for each task performed and multiplying them by the duration of each task. The product of WBGT and duration for each task is then added up, and the sum is divided by the total duration of all tasks performed during the hour.

The time-weighted average WBGT is given by the following formula:

Time-weighted average WBGT formula

Determining compliance with the exposure levels

Once the time-weighted averages for both workload and WBGT are calculated using the formula above, they are then compared to the levels listed in Table 1. The ACGIH TLV[®] represents conditions that acclimatized workers who are healthy, unmedicated, and adequately hydrated may be repeatedly exposed to without adverse health effects. The Action Limit applies similarly for the protection of unacclimatized workers. It also represents conditions that require a heat stress control plan.

For instance, if the calculated time-weighted average for work demands is 415 watts, the work demands are considered "heavy." If the worker is acclimatized, conducting 50 - 75% work and if the WBGT time-weighted average is 27 WBGT°C, then the TLV[®] level of 27.5 WBGT°C will not have been exceeded. The Action Limit of 24°C will have been exceeded and an exposure control plan needs to be developed (see OHS Guideline [G7.29-5](#)). If the worker is unacclimatized, the work pattern will need to be readjusted (e.g. by reducing the allocation of work in the work/recovery cycle, by increasing the recovery period, or changing to less strenuous tasks until the worker is acclimatized).

G7.28(2) Clothing correction values

Issued January 1, 2005; Revised February 12, 2008

Regulatory excerpt

Section 7.28(2) of the *OHS Regulation* states:

Clothing corrections must be applied in accordance with the heat stress and strain section of the ACGIH Standard.

Purpose of guideline

The purpose of this guideline is to specify clothing adjustment factors and values for use when calculating heat stress exposure.

Clothing Correction Factors and Values

The body's main heat-removal mechanism is the evaporation of sweat from the skin, so the clothing worn by workers affects the body's ability to remove heat. The heat stress exposure levels listed in the screening criteria - see OHS Guideline [G7.28\(1\)](#) - are for fully clothed workers wearing summer work garments of lightweight pants and long-sleeved shirt. Workers wearing more clothing may experience lessened evaporative and

convective cooling and therefore the measured wet bulb globe temperature (WBGT) is to be adjusted. Some suggested clothing adjustment factors from the ACGIH Standard are provided in the following table. The figure in the table is to be added to the WBGT measured in the workplace. Factors for other clothing appearing in the literature can be used in a similar fashion following good professional judgment.

Additions to measured WBGT values (°C) for some clothing ensembles

Clothing type	WBGT addition*
Work clothes (long-sleeved shirt and pants)	0
Cloth (woven material) overalls	0
Double-layer woven clothing	3
SMS polypropylene coveralls	0.5
Polyolefin coveralls	1
Limited-use vapour-barrier coveralls	11

* These values must not be used for completely encapsulating suits, often called Level A clothing. Clothing adjustment factors cannot be added together for multiple layers. The values for coveralls assume that only modesty clothing is worn underneath, not a second layer of clothing.

The ACGIH does not recommend using the WBGT heat stress exposure screening criteria for workers wearing clothing that is impermeable to air or water vapour or multiple layers where no data is available for adjustment. See OHS Guideline [G7.29-3](#) for further information.

G7.29-1 Heat stress assessment - acceptable measures and methods

Issued August 1999; Revised January 1, 2005; Editorial Revision June 8, 2011

Regulatory excerpt

Section 7.29(1)(a) of the *OHS Regulation* ("Regulation") states:

- (1) If a worker is or may be exposed to the conditions specified in section 7.27, the employer must
 - (a) conduct a heat stress assessment to determine the potential for hazardous exposure of workers, using measures and methods that are acceptable to the Board, and . . .

Purpose of guideline

The purpose of this guideline is to provide information on the measures and methods that are acceptable to WorkSafeBC regarding heat stress assessments.

Acceptable measures and methods

The first step in a heat stress assessment should be to determine the areas, tasks, or occupations that put workers at risk of heat-related disorders. Factors that should be considered when making this determination include:

- Areas with temperatures above 23°C (summer or winter)
- Areas with high humidity
- Jobs or tasks that require medium to high exertion or strength
- Areas, tasks, or occupations that have been identified as high risk for heat-related disorders through accident investigation reports, first aid treatment record books, and records of injury and disease
- Areas, tasks, or occupations about which employees have expressed concern about heat-related stress

Once it is determined which occupations, tasks, or areas should be monitored, the risk of developing a heat-related disorder should be evaluated.

Several different methods of assessing heat stress are available, including:

- Measurement of environmental parameters, such as air temperature, air velocity, air humidity, and infrared radiation (see OHS Guidelines [G7.29-2](#) and [G7.29-4](#))
- Direct measurement of body temperature (see OHS Guideline [G7.29-3](#))
- Measurement of other physiological responses, such as heart rate (see OHS Guideline [G7.29-3](#))

Environmental parameters are the most practicable for measuring in the field.

If the above measures and methods are used, they will be considered acceptable to WorkSafeBC for the purpose of this section. If alternative measures and methods are proposed, they are to be submitted to the OHS Practice and Engineering Support department of WorkSafeBC for consideration. The proposed alternative measures and methods may not be used until written acceptance is given by that department.

Regulatory excerpt

Section 7.29(1)(a) of the *OHS Regulation ("Regulation")* states:

- (1) If a worker is or may be exposed to the conditions specified in section 7.27, the employer must
 - (a) conduct a heat stress assessment to determine the potential for hazardous exposure of workers, using measures and methods that are acceptable to the Board, and . . .

Purpose of guideline

The purpose of this guideline is to outline some examples of measures and methods that are acceptable to WorkSafeBC using environmental parameters for conducting a heat stress assessment.

Heat stress assessment

The most common and widely used heat stress index is the wet bulb globe temperature (WBGT). The WBGT combines the effect of humidity and air velocity (natural wet bulb) ambient air temperature, velocity, radiant energy (globe temperature), and air temperature (dry bulb temperature) into a single value. The values listed in screening criteria for heat stress exposure are WBGT in °C. (Refer to OHS Guideline [G7.28\(1\)](#) for the table of screening criteria.)

Wet bulb globe temperature

To determine the WBGT, a black globe thermometer, a natural (static) wet bulb thermometer, and a dry bulb thermometer are required. For guidelines on measuring the WBGT, refer to "Temperature Extremes" in the *Fundamentals of Industrial Hygiene* published by the National Safety Council. Commercial direct-reading monitors are also available that will measure the environmental parameters and directly calculate the WBGT.

Other heat stress indices

Other heat stress indices are available to measure heat stress, including the wet globe temperature (WGT), or Botsball, and *ISO 7933 Hot Environments - Analytical Determination and Interpretation of Thermal Stress Using Calculation of Required Sweat Rate*. Under certain circumstances, the Botsball may be used instead of the WBGT. For example, a Botsball may be used as a screening tool, or for conditions of moderate radiant heat and humidity such as in general construction work.

Information on the various heat stress indices that are available can be found in such references as:

- NIOSH. 2016. *Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments*. Published by the National Institute for Occupational Safety and Health. Available online: [cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf](https://www.cdc.gov/niosh/docs/2016-106/pdfs/2016-106.pdf)
- Barbara A. Plog and Patricia J. Quinlan. 2002. *Fundamentals of Industrial Hygiene*, 5th edition. Published by the National Safety Council.

For further information regarding measures and methods acceptable to the Board please contact your local [WorkSafeBC office](#).

G7.29-3 Physiological measures

Issued August 1999; Revised January 1, 2005

Regulatory excerpt

Section 7.29(1)(a) of the *OHS Regulation* states:

- (1) If a worker is or may be exposed to the conditions specified in section 7.27, the employer must
 - (a) conduct a heat stress assessment to determine the potential for hazardous exposure of workers, using measures and methods that are acceptable to the Board, and

Purpose of guideline

The purpose of this guideline is to outline some examples of measures and methods that are acceptable to WorkSafeBC using physiological monitoring for heat stress.

Examples when wet bulb globe temperature cannot be used

In some occupations or work environments, workers must wear clothing that is either vapour or air impervious/impermeable. Examples of such clothing are full-body chemical protective equipment (HAZMAT suit) and firefighting turnout gear.

In these particular cases, the use of an environmental measure such as the wet bulb globe temperature (WBGT) will not be indicative of actual exposure conditions experienced by the worker wearing such protective equipment. Instead, the worker should be monitored to ensure that safe body temperatures are not exceeded. The body functions best when the core body temperature is within a range of 36°C to 38°C.

Physiological parameters

There are two physiological parameters that can be used to monitor a worker's state of heat stress: measurement of the core body temperature and heart rate.

Core body temperature can be measured either directly using rectal temperature or approximated by measuring oral or tympanic (ear-drum/canal) temperatures. Oral temperatures are determined by measuring temperature at the base of the tongue. The worker must not drink or eat anything cold or hot for at least 15 minutes before measurement. The thermometer must be inserted under the tongue, as far as possible, for about 5 minutes, and the mouth must be kept closed as much as possible. Oral temperature is approximately 0.4°C lower than rectal temperature.

The recovery heart rate during rest periods following a work cycle in a hot environment is a measure that can be used to monitor heat stress. There are two models for recovery heart rate.

The first model (Brouha) recommends a heart rate criterion level of 110 beats per minute during the first minute of a rest period after work in a hot environment, followed by a reduction in heart rate of 10 beats per minute by the end of the third minute of rest. Levels above these values are indicative of exposure to a heat stress environment.

The second model (Fuller and Smith) recommends that the heart rate in the third minute of a rest period after work in a hot environment should not exceed 90 beats per minute.

Further information on physiological monitoring can be obtained from the 1986 NIOSH document *Criteria for a Recommended Standard: Occupational Exposure to Hot Environments* available on the NIOSH web site: <http://www.cdc.gov/niosh/docs/86-113/> or contact an occupational hygiene officer at your local [WorkSafeBC office](#).

G7.29-4 Heat stress assessment using a dry bulb thermometer or Humidex index

Issued August 1999; Revised January 1, 2005; Revised February 12, 2008

Regulatory excerpt

Section 7.29(1)(a) of the *OHS Regulation ("Regulation")* states:

- (1) If a worker is or may be exposed to the conditions specified in section 7.27, the employer must
 - (a) conduct a heat stress assessment to determine the potential for hazardous exposure of workers, using measures and methods that are acceptable to the Board, and

Purpose of guideline

The purpose of this guideline is to outline the circumstances under which a heat stress assessment may be done using a Humidex-based method or a dry bulb thermometer, and describes procedures for using the Humidex-based method.

Background information

WorkSafeBC recommends taking measurements of the wet bulb globe temperature (WBGT) to measure heat stress, as described in OHS Guideline [G7.28\(1\)](#). This method requires complex instrumentation and training in use of the equipment. The use of other heat stress indices can simplify measurement in certain circumstances. Simplified measurements may be helpful in workplaces where heat stress is a seasonal concern in periods of hot weather conditions. See OHS Guideline [G7.29-2](#) for references on various heat stress indices.

The dry bulb thermometer method and the Occupational Health Clinics for Ontario Workers Inc. (OHCOW) Humidex Based Heat Response Plan (*Humidex method*) are tools that help assess heat stress for the purpose of managing heat stress and strain in the workplace. These methods are not applicable in all circumstances and/or workplaces. Further, these methods do not replace use of the WBGT for assessing compliance with the exposure limits established in [section 7.28](#) of the *Regulation*. (Caution: never ignore symptoms of heat strain even if measurements meet standards.)

Dry bulb thermometer or Humidex-based methods may only be used in situations where workers are not exposed to

- Sources of direct heat (infrared radiation) emanating from industrial equipment such as boilers, furnaces, steam lines, molten metal, or from other hot surfaces. Workplaces with significant radiant-heat load from process-related heat or where workers have experienced heat-related illness should measure the WBGT.
- High humidity levels produced by industrial equipment such as a pulp or paper machine in a pulp & paper mill, or to open sources of high temperature steam.

Humidex-based or dry bulb thermometer methods can be effective for workers wearing clothing that allows effective evaporative heat loss; for workers wearing impervious or semi-impervious clothing, heat stress management should include monitoring of vital signs (see ACGIH TLV[®] for Heat Stress, section 4).

In essence, these alternate methods are applicable to addressing the issue of heat stress in office buildings, retail facilities, health care facilities, hospitality industry, warehouses, or working outdoors, where a worker is not exposed to process-related heat or to industrially-produced high humidity levels.

Dry bulb method

Air temperature determined using a normal dry bulb thermometer will be considered an acceptable measuring standard under section 7.29 of the *Regulation* if all of the following conditions apply

1. The air temperature measured in the immediate area where the work is taking place does not exceed 35°C (95°F). It is not sufficient to use

a temperature level reported from another location, such as over the local radio station, or a reading taken at some distant location on the work site. Reflection off of walls or disruptions in wind flow in the immediate area where the work is being done may cause the temperature to vary significantly from the "general temperature" for the local area.

2. Where sources of radiant heat do not add significantly to the heat load. For example, equipment (an operating boiler or steam lines) and other hot surfaces (a tar and gravel roof or black asphalt pavement being heated by the sun) may be significant sources of radiant heat. A normal dry bulb thermometer does not measure infrared radiation, which is the source of radiant heat.
3. The work being done, if classified as "heavy" as described in Table 2 of OHS Guideline [G7.28\(1\)](#), does not exceed 2 hours in duration
4. Worker(s) are not wearing impervious or semi-impervious protective clothing.
5. If the air temperature measured is 30°C (86°F) or higher, an exposure control plan, as outlined below, is implemented unless the heat exposure is determined through use of the WBGT method to be below the Action Levels listed for unacclimatized workers in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard.

If any of the above conditions are not met, more precise measurements such as WBGT or Botsball temperature plus estimates of workload are required to determine the risk of heat stress in order to achieve compliance with section 7.29 of the *Regulation*.

Exposure control plan (ECP) requirements for dry bulb temperature assessments

If the above limiting conditions are met, and the heat stress assessment is being done using only a normal dry bulb thermometer, and the measured temperature equals or exceeds 30°C (86°F), an ECP for heat stress is to be implemented.

At a minimum, the heat stress ECP is to include

- Worker education and training as noted below
- Continuous availability of cool potable water close to the work area (see section [7.31](#) of the *Regulation*)
- Personal monitoring of heart rate to confirm the effectiveness of the work/recovery schedule (see details outlined below)
- Continuous supervision by a person knowledgeable in heat stress symptoms and control program requirements

Under this provision, workers in a heat stress environment are to be provided with information about

- Heat-related disorders, associated symptoms and the need to report their symptoms
- Factors increasing susceptibility to heat-related disorders
- Heat stress implications for any existing medical conditions and treatment, such as sleep deprivation, dehydration, diabetes, hyperthyroidism, and some medications
- Safe work procedures for work in heat stress areas, including work/recovery schedules, the importance of fluid loading and replacement, and the immediate reporting of symptoms of heat-related disorders to the supervisor
- Any environmental or personal monitoring programs used on-site
- Safe use of protective clothing and equipment, if required

As part of this provision, workers should check their "resting heart rate" prior to starting work in the area, and again before and after rest periods. At the beginning of the recovery period, the heart rate should not exceed 110 beats per minute. If it does, the work period should be shortened by one-third while maintaining the same rest period. At the end of the rest period, the pulse should be within 10 beats per minute of the resting heart rate before resuming work. Note that heart rate is only one symptom of heat stress. Workers and supervisors need to remain vigilant for other signs of heat-related illness.

Hot conditions and workload or personal monitoring may indicate that additional rest breaks are needed in the work rest cycle. Rest periods do not always require a change in location from the work environment. Rest periods do require that workers move away from direct sunlight or other sources of radiant heat and that they change to less strenuous tasks to reduce the build-up of body heat.

Humidex Method

The Humidex Based Heat Response Plan is a simplified method of protecting workers from heat stress, (developed by the Occupational Health Clinics for Ontario Workers (OHCOW)). The method is based on the American Conference of Governmental Industrial Hygienists (ACGIH) heat stress/strain TLVs[®] (Threshold Limit Values) and is a translation of wet bulb globe temperatures (WBGT) into Humidex values. Other factors - air movement, workload, radiant heat sources, and acclimatization - also need to be considered when assessing heat stress.

Humidex values are obtained by measuring temperature (dry bulb) and relative humidity and factoring them into the *Humidex* table below (Table 1). For example the Humidex value for a temperature of 37°C (read across from the left side of the Table) and a relative humidity of 50 percent (read down from the top of the Table) is 49°C. Temperature and relative humidity can be measured by a digital hygrometer (available at most hardware stores) or a sling psychrometer (a wet/dry bulb thermometer for determining relative humidity). It is important that a reading be taken at the actual workplace as Humidex values can vary substantially from location to location.

Table 1: Humidex Table

Table 1: Humidex Table

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The following must also be considered (added) when calculating a Humidex value:

- The *Humidex method* assumes that workers are wearing regular summer clothing (light shirt, pants, underwear, socks and shoes). If workers wear coveralls (e.g., cotton coveralls) over summer clothes, then 5°C should be added to the workplace Humidex value. Gloves and/or hard hat would each add 1°C and an apron (or vest) would add 2°C to the Humidex value. For workers who wear encapsulating suits, do not use the *Humidex method*.
- To adjust for radiant heat in direct sunlight (between 10 am and 4 pm), add 2 - 3°C to the Humidex value (pro-rate according to percentage cloud cover).
- For indoor radiant heat exposures, use training, knowledge, and experience to adjust the 2 - 3°C sunlight correction factor by estimating whether the exposure is more or less than the heat exposure to direct sunlight. Workplaces with significant process-related heat load (e.g. from boilers, furnaces, steam lines, etc.) should measure the WBGT.
- Humidex values should be measured at several locations in the work area (safe work procedures should be based on the highest reading).
- Do not base Humidex values on weather station or media reports. Use measurements taken at the worksite.
- Measurement should be recorded hourly if the Humidex is above 30°C.
- Never ignore anyone's symptoms regardless of the measurements.

In order to determine the procedures to be followed to protect workers from heat stress, the calculated Humidex value must then be compared to the Humidex guidelines in the *Humidex Heat Response Plan* table (Table 2). The response (Humidex 1 or Humidex 2) depends on the amount of physical work being done and the level of acclimatization of the workers.

Humidex 1 - corresponds to the ACGIH Action Limit and applies to moderate work loads (e.g., pushing and lifting) for unacclimatized workers, or heavy work loads (e.g., shoveling sand) for workers acclimatized to heat (see also OHS Guideline [G7.28\(1\)](#)).

Humidex 2 - corresponds to the ACGIH TLV[®] and applies to moderate work for acclimatized workers or light work for unacclimatized workers.

Note: An unacclimatized worker is a worker who is not accustomed to working in a hot environment or who has been out of a hot environment for seven consecutive days. It may take several days for workers to become acclimatized.

Table 2: Humidex Based Heat Response Plan

Humidex 1 Moderate unacclimatized & Heavy acclimatized	Response	Humidex 2 Moderate acclimatized & Light unacclimatized
25 - 29	Supply water to workers on an "as needed" basis	32 - 35
30 - 33	Post Heat Stress Alert notice; encourage workers to drink extra water; start recording hourly temperature and relative humidity	36 - 39
34 - 37	Post Heat Stress Warning notice; notify workers that they need to drink extra water; ensure workers are trained to recognize symptoms	40 - 42

38 - 39	Work with 15 minutes relief per hour can continue; provide adequate cool (10-15°C) water; at least 1 cup (240 mL) of water every 20 minutes. Worker with symptoms should seek medical attention	43 - 44
40 - 41	Work with 30 minutes relief per hour can continue in addition to the provisions listed previously	45 - 46*
42 - 44	If feasible, work with 45 minutes relief per hour can continue in addition to the provisions listed above	47 - 49*
45* or over	Only medically supervised work can continue	50* or over

* at Humidex exposures above 45, heat stress should be managed as per the ACGIH TLV[®]. The above administrative control measures do not preclude using other means to reduce excessive heat exposures, such as providing additional air conditioners or fans for spot cooling. In fact, engineering controls are the most effective means to control heat stress and should be considered first and in conjunction with the above steps as part of the heat stress ECP. For more examples of control measures, refer to WorkSafeBC publication [Preventing Heat Stress at Work](#).

The Humidex Based Heat Response Plan is also available on the [OHCOW website](#). An alternative way to determine the Humidex value is to use the "[calculator](#)" on the OHCOW website. Enter the dry bulb temperature and relative humidity level in order to calculate the Humidex value.

Heat Stress ECP

A heat stress assessment and ECP based on the *Humidex method* consists of the following steps:

1. Assign roles and responsibilities in the plan.
2. Train workers in early signs and symptoms of heat stress.
3. Select representative measurement locations in the workplace that will be monitored for temperature and relative humidity.
4. Determine the Humidex value, including the adjustments for clothing and radiant heat.
5. Compare the Humidex value to the appropriate criteria according to work demand and worker condition (Humidex 1 or Humidex 2).
6. Select and apply the control measures listed.
7. Maintain records.
8. Monitor the effectiveness of control measures. Regardless of Humidex values, individual symptoms must never be ignored.

If the above conditions for using the Humidex method are not met, WBGT measurements must be made plus estimates of workload are required to determine the risk of heat stress in order to achieve compliance with section 7.28 of the *Regulation*. Physiological monitoring may also be required.

Humidex Calculation Example # 1

This example concerns a worker performing roadway repairs in the B.C. Interior, in July. The weather is sunny (no cloud cover) and the temperature and relative humidity are 32°C and 30%, respectively.

The Humidex value from Table 1 is 34°C.

As the worker is wearing coveralls and gloves (as well as other safety equipment, e.g., work boots and hard hat), a value of 5°C (for the coveralls) and 1°C (for the gloves and/or hardhat) will have to be added. Another 3°C are added to adjust for radiant heat in direct sunlight (the worker is exposed to direct sun on the roadway). The final calculation for Humidex becomes: 34 + 5 + 1 + 3 = 43 degrees Celsius.

The Humidex value must then be compared to the ranges in Table 2 (Humidex 1 or Humidex 2), depending on whether or not the worker is acclimatized. If we assume the worker is acclimatized and performing heavy work (e.g., shoveling gravel), then Humidex 1 applies.

The recommended response plan would be Humidex 1 (42 to 44°C) and the following control measures would apply:

- Ensure workers are trained to recognize symptoms of heat stress.
- Post "Heat Stress Alert" notices.
- Supply water to the worker as needed - at least 1 cup (240 ml) of 10 to 15°C water every 20 minutes.
- Work with at least 30 minutes relief per hour, however, if feasible work with 45 minutes relief per hour.
- Record temperature and humidity on an hourly basis.

Humidex Calculation Example #2

This example concerns a worker in a commercial office building, in August. The building is not air-conditioned and the interior temperature and relative humidity are 28°C and 30%, respectively.

The Humidex value from Table 1 is 29°C.

The Humidex value must then be compared to the ranges in Table 2 (Humidex 1 or Humidex 2), depending on whether or not the worker is acclimatized. If we assume the worker is performing light work (which is typical in an office environment), then neither Humidex applies (there is no "Light" work category for Humidex 1 and the "Light unacclimatized" ranges for Humidex 2 are all greater than 29°C) and there is no heat stress issue.

In this example, the temperature of the indoor air and the comfort of the occupants are also addressed in *Regulation* [section 4.80](#).

Regulatory excerpt

Section 7.29(1)(b) of the *OHS Regulation* ("*Regulation*") states:

- (1) If a worker is or may be exposed to the conditions specified in section 7.27, the employer must
 - (b) develop and implement a heat stress exposure control plan meeting the requirements of section 5.54(2).

Purpose of guideline

The purpose of this guideline is to provide examples of specific elements of a heat stress exposure control plan.

Exposure control plan

For the general requirements of an exposure control plan, refer to section [5.54\(2\)](#) of the *Regulation* and OHS Guideline [G5.54-1](#). Some specific elements of the exposure control plan, as they relate to heat stress, are described below.

General duties and responsibilities

The statement of responsibilities should include roles for both the employer and workers. It should incorporate the following:

- Employer responsibilities
 - Identify and assess areas, tasks, and occupations where there is the potential for heat stress
 - Implement and/or provide controls (engineering, administrative, or personal protective equipment) to minimize heat stress
 - Provide training and education regarding heat stress, including early signs and symptoms of heat-related disorders
- Worker responsibilities
 - Participate in environmental monitoring program to assess worker exposure to conditions that could cause heat stress,
 - Adhere to all control measures or work procedures that have been designed and implemented to reduce exposure to conditions that could cause heat stress
 - Leave hot environments if signs or symptoms of a heat-related disorder appear

Risk identification, assessment, and control

This element should state the following:

- How the employer will determine those workers who may be at risk of heat-related disorders
- Who will conduct the heat stress assessments (if specific individuals are not identified, this element should contain easy-to-read instructions outlining how to conduct a heat stress assessment and the methods of control that should be used)
- How the heat stress hazard will be assessed (such as the measurement indices that will be used)
- What controls will be used to eliminate or minimize worker exposure to conditions that could cause heat stress, as well as when and how the controls will be implemented

Refer to OHS Guideline [G7.29-1](#) for guidance on conducting a heat assessment and to OHS Guidelines [G7.30-1 through G7.30-3](#) for information on controlling risk.

Education and training

This element should contain training and education, initial and ongoing, that will be provided to all workers who work in areas, tasks, or occupations where there is a reasonable likelihood of heat stress. The training and education material provided to workers who have not previously worked in a heat stress environment should include the following information:

- Heat-related disorders (heat cramps, heat exhaustion, and heat stroke)
- Relevant signs and symptoms of heat-related disorders
- Predisposing factors for heat-related disorders include the following:
 - Lack of acclimatization
 - Poor physical fitness
 - Obesity
 - Increased age
 - Dehydration
 - Pre-existing medical conditions and treatment (for example, diabetes or hyperthyroidism)
 - Short-term disorders and minor illnesses (for example, cold, flu, or diarrhea)
 - Chronic skin disorders (for example, rashes or dermatitis)
 - Use of medication that may inhibit sweating, reduce blood flow or cause dehydration (for example antihistamines)
 - Alcohol abuse and recreational drugs
 - Previous heat illness
- Potential health effects of excessive heat stress
- First aid procedures
- Safe work procedures and proper precautions for work in heat stress areas, including the importance of fluid replacement and of immediately reporting the development of signs or symptoms of heat-related disorders to the employer
- Purpose and description of the environmental monitoring program, as well as the benefits to the worker of participating in these programs
- Proper use of protective clothing and equipment, if required

For those workers exposed to environments that could cause heat stress, refresher training and education should be provided to ensure that workers remain knowledgeable about the above-mentioned items. It is recommended that continuing education be provided at least annually.

For further information, consult the WorkSafeBC booklet [Preventing Heat Stress at Work](#).

Written procedures

The employer should prepare written procedures on assessing heat stress, as well as on using control measures to minimize heat stress (for example, positioning and use of supplemental fans for cooling, using and caring for radiant heat reflective clothing, or using vortex or ice-pack cooling suits).

G7.30-1 Engineering controls

Issued August 1999; Revised January 1, 2005

Regulatory excerpt

Section 7.30(1) of the *OHS Regulation* ("Regulation") states:

If a worker is or may be exposed to the conditions specified in section 7.27, the employer must implement engineering controls to reduce the exposure of workers to levels below those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard.

Purpose of guideline

The purpose of this guideline is to establish the engineering controls that are acceptable to WorkSafeBC for the purpose of dealing with heat stress exposure as described in section 7.30(1) of the *Regulation*.

Types of control methods

Section 7.30 of the *Regulation* requires an employer to reduce the exposure of workers to heat stress conditions using a hierarchy of control methods: engineering controls, followed by administrative controls and, as a last resort, personal protective equipment.

Engineering controls

Engineering controls are the most effective means of reducing excessive exposure conditions that could cause heat stress. Examples of engineered approaches to reduce heat exposure include, but are not limited to, the following:

- **Reducing metabolic heat production.** Automation and mechanization of tasks can minimize the need for heavy physical work and the resulting buildup of body heat.
- **Reducing the radiant heat emission from hot surfaces.** Covering hot surfaces with sheets of low-emissivity material, such as aluminum or other shielding material, reduces the amount of heat radiated into the workplace.
- **Insulating hot surfaces.** Insulation reduces the heat exchange between the source of heat and the work environment.
- **Shielding.** Shields stop radiated heat from reaching workstations. Stainless steel, aluminum, and other bright metal surfaces reflect heat back towards the source. Absorbent shields, such as water-cooled jackets made of black-surfaced aluminum, can effectively carry away heat.
- **Ventilation and air-conditioning.** Ventilation, localized air-conditioning, and cooled observation booths are commonly used to provide cool working conditions.
- **Spot cooling.** Freestanding fans may be used to provide localized air movement at work locations. Typically, an increased rate of air movement over the body will cause increased cooling due to the evaporation of sweat, although this will depend on humidity. (Take care that spot cooling or blowers do not interfere with ventilation systems used to control toxic chemical agents.)
- **Reducing the humidity.** Air-conditioning and dehumidification, as well as the elimination of open water baths, drains, and leaky steam valves, all help to reduce humidity.

G7.30-2 Administrative controls

Issued August 1999; Revised January 1, 2005; Editorial Revision August 23, 2011

Regulatory excerpt

Section 7.30(2)(a) of the *OHS Regulation* ("Regulation") states:

(2) If the action described in subsection (1) is not practicable, the employer must reduce the exposure of workers to levels below those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard by providing

(a) administrative controls, including a work-rest cycle, acceptable to the Board or . . .

Purpose of guideline

The purpose of this guideline is to establish the administrative controls that are acceptable to WorkSafeBC for the purpose of dealing with heat stress exposure as described in section 7.30(1) of the *Regulation*.

Administrative controls for reducing exposure to heat stress

If engineering controls are not practicable, section 7.30(2)(a) permits the use of administrative controls, such as an acceptable work-rest cycle, to reduce the exposure of workers to below the screening criteria levels.

Several administrative controls that are commonly used to reduce a worker's exposure to heat stress are described below.

- **Fluid replacement and work practices.** Section 7.31 of the *Regulation* requires employers to provide and maintain an adequate supply of cool potable water (10-15°C) close to the work area for the use of a heat exposed worker who is or may be exposed to the conditions specified in section 7.27. Workers should be encouraged to drink small amounts frequently, such as one cup every 20 minutes.
- **Work-rest cycles.** A work-rest cycle refers to the period a worker spends working in a hot or strenuous environment and the time spent in a rest or recovery area.
- **Acclimatization.** The body will adapt to working in hot conditions if it is allowed sufficient time. This physiological process is referred to as acclimatization and can usually be induced in 4 to 7 days of exposure to a hot environment.
- **Scheduling and organization of work.** There are several ways to organize and to schedule tasks so as to minimize the length of time and temperatures to which workers may be exposed. For example:
 - When possible, schedule hot tasks for the cooler part of the day (early morning, late afternoon, or night shift).
 - Schedule routine maintenance and repair work in hot areas for cooler seasons of the year.
 - Adjust schedules where possible so that hot operations are not performed at the same time and place as other operations that require the presence of workers (for example, do not schedule maintenance cleanup while tapping a furnace).
 - Add extra personnel to reduce exposure time for each member of the crew.
 - Where practical, allow workers to set their own pace of work.
 - If weather forecasts predict very hot conditions, postpone tasks that are not urgent until the hot spell is over.
- **Signage.** Heat stress hazard warning signs may be posted in indoor work areas where the heat exposure limits could be exceeded if a worker is continuously exposed to heat.

Administrative controls as outlined above will be considered acceptable to WorkSafeBC for the purposes of this section. If alternative administrative controls are proposed, they are to be submitted to the OHS Practice and Engineering Support department of WorkSafeBC for consideration. The proposed alternative administrative controls may not be used until written acceptance is given by that Department.

G7.30-3 Personal protective equipment

Issued August 1999; Revised January 1, 2005

Regulatory excerpt

Section 7.30(2)(b) of the *OHS Regulation* ("Regulation") states:

(2) If the action described in subsection (1) is not practicable, the employer must reduce the exposure of workers to levels below those listed in the screening criteria for heat stress exposure in the heat stress and strain section of the ACGIH Standard by providing ...

(b) personal protective equipment, if the equipment provides equally effective protection as administrative controls.

Purpose of guideline

The purpose of this guideline is to establish the personal protective equipment that is acceptable to WorkSafeBC for the purpose of dealing with heat stress exposure as described in section 7.30(2)(b) of the *Regulation*.

Personal protective equipment

Where it provides equally effective protection and the use of engineering or administrative controls is not practicable, the use of personal protective equipment is permitted under section 7.30(2)(b).

There are two main types of heat-protective clothing available:

- **Anti-radiant heat or reflective clothing.** This type of clothing may be necessary when there is excessive radiant heat from a hot surface that cannot otherwise be covered or shielded. This clothing is available in different forms, varying from aprons and jackets to suits that will completely enclose the worker from neck to feet. This type of clothing protects only against radiant heat and provides little or no protection from high air temperatures unless auxiliary cooling is used underneath the clothing.
- **Temperature-controlled suits.** This type of clothing provides auxiliary cooling of the body while the worker is in the heat stress environment. There are several different types of temperature-controlled suits commercially available, each using a different method of cooling:
 - Ice pack vests
 - wetted overclothing such as terry cloth coveralls or two-piece, whole-body cotton suits
 - Water-cooled suits such as hoods, vests, and "long-johns" offering partial or complete body cooling
 - Air-cooled suits

G7.33-1 Cold exposure - Application

Issued August 1999; Revised January 1, 2005

Section 7.33 of the *OHS Regulation* states:

Sections 7.34 to 7.38 apply to a workplace if a worker is or may be exposed to

(a) thermal conditions that could cause cold stress or injury,

(b) thermal conditions that could cause a worker's core body temperature to fall below 36°C (96.8°F), or

(c) thermal conditions that are below the levels classified as "little danger" to workers in the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard.

The sections on cold exposure apply to work environments where workers may be exposed to either artificial or natural cold. Examples of artificially cold workplaces include cold storage rooms, freezers, and refrigerated transportation units. Examples of industries where workers may be exposed to natural cold include fishing, forestry, construction, and the petroleum industry.

In the context of these sections, exposure is taken to mean exposure to cold air or water either as part of routine work procedures or as a result of accidental or an unplanned event. Examples of accidental or unplanned events include a worker falling into water such as from a boat or breaking through ice (cold water immersion) or a worker becoming stranded outdoors in the cold.

Some examples of cold-related injuries include frostbite, frostnip, trenchfoot, and Raynaud's disorder.

G7.33-2 Cooling power of wind (imperial units)

Issued January 1, 2005

Section 7.33(c) of the *OHS Regulation* states:

Sections 7.34 to 7.38 apply to a workplace if a worker is or may be exposed to . . .

(c) thermal conditions that are below the levels classified as "little danger" to workers in the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard.

The ACGIH criteria, in the Fahrenheit scale, are listed in the following table as it appears in "Cold Stress" of *Threshold Limit Values and Biological Exposure Indices* (the ACGIH Standard). See OHS Guideline [G7.33-3](#) for a table in metric units. The table shows the cooling power of wind on exposed flesh. If there is a wind, use the wind speed in the first column and the actual temperature across the top to find what the equivalent temperature would be under calm conditions.

Equivalent chill temperature (imperial units)

G7.33-3 Cooling power of wind (metric units)

Issued January 1, 2005

Section 7.33(c) of the *OHS Regulation* states:

Sections 7.34 to 7.38 apply to a workplace if a worker is or may be exposed to . . .

(c) thermal conditions are below the levels classified as "little danger" to workers in the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard.

The ACGIH Standard provides values for the cooling power of wind on exposed flesh in the Fahrenheit scale. The following table has the same information, expressed in degrees Celsius and in km/h. It is organized for actual temperature to decrease by intervals of 5°C, resulting in an additional column. The table shows the cooling power of wind on exposed flesh. If there is a wind, use the wind speed in the first column and the actual temperature across the top to find what the equivalent temperature would be under calm conditions.

Equivalent chill temperature (metric)

G7.34-1 Cold stress assessment

Issued August 1999; Revised January 1, 2005; Editorial Revision August 23, 2011

Regulatory excerpt

Section 7.34(a) of the *OHS Regulation* ("*Regulation*") states:

If a worker is or may be exposed to conditions specified in section 7.33, the employer must

(a) conduct a cold stress assessment to determine the potential for hazardous exposure of workers, using measures and methods that are acceptable to the Board, and . . .

Purpose of guideline

The purpose of this guideline is to provide information on the measures and methods that are acceptable to WorkSafeBC regarding cold stress assessments.

Cold stress assessment acceptable to WorkSafeBC

Section 7.34(a) of the *Regulation* requires that a cold stress assessment be conducted if a worker is or may be exposed to conditions which could cause cold stress or injury, or could cause a worker's core body temperature to fall below 36°C (96.8°F), or fall below the "little danger" levels in the ACGIH table (see OHS Guidelines [G7.33-2](#) and [G7.33-3](#)). Part of the cold stress assessment for hazardous exposure should include the potential for unplanned exposure.

The first step in a cold stress assessment is to determine the areas, occupations, or tasks that place workers at risk of hypothermia or cold-related injuries. Consider factors such as the following:

- Areas with an equivalent chill temperature below -7°C (see below)
- Fine dexterity tasks that require work with bare hands
- Contact with metal surfaces or use of evaporative liquids (gasoline, alcohol, or cleaning liquids)
- Working on or near bodies of water
- Areas or occupations that have been identified as high risk for cold-related disorders through accident investigation reports, first aid

- treatment record books, and records of injury and disease
- Areas or occupations about which employees have expressed concern about cold stress

Once the areas, occupations, or tasks that should be monitored are determined, the risk of developing hypothermia or a cold-related injury should then be evaluated.

A cold stress assessment should include determining the air temperature and wind speed (to determine the "equivalent wind chill temperature"). This information is available by:

- Obtaining weather, temperature, and wind information from the local weather office (such as from Environment Canada) if there is a monitoring station close to the area in which the work is to be conducted.
- Taking a direct measurement of the ambient air temperature using a dry bulb thermometer (or electronic equivalent) and a direct reading of the wind velocity in km/h (or metres/sec) using a velometer, hot-wire thermometer, heated thermocouple, thermistor, or a thermocouple anemometer. Most air velocity instruments also provide a direct readout of air temperature.

Wind chill is a concern when the equivalent chill temperature is less than -7°C . From the metric table in OHS Guideline [G7.33-3](#), the conditions when this occurs are:

- The air is calm and the temperature falls below -7°C
- The wind speed is 8 km/h or greater and the air temperature is -5°C
- The wind speed is 16 km/h or greater and the air temperature is 0°C
- The wind speed is 32 km/h or greater and the air temperature is 5°C

As part of the risk assessment, the potential for a worker's exposure to artificially generated air velocities should also be considered; for example when working in walk-in refrigerators and freezers, when riding all-terrain vehicles or snowmobiles, or when exposed to helicopter rotor downwash.

A general assessment of contact cooling for exposed skin, particularly the hands, should consider the following when workers are in contact with metal:

- Below 15°C - Prolonged contact may impair dexterity
- Below 7°C - Prolonged contact may induce numbness
- Below 0°C - Prolonged contact may induce frostnip or frostbite
- Below -7°C - Brief contact with may induce frostnip or frostbite

For materials other than metal, such as plastics and wood, the temperatures will be lower than those noted above since they are less conductive than metal. Any contact with liquids at subzero temperature is also of concern, particularly with cryogenic "fluids" (super-cooled liquefied gases).

Workers should be provided with gloves or other method of warming the hands when the air temperature is below:

- 16°C for sedentary work
- 4°C for light work
- -7°C for moderate work

If the above measures and methods are used, they will be considered acceptable to WorkSafeBC for the purpose of this section. If other methods are proposed, they are to be submitted to the OHS Practice and Engineering Support department of WorkSafeBC for consideration and not to be used until written acceptance is given by that Department.

G7.34-2 Conversion

Issued January 1, 2005

Temperature in degrees Fahrenheit can be converted to degrees Celsius using the following formula.

$$^{\circ}\text{Celsius} = 5/9 \times (^{\circ}\text{Fahrenheit} - 32)$$

Wind velocity in miles per hour (mph) can be converted to kilometres per hour (km/h) using the following formula.

$$\text{km/h} = \text{mph} \times 1.61$$

G7.34-3 Exposure control plan

Issued January 1, 2005

Section 7.34(b) of the *OHS Regulation* states:

If a worker is or may be exposed to conditions specified in section 7.33, the employer must . . .

(b) develop and implement a cold exposure control plan meeting the requirements of section 5.54(2).

For the general requirements of an exposure control plan, refer to section [5.54\(2\)](#) and OHS Guideline [G5.54-1](#). Some specific components of the exposure control plan, as they relate to education and training of workers, are described below.

Education and training

This element should contain initial and ongoing training and education that will be provided to all workers who work in areas where there is a reasonable likelihood of exposure to conditions that could cause cold stress. The training and education material provided to workers who have not previously worked in a cold stress environment should include the following information:

- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur
- Recognition of impending frostbite
- Proper re-warming procedures and appropriate first aid treatment
- Proper use of clothing
- Proper eating and drinking practices
- Safe work practices appropriate to the work that is to be performed

For those workers exposed to cold-stress environments, provide refresher training and education to ensure that workers remain knowledgeable about the above-mentioned items. It is recommended that continuing education be provided at least annually.

For further information, consult the WCB publication [Hypothermia](#), on the WCB web site at www.worksafebc.com

G7.35-1 Engineering controls

Issued January 1, 2005

Section 7.35(1) of the *OHS Regulation* states:

- (1) If a worker is or may be exposed to the conditions specified in section 7.33, the employer must implement effective engineering controls to reduce the exposure hazard to levels above those classified as "little danger" to workers in the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard.

Section 7.35 of the *OHS Regulation* requires an employer to reduce the exposure hazard of workers to thermal conditions that could cause cold stress or injury using a hierarchy of control methods: engineering controls, followed by administrative controls and, as a last resort, personal protective equipment.

Here are some examples of engineering controls to reduce cold exposure:

- Isolate the worker from the environment, where possible.
- Use local heating for the body and especially bare hands (when fine work is required). This may include the use of warm air jets, radiant heaters, or contact warming plates.
- Provide barricades or other structures to block air or reduce air velocities at the work location.
- Provide heated metal tools and equipment handles or cover them with thermal insulating materials.
- Use machine controls and tools designed so that workers do not have to remove mittens or gloves to use them.

G7.35-2 Administrative controls

Issued January 1, 2005

Section 7.35(2) of the *OHS Regulation* states:

- (2) If the action described in subsection (1) is not practicable, the employer must reduce the exposure hazard by providing
 - (a) effective administrative controls, or . . .

If engineering controls are not practicable, section 7.35(2)(a) permits the use of effective administrative controls to reduce the exposure hazard of workers to thermal conditions that could cause cold stress or injury.

Several administrative controls that are commonly used to reduce worker exposure to cold stress are described below:

- **Work/warm-up schedules.** A work/warm-up schedule refers to the period a worker spends working in a cold environment and the time spent in a warm area. See OHS Guideline [G7.35-3](#) for sample schedules.
- **Scheduling and organization of work.** There are several ways to organize and to schedule tasks so as to minimize the length of time of exposure and to maximize the temperatures to which workers may be exposed. For example:
 - When possible, schedule tasks for the warmest part of the day or when the wind is the most calm.
 - Schedule routine maintenance and repair work for warmer seasons of the year.
 - Postpone non-urgent tasks when equivalent chill temperatures are in the "great danger" portion of the "Cooling Power of Wind" ACGIH table provided in OHS Guideline [G7.33-3](#).
 - Take the equivalent chill temperature into account when planning or scheduling work activities.
- **Fluid replacement and diet.** An ample supply of warm drinks or soup should be available, and workers should be encouraged to drink

them in order to replace fluids lost through breathing and perspiration. Workers should restrict their intake of coffee because of diuretic and circulatory effects. A diet high in fats and carbohydrates may help to maintain body temperature.

G7.35-3 Work/warm-up schedule for a 4-hour shift

Issued January 1, 2005

Section 7.35(2)(a) of the *OHS Regulation* states:

(2) If the action described in subsection (1) is not practicable, the employer must reduce the exposure hazard by providing

(a) effective administrative controls . . .

A work/warm-up schedule is an example of an administrative control. The ACGIH Standard contains a work/warm-up schedule for a 4-hour shift for workers who are properly clothed. This schedule is acceptable to the Board. Values in the ACGIH table have been converted to metric units in the table below.

Work/warm-up schedule for a 4-hour shift



G7.35-4 Personal protective equipment

Issued January 1, 2005

Section 7.35(2)(b) of the *OHS Regulation* states:

(2) If the action described in subsection (1) is not practicable, the employer must reduce the exposure hazard by providing . . .

(b) personal protective equipment, if the equipment provides protection equally effective as administrative controls.

Workers who are at risk of exposure to thermal conditions that could cause cold stress or injury due to unplanned or accidental events should be provided with clothing and equipment sufficient to permit survival from the natural elements until the worker can be removed from the exposure.

As a minimum, a worker should be provided with the following:

- Additional clothing selected in accordance with the anticipated overnight low temperatures for the region in which work or travel is conducted
- A sleeping bag rated for the anticipated overnight low temperatures for the region in which work or travel is conducted
- Survival equipment that will allow a worker to survive the natural elements until rescued

Here are some typical items that should be included in a survival kit:

GENERAL:	SIGNAL:
1 - backpack with pockets	1 - mini-flashlight and batteries
1 - 10 ft x 12 ft plastic tarp	1 - compass
1 - 5 ft x 6 ft polar fleece blanket	1 - survival whistle
2 - tarp straps	1 - set of flares
	1 - handheld flare launcher
COOKING:	
2 - large stainless steel cups	OTHER:
2 - sets of cutlery	2 - toilet tissue packets
1 - survival stove	1 - 50 foot parachute cord
1 - 500 mL water bottle	1 - sheathed knife
	1 - tube of lip balm and/or sunscreen
FOOD:	1 - container of insect repellent
4 - instant soup mix	1 - small folding saw
10 - tea bags	4 - garbage bags
1 - food ration	
10 - instant hot chocolate	FIRST AID:
12 - food bars	1 - basic first aid kit
1 - water treatment kit	
FIRE:	
1 - fire starting kit	

Selection of clothing and wearable personal protective equipment is discussed in OHS Guidelines [G7.37-1](#) and [G7.37-2](#).

G7.36 Heated shelters

Issued January 1, 2005

Section 7.36 of the *OHS Regulation* states:

If a worker is exposed to a thermal environment with an equivalent chill temperature less than -7°C (19°F), as determined using the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard, a nearby heated shelter must be available to the worker.

The intent of a heated shelter is to allow workers the opportunity to come out of the cold and warm themselves. The outer layer of clothing should be removed, and remaining clothing should be loosened to permit sweat to evaporate. Workers should be encouraged to use the shelter at regular intervals. Signs and symptoms indicating that the shelter should be used are:

- Onset of heavy shivering

- Minor frostbite (frostnip)
- Feeling of excessive fatigue
- Drowsiness, irritability or euphoria

A heated vehicle may be used as a heated shelter. In cases where workers are in remote or isolated areas without provision of vehicles capable of being heated (such as all-terrain vehicles or snowmobiles) or in cases where workers are on foot, workers should carry adequate equipment and supplies to permit the timely assembly of a heated shelter, if necessary.

G7.37-1 Clothing (whole body)

Issued January 1, 2005

Section 7.37(1) of the *OHS Regulation* states:

(1) A worker who is or may be exposed to the conditions referred to in section 7.33 must wear adequate insulating clothing and personal protective equipment.

The most widely used approach to dressing for work in cold environments is to use multiple layers of clothing. Generally, three layers of clothing are used:

- An inner layer that absorbs moisture and keeps it away from the skin.
- A second insulating layer that helps keep a layer of air trapped around the body.
- An outer layer that keeps dust, dirt, wind, and moisture away from the previous layer and that can be easily removed to prevent the buildup of body heat. In wet environments, the outer layer should be waterproof.

The insulative value of clothing selected should be based upon the equivalent chill temperature of the work environment and the anticipated metabolic rate of the work activity. Wearing too much clothing can lead to sweating, and wet clothing causes greater heat loss and increases the risk of developing hypothermia.

Many manufacturers of insulated garments provide guidance for recommended temperature and metabolic rate ranges for their clothing. There are also several standards that recommend the insulative value of clothing for use with a given temperature and metabolic rate.

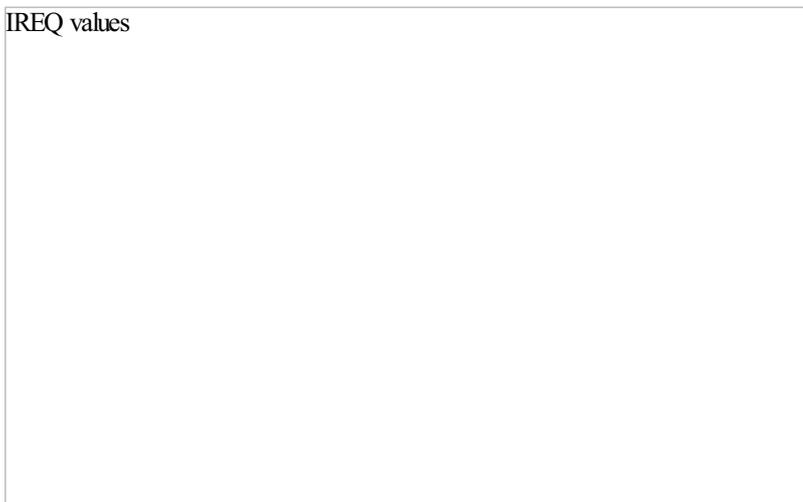
An example of a standard for selecting clothing is the required insulation value or IREQ. For more information on IREQ see the following:

Holmér, Ingvar. "Cold Stress: Part I - Guidelines for the Practitioner." *International Journal of Industrial Ergonomics* 14:139-149 (1994).

The IREQ value, in units of clo, is selected from the following chart based upon metabolic rate and ambient temperature. Once the IREQ is determined, clothing ensembles offering the same value of insulation should be selected. Examples of basic insulation values for different clothing ensembles are listed in the following table.

For further information pertaining to IREQ or other standards that can be used to help select insulated clothing, please contact your local [WBC office](#).

IREQ values needed to maintain low-level physiological strain



Examples of basic insulation values of clothing:

Clothing ensemble	Basic insulation value (clo)
Briefs, short-sleeved shirt, fitted trousers, calf-length socks, shoes	0.5
Briefs, undershirt, underpants, shirt, overalls, calf-length socks, shoes	1.0

Briefs, T-shirt, shirt, fitted trousers, insulated coveralls, calf-length socks, shoes	1.5
Underpants, undershirt, shirt, trousers, jacket, overjacket, overtrousers, socks, shoes, hat, gloves	2.0
Arctic clothing systems	3-4.5
Sleeping bags	3-8

G7.37-2 Clothing (extremities)

Issued January 1, 2005

Section 7.37(1) of the *OHS Regulation* states:

A worker who is or may be exposed to the conditions referred to in section 7.33 must wear adequate insulating clothing and personal protective equipment.

OHS Guideline [G7.34-1](#) includes general assessment guidelines for protecting the hands. In addition, mittens rather than gloves should be worn when the air temperature is less than -17°C (0°F). Gloves and mittens should have removable liners so they can be effectively dried.

Footwear for use in cold environments should be insulated and should also have removable insoles for effective drying.

Exposed areas of the head and neck should be protected against heat loss and the danger of frostbite by use of adequate head covering and/or facemasks. This is extremely important when equivalent chill temperatures fall within the "increasing danger" portion of the "Cooling Power of Wind" ACGIH table provided in OHS Guideline [G7.33-3](#).

Contents

GENERAL REQUIREMENTS

- G8.2(3) [Responsibility to provide](#)
- G8.5 [Program](#)
- G8.5(b) [Special program option for pulp and paper industry](#)
- G8.10 [Personal clothing and accessories](#)

SAFETY HEADGEAR

- G8.11(1) [Safety headgear](#)
- G8.11(2) [Activity specific safety headgear](#)
- G8.11(2)-1 [Safety headgear standards](#)
- G8.11(2)-2 [Activity specific safety headgear - Ski helmets](#)
- G8.11(3) [Protection from electrical hazards](#)
- G8.11(4) [Chin straps](#)
- G8.12/8.13 [Use of safety headgear for workers on ATVs and similar equipment in agricultural operations](#)
- G8.13 [Use of safety headgear with bicycles and skates](#)

EYE AND FACE PROTECTION

- G8.15(1) [Prescription safety eyewear - Alternate standards](#) [Retired]
- G8.17(2) [Face protection - Alternate standards](#) [Retired]

LIMB AND BODY PROTECTION

- G8.21 [Leg protection](#) [Retired]
- G8.21(2) [Leg protection - Alternate standards](#) [Retired]
- G8.21(2)-1 [Leg protection - WorkSafeBC standards](#) [Retired]
- G8.21(2)-2 [Leg protection - Alternate standard](#)

FOOTWEAR

- G8.22 [Footwear](#)
- G8.22(2.1) [High heels and healthy footwear](#)
- G8.22(3) [Specific safety protective features](#)
- G8.22(3)-1 [Footwear - Alternate standards](#)

HIGH VISIBILITY AND DISTINGUISHING APPAREL

- G8.24 [High visibility apparel](#)
- G8.24-1 [Alternative standards for high visibility apparel](#) [Retired]

BUOYANCY EQUIPMENT

- G8.26(3) [Buoyancy equipment and fall protection](#)
- G8.27-1 [Compliance with standards](#)
- G8.27-2 [Alternative acceptable standard for buoyancy equipment](#)
- G8.28 [Working alone or in isolation with a hazard of drowning](#)

RESPIRATORS

- G8.33-1 [Respiratory protection - Selection](#)
- G8.33-2 [Scott II and IIA SCBA regulator doming switch hazard](#) [Retired]
- G8.33(1) [Selection of respiratory protection - Alternate standard](#)
- G8.33(2)-1 [Approved respirators](#)
- G8.33(2)-2 [Interchange of equipment components](#) [Retired]
- G8.34-1 [Protection factors](#)
- G8.34-2 [Assigned protection factors for non-powered filtering facepiece style air-purifying respirators](#) [Retired]
- G8.34-3 [Maximum use concentration and IDLH](#)
- G8.34-4 [Protection factors - standard acceptable to WorkSafeBC](#)
- G8.34-5 [Assigned protection factor for helmet/hood style powered air purifying respirators](#) [Retired]
- G8.35 [IDLH or oxygen deficient atmosphere](#)
- G8.38(2) [Respiratory protection and use of contact lenses](#)
- G8.40 [Respiratory protection - Fit test](#)
- G8.40(2.1)(c) [Single-use respirators and fit test equivalency](#)
- G8.41 [User seal check - Alternate standard](#)
- G8.42 [Medical assessment](#)
- G8.44 [Records](#)
- G8.45 [Maintenance and inspection of self-contained breathing apparatus](#)

Guidelines - Part 8 - General Requirements

G8.2(3) Responsibility to provide

Issued August 1999; Editorial Revision February 1, 2008

Regulatory excerpt

Section 8.2(3) of the *OHS Regulation* ("Regulation") states:

If the personal protective equipment provided by the employer causes allergenic or other adverse health effects, the employer must provide appropriate alternative equipment or safe measures.

Purpose of guideline

The purpose of this guideline is to provide an example of selecting alternative equipment if the personal protective equipment provided by the employer causes allergic or other adverse health effects.

Appropriate alternative equipment

An example of selecting appropriate alternative equipment would be a worker allergic to natural rubber latex gloves, but who has work duties resulting in exposure to blood or other body fluids (a potential exposure to biological agents designated as a hazardous substance in section 5.1.1). In such a circumstance, the worker could use gloves made of vinyl, nitrile, neoprene, copolymer, or polyethylene, which would be appropriate alternatives to latex gloves for this particular exposure. See also OHS Guideline [G6.34-2](#) for more information.

If a worker has an allergenic or other adverse health effect due to the protective equipment supplied and the remedy chosen is the use of "other safe measures," such measures have to provide at least equivalent protection to the worker that the personal protective equipment normally used would provide.

G8.5 Program

Issued August 1, 1999; Revised November 17, 2003; Editorial Revision to include February 1, 2011 regulatory amendment

Regulatory excerpt

Section 8.5 of the *OHS Regulation* ("Regulation") states:

If personal protective equipment is required to protect against a chemical exposure or an oxygen deficient atmosphere the employer must implement an effective protective equipment program at the workplace which includes

- (a) a statement of purpose and responsibilities,
- (b) written procedures for selection, use, inspection, cleaning, maintenance and storage of protective equipment, when required,
- (c) instruction and training in the correct use and maintenance of the equipment,
- (d) for respirators, medical assessment of respirator wearers, when required,
- (e) documentation when required, and
- (f) program review.

Purpose of guideline

The purpose of this guideline is to provide direction in determining if personal protective equipment is required in a chemical exposure or an oxygen-deficient atmosphere.

Personal Protective Equipment

To determine if personal protective equipment is required in a workplace to protect against a chemical exposure or an oxygen-deficient atmosphere, the employer has to consider the requirements of section 5.55 of the *Regulation*. Section 5.55(1) states "If there is a risk to a worker from exposure to a harmful substance by any route of exposure, the employer must eliminate the exposure, or otherwise control it below harmful levels and below the applicable exposure limit established under section 5.48..." Options available to the employer include substitution, engineering control, administrative control, or personal protective equipment. However, section 5.55(3) states: "The use of personal protective equipment as the primary means to control exposure is permitted only when

- (a) substitution, or engineering or administrative controls are not practicable, or
- (b) additional protection is required because engineering or administrative controls are insufficient to reduce exposure below the applicable exposure limits, or
- (c) the exposure results from temporary or emergency conditions only."

For guidance in determining whether personal protective equipment is required, refer to OHS Guideline [G5.55](#).

For guidance on determining if a medical assessment of a respirator wearer is required under paragraph 8.5(d), refer to OHS Guideline [G8.42](#).

G8.5(b) Special program option for pulp and paper industry

Issued August 1, 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 8.5(b) of the *OHS Regulation* ("*Regulation*") states:

8.5 If personal equipment is required to protect against a chemical exposure or an oxygen deficient atmosphere the employer must implement an effective protective equipment program at the workplace which includes...

- (b) written procedures for selection, use, inspection, cleaning, maintenance and storage of protective equipment, when required

Purpose of guideline

The purpose of this guideline is to address a maintenance requirement for escape respirators used in the pulp and paper industry, specifically the replacement schedule for chemical cartridges used for protection against reduced sulfur gases, such as hydrogen sulfide, methyl mercaptan, dimethyl mercaptan, dimethyl sulfide and dimethyl disulfide. Escape respirators, except for workers required to ride in the pulp mill elevators, may be half facepiece respirators and mouthpiece, or biteblock respirators, and are used by mill personnel to escape to a safe area when the mill experiences a gas leak.

Escape respirators

The performance of escape cartridges in the pulp and paper environment was assessed in a study conducted by BC Research Incorporated, and the findings were published in June 1994, in a report entitled "Life Expectancy of Cartridges for Escape Respirators: Final Report", BCRI Project No. 4-02-394. Based on the findings of this study, the following guidelines are recognized as acceptable practice by WorkSafeBC. (This guide was initially published by the Prevention Division in a letter issued October 6, 1994, to the pulp and paper industry.)

The replacement schedule for chemical cartridges for use in escape respirators, in the pulp and paper industry only, may be extended to 12 months for unused, unexposed, and undamaged cartridges with the following provisos:

- A cartridge in an escape respirator is to be changed after use in an emergency involving exposure to mill gases
- Each cartridge is to be marked to show clearly its expiry date
- A metal type cartridge is to be inspected prior to installation for dents in the base or threads
- Any damaged unit is to be replaced

Respiratory protection program

Each pulp and paper mill is expected to have a comprehensive respiratory protection program, functioning as required by section 8.5 of the *Regulation*. This is achieved when all workers who are, or may be, required to use a respirator are trained to an acceptable level of competency and all the elements of the program are in place covering correct use, limitations, maintenance and storage requirements for the devices selected.

For respirator use in industries other than pulp and paper mills, the employer must follow the respirator manufacturer's recommendations for cartridge replacement schedules.

G8.10 Personal clothing and accessories

Issued August 1, 1999; Revised September 22, 2015

Regulatory excerpt

Section 8.10(1) of the *OHS Regulation* ("*Regulation*") states:

The personal clothing of a worker must be of a type and in a condition which will not expose the worker to any unnecessary or avoidable hazards.

Purpose of guideline

This guideline provides clarification and examples of the regulatory requirements for personal clothing.

Clarifications for personal clothing

Under this section, the type and condition of clothing is a concern if a worker is exposed to injury from the material being handled, contact with an abrasive surface or object, or contact with a surface at a temperature that could cause a burn injury. For example, a worker handling hot tar or other material that could cause a burn through splashing, fuming, or radiant heat must wear suitable clothing covering the body and arms. A worker exposed to the abrasive action of material, such as the carrying of lumber on the shoulder or against the body, must wear appropriate clothing.

A worker may have to change or add clothing as the worker's job duties or work conditions change.

An employer may have a dress code or policy for clothing requirements during warm weather. WorkSafeBC prevention officers will not enforce an employer's policy of this type. Prevention officers will become involved in enforcement if the lack of appropriate clothing is exposing a worker to any unnecessary or avoidable hazards.

Removal of clothing during outdoor work in warm weather exposes workers to UV from the sun. Ultraviolet radiation from the sun is a "natural element," and under paragraph 8.2(1)(a) of the *Regulation*, a worker is responsible for providing any necessary clothing to protect against it. Workers and employers need to be aware of the hazard from solar radiation, and need to take measures to limit exposure, such as by use of appropriate attire and the use of sun block creams.

Guidelines - Part 8 - Safety Headgear

G8.11(1) Safety headgear

Issued September 1, 2021; Preliminary Revision May 9, 2022

Regulatory excerpt

Section 8.11(1) of the *OHS Regulation* ("*Regulation*") states:

(1) Before a worker starts a work assignment in a work area where there is a risk of head injury to the worker from falling, flying or thrown objects, or other harmful contacts, the employer must take measures to

(a) eliminate the risk, or

(b) if it is not practicable to eliminate the risk, minimize the risk to the lowest level practicable by applying the following control measures in order of priority:

(i) engineering controls;

(ii) administrative controls;

(iii) requiring the worker to wear safety headgear.

Purpose of guideline

The purpose of this guideline is to provide information on identifying the risk of head injury from falling, flying, or thrown objects, or other harmful contacts, and controlling the risk by following the hierarchy of controls. This guideline also provides information about what to do if workers have concerns about the appropriateness of the control measures selected.

Background

Controlling exposures to hazards in the workplace is fundamental to protecting workers, but often personal protective equipment (PPE) such as

safety headgear is used as a blanket first line of defense from a serious safety hazard. The Sikh community has raised concerns that those employers who use safety headgear as a blanket safety requirement are excluding turban-wearing Sikh workers from being able to fully participate in the workforce.

PPE is considered the least effective control measure as it does not eliminate a hazard but merely puts a barrier between the hazard and the worker. Following the hierarchy of controls ensures measures such as elimination, engineering controls, and administrative controls are applied before relying on safety headgear.

Worker participation

Creating and managing a safe and healthy workplace involves everyone. For workers to be truly engaged in health and safety, they need to know their employer and supervisor value their well-being and their input. Consult with workers in the identification of any workplace hazards and in assessing the risks of injury as they will have direct knowledge of workplace conditions.

Identify hazards, and assess and control risks

To help eliminate or reduce the risk of head injury, employers, in consultation with their workers, can take these steps:

1. Identify the hazards
2. Assess the risks
3. Control the risks

The first step is to determine if there are any hazards that may cause a head injury to a worker. A "hazard" is anything with the potential to cause an injury to a worker. An example of a hazard would be any tool or other object that could fall on a worker from above. Consider the workplace and its layout, as well as the work tasks or activities that pose hazards to workers.

A "risk" is the chance of injury when an individual is exposed to a hazard. In determining the level of risk a hazard poses, the following factors are considered:

- What kind of injury or illness could be suffered, and how severe would it most likely be?
- How long workers are typically exposed to the hazard? The longer the exposure, the higher the risk.
- How frequent is the exposure? If the task is repeated many times each shift, it carries more risk than a task done only occasionally.

Examples include if there is a risk of a worker being struck by a falling tool or other object, or if there is a potential for workers to enter an area where the hazard exists.

Where a hazard exists and there is a risk of injury to any worker, the employer must take reasonable measures to eliminate that risk. Eliminating the dangers of worker head injury eliminates the need for head protection. If it is not reasonably practicable to eliminate the risk, the employer must continue to follow the hierarchy of controls and minimize the risk to the lowest level practicable.

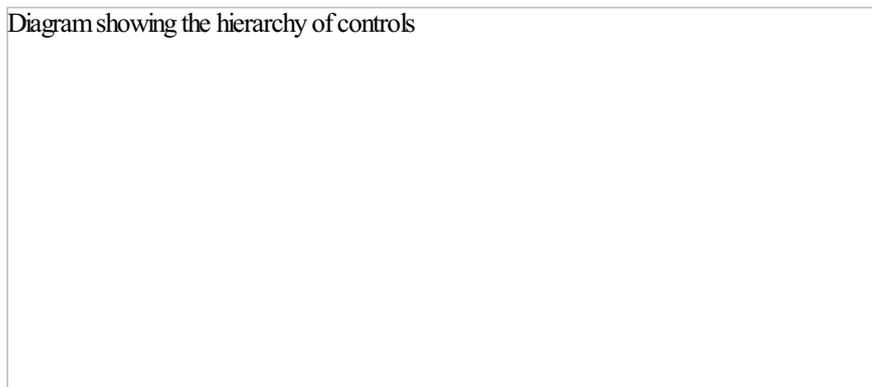
For further information on hazard identification, risk management, and controls please refer to [Managing risk](#) webpage on worksafebc.com.

The hierarchy of controls

The hierarchy of controls is a system for controlling risk in the workplace. It is a step-by-step approach to eliminating or reducing risks, and it ranks risk controls from the highest level of protection and reliability to the lowest. The hierarchy of controls, in the order of priority, is shown below.

While the controls are listed in order of effectiveness, reducing the risk may involve using a single risk control or two or more different controls in combination. For example, first responders may encounter circumstances where the risks cannot be completely eliminated before entering a burning building, but engineering controls, administrative controls, and/or PPE can be used to minimize the risks to workers.

Diagram showing the hierarchy of controls



1-2 Elimination or substitution

The most effective control measure involves eliminating the hazard and its associated risk. Eliminating the dangers of worker head injury eliminates the need for head protection. Substitution involves replacing the material or process with a less hazardous one.

When considering these options, determine if there is a safer way to perform the task. For example, if materials need to be delivered to a construction site where there is a risk of head injury to the worker from falling, flying, or thrown objects, can a safe zone be set up on the site where no risk exists? This is an example of an elimination control measure removing the hazard and its associated risk.

3 Engineering controls

If it is not practicable to eliminate the hazards or if there are no safer alternatives, engineering controls are the next best option. These involve using work equipment or other means to prevent workers from being exposed to a hazard. Engineering controls are physical changes to the workplace. Engineering controls focused on head injury risks may include measures such as the following:

- Safety nets to prevent objects from falling
- Temporary or permanent solid barriers to prevent objects from falling, being thrown, or sent flying from work areas
- Temporary or permanent barriers to prevent workers from entering hazard areas
- Tethering and securing tools, materials, and equipment so they cannot fall
- Changing the workplace so workers do not need to enter areas where a risk of head injury exists — for example, in a manufacturing plant, ensuring manual assembly or packing areas are separated from the areas where overhead bridge cranes operate

4 Administrative controls

Administrative controls involve identifying and implementing safe work procedures so workers can perform their job duties safely. The assessment will form the basis of these safe work procedures, which may include the following:

- Procedures requiring work to stop when other workers are beneath their work areas
- Creating work practices that eliminate the exposure to the hazard — for example, workers delivering materials by truck to a worksite with overhead hazards may need to be restricted to a designated area where no overhead hazard exists
- Creating designated pedestrian walkways that keep workers out of head injury hazard zones — this would be similar to those used in distribution warehouses for forklift traffic
- Using signs to alert workers to overhead hazard areas, and provision for safety headgear for entering those areas
- Using spotters to alert workers to vacate areas when moving elevated loads or long loads that have the potential to fall or swing and strike a worker — for example, on an industrial site where a stinger is moving a long pipe, or a fabrication shop where an overhead crane is moving a steel beam section

5 Personal protective equipment

PPE is another important control to protect workers and refers to anything workers use or wear to minimize risk to a hazard. However, PPE, such as safety headgear, provides the lowest level of protection and should ideally be used in combination with other control measures. Safety headgear such as hard hats must be worn by workers if it is not practicable to eliminate the risk of head injury, or engineering and/or administrative controls are not adequate to minimize the risk of head injury to the lowest level practicable.

An example of where safety headgear may be necessary is if the work environment is constantly changing and it is not possible to use engineering or administrative controls to minimize the hazards to the level needed to protect workers from the risk of head injury.

Employers must take reasonable measures to eliminate or control those hazards for which PPE is required, including safety headgear.

Document, communicate, and review the safety headgear assessment

Employers have a duty under the *Workers Compensation Act* to provide workers with the information, instruction, training, and supervision necessary to ensure their health and safety. Documenting and communicating the assessment and controls to everyone affected will help employers meet these obligations. A failure to do so severely undermines a worker's knowledge of the risks that may be encountered in their work environment.

Communicate with:

- All affected workers, particularly if the controls involve changes in their work processes (e.g., use of spotters, new signage to be followed, tethering tools and materials)
- Supervisors of affected workers
- The joint health and safety committee (or worker health and safety representative), if applicable
- All other people (e.g., visitors, clients) who need to follow safety procedures in areas with a risk of head injury

Monitor and update

Managing workplace risks is an ongoing process. Employers need to monitor the effectiveness of the control measures in place and improve those that are not working as intended. Continue to engage workers throughout the monitoring and updating of the risk management plan.

Role of WorkSafeBC prevention officers

If a worker has a concern about the measures taken to eliminate or reduce the hazard they should first speak to their employer or supervisor to determine if further control measures are possible. If there is still a concern regarding the appropriateness of the control measure(s) selected, the worker or employer may choose to call a prevention officer for assistance. In these circumstances, the prevention officer will review the employer's assessment and determine whether the hierarchy of controls has been followed and applied before relying on safety headgear.

In some situations, employers may have to balance their health and safety obligations with their obligations under human rights legislation. For more information on this please refer to OHS Guideline [G-P2-21\(1\)](#).

Additional resources

To help with assessing and controlling the risks of head injury in the workplace, WorkSafeBC has developed a resource, [Safety headgear: Assessing and controlling risk of head injury](#). A [Safety headgear: Risk management template](#) is also available to help document workplace risks and the steps to take to control those risks.

[Safety headgear: Rights and responsibilities](#) is also available for workers, with information on their rights and what they can do if they have a concern with an employer's application of section 8.11 of the *Regulation* in their workplace. This resource includes a process map that outlines what workers can do if they have concerns with the employers' decision to rely on safety headgear.

G8.11(2) Activity specific safety headgear

Issued August 1, 1999; Editorial Revision April 2005; Revised August 1, 2013; Editorial Revision consequential to February 1, 2015 Regulatory Amendment; Editorial Revision consequential to June 3, 2019 Regulatory Amendment; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 8.11 of the *OHS Regulation* ("Regulation") states:

(1) Before a worker starts a work assignment in a work area where there is a risk of head injury to the worker from falling, flying or thrown objects, or other harmful contacts, the employer must take measures to

(a) eliminate the risk, or

(b) if it is not practicable to eliminate the risk, minimize the risk to the lowest level practicable by applying the following control measures in order of priority:

(i) engineering controls;

(ii) administrative controls;

(iii) requiring the worker to wear safety headgear.

(2) Safety headgear must meet the requirements of one of the following standards:

(a) *CSA Standard CAN/CSA-Z94.1-05 or CAN/CSA-Z94.1-15, Industrial protective headwear – Performance, selection, care, and use;*

(b) *ANSI Standard ANSI/ISEA Z89.1-2009 or ANSI/ISEA Z89.1-2014, American National Standard for Industrial Head Protection.*

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

This guideline outlines alternate standards for safety headgear for specific types of activities and describes when they are applicable.

Acceptable standards

WorkSafeBC accepts the following alternate standards for safety headgear designed for specific types of activity:

1. *Union of International Alpine Association Standard (UIAA) Standard 106 Mountaineering and Climbing Equipment Helmets "Rock Climbers Helmets"* (for emergency rescue operations, rock scaling, silviculture operations, window washers, and workers doing boatswain's chair work)

Headgear meeting this standard protects against blunt impact hazards to the head, but must not be used in place of conventional safety headgear whenever the ventilation holes may expose the worker to hazards from small rigid objects such as nails or if flame resistance is required.

2. *CAN/CSA Z262.1-M90 (R2007) Ice Hockey Helmets* (for on-ice activities)

3. *CAN/CSA Z611-M86 Police Riot Helmets and Face Shield Protection* (for crowd control/riot squad duties)

Since helmets meeting these three standards are not made or tested for dielectric properties, they are not suitable for environments where exposed

energized electrical wires or equipment may be present.

This guideline and these standards do not apply to ski helmets. Please refer to OHS guideline G8.11(2)-2 Activity specific safety headgear — Ski helmets.

G8.11(2)-1 Safety headgear standards

Issued September 21, 2012; Revised consequential to June 3, 2019 Regulatory Amendment

Regulatory excerpt

Section 8.11(2) of the *OHS Regulation* ("Regulation") states:

- (2) Safety headgear must meet the requirements of one of the following standards:
 - (a) *CSA Standard CAN/CSA-Z94.1-05 or CAN/CSA-Z94.1-15, Industrial protective headwear – Performance, selection, care, and use;*
 - (b) *ANSI Standard ANSI/ISEA Z89.1-2009 or ANSI/ISEA Z89.1-2014, American National Standard for Industrial Head Protection.*

Purpose of guideline

The purpose of this guideline is to help clarify the requirements in the approved standards around the use of Type 1 or Type 2 safety headgear.

Acceptable standards

Both *2005 CSA Standard* and *2009 ANSI Standard* classify safety headgear into two types: Type 1 and Type 2. Type 1 safety headgear provides protection from impacts and sharp objects from above. Type 2 safety headgear provides protection from impacts and sharp objects from above and sides. WorkSafeBC permits the use of both types of safety headgear providing the other requirements in the applicable standards are met.

Type 2 safety headgear provides more protection where there is a possibility of objects striking the side of the head.

G8.11(2)-2 Activity specific safety headgear — Ski helmets

Issued August 1, 2013; Editorial Revision consequential to June 3, 2019 Regulatory Amendment; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Sections 8.11(1) and (2) of the *OHS Regulation* ("Regulation") state:

- (1) Before a worker starts a work assignment in a work area where there is a risk of head injury to the worker from falling, flying or thrown objects, or other harmful contacts, the employer must take measures to
 - (a) eliminate the risk, or
 - (b) if it is not practicable to eliminate the risk, minimize the risk to the lowest level practicable by applying the following control measures in order of priority:
 - (i) engineering controls;
 - (ii) administrative controls;
 - (iii) requiring the worker to wear safety headgear.
- (2) Safety headgear must meet the requirements of one of the following standards

Section 8.3(2) of the *Regulation* states:

If the use of personal protective equipment creates hazards equal to or greater than those its use is intended to prevent, alternative personal protective equipment must be used or other appropriate measures must be taken.

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
 - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

The purpose of this guideline is to clarify the requirements for safety helmets for workers engaged in skiing or snowboarding, and to identify

acceptable alternate standards for these helmets.

Use of helmets for skiing or snowboarding

Section 8.11(1) of the *Regulation* states that, where there is a risk of head injury from harmful contacts, employers must attempt to eliminate or minimize those risks. If the risk cannot be eliminated or minimized, workers must wear safety headgear.

Work activities performed while engaging in alpine, or downhill, skiing or snowboarding present a danger of harmful contacts. These harmful contacts include possible contact with the ground, moving or stationary objects, and other persons. Risks of harmful contacts cannot be easily eliminated or minimized in this type of environment. Accordingly, workers engaged in sliding activities will usually be required to wear safety headgear.

In ski areas, examples of workers typically engaged in skiing or snowboarding include ski patrollers, ski instructors, avalanche control workers, and workers transiting on skis or snowboards between work locations.

Acceptable standards

Section 8.11(2) lists standards that safety headgear must meet. In addition, section 4.4(2)(a) permits the reliance on other standards that are acceptable to WorkSafeBC. WorkSafeBC has identified the following standards for safety headgear for skiing and snowboarding work activities as acceptable for use by workers:

- *CE-EN1077 Helmets for alpine skiers and snowboarders — Class A or Class B*
- *ASTMF2040 Helmets Used for Recreational Snow Sports*
- *Snell RS-98 Protective Headgear for Recreational Skiing and Snowboarding*

Risk assessment

Where an employer can show that a particular sliding activity is performed in a way that the danger of harmful contacts is not present, or the risk has been minimized to the lowest level practicable, workers may perform that activity without headgear. In making such a determination, the employer is required to perform a thorough risk assessment showing that the danger of harmful contacts is not present.

Employers should consider whether wearing safety headgear for a particular activity where headgear would normally be required, would itself create a hazard to the worker in the circumstances. As stated in section 8.3(2), personal protective equipment must not itself create a hazard to the wearer. For example, a worker engaged in avalanche control blasting whose ability to communicate clearly with co-workers is impaired by headgear, may need to remove it for the duration of that activity.

G8.11(3) Protection from electrical hazards

Issued August 1, 1999; Editorial Revision consequential to June 3, 2019 Regulatory Amendment

Regulatory excerpt

Section 8.11(3) of the *OHS Regulation* ("*Regulation*") states:

If a worker may be exposed to an electrical hazard the safety headgear must have an appropriate non-conductive rating.

Purpose of guideline

The purpose of this guideline is to define the appropriate type of safety headgear required under section 8.11(3) of the *Regulation* when a worker may be exposed to electrical hazards.

Background

Only electricians, powerline technicians (formerly known as linemen), and certified utility arborists will normally be exposed to electrical hazards, which result when exposed and energized electric wires or electrical equipment is present in the workplace. Firefighters may be exposed to electrical hazards during fire or other emergency incidents, and their headwear requirements during such activity are specified in Part 31 of the *Regulation*.

The CSA (CAN/CSA-Z94.1-05 and CAN/CSA-Z94.1-15) and ANSI (ANSI/ISEA Z89.1-2009 and ANSI/ISEA Z89.1-2014) Standards for safety headgear designate headgear as Class G (General) for a dielectric test rating, when new, of 2,200 volts.

The CSA (CAN/CSA-Z94.1-05 and CAN/CSA-Z94.1-15) and ANSI (ANSI/ISEA Z89.1-2009 and ANSI/ISEA Z89.1-2014) Standards for safety headgear designate headgear as Class E (Electrical) for a dielectric test rating, when new, of 20,000 volts.

Both the CSA and ANSI standards warn that dielectric rated headgear is intended to reduce risks arising from accidental contact with energized electrical equipment, not to provide a primary means of insulating a worker from intentional contact with such equipment.

Appropriate dielectric rating

An electrician working only on "residential type" circuits, of 240 volts or less, may wear Class A, B, G, or E rated CSA or ANSI safety headgear. This upper voltage limit for work around residential type circuits may seem conservative, but the 2,200 volt dielectric rating for these classes of headgear is achieved when testing a new sample, and the protection degrades with use and is also dependant on the cleanliness of the headgear.

Powerline technicians, electricians, and any other workers who work on circuits that have the potential for voltages above 240 volts need to wear Class B or E rated CSA or ANSI headgear, or equivalent.

Class C (Conductive) CSA or ANSI safety headgear does not provide dielectric protection. Any safety headgear that has had holes drilled in the shell to install accessories is considered to have lost its dielectric rating. Workers (other than electricians, certified utility arborists or powerline technicians who should not be exposed to energized electric wires or equipment in the normal course of their work), may wear headgear with whatever class of dielectric protection they desire. If workers receive special training and are given work assignments requiring work near exposed energized electrical sources, they must have and wear headgear with the appropriate dielectric rating. For example, workers assigned to clean and paint utility poles may be exposed to electrical hazards, and should wear electrically protective headgear.

G8.11(4) Chin straps

Issued August 1, 1999; Editorial Revision consequential to June 3, 2019 Regulatory Amendment

Regulatory excerpt

Section 8.11(4) of the *OHS Regulation* ("*Regulation*") states:

Chin straps or other effective means of retention must be used on safety headgear when workers are climbing or working from a height exceeding 3 m (10 ft), or are exposed to high winds or other conditions that may cause loss of the headgear.

Purpose of guideline

This guideline outlines that chin straps are an effective means for the retention of safety headgear as required by section 8.11(4) of the *Regulation*.

Background

Industrial safety headgear has traditionally been designed and tested to provide protection from an impact directed more or less downward onto the top of the head. The CSA Standard CAN/CSA-Z94.1-92 introduced a new requirement for protection of the head from an impact landing on the side of the head. This was in response to injury studies that indicated a significant incidence of injury due to people being struck on the side of the head by objects, even when wearing a safety headgear. During the development of the *Regulation*, expert advice provided to the Personal Protective Equipment Subcommittee drew attention to the severity and high cost of head injuries, particularly the many injuries which result from an impact to the side of the head. This type of head injury will typically occur when someone falls and strikes the floor, ground, or some other object. Head protection must remain in place on the head to provide any protection when the head strikes something during or at the end of a fall. This is the reason why bicycle helmets and headgear for many other sports have a chin strap. The expert advice to the regulation development process was industrial safety headgear should have a mandatory headgear retention criteria, to assist with keeping safety headgear in place during work, including the headgear remaining effectively in place during a fall. Hence, section 8.11(4) was established.

Criteria of safety headgear

This section has three main objectives:

1. To keep safety headgear in place on the wearer's head during a fall.
2. To keep safety headgear from becoming a falling object and a danger to workers working below.
3. To ensure the worker remains protected by safety headgear while doing work tasks. (For example, a rock scaler losing his or her headgear part way down a rappel of a rock face would have to descend the rest of the way down the rock face without head protection to recover the hat or get a replacement.)

Headgear may be accidentally knocked off a worker's head in any situation. Generally speaking, a means of retention should be used when the circumstances of the work create a likelihood of the loss of the headgear. Some examples are work on a ladder or scaffold over 10 feet high, or during work in an area with high wind (either natural wind or wind created by equipment such as a helicopter). Generally it is not expected a chin strap would need to be worn by a worker on a floor or deck enclosed by guardrails.

Retention test

CSA Standards Z94.1-05 and *Z94.1-15* specify a retention test for hard hats that is intended to evaluate the stability of the headgear during normal use. The standard states that the "test does not assess the ability of the headgear to remain in place during extreme conditions (e.g., windy conditions, during an impact or fall)." Therefore, headgear meeting this aspect of the CSA standard does not automatically comply with section 8.11(4). At this time, for the purposes of section 8.11(4), a chin strap system is an effective means known to WorkSafeBC for the retention of safety headgear.

G8.12/8.13 Use of safety headgear for workers on ATVs and similar equipment in agricultural operations

Issued May 25, 2005; Editorial Revision June 30, 2021

Regulatory excerpt

Section 8.12 of the *OHS Regulation* ("*Regulation*") states:

- (1) Operators and passengers on all-terrain vehicles, snowmobiles and motorcycles must wear headgear meeting the requirements of
 - (a) *CSA Standard CAN3-D230-M85, Protective Headgear in Motor Vehicle Applications*,
 - (b) *British Safety Institution Standard BS5361.1976, Specification: Protective Helmets for Vehicle Users, (as amended to 1981)*,

(c) *Snell Memorial Foundation 1995 Standard for Protective Headgear for Use with Motorcycles and Other Motorized Vehicles*, or

(d) *US Federal Standard for Motorcycle Helmets (Title 49 — Transportation — Part 571.218)*.

(2) Headgear in good condition meeting earlier editions of a standard listed in subsection (1) may remain in service if purchased before April 15, 1998.

(3) When an all-terrain vehicle is operated within a specific location, with no rollover hazard area and no area containing a significant hazard that may cause loss of control and at a speed not exceeding 20 km/h (13 mph), safety headgear meeting the requirements of section 8.13 may be used in place of headgear specified in subsection 8.12(1).

Section 8.13 of the *Regulation* states:

(1) A worker riding a bicycle or using in-line skates or similar means of transport must wear headgear meeting the requirements of

(a) *CSA Standard CAN/CSA-D113.2-M89, Cycling Helmets*,

(b) *Snell Memorial Foundation 1994 Standard for Protective Headgear for Use in Non-Motorized Sports*, or

(c) *Snell Memorial Foundation 1995 Standard for Protective Headgear for Use in Bicycling*.

(2) If a bicycle or similar conveyance is operated at speeds not exceeding 20 km/h (13 mph) within a specific location, safety headgear meeting the requirements of section 8.11 is acceptable when worn with a chin strap.

Purpose of this guideline

This guideline provides information on the requirements for safety headgear, under sections 8.12 and 8.13 of the *OHS Regulation* ("*Regulation*"), when workers use various types of small mobile equipment and other conveyances in agricultural operations. (Note that the responsibilities for providing safety headgear and other personal protective equipment are covered in [section 8.2](#) of the *Regulation*).

ATVs, snowmobiles, and motorcycles

These types of equipment are often used for work purposes in farming or ranching operations. Section 8.12(1) requires workers on such mobile equipment to wear head protection which meets at least one of the listed Canadian, American, or British standards. These standards are common, and suppliers will typically have headgear that is compliant.

Section 8.12(2) recognizes that older helmets may in some cases meet an earlier edition of the protective standard listed in the *Regulation*. In addition, it should be noted that under [section 4.4](#) of the *Regulation*, WorkSafeBC can consider other standards as well. A farmer or rancher who would like to have an alternative standard considered should contact WorkSafeBC for a review of it.

For workers on ATVs, section 8.12(3) also permits the use of helmets meeting the bicycle and other non-motorized sports helmet standards listed in section 8.13(1), if the ATV is operated at speeds not exceeding 20 km per hour (13 mph) within a specific location where there is no significant hazard of rollover.

A "specific location" is defined in the *Regulation* as "a yard, plant, or other clearly defined and limited area in which mobile equipment is operated, but does not include an entire municipality, district, transient forestry operation or construction site." This definition indicates a specific location would be a particular defined area of a ranch or farm in which mobile equipment is used, rather than the whole property, unless the property was relatively restricted in size. Typically, such areas might be those in the vicinity of the dwellings, outbuildings, and nearby areas frequently used by mobile equipment.

A key factor is that the area must have "no significant hazard of rollover," which is defined in the *Regulation* as "an area in which there are no grades exceeding 10%, no operating areas with open edges, no open ramps, loading docks, ditches or other similar hazards which might cause a rollover." In the case of ranches, the slope criterion will often be a limiting factor. On farms, areas adjacent to drainage or irrigation ditches would be considered to have a significant hazard of rollover.

Bicycles and similar conveyances

Bicycles are used in some agricultural operations such as greenhouses. When using bicycles, or similar conveyances such as in-line skates, section 8.13(1) requires that the worker wear safety headgear meeting one of the standards listed. The standards are common, and suppliers will usually have headgear that is compliant. Additional acceptable standards are identified in OHS Guideline G8.13.

In lower hazard circumstances, section 8.13(2) permits the use of "hard hats" with chin straps. To permit this use of a lower standard of protection, the bicycle is to be operated at speeds of not more than 20 km per hour (13 mph), within a specific location. Greenhouses are considered to be a specific location.

Utility vehicles

Sections 8.12 and 8.13 do not require the use of safety headgear while riding in utility vehicles or other such equipment not identified in the requirements. A utility vehicle typically has a steering wheel and seating that permits two persons to sit side by side, in contrast to an ATV which is equipped with a handle bar and a straddle seating arrangement. Examples of utility vehicles include "Gators" and "Argos".

In addition to the requirements of sections 8.12 and 8.13, [section 4.3\(1\)](#) of the *Regulation* requires that equipment be operated in conformity with

manufacturers' instructions. If such instructions for utility vehicles require the use of safety headgear, then it is appropriate to select headgear meeting a standard listed in section 8.12. In all cases, to help ensure safety the operator should ensure the utility vehicle is operated in accordance with manufacturers' instructions, at prudent speeds, avoiding holes, debris and steep slopes.

Recreational use

Sections 8.12 and 8.13 apply only to the use of conveyances for work purposes. They do not apply to the personal use of such equipment for recreational purposes. When engaged in recreational use, people must comply with protective helmet requirements of the public authority with jurisdiction. Even if safety headgear is not required, it is recommended, for the purposes of safety, that it be worn.

8.13 Use of safety headgear with bicycles and skates

Issued June 30, 2021

Regulatory excerpt

Section 8.13(1) of the *OHS Regulation* ("Regulation") states:

(1) A worker riding a bicycle or using in-line skates or similar means of transport must wear headgear meeting the requirements of

(a) *CSA Standard CAN/CSA-D113.2-M89, Cycling Helmets*,

(b) *Snell Memorial Foundation 1994 Standard for Protective Headgear for Use in Non-Motorized Sports*, or

(c) *Snell Memorial Foundation 1995 Standard for Protective Headgear for Use in Bicycling*.

Section 4.4(2)(a) of the Regulation states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

Section 4.4(2)(a) of the *Regulation* provides WorkSafeBC the authority to accept alternative standards to those listed in the *Regulation*. The purpose of this guideline is to identify alternative bicycle helmet standards acceptable to WorkSafeBC.

Alternative standards

When using bicycles, or similar conveyances such as in-line skates, section 8.13(1) requires that the worker wears safety headgear meeting one of the standards listed. Alternative bicycle helmet standards acceptable to WorkSafeBC include the following:

- *American Society for Testing and Materials Standard ASTM F1447-94 (Standard Specification for Protective Headgear Used in Bicycling)*, as amended from time to time
- *Snell Memorial Foundation Standard N-94 (1994 Standard for Protective Headgear for Use in Non-Motorized Sports)*, as amended from time to time
- *Snell Memorial Foundation Standard B-95 (1995 Standard for Protective Headgear for Use with Bicycles)*, as amended from time to time
- *Snell Memorial Foundation Standard B-90 (1990 Standard for Protective Headgear for Use in Bicycling)*, as amended from time to time

The United States Consumer Product Safety Commission (CPSC) bike helmet standard is required by law in the United States. A CPSC sticker on a bike helmet is an indication that it meets the ASTM F1447-94 standard.

Guidelines - Part 8 - Eye and Face Protection

G8.15(1) Prescription safety eyewear – Alternate standards

Issued June 18, 2008; Revised May 9, 2014; Retired consequential to June 3, 2019 Regulatory Amendment

G8.17(2) Face protection - Alternate standards

Issued July 9, 2009; Revised October 28, 2015; Retired consequential to June 3, 2019 Regulatory Amendment

Guidelines - Part 8 - Limb and Body Protection

G8.21 Leg protection

Issued August 1, 1999; Editorial Revision October 2004; Retired May 31, 2021

G8.21(2) Leg protection - Alternate standards

Retired February 1, 2011

This guideline is not required since the referenced alternative standards have been incorporated into *OHS Regulation* [section 8.21](#).

G8.21(2)-1 Leg protection - WorkSafeBC standards

Issued February 1, 2011; Retired June 30, 2021

G8.21(2)-2 Leg protection - Alternate standard

Issued May 29, 2018

Regulatory excerpt

Section 8.21(2) of the *OHS Regulation* ("Regulation") states:

- (2) Leg protective devices referred to in subsection (1) must meet or exceed
 - (a) the general requirements of section 4 of the *WorkSafeBC Standard - Leg Protective Devices*, as set out in Schedule 8-A of this Part, and
 - (b) the performance requirements of one of the following standards, using the cut-resistance testing protocol set out in that standard except as varied in subparagraph (ii):
 - (i) *WorkSafeBC Standard - Leg Protective Devices*, as set out in section 5 of Schedule 8-A of this Part, applying a threshold chain speed of 18.3 metres per second or 3 600 feet per minute;
 - (ii) *ASTM F 1414-04 Standard Test Method for Measurement of Cut Resistance to Chain Saw in Lower Body (Legs) Protective Clothing*, but applying a threshold chain speed of 16.8 metres per second or 3 300 feet per minute;
 - (iii) *ISO 11393-2 Protective clothing for users of hand-held chain-saws - Part 2: Test methods and performance requirements for leg protectors*, applying a Class 2 threshold chain speed of 24 metres per second or 4 724 feet per minute;
 - (iv) *BS EN 381-5:1995 Protective clothing for users of hand-held chain saws - Part 5: Requirements for leg protectors*, applying a Class 2 threshold chain speed of 24 metres per second or 4 724 feet per minute.

Section 4.4(2) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
 - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

The purpose of this guideline is to specify, for the purposes of section 8.21(2) of the Regulation, an alternate standard acceptable to WorkSafeBC for leg protection devices.

Acceptable standards

Section 4.4(2)(a) permits WorkSafeBC to accept another standard as an alternative to one referred to in the Regulation. WorkSafeBC had determined that ASTM F1414-15 is an acceptable alternate standard under section 8.21(2), when applying a threshold chain speed of 16.8 metres per second or 3,300 feet per minute.

Guidelines - Part 8 - Footwear

G8.22 Footwear

Issued August 1, 1999

Regulatory excerpt

Section 8.22(1) of the *OHS Regulation* ("Regulation") states:

A worker's footwear must be of a design, construction, and material appropriate to the protection required and that allows the worker to safely perform the worker's work.

Section 8.22(2) of the *OHS Regulation* states:

- (2) To determine appropriate footwear under subsection (1), the following factors must be considered:
 - (a) slipping;

- (b) tripping;
- (c) uneven terrain;
- (d) abrasion;
- (e) ankle protection and foot support;
- (f) potential for musculoskeletal injury;
- (g) crushing potential;
- (h) temperature extremes;
- (i) corrosive substances;
- (j) puncture hazards;
- (k) electrical shock;
- (l) any other recognizable hazard.

Purpose of guideline

The purpose of this guideline is to outline the requirement that the employer must determine the appropriate protection required for the feet and ankles based on the work assigned to each worker, and ensure each worker wears appropriate footwear, as stated in sections 8.22(1) and (2) of the *Regulation*.

Assessment

The assessment is based on whatever work procedures and arrangements exist in the workplace at any time. An employer may change the work procedures and arrangements to reduce or remove the risk. For example, an employer may limit the number of workers doing tasks that cause a risk of foot injury. Alternatively, the employer may change the way the tasks are done. Protective footwear need only be worn while a worker is exposed to the risk that requires it.

When determining the requirements for appropriate protective footwear, an employer should not consider training and supervision as a substitute for protective footwear.

The risk assessment to determine appropriate footwear will result in persons or activities being placed into one of three categories:

1. The hazards present require "safety footwear." As safety footwear is only certified with respect to certain features to protect from specific types of hazard, regard must be had to whether there should be additional requirements to cover all hazards of a worker's job.
2. There are some hazards present that require footwear to provide protection, but not necessarily protection to the level of "certified safety footwear." For example, a lifeguard at a beach likely will not need to wear footwear with safety toe protection, but needs to wear footwear that will protect against cuts from objects on a beach where there is a risk from such objects.
3. There are no hazards of foot injury for which specific requirements are necessary. For example, this will be the case for most office workers.

G8.22(2.1) High heels and healthy footwear

Issued April 28, 2017

Regulatory excerpt

Section 8.22(2.1) of the *OHS Regulation* ("*Regulation*") states:

An employer must not require a worker to wear footwear that does not comply with subsection (1).

Section 8.22 of the *Regulation* states, in part:

- (1) A worker's footwear must be of a design, construction, and material appropriate to the protection required and that allows the worker to safely perform the worker's work.
- (2) To determine appropriate footwear under subsection (1), the following factors must be considered:
 - (a) slipping;
 - (b) tripping;
 - (c) uneven terrain;
 - (d) abrasion;

- (e) ankle protection and foot support;
- (f) potential for musculoskeletal injury;
- (g) crushing potential;
- (h) temperature extremes;
- (i) corrosive substances;
- (j) puncture hazards;
- (k) electrical shock;
- (l) any other recognizable hazard.

Purpose of guideline

This guideline provides clarification of the section 8.22(2.1) requirement that an employer must not require a worker to wear footwear that does not comply with section 8.22(1).

High heels

Under section 8.22(1), footwear must both allow the workers to perform their work safely and provide the protection required for the particular environment. In order to determine whether certain footwear is appropriate within the meaning of section 8.22(1), the factors listed in section 8.22(2) must be considered.

Walking in high heels (typically > 1.5 inches high) has been shown to significantly reduce ankle muscle movement as well as balance control. High heels have also been shown to result in musculoskeletal injury, particularly ankle and foot sprains and strains. High heels are therefore not appropriate with consideration to the factors of ankle protection and foot support, potential for musculoskeletal injury, and slipping, tripping, and uneven terrain. Where any of those hazards are present, high heels will not allow the workers to safely perform their work.

OHS Guideline [G8.22 Footwear](#) explains that the risk assessment employers must make to determine what constitutes appropriate footwear is based on the work assigned to each worker and on the work procedures and arrangements that exist in the workplace at any given time. The risk assessment should also consider the workplace floor and stair surfaces and whether there may be liquids or items on them that could be slip and trip hazards.

As an example, hospitality workers (e.g., servers, hosts, bus-people, and bartenders in bars, clubs, restaurants, or other hospitality venues) walk on different surfaces, including slippery surfaces and stairs, often while carrying food and drinks. With consideration to the factors referred to in section 8.22(2)(a), (b), (c), (e), and (f), high heels would not be appropriate footwear. A dress code requiring hospitality workers to wear high heels while serving, bussing, or hosting would violate section 8.22(2.1).

Healthy footwear

Section 8.22(2.1) is not intended to interfere with a worker's choice of footwear where there are no hazards of foot or ankle injury or potential for musculoskeletal injury (such as office or other predominantly sedentary work) as in the third risk category described in OHS Guideline *G8.22 Footwear*.

In deciding whether certain footwear is appropriate, consideration should be given to factors that promote foot and musculoskeletal health. Questions to ask include: Does the toe box allow for normal foot function and natural toe positioning, or does it squeeze toes together unnaturally? Does this footwear distribute body weight over the whole foot, or does it place more weight on the forefoot? Does the heel make sufficient contact with the walking surface to provide a stable base for good musculoskeletal alignment and balance, or does it detract from them? If the answer to the first part of any of these questions is "no" and the answer to the second part is "yes," that footwear is likely not appropriate for the worker's work.

G8.22(3) Specific safety protective features

Issued August 1, 1999; Editorial Revision April 2005; Revised September 22, 2015

Regulatory excerpt

Section 8.22(3) of the *OHS Regulation* ("Regulation") states:

If a determination has been made that safety protective footwear is required to have toe protection, metatarsal protection, puncture resistant soles, dielectric protection or any combination of these, the footwear must meet the requirements of:

- (a) *CSA Standard CAN/CSA-Z195-M92, Protective Footwear*;
- (b) *ANSI Standard Z41-1991, American National Standard for Personal Protection - Protective Footwear*;
- (c) *British Safety Institution Standard BS EN 345:1993 Specification for Safety Footwear for Professional Use*, or
- (d) *British Safety Institution Standard BS EN 346:1993 Specification for Protective Footwear for Professional Use*.

Section 8.3(2) of the *Regulation* states:

If the use of personal protective equipment creates hazards equal to or greater than those its use is intended to prevent, alternative personal protective equipment must be used or other appropriate measures must be taken.

Purpose of guideline

This guideline explains the grades of safety footwear. It also provides guidance on the selection of appropriate footwear for stated hazards.

Grades of safety footwear

The levels of footwear certified by the Canadian Standards Association (CSA) as meeting *CAN/CSA Z195-M92* are set out in the following table.

Grade	1	2	3
Internal CSA label colour denoting only grade of toe protection	Green	Yellow	Red
External triangular CSA patch colour denoting sole plate puncture protection with toe protection	Green	Yellow	Red
External rectangular patch colour with Greek letter omega (Ω) in orange denoting only electrical shock resistant soles	White	White	White
External rectangular patch colour with green "SD" notation and an electrical grounding symbol, denoting static dissipate footwear	Fluorescent Yellow	Fluorescent Yellow	Fluorescent Yellow
Protective Toecap Impact Resistance, joules (ft*lb)	125 (93)	90 (65)	60 (45)

The degree of protection to the toe based on the table above is approximately as follows:

Grade 1 - Dropping a 30 pound weight from 3 feet onto toe

Grade 2 - Dropping a 20 pound weight from 3 feet onto toe

Grade 3 - Dropping a 15 pound weight from 3 feet onto toe

Sole plate puncture protection is only available in CSA certified footwear in combination with toe protection. All sole plates are designed to withstand the same puncture force using a pointed tester, and the colour of the external triangular patch varies only with the grade of toe protection. The external triangular patch may be positioned in any conspicuous location on the right footwear upper. The top of the tongue is an acceptable patch location; provided the patch is visible when the footwear is laced up.

[Section 4.4\(2\)\(a\)](#) permits the reliance on other standards which are acceptable to WorkSafeBC.

The following American National Standards Institute (ANSI) and British Standards Institution (BSI) Standard Impact and Compression classification combinations are acceptable substitutes for the named CSA Grades:

CSA Grade	Equivalent ANSI Classifications	Equivalent BSI Designations
1	I/75 combined with C/75 ¹	Safety General, Heavy Duty, or Clog, Safety Footwear with toe impact energy protection levels of either 120 joules, 160 joules, or 200 joules (88, 118, or 148 ft. lb)
2	I/50 or higher, combined with C/50 or higher ²	Protective Footwear with toe impact energy protection levels of 80 joules (59 ft. lb.)
3	I/30 or higher, combined with C/30 or higher ³	Protective Footwear with toe impact energy protection levels of 40 joules (30 ft. lb)

NOTES:

¹ This is any of the safety footwear meeting British Standard BS 1870: Part 1:1988, Safety Footwear, Part 1. Specification for safety footwear other than all-rubber and all-plastics moulded types, as amended.

² This is protective footwear meeting British Standard BS 4972 Specification for Women's Protective Footwear, as amended.

³ This is protective footwear meeting British Standard BS 4972 Specification for Women's Protective Footwear, as amended.

Safety footwear considerations

External strap-on or glue-on "safety toecaps" do **not** meet any recognized safety standard and should not be used as an alternative to recognized safety footwear. Strap-on toecaps may be used to provide additional protection over the top of CSA Grade 1 safety footwear. Strap-on toecaps are not suitable replacements for integral metatarsal protectors.

Slip-on rubber type footwear with integral safety toecaps, which slip on over existing footwear, and have evidence of independent testing proving that they meet the impact criteria of *CSA Standard Z195*, may be used.

If a hazard requires metatarsal protectors, the metatarsal protectors should be an integral part of the footwear. (This form of protection is typically required in foundries and heavy manufacturing where steel plate, beams, or rails are handled, but it is not normally required in the construction industry.) Metatarsal protectors that only attach to the laces or are only strapped in place do not meet the *CSA Standard Z195* and should not be used because there is no assurance the metatarsal protector is properly supported by the toecap.

There are activities and work environments where, although the dangers of injury to the worker do not require the specific protective footwear meeting the requirements of one of the standards referred to in section 8.22(3), appropriate footwear must be worn to prevent injury to the worker. Section 8.22(2) specifies some of the hazards for which protection may be required, such as slipping, uneven terrain, abrasion, ankle protection, and foot support, temperature extremes, and corrosive substances. The footwear standards, such as the *CSA Standard CAN/CSA-Z195-M92*, do not provide performance requirements to guide the selection or assessment of footwear for protection from these hazards. The employer must assess each worker's exposure to these dangers and ensure the worker's footwear is of a type and construction that minimizes, as far as is practicable, the risk of injury to the worker. Refer also to OHS Guideline [G8.22 Footwear](#).

In addition to the appropriate approved safety devices for metatarsal, sole penetration and toe protection, the following criteria need to be considered in the selection of "appropriate" footwear:

1. If the possibility of ankle cuts or abrasion exists, the footwear should be at least 13 cm (about 5 inches) high and provide adequate protection from cuts and abrasion. (The height of footwear is the measurement from the top of the sole at the arch to the top of the upper.)
2. For walking on uneven surfaces, footwear should provide adequate ankle support and be worn tight fitting around the ankle to provide sufficient ankle support. Appropriate footwear would generally be lace-up boots. Cowboy style and rubber boots would not provide sufficient ankle support on uneven surfaces. Lace-up style 20 cm (8 inch) leather-upper winter boots generally provide sufficient ankle support on uneven surfaces.
3. Athletic shoes are acceptable for occupational use provided the style and construction provides protection from the hazards to which the worker will be exposed. For example, mesh-type covering over the toe area would not be appropriate in a laboratory where there is danger of chemicals dropping onto the foot. Low cut uppers will not be appropriate if there is danger of abrasion to the ankle.

Guidelines for certain types of workers are as follows:

1. A worker in the construction industry, or any other similar working environment where there is risk of toe injury, should wear safety footwear with CSA Grade 1 toe protection.
2. A worker in the construction industry, or any other industry with a possibility of sole punctures, should wear footwear with protective sole plates.
3. A worker in any industry with a potential for electric shock, for example an electrician or powerline technician, should wear footwear with dielectric protective soles, in addition to any other protective features required by the circumstances of the work.
4. A worker using high pressure washing or cutting equipment should wear footwear or footwear cover devices which protect the whole top area of the foot from accidental contact with the washing or cutting stream. Conventional safety toe and metatarsal protectors do not cover a sufficient portion of the worker's foot to protect the foot during this type of work.
5. A worker in a warehouse should wear safety footwear with CSA Grade 1 toe protection.
6. A worker in a retail store environment using pallet jacks, forklifts, or other rolling equipment should wear footwear with CSA Grade 1 toe protection.

The circumstances at a particular workplace may justify a variation from the above recommendations. For example, an employer may arrange the work in a manner that eliminates all hazards of foot injury.

There are activities and work environments where a heavy work shoe or boot, or a specific protective feature, might normally be required but wearing such footwear could endanger the worker. In this circumstance, section 8.3(2) of the *Regulation* requires that alternative personal protective equipment be used or that other appropriate measures be taken to adequately control the hazard.

The following measures/practices are generally recognized as being acceptable to WorkSafeBC:

1. A carpet layer or similar finishing trade requiring a worker to constantly kneel down will generally not wear safety-toed footwear.
2. A worker (steel erector) climbing or walking on steel will generally not wear safety-toed footwear. However, the worker should wear substantial footwear having leather uppers reaching past the ankle.
3. A worker in the logging industry walking on logs, steep sidehills, or uneven ground will generally not wear safety-toed footwear, although safety-toed footwear will be necessary when using tools such as axes or chain saws. Note that section 8.23(2) of the *Regulation* requires "Caulked or other equally effective footwear must be worn by workers who are required to walk on logs, poles, pilings or other round timbers."

In addition to the above, a worker exposed to an environment requiring rubber boots extending above the ankle for protection from chemicals, water or other liquids, is not expected to have tight fitting leather uppers if walking on uneven surfaces.

These exceptions apply while the worker is performing the particular job function. When the worker is performing other job functions or walking through surrounding hazards, the worker must wear footwear appropriate to the hazard.

Regulatory excerpt

Section 8.22 of the *OHS Regulation* ("Regulation") states in part:

- (1) A worker's footwear must be of a design, construction, and material appropriate to the protection required.
- (2) To determine appropriate protection under subsection (1) the following factors must be considered: slipping, uneven terrain, abrasion, ankle protection and foot support, crushing potential, temperature extremes, corrosive substances, puncture hazards, electrical shock and any other recognizable hazard.
- (3) If a determination has been made that safety protective footwear is required to have toe protection, metatarsal protection, puncture resistant soles, dielectric protection or any combination of these, the footwear must meet the requirements of:
 - (a) *CSA Standard CAN/CSA-Z195-M92, Protective Footwear*,
 - (b) *ANSI Standard Z41-1991, American National Standard for Personal Protection - Protective Footwear*,
 - (c) *British Safety Institution Standard BS EN 345:1993 Specification for Safety Footwear for Professional Use, or*
 - (d) *British Safety Institution Standard BS EN 346:1993 Specification for Protective Footwear for Professional Use.*

Section 4.4(2)(a) of the *Regulation* states:

When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to specify, in the case of section 8.22(3) of the *Regulation*, alternate standards acceptable to WorkSafeBC.

Background

Regulation section 8.22(1) specifies that a worker's footwear must be of a design, construction, and material appropriate to the protection required. *Regulation* section 8.22(2) specifies the factors that must be considered to determine footwear protection appropriate to the protection required.

Acceptable standards

When a determination has been made that safety protective footwear is required to have toe protection, metatarsal protection, puncture resistant soles, dielectric protection, or any combination of these factors, the footwear must meet the requirements of a standard listed in section 8.22(3) of the *Regulation*.

As safety footwear is manufactured and certified to the edition of the standard in place at the time of manufacture, WorkSafeBC has reviewed the current versions of these standards, as well as new footwear standards. It has determined that in addition to those listed in section 8.22(3), WorkSafeBC will accept under that provision the following standards for footwear for the factors addressed by the standard:

- *CSA Standard Z195-14, Protective Footwear*
- *CSA Standard Z195-02, Protective Footwear*
- *ANSI Standard Z41-1999, American National Standard for Personal Protection - Protective Footwear*
- *ASTM Standard F 2413-05, Specification for Performance Requirements for Foot Protection*
- *ASTM Standard F 2413-11, Specification for Performance Requirements for Foot Protection*
- *ASTM Standard F 1818-04, Specification for Foot Protection for Chain Saw Users*
- *ISO Standard 20345:2004(E), Personal Protective Equipment - Safety Footwear*
- *ISO Standard 20346:2004(E), Personal Protective Equipment - Protective Footwear*

Guidelines - Part 8 - High Visibility and Distinguishing Apparel

G8.24 High visibility apparel

Issued August 1, 1999; Editorial Revision April 2005; Preliminary Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 8.24 of the *OHS Regulation* ("Regulation") states:

- (1) A worker who is exposed to vehicles or mobile equipment travelling at speeds in excess of 30 km/h must wear high visibility apparel that meets the requirements for Class 2 or Class 3 apparel in [CSA Standard Z96-15, High-Visibility Safety Apparel](#).
- (2) A worker who is exposed to vehicles or mobile equipment travelling at speeds equal to or less than 30 km/h must wear high visibility apparel that meets the requirements for Class 1, Class 2 or Class 3 apparel in [CSA Standard Z96-15, High-Visibility Safety Apparel](#).

(3) Subsections (1) and (2) do not apply to the following:

(a) a firefighter who is wearing a protective coat that meets the requirements of the 2007, 2013 or 2018 edition of *NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*;

(b) the following persons who are wearing high visibility apparel that meets the requirements for Class 2 apparel in [CSA Standard Z96-15, High-Visibility Safety Apparel](#) as modified in accordance with subsection (4):

(i) a person who is employed by British Columbia Emergency Health Services as an emergency medical assistant or in any other capacity;

(ii) a municipal constable as defined in the *Police Act*;

(iii) a person who is employed in the Commercial Vehicle Safety and Enforcement branch of the Ministry of Transportation and Infrastructure;

(c) a traffic control person referred to in section 18.9 of this regulation.

(4) For the purposes of subsection (3)(b), the requirements for Class 2 apparel are modified as follows:

(a) retroreflective or combined-performance stripes and bands must have

(i) a minimum width of 25 mm,

(ii) an entirely retroreflective area with a minimum width of 25 mm,

(iii) a minimum coefficient of retroreflection of $240 \text{ cd}/(\text{lx}\cdot\text{m}^2)$ measured at an observation angle of 0.2 degrees and an entrance angle of -4 degrees in accordance with *CSA Standard Z96-15, High-Visibility Safety Apparel*, and

(iv) a minimum area of 0.05 m^2 on the front of the apparel and 0.05 m^2 on the back of the apparel;

(b) retroreflective or combined-performance stripes and bands do not have to form an "X" on the back of the apparel;

(c) the requirements relating to identification patches and lettering do not apply;

(d) background material, excluding identification patches, lettering and retroreflective or combined-performance stripes and bands, must have a minimum area of 0.13 m^2 on the front of the apparel and 0.13 m^2 on the back of the apparel.

Purpose of guideline

This guideline provides information on the different classes of high visibility apparel in the standard referenced in section 8.24 of the *Regulation*. It also provides guidance on the selection of appropriate high visibility apparel.

Requirements for high visibility apparel

Section 8.24 of the *Regulation* requires a worker exposed to vehicles or mobile equipment to wear high visibility apparel appropriate to the hazard. To determine the nature of the hazard, it is necessary to consider the speed of the moving vehicles, as well as the duties and the work location of the worker relative to the vehicles or mobile equipment.

Section 8.24(1) requires a worker exposed to vehicles or mobile equipment travelling at speeds in excess of 30 km/h to wear high visibility apparel that meets the requirements for Class 2 or Class 3 apparel in [CSA Standard Z96-15, High-Visibility Safety Apparel](#). For example, this section applies to a worker on a highway construction project with public traffic or workplace vehicles passing by at a speed greater than 30 km/h.

Section 8.24(2) requires a worker exposed to vehicles or mobile equipment travelling at speeds equal to or less than 30 km/h to wear high visibility apparel that meets the requirements for Class 1, Class 2, or Class 3 apparel in *CSA Standard Z96-15 High-Visibility Safety Apparel*. For example, this section would apply to workers engaged in the following types of activities:

- On a construction site assisting with the positioning, loading, or unloading of dump trucks
- Grading lumber on a sawmill yard where forklifts or front end loaders are used to move logs or lumber
- Collecting shopping carts in a parking lot
- On a road construction project where work takes place inside of an area protected from public traffic by barricades

Classes of high visibility apparel

A basic description of Class 1, Class 2, and Class 3 high visibility apparel is provided below. A fluorescent material is one that absorbs ultraviolet light in daylight and emits it in the visible light region. This property allows the material to radiate more visible light than is incident on it, thus it appears and is brighter than a non-fluorescent material which at best can reflect all the visible light that falls on it. A retroreflective material is one that reflects light back to the same direction as the source of the light. Combined-performance material has both fluorescent and retroreflective properties.

Class 1	Basic harness or stripes/bands over the shoulder(s) and encircling the waist. Provides the lowest recognized coverage and good visibility. Examples: harness and striped apparel.
Class 2	Full coverage of upper torso (front, back, sides, and over the shoulders). Provides moderate body coverage and superior visibility. Examples: vest, jacket, hooded coat, bib overalls.
Class 3	Class 2 apparel, plus bands encircling both arms and both legs. These bands shall be composed of combined-performance stripes/bands or a combination of retroreflective and background material. Provides the greatest body coverage and visibility under poor light conditions and at great distance. Examples: jacket & pants, coveralls, long coat or slicker.

For more detail, refer to [CSA Standard Z96-15, High-Visibility Safety Apparel](#).

G8.24-1 Alternative standards for high visibility apparel

Issued June 6, 2006; Editorial Amendment February 3, 2010; Revised September 19, 2014; Revised June 29, 2016; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as *CSA Standard Z96-15 High-Visibility Safety Apparel* is now listed in the revised OHS Regulation.

Guidelines - Part 8 - Buoyancy Equipment

G8.26(3) Buoyancy equipment and fall protection

Issued August 1, 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 8.26(3) of the *OHS Regulation* ("Regulation") states:

A personal flotation device need not be worn when a personal fall protection system, guardrail or safety net is being used in accordance with the relevant requirements in [Part 11 \(Fall Protection\)](#) to prevent a fall into the water.

Purpose of guideline

The purpose of this guideline is to provide guidance when a personal flotation device need not be worn as stated in section 8.26(3) of the *Regulation*.

Temporarily unprotected

There may be circumstances where a worker generally protected from falling into the water by a fall protection system has to be temporarily unprotected. For example, a worker may have to briefly disconnect a personal fall protection system to move to a different position. This needs to be limited as much as possible by choosing a means of fall protection that minimizes the need to disconnect; for instance, using horizontal lifelines or retractable lifelines, or by using a safe work procedure covering the interval when the worker is not connected. Refer to [OHS Guideline G11.2](#).

G8.27-1 Compliance with standards

Issued August 1, 1999; Editorial Revision April 2005; Editorial Revision April 30, 2015

Regulatory excerpt

Section 8.27 of the *OHS Regulation* ("Regulation") states:

Buoyancy equipment must be labelled and otherwise meet the requirements of

- (a) *CGSB Standard CAN/CGSB-65.7-M88, Lifejackets, Inherently Buoyant Type* with a minimum buoyancy of 93 N (21 lbs),
- (b) *CGSB Standard CAN/CGSB-65.11-M88, Personal Flotation Devices* with a minimum buoyancy of 69 N (15.5 lbs),
- (c) *CGSB Standard 65-GP-14M, Lifejackets, Inherently Buoyant, Standard Type* with a minimum buoyancy of 125 N (28 lbs),
or
- (d) *British Safety Standard BS EN 396-1994, Lifejackets and Personal Buoyancy Aids - Lifejacket 150 N*, automatically inflatable units with a minimum buoyancy of 150 N (34 lbs).

Purpose of guideline

The purpose of this guideline is to provide information about the standards adopted in section 8.27 of the *Regulation*.

Standards

A summary of information from each of these standards describing how the life jackets perform and how they are to be identified follows below.

CGSB Standard CAN/CGSB-65.7-M88, Lifejackets, Inherently Buoyant Type

A life jacket meeting this standard provides a minimum buoyant force of 93 N (21 lb.), and is often of the "keyhole" style. The colour may be bright yellow, orange or red. The life jacket is designed to provide support for the head so the face of an unconscious person is held above the water with the body inclined backwards from the vertical position. The jacket must have a permanent label identifying the following:

- standard it meets
- size of the jacket
- mass (weight) of person the jacket is designed for
- name of the manufacturer
- lot number
- date of manufacture
- the Transport Canada approval number

CGSB Standard CAN/CGSB-65.11-M88, Personal Flotation Devices

This is the most common and generally the most comfortable personal flotation device, offering a minimum 69 N (15.5 lb.) buoyancy (Type I). A device meeting this standard is **not** required to turn an unconscious person from a facedown position in the water to a position where the wearer's face is out of the water. The shell colour is bright yellow, orange or red. These units can be either the vest or "key hole" style. The device must have a permanent label or marking identifying the following:

- standard it meets
- date of manufacture
- acceptable chest size
- name of manufacturer
- Transport Canada approval number

These flotation devices are acceptable for use *only* by a worker in situations where rescue help is readily available. Readily available in this context means the worker wearing this flotation device is within eyesight or earshot of another worker who is in a position to immediately come to the worker's aid, should he or she enter the water.

CGSB Standard 65-GP-14M, Lifejackets, Inherently Buoyant, Standard Type

A lifejacket meeting this standard provides a minimum 125 N (28 lb.) buoyant force. The device requires a permanent label or marking identifying the standard met.

British Safety Standard BS EN 396-1994, Lifejackets and Personal Buoyancy Aids

A life jacket or personal buoyancy aid meeting this standard is designed to be inflatable by blowing into the bladder, pulling a cord to puncture a gas cylinder which inflates the unit, or by automatic activation of the gas inflation system when the device is immersed in water. Acceptable units inflate and turn the wearer face up within 10 seconds of going into the water. A wearer of this type of unit is provided with at least 150 N (34 lb.) buoyancy and should float face up with the mouth considerably above the water surface.

The jacket must have a permanent label or marking confirming the unit meets the above standard. These jackets are normally worn uninflated and may be in protective covers. The jacket fits around the back of the neck and ends drape down the left and right of the front of the body. These units require strict regular maintenance to remain effective, and caution must be taken to prevent damaging the bladder.

Also, [section 4.4\(2\)\(a\)](#) of the *Regulation* permits the reliance on other standards which are acceptable to WorkSafeBC.

G8.27-2 Alternative acceptable standard for buoyancy equipment

Issued November 19, 2008; Revised September 21, 2012; Editorial Revision April 30, 2015; Editorial Revision August 4, 2015; Revised April 30, 2020; Editorial Revision July 14, 2020

Regulatory excerpt

Section 8.27 of the *OHS Regulation* ("Regulation") states:

Buoyancy equipment must be labelled and otherwise meet the requirements of

- (a) *CGSB Standard CAN/CGSB-65.7-M88, Lifejackets, Inherently Buoyant Type* with a minimum buoyancy of 93 N (21 lbs),
- (b) *CGSB Standard CAN/CGSB-65.11-M88, Personal Flotation Devices* with a minimum buoyancy of 69 N (15.5 lbs),
- (c) *CGSB Standard 65-GP-14M, Lifejackets, Inherently Buoyant, Standard Type* with a minimum buoyancy of 125 N (28 lbs),
or
- (d) *British Safety Standard BS EN 396-1994, Lifejackets and Personal Buoyancy Aids - Lifejacket 150 N*, automatically inflatable units with a minimum buoyancy of 150 N (34 lbs).

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board

Purpose of guideline

Section 4.4(2)(a) of the *Regulation* provides WorkSafeBC the authority to accept alternative standards to those listed in the *Regulation*. The purpose of this guideline is to specify acceptable alternative standards under section 8.27.

Alternative acceptable standard to CAN/CGSB-65.7-M88

The CAN/CGSB-65.7-2007 standard is an updated version of the *CAN/CGSB-65.7-M88 Lifejackets, Inherently Buoyant Type* standard. It is considered an acceptable alternative to the *CAN/CGSB-65.7-M88 Lifejackets, Inherently Buoyant Type* standard. However, manually inflatable units are not acceptable.

Alternative acceptable standards to BS EN 396-1994

The *ISO 12402-3:2006, Lifejackets, performance level 150* "Safety Requirements" standard is considered an acceptable standard to comply with section 8.27(d).

For devices sold in Canada, *ANSI/UL 1180 Fully Inflatable Recreational Personal Flotation Devices*, as updated from time to time and as modified by the Canadian addendum, is also considered an acceptable alternative to *BS EN 396-1994*. These devices will be marked as meeting *ANSI/UL 1180* with the Canadian addendum. It should be noted that manually inflatable units are not acceptable.

For devices sold in the United States, devices meeting type I or type II performance requirements of *ANSI/UL 1180* without the Canadian addendum are also acceptable. These devices will be marked with a United States Coast Guard (USCG) approval number. The USCG approval number will start with 160. These devices will be marked as type I or type II. Devices marked as type III are not acceptable. Only automatically inflatable units are acceptable.

In some cases, inflatable buoyancy equipment may not meet *ISO 12402-3:2006*, *ANSI/UL 1180*, or *BS EN 396-1994*, but will meet another standard. In these cases, an application can be made to WorkSafeBC to have an alternate standard accepted.

G8.28 Working alone or in isolation with a hazard of drowning

Issued August 1, 1999; Editorial Revision April 2005; Editorial Revision June 30, 2021

Regulatory excerpt

Section 8.28 of the *OHS Regulation* ("*Regulation*") states:

If a worker working alone is exposed to risk of drowning, the worker must wear a lifejacket meeting the requirements of section 8.27(a), (c), or (d).

Purpose of guideline

The purpose of this guideline is to explain that section 8.28 of the *Regulation* applies to a worker who is not within eyesight of or within earshot of another worker in a position to immediately come to their aid, should the worker enter the water.

Working alone or in isolation

A personal flotation device of the type described under section 8.27(b) is not to be worn by a worker working alone or in isolation. This type of device, which provides minimum buoyancy of 15.5 lb., is not designed to turn an unconscious person face up in the water. Therefore, if a person working alone falls in the water and is rendered unconscious, the individual might float face down and drown. Further, if the water is rough, the individual's mouth might not be raised sufficiently above the water to provide adequate protection against drowning if the individual is unconscious.

Guidelines - Part 8 - Respirators

G8.33-1 Respiratory protection - Selection

Issued August 1, 1999; Revised February 11, 2004; Editorial Revision April 2005; Editorial Revision to include February 1, 2011 regulatory amendment; Revised February 14, 2020

Regulatory excerpt

Section 8.33(1) of the *OHS Regulation* ("*Regulation*") states:

(1) The employer, in consultation with the worker and the occupational health and safety committee, if any, or the worker health and safety representative, if any, must select an appropriate respirator in accordance with *CSA Standard CAN/CSA-Z94.4-93, Selection, Use and Care of Respirators*.

Purpose of guideline

The purpose of this guideline is to aid in the selection of an appropriate respirator. There are two acceptable CSA standards (see Guideline G8.33(1)); the standard referenced in the *Regulation*, *CSA Standard ("CSA Standard") CAN/CSA-Z94.4-93, Selection, Use, and Care of Respirators*; and the current standard *CAN/CSA Z94.4-18, Selection, Use, and Care of Respirators*.

Selection

CSA Standard states "knowledge of respiratory hazards and respiratory protection is essential to ensure appropriate selection of respirators. The respirator selection then becomes a step-by-step elimination of inappropriate respirators until only those which are appropriate remain."

To select an appropriate respirator, the employer should to ensure the selection process includes the following:

- Identifies and determines the airborne concentrations of the contaminant(s) of interest
- Determines the physical¹, chemical², and toxicological properties of the contaminant(s)
- Determines the general use conditions for the respirator³
- Assesses the potential for exposure via the skin and mucous membranes of the eye
- Considers odour threshold information, as well as any warning properties⁴ of the contaminant(s)
- Determines the exposure limit(s) for the contaminant(s) of interest⁵
- Identifies the immediately dangerous to life or health (IDLH) concentration, as well as the lower explosive limit⁶
- Evaluates the potential for oxygen deficiency
- Considers any service life information available for the chemical cartridge or canister
- Determines the hazard ratio (HR)⁷
- Determines the protection factor (PF) for the class of respirator from [Table 8-1](#) of the *Regulation*. For a respirator to be appropriate, the PF must be greater than the HR. Refer to OHS Guideline [G8.34-1](#) for additional information regarding protection factors.

¹ The employer must consider the state in which the substance is likely to be encountered. That is, whether it is a gas or a vapour, a particulate, or a combination thereof.

² For example, chemical reactivity and vapour pressure.

³ That is, the employer must evaluate the following: job task, duration, frequency, and physical demands of the task, the health status of the worker, as well as comfort of the respirator.

⁴ This is particularly relevant for gases and vapours. A substance is considered to have adequate warning properties when an individual can detect the substance by persistent odour, taste, and/or irritation effects, such as irritation of the eyes or respiratory tract, in concentrations at or below the exposure limit. Warning properties can provide some indication to a worker wearing a respirator that it is not working effectively, such as a breakthrough has occurred, or the facepiece doesn't fit properly.

⁵ Exposure limits are specified in the Table of Exposure Limits for Chemical and Biological Substances (see OHS Guideline [G5.48-2](#)). All relevant exposure limits must be considered, such as the 8-hour TWA limit, short-term exposure limit, and/or ceiling limit.

⁶ Concentrations in excess of the lower explosive limit are considered to be IDLH concentrations.

⁷ The hazard ratio is the airborne concentration of a substance divided by its exposure limit.

8.33-2 Scott II and IIA SCBA regulator donning switch hazard

Issued June 14, 2002; Editorial Revision to include February 1, 2011 regulatory amendment; Retired February 14, 2020

This guideline has been retired as the respirators it referred to have not been manufactured since 1996.

G8.33(1) Selection of respiratory protection - Alternate standard

Issued February 8, 2007; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision October 28, 2019; Revised February 14, 2020

Regulatory excerpt

Section 8.33(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer, in consultation with the worker and the occupational health and safety committee, if any, or the worker health and safety representative, if any, must select an appropriate respirator in accordance with *CSA Standard CAN/CSA-Z94.4-93, Selection, Use, and Care of Respirators*.

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
 - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

Section 8.33(1) of the *Regulation* requires that an appropriate respirator be selected in accordance with *CSA Standard CAN/CSA-Z94.4-93, Selection, Use, and Care of Respirators*. Section 4.4(2)(a) permits WorkSafeBC to accept another standard to be used for the selection of

respiratory protection.

The purpose of this guideline is to provide an acceptable standard to the requirement in section 8.33(1) of the *Regulation*.

Acceptance of CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators

A person that is required to comply with the *CSA Standard CAN/CSA-Z94.4-93* specified in section 8.33(1), may comply with *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators* as an alternative standard.

G8.33(2)-1 Approved respirators

Issued August 1999; Revised May 9, 2006; Editorial Revision February 1, 2008; Editorial Revision to include February 1, 2011 regulatory amendment; Revised October 23, 2012; Revised April 8, 2020; Editorial Revision May 28, 2020; Revised September 18, 2020; Revised February 11, 2021

Regulatory excerpt

Section 8.33(2) of the *OHS Regulation ("Regulation")* states:

Only a respirator which meets the requirements of a standard acceptable to the Board may be used for protection against airborne contaminants in the workplace.

Purpose of guideline

The purpose of this guideline is to identify a standard acceptable to WorkSafeBC for respirators and to provide information on the U.S. National Institute for Occupational Safety and Health (NIOSH) certification of respirators, particularly for filtering facepiece respirators used to protect against airborne particulates, as well as elastomeric facepiece respirators. It also includes a list of standards of other jurisdictions for certain respirators that are also considered acceptable to WorkSafeBC under section 8.33(2) of the *Regulation*.

Respirators acceptable to WorkSafeBC

a) NIOSH certification

WorkSafeBC accepts NIOSH certification requirements for respirators as a standard acceptable to WorkSafeBC under section 8.33(2) of the *Regulation*.

The requirements for NIOSH certified respirators are found in Part 84 of Title 42 of the *U.S. Code of Federal Regulations on respiratory protective devices (Part 84)*. Certifications in *Part 84* cover various types of respirators including non-powered air-filtering particulate respirators, chemical cartridge respirators, self-contained breathing apparatus (SCBA), airline respirators, and powered air-purifying respirators (PAPRs).

All respirators approved under *Part 84* carry a certification label bearing the emblems of NIOSH and the U.S. Department of Health and Human Services (DHHS).

Particulate respirators with approvals in jurisdictions other than NIOSH and CSA

For non-powered air-purifying particulate respirators, the sequence of NIOSH approval numbers is "TC-84A-xxx." These respirators include particulate filtering facepiece respirators, as well as respirators with elastomeric facepieces.

Filtering facepiece respirators, in which the entire facepiece acts as the filter, cover only half the face, and are sometimes termed "disposable" or "single use" respirators. Respirators with elastomeric facepieces made of silicone, thermoplastic, or rubber material are available in half or full facepiece models. In these designs, one or more filters or cartridges are attached to the facepiece.

Under *Part 84*, particulate respirators are classified on the basis of their resistance to oil. Oil degrades and reduces the filtering efficiency of the filter material. NIOSH certifies the following three classes of filters: N-series (for **N**ot resistant to oil), R-series (for **R**esistant to oil), and P-series (for oil **P**roof).

Each of these three classes of filters is also certified according to its level of filter efficiency (rated as 95%, 99%, or 99.97% efficient at removing particles 0.3 micrometres in diameter). For example, a filter marked N95 means that the filter is not resistant to oil and is at least 95% efficient at removing particles 0.3 micrometres in diameter. In total, nine classes of filters are certified, as shown in the table below.

Classes of filters certified by NIOSH under Part 84

Filter series	Filter type	Minimum efficiency	Comments
"N" Series	N100	99.97%	May be used for any solid or non-oil-containing particulate.
	N99	99%	
	N95	95%	
"R" Series	R100	99.97%	May be used for any particulate contaminant. May only be used for 1 shift if used for an oil-containing particulate.
	R99	99%	
	R95	95%	

"P" Series	P100	99.97%	May be used for any particulate contaminant.
	P99	99%	
	P95	95%	

Note: Oil aerosols include lubricants, cutting fluids, and glycerin.

All nine classes of filters, as discussed in the above table, are considered appropriate for protection against tuberculosis and other airborne biological agents. (Refer to OHS Guidelines [G6.34-1 to G6.40](#) for further information on protection against biological agents designated as a hazardous substance in [section 5.1.1](#) of the *Regulation*.)

b) Canadian Standards Association (CSA) certification

WorkSafeBC accepts CSA certification requirements for respirators as a standard acceptable to WorkSafeBC under section 8.33(2) of the *Regulation*.

Respirators that have received certification approval from CSA are listed in the CSA Group Product Listing webpage: csagroup.org/testing-certification/product-listing/.

On the CSA-approved respirator, the manufacturers' label will have the following:

- Manufacturer's identification (company name, registered trade name/trademark and/or CSA master contract number)
- Product or style
- Respirators that meet the 95% particulate filter efficiency level shall be labelled "95PFE"
- Respirators that meet the 99% particulate filter efficiency level shall be labelled "99PFE"
- Respirators that meet the 99.97% particulate filter efficiency level shall be labelled "100PFE"
- CSA mark

In addition, a medical grade respirator would have markings "L#" to indicate the ASTM F1862 fluid resistance level 1, 2, or 3; whichever is the highest level obtained by the product.

c) Particulate respirators with approvals in jurisdictions other than NIOSH and CSA

NIOSH- and CSA-approved respirators are deemed acceptable to WorkSafeBC, however, there are situations where WorkSafeBC accepts respirators from other jurisdictions.

The following filtering facepiece types from other countries have been deemed acceptable as equivalent to NIOSH N95 under section 8.33(2):

Country	Acceptable Products	Performance Standard
Australia	P2 P3	AS/NZS 1716:2012
Brazil	PPF2 PPF3	ABNT/NBR 13698:2011
China	KN 95, KP 95 KN 100, KP 100	GB 2626-2006 GB 19083-2010
Europe	FFP2 FFP3	EN 149-2001
Japan	DS/DL2 DS/DL3	JMHLW-2000
Korea	1st Special	KMOEL-2017-64
Mexico	N95, P95, R95 N99, P99, R99 N100, P100, R100	NOM-116-2009

The alternative particulate filtering facepiece respirators listed above are considered acceptable by WorkSafeBC for protection against airborne particulates, like biological agents, where a risk assessment deems that an N95 is appropriate. Refer to [Table 8-1](#) in the *Regulation* and OHS Guideline [G8.34-1](#) for information on protection factors.

d) Elastomeric air-purifying respirators with approvals in jurisdictions other than NIOSH

The following performance standards for half-face or full-face elastomeric air-purifying respirators with corresponding particulate filters and/or chemical cartridges from other countries have been deemed acceptable as equivalents to NIOSH-approved respirators for the purposes of section

8.33(2):

Country	Acceptable Products	Performance Standard
Australia	Facepiece with: P3 particulate filters Class 3 gas and vapour filters	AS/NZS 1716:2012
Europe	Facepiece with: P3 particulate filters Class 3 gas and vapour filters	EN 140:1998 EN 143:2000 EN 141:2000
Mexico	Facepiece with: N100, R100, or P100 filters	NOM-116-STPS-2009
United Kingdom	Facepiece with: P3 particulate filters Class 3 gas and vapour filters	BS EN 140:1999 BS EN 136:1998 BS EN 143:2000 BS EN 14387:2004

More recent editions of the performance standards in the tables above would also be acceptable to WorkSafeBC.

Employers should be aware that the colour coding for filters and chemical cartridges from Australia, Europe, and the United Kingdom differ from the NIOSH-approved products (e.g., NIOSH P100 filters are magenta while the European products are white or have a white stripe).

In the global environment of severe supply shortages of respirators, employers should be aware of risks associated with sourcing NIOSH-approved respirators or acceptable equivalents as outlined in the [Risk Advisory](#) for counterfeits and poor quality products.

When using any respirator, the employer must ensure each of the following:

- Workers are fit tested to the make, model, and size of respirator; can perform user seal checks; and know how to don and doff the respirator properly
- Workers visually inspect the respirator before use to check for defects or damage to the straps, nose clip, or filter material
- Workers are informed of any limitations of the respirator stated by the manufacturer

e) Use of 'expired' NIOSH-approved particulate respirators

As part of pandemic and emergency planning, many organizations have stockpiled particulate respirators, such as N95 filtering facepiece respirators. Many of the manufacturers of these respirators have provided a manufacturer-designated shelf life. In times when supply issues are critical like a pandemic, employers may have to use respirators beyond the 'expiry date.' A NIOSH study has indicated that these respirators may meet the performance standards if the manufacturers' storage recommendations are followed.

WorkSafeBC accepts the use of these 'expired' NIOSH-approved particulate respirators with the following provisions:

- The expired respirators can only be used in an emergency and should only be used as a last resort
- The employer uses them in accordance with the manufacturer's instructions, including instructions relating to the use of expired respirators
- The respirators have been stored in accordance with the manufacturer's instructions
- The workers are informed of their use
- The employer must ensure the following precautionary measures are followed:
 - Workers must visually inspect the respirator to determine if its integrity has been compromised;
 - Before use, the worker checks that components such as straps, nose clip, and foam material did not degrade, which can affect the quality of the fit and seal
 - Workers have been fit tested to the respirator, and can perform user seal checks and know how to don and doff the respirator properly

G8.33(2)-2 Interchange of equipment components

Retired November 23, 2010

This guideline has been retired since the reference to air cylinders conflicts with *Prevention Manual* [Policy Item R8.33-1](#) and the reference to air lines is a duplication of the information in [Policy Item R8.33-2](#).

G8.34-1 Protection factors

Issued as G8.34 August 1999; revised March 22, 2004, and further revised April 20, 2004; Editorial Revision to include February 1, 2010 regulatory amendment; Editorial Revision February 14, 2020

Regulatory excerpt

Section 8.34 of the *OHS Regulation ("Regulation")* states:

(1) In subsection (2):

"established 8-hour TWA limit" means the 8-hour TWA limit set by the Board for an air contaminant, or if the Board has not set an 8-hour TWA limit for an air contaminant, the TWA limit set by ACGIH for the air contaminant;

"established ceiling limit" means a ceiling limit set by the Board for an air contaminant, or if the Board has not set a ceiling limit for an air contaminant, the ceiling limit set by ACGIH for the air contaminant;

"established short-term exposure limit" means the short-term exposure limit set by the Board for an air contaminant, or if the Board has not set a short-term exposure limit for an air contaminant, the short-term exposure limit set by ACGIH for the air contaminant.

(2) In subsection (3),

"maximum use concentration" means the concentration of an air contaminant calculated in one of the following ways:

(a) if an established 8-hour TWA limit applies to the air contaminant to which a worker is or might be exposed, by multiplying

(i) the established 8-hour TWA limit for the air contaminant, and

(ii) the protection factor set out in Table 8-1 that applies to the respirator type that the worker is using;

(b) if there is no established 8-hour TWA limit that applies to the air contaminant to which a worker is or might be exposed, by multiplying

(i) the established short-term exposure limit for that air contaminant, and

(ii) the protection factor set out in Table 8-1 that applies to the respirator type that the worker is using;

(c) if there is no established 8-hour TWA limit or short-term exposure limit that applies to the air contaminant to which a worker is or might be exposed, by multiplying

(i) the established ceiling limit for that air contaminant, and

(ii) the protection factor set out in Table 8-1 that applies to the respirator type that the worker is using.

(3) The employer must ensure that a worker does not use a respirator for protection against a concentration of an air contaminant in the workplace that is greater than the maximum use concentration.

(4) The protection factor of 1 000 set out in Table 8-1: Respirator protection factors for a hood or helmet facepiece, powered (PAPR), and equipped with a HEPA filter or a sorbent cartridge or canister or both a HEPA filter and a sorbent cartridge or canister applies only if an employer who uses or wishes to use that respirator type has evidence from the manufacturer that demonstrates that

(a) the manufacturer has tested that type of respirator, and

(b) those tests demonstrate that a respirator of that type has a protection factor of at least 1 000.

(5) The protection factor of 25 set out in Table 8-1: Respirator protection factors for a hood or helmet facepiece, powered (PAPR), and equipped with a HEPA filter or a sorbent cartridge or canister or both a HEPA filter and a sorbent cartridge or canister applies if the conditions set out in subsection (4) are not met.

Purpose of guideline

This guideline explains how the maximum use concentration is calculated and what the assigned protection factor of a respirator means.

Maximum use concentration

The maximum use concentration (MUC) is determined by multiplying the exposure limit for the air contaminant by the appropriate respirator protection factor or assigned protection factor (APF). Exposure limits are found in the Table of Exposure Limits for Chemical and Biological Substances (see OHS Guideline [G5.48-2](#)). Respirator protection factors, also known as assigned protection factors (APFs), are found in [Table 8-1](#) of the *Regulation* or may be determined by WorkSafeBC.

Always use the 8-hour time-weighted average (TWA) limit for an air contaminant, where there is one, as the exposure limit in the calculation, even if the substance has a short-term exposure limit or a ceiling limit as well. In the case where a substance has only a ceiling limit, then the ceiling limit is used.

The APF of a respirator reflects the level of protection that a properly functioning respirator would be expected to provide to a population of properly fitted and trained users. For example, an APF of 10 (half facepiece air-purifying respirator) means that a user could expect to inhale no more than one-tenth of the airborne contaminant present; an APF of 50 (full facepiece air-purifying respirator) means that a user could expect to inhale no more than one-fiftieth of the airborne contaminant.

The MUC is the maximum airborne concentration to which a particular respirator can be used by a worker. For example, if a worker wearing a respirator with an APF of 10 is exposed to an atmosphere containing a substance with an 8-hour TWA limit of, for example, 100 parts per million (ppm), the maximum airborne concentration the worker can be exposed to is 1000 ppm (10 X 100 ppm = 1000 ppm). If the worker is exposed to levels exceeding 1000 ppm, a respirator with a higher APF is required.

It is important to note that other factors, such as the immediate danger to life or health (IDLH) concentration, will also need to be considered since the IDLH concentration may place limitations on the maximum use concentration. Refer to OHS Guideline [G8.34-3](#) for additional information on IDLH.

Note: For extended workshifts where there is exposure to a substance with an 8-hour TWA, do not use modified TWA limits as determined under section 5.50 for extended work shifts. To accommodate for 10-hour, 12-hour, or other work shifts, one should consider modifying the change-out schedule for the respirator cartridge being used. Contact the respirator manufacturers for direction on recommended change-out schedules. Refer also to clause 10.2 of *CSA Standard Z94.4-18, Selection, Use, and Care of Respirators* for additional advice on change-out procedures, schedules, and service times.

If there are exposures to more than one chemical at one time (such as to a complex solvent mixture), the possibility of additive or synergistic effects should be assessed. Normally, additive and synergistic effects should be considered when profiling a worker's exposure to airborne contaminants - a requirement of *Regulation section 5.51* (see OHS Guideline [G5.51](#)). It is prudent to consider additive/synergistic effects for the respirator selection process as well. However, at this time, NIOSH, OSHA, WorkSafeBC, other agencies, as well as respirator manufacturers, have not finalized the method for incorporating additive and synergistic effects into the selection process. Until such time the methodology has been finalized, WorkSafeBC Prevention officers and persons responsible for a company's respirator program are advised to use the instructions in OHS Guideline [G8.33-1](#) or *CSA Standard Z94.4-18, Selection, Use, and Care of Respirators* for selecting the appropriate device when confronted with multi-contaminant exposures. A detailed chart is available in *CSA Standard Z94.4-18, Selection, Use, and Care of Respirators* to facilitate the selection process. Rather than using the maximum use concentration, however, CSA uses the highest hazard ratio (HHR), which is the ratio of airborne concentration to the exposure limit, for selecting the appropriate respirator.

Technical background information

The concept of the assigned protection factor is based on work originally conducted by the U.S. Bureau of Mines and first published in 1965 as decontamination factors. A decontamination factor was defined at the time as "the ratio of the concentration of dust, mist, fume or mist within the facepiece [relative to outside the respirator] while the respirator is being worn." The American National Standards Institute (ANSI) along with the American Industrial Hygiene Association's Respirator Committee further developed the concept, resulting in the present-day assigned protection factor (APF). The APF of a respirator reflects the level of protection that a properly functioning respirator would be expected to provide to a population of properly fitted and trained users. For example, an APF of 10 for a respirator means that a user could expect to inhale no more than one-tenth of the airborne contaminant present.

Fundamentally, the protection factor of a respirator is an expression of performance based on the ratio of two measured variables, C_1 and C_0 as described in NIOSH's 1987 document *NIOSH Respirator Decision Logic* (DHHS Publication No. 87-108). C_1 is the measured concentration of a contaminant inside the respirator facepiece cavity, and C_0 is the measured concentration of a contaminant outside the respirator facepiece. The relationship between these two variables can be expressed not only as the protection factor (C_0/C_1) but also penetration (C_1/C_0) or efficiency [$(C_0/C_1)/C_0$]. Furthermore, the protection factor (PF) can be related to the penetration (P) and efficiency (E) as follows:

$$PF = C_0/C_1 = 1/p = 1/(1 - E)$$

Since $C_1 \leq C_0$, the PF will always be greater than unity.

Protection factor assessments are made exclusively on person/respirator systems while penetration and efficiency assessments are made only on component parts of the respirator system. It is important to recognize that on a person/respirator system, the measured variable C_1 becomes a complicated function of many individual sources of penetration (for example, penetration of any of the following components -- air-purifying element, exhalation valve, and face seal). Also those environmental conditions that would affect penetration need to be considered (for example, high humidity, sweat, activity level of the user, and comfort level provided by the device).

G8.34-2 Assigned protection factors for non-powered filtering facepiece style air-purifying respirators

Issued March 22, 2004; Editorial Revision February 8, 2007; Retired February 14, 2020

This guideline is retired due to duplication of information. For additional information on approved respirators see [OHS Guideline G8.33\(2\)-1](#).

G8.34-3 Maximum use concentration and IDLH

Issued originally as part of G8.34 August 1999; revised March 22, 2004; Editorial Revision April 4, 2007

Regulatory excerpt

The last row of Table 8-1 in Part 8 of the *OHS Regulation ("Regulation")* states:

Other factors such as warning properties, IDLH levels and cartridge/canister limitations must also be taken into account when determining the maximum use concentration. Refer to the manufacturer's instructions and standards acceptable to the Board for further information.

Purpose of guideline

The purpose of this guideline is to explain how the immediately dangerous to life or health (IDLH) concentration must be taken into account when using the maximum use concentration to select a respirator.

Effect of IDLH on respirator selection

Most of the selection criteria in the applicable CSA Standard are summarized in OHS Guideline [G8.33](#). As a result of *Regulation section 8.35*, one of the most critical factors to be considered when selecting a respirator is whether the concentration is immediately dangerous to life or health (IDLH). For some substances, the IDLH concentration is very low, such as the following:

Chemical Name	IDLH concentration (ppm)
Toluene	500
Xylene	900
Chlorine	10

Depending on the type of respirator selected, the IDLH concentration may be lower than the maximum use concentration calculated using the exposure limit and the assigned protection factor. If the IDLH concentration is lower than the maximum use concentration, the selected respirator is unsuitable and another, more protective, respirator must be selected. The following example is provided using chlorine as the air contaminant:

1. A full facepiece air-purifying respirator, with an acid gas chemical cartridge, is being considered to protect against exposure to chlorine.
2. In the Table of Exposure Limits for Chemical and Biological Substances (see OHS Guideline [G5.48-2](#)), the 8-hour TWA limit for chlorine is 0.5 ppm. In [Table 8-1](#), the assigned protection factor for a full facepiece non-powered air-purifying respirator is 50.
3. The maximum use concentration in which it appears this respirator can be used to protect against exposure to chlorine calculates out to $50 \times 0.5 \text{ ppm} = 25 \text{ ppm}$.
4. Although it appears from the calculation in item 3 above that the respirator could be used to protect against chlorine exposure to a concentration of 25 ppm, [section 8.35](#) must also be met. The IDLH concentration for chlorine is 10 ppm. Section 8.35 does not permit an air-purifying respirator to be used in an IDLH atmosphere. Only an air-supplying or self-contained positive pressure respirator may be used for situations where the concentration is above or may go above the IDLH value. Thus a full-facepiece, air-purifying respirator with an acid gas cartridge may only be used if the maximum expected concentration of chlorine will be below 10 ppm.

For information on current IDLH concentrations, refer to OHS Guideline [G8.35\(1\)](#) or go to the NIOSH web site: <http://www.cdc.gov/niosh/idlh/intrid4.html>

G8.34-4 Protection factors - standard acceptable to WorkSafeBC

Issued May 17, 2006; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision February 14, 2020

Regulatory excerpt

The last row of Table 8-1 in Part 8 of the *OHS Regulation ("Regulation")* states:

Other factors such as warning properties, IDLH levels, and cartridge/canister limitations must also be taken into account when determining the maximum use concentration. Refer to the manufacturer's instructions and standards acceptable to the Board for further information.

Purpose of guideline

The purpose of this guideline is to identify a standard acceptable to WorkSafeBC under the last row in Table 8-1.

Acceptable standard

CSA Standard *CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators* has been determined to be acceptable to WorkSafeBC.

G8.34-5 Assigned protection factor for helmet/hood style powered air purifying respirators

Retired on February 1, 2010

This guideline is not required after amendment of this section on February 1, 2011 to include the protection factor in OHS Regulation (refer to [OHS Regulation 8.34](#)).

G8.35 IDLH or oxygen deficient atmosphere

Issued August 1, 1999; Editorial Revision February 14, 2020

Regulatory excerpt

Section 8.35 of the *OHS Regulation ("Regulation")* states:

- (1) If a worker is required to enter or work in an IDLH or oxygen deficient atmosphere the worker must

(a) wear a full facepiece positive pressure respirator which is either an SCBA, or an airline respirator with an auxiliary self-contained air cylinder of sufficient capacity to permit the worker to escape unassisted from the contaminated area if the air supply fails, and

(b) be attended by at least one other worker stationed at or near the entrance to the contaminated area who is similarly equipped and capable of effecting rescue.

(2) Subsection (1)(a) applies if there is a significant risk of accidental release into a worker's breathing zone of quantities of an air contaminant sufficient to produce an IDLH atmosphere.

Purpose of guideline

The purpose of this guideline is to provide information and current references for IDLHs (immediate dangerous to life or health).

Reference documentation for IDLH concentrations

IDLH concentrations are based on research and information gathered by National Institute for Occupational Safety and Health (NIOSH). IDLHs were originally determined for 387 substances in the mid-1970's as part of the Standards Completion Program, a joint project by NIOSH and OSHA for use in assigning respiratory protective equipment. NIOSH re-evaluated the scientific adequacy of the criteria in the early 1990's and published their findings in [Documentation for immediately dangerous to life or health \(IDLH\) concentrations](#).

For more information on current IDLH concentrations, visit the current edition of the [NIOSH pocket guide to chemical hazards](#) and the [NIOSH table of IDLH values](#).

G8.38(2) Respiratory protection and use of contact lenses

Issued August 1, 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 8.38(2) of the *OHS Regulation* ("Regulation") states:

The employer may permit the use of contact lenses by a worker who is required to wear a full facepiece respirator if their use is not likely to adversely affect the health or safety of the worker.

Purpose of guidelines

The purpose of this guideline is to provide guidance regarding the use of contact lenses as it relates to section 8.38(2) of the *Regulation*.

Use of contact lenses

Contact lenses may be worn with a full-face air-supplying respirator if all of the following criteria are met:

- The employer is notified that contact lenses will be worn
- The user puts the respirator on in an atmosphere which does not cause the eyes to be irritated or which does not cause irritating gases or vapours to be absorbed by the contact lens
- The wearer does not wear contact lenses if the eyes are irritated or inflamed. If use of the respirator is necessary for planned work or in the event of an emergency situation, appropriate alternative corrective eyewear should be used with the respirator.

Note: If fit testing for the full facepiece respirator was done with the worker wearing contact lenses, another form of prescriptive eyewear should only be used if a fit test has confirmed an effective seal with the face using the respirator with the alternative eyewear. Section 8.38(1) of the *Regulation* requires the employer to provide specialty corrective eyewear if necessary to ensure the work can be performed safely.

G8.40 Respiratory protection - Fit test

Issued August 1, 1999; Editorial Revision April 4, 2007; Editorial Revision February 14, 2020

Regulatory excerpt

Section 8.40 of the *OHS Regulation* ("Regulation") states, in part:

- (1) A respirator which requires an effective seal with the face for proper functioning must not be issued to a worker unless a fit test demonstrates that the facepiece forms an effective seal with the wearer's face.
- (2) Fit tests must be performed in accordance with procedures in *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*.

Section 8.41 of the *Regulation* states, in part:

- (1) Before each use of a respirator which requires an effective seal with the face for proper functioning, a worker must perform a positive or negative pressure user seal check in accordance with *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*.

Purpose of guideline

The purpose of this guideline is to describe acceptable methods for performing qualitative and quantitative fit tests.

Note that the CSA Standard CAN/CSA-Z94.4-18 is considered an acceptable standard for the purpose of fit testing.

General requirements

Section 8.40(1) of the *Regulation* specifies that a worker must not be issued a respirator which requires an effective seal with the face for proper functioning unless a fit test demonstrates the facepiece forms an effective seal with the wearer's face.

A "fit test" is defined in *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators ("Standard")* as "the use of a qualitative or a quantitative method to evaluate the fit of a specific make, model, and size of respirator on an individual." The *Standard* prescribes the following two general fit test methods - WorkSafeBC will accept either method:

- Qualitative fit testing (QLFT)
- Quantitative fit testing (QNFT)

The following elements of the *Standard* apply regardless of whether the fit test performed is qualitative or quantitative:

- A respirator must be fit tested while being worn by the user to demonstrate that the facepiece forms an effective seal.
- The person undergoing the fit test must be clean shaven where the facepiece seals to the skin.
- The person performing the fit test should address a number of topics with the user prior to performing the test. These topics include explanations of the test procedure, description of the test agent, and proper donning of the respirator. The topics are identified in the Appendices of the *Standard*.
- Before a fit test is carried out, the respirator wearer must perform a positive or negative pressure user seal check. The requirement for a user seal check is provided in *Regulation* section 8.41.
- For a respirator that requires a tight face-to-facepiece seal (this includes SCBA equipment), the *Standard* requires that fit testing be conducted in the negative pressure mode. A fit test can be conducted by temporarily converting the face piece from a positive pressure device to a negative pressure device through attachment of particulate or chemical cartridges or canisters to the end of the facepiece breathing hose or directly to the facepiece itself. Alternatively, the fit test can be conducted by using a negative pressure air-purifying respirator with identical facepiece sealing surface.
- When other personal protective equipment, such as eye, face, head, and hearing protectors, are required to be worn, they must be worn during the respirator fit tests to ensure that they are compatible with the respirators and do not break the facial seal.

For additional information, refer to the *Standard* and to the WorkSafeBC publication "[Breathe Safer.](#)"

Qualitative fit testing (QLFT)

A qualitative fit test relies on a person's response to a test agent due to taste, smell, or irritation. Acceptable qualitative fit test methods are listed below.

Acceptable QLFT Methods

Test agent	Response based on
1. Isoamyl acetate (banana oil)	Smell
2. Saccharin solution aerosol	Taste
3. Irritant smoke	Irritation
4. Bitter aerosol	Taste

Appendix B of the *Standard* includes procedures and explanatory information for the isoamyl acetate, saccharin solution, irritant smoke, and bitter aerosol methods. Test equipment and supplies are available from safety equipment suppliers.

For the isoamyl acetate, saccharin solution, and bitter aerosol tests, the following applies:

- Prior to proceeding with the fit test, the worker receiving the test is subjected to a threshold-screening test without a respirator to ensure sensitivity to the selected test agent. If the worker does not respond to the selected test agent, an alternate agent or method is chosen.
- Conduct a negative or positive pressure user seal check prior to proceeding with the fit test.
- A fit test chamber, hood or enclosure is used to ensure an adequate concentration of test agent is generated and maintained for the duration of the test. The chamber can be a plastic hood, available commercially, or can be created using the method described in Appendix B of the *Standard*.
- Appendix B of the *Standard*.

For the irritant smoke test, the following applies:

- Only smoke tubes approved for fit testing are used.
- Check with the manufacturer of the smoke tube to determine if there is a gaseous component to the irritant smoke. If so, a combination of an organic vapour/acid gas cartridge with a N100, P100 or R100 prefilter or HEPA prefilter is used; otherwise a N100, P100, R100 or HEPA-rated filter can be used.
- The worker receiving the test is subjected to a weak concentration of the irritant smoke to ensure sensitivity to this test agent.

- Conduct a negative or positive pressure user seal check prior to proceeding with the pressure user seal test.
- A fit test chamber, hood or enclosure is not used for fit testing due to the generation of hydrogen chloride during the test.
- The test is conducted in a location with adequate ventilation to prevent general contamination of the testing area by the irritant smoke.
- See Appendix B of the *Standard* for specific details.

Quantitative fit testing (QNFT)

The following quantitative methods are acceptable:

- Measure ambient aerosol levels and compare them with levels inside the respirator facepiece.
- Generate a known concentration of a test aerosol (such as corn oil, polyethylene glycol 400, di-2-ethyl hexyl sebacate, or sodium chloride) inside a test chamber and compare the concentration of the generated aerosol with levels inside the respirator facepiece.
- Measure the volumetric leak rate of a facepiece using controlled negative pressure.

The first two QNFT methods measure the concentration of a test agent inside the respirator facepiece. The tests are conducted using electronic equipment (such as a condensation nuclei counter) capable of counting airborne particles. The third method relies on measurement of the exhaust air stream that is required to hold the sealed respirator to the face.

Unlike qualitative fit tests, quantitative tests do not depend on a person's response to a test agent.

These methods are described more fully in Appendix C of the *Standard*.

G8.40(2.1)(c) Single-use respirators and fit test equivalency

Issued September 30, 2009; Editorial Revision February 14, 2020; Revised May 28, 2020

Regulatory excerpt

Section 8.40(2.1) of the *OHS Regulation* ("Regulation") states:

- (2.1) A fit test must be carried out
 - (a) before initial use of a respirator,
 - (b) at least once a year,
 - (c) whenever there is a change in respirator facepiece, including the brand, model, and size, and
 - (d) whenever changes to the user's physical condition could affect the respirator fit.

Purpose of guideline

This guideline provides information on equivalency for single-use respirators (e.g., N95 type) when manufacturers produce a respirator type with several model numbers. It also provides suggestions for achieving efficiencies in the deployment of N95 filtering facepiece respirators and fit testing of the respirators.

Model number differences and changes

The *Regulation* specifies that a fit test must be carried out whenever there is a change in a facepiece model. A respirator manufacturer, however, may change the model number of a respirator without making any material changes to the facepiece. This may be done for marketing or other business purposes. In addition, a manufacturer may sell different yet equivalent respirators with different model numbers based on the industries to which they are marketing.

An employer may be able to use respirators marketed for different applications if the respirators are essentially equivalent. For example, an N95 respirator sold for an industrial application can be used by health care workers under specified conditions. Health care employers do not have to restrict their respirator types to those marketed specifically to the health care industry. An advantage of using equivalent respirator types is that once a worker has been fit tested on one model, the fit test will apply to the equivalent model without further testing.

Accepted equivalent manufacturers' model numbers

For WorkSafeBC to consider the respirator models to be equivalent for the purpose of fit testing, the respirators will need to have been produced by the same manufacturer. Also, there will need to be a statement from the manufacturer that is available to employers stating that the respirators are identical for fit purposes, and that the manufacturer recognizes that a fit test for one of the respirators is suitable evidence of adequate fit for the other respirator.

It is the employer's responsibility to consult with the manufacturer of the respirator to obtain this information and to note this in its respirator program.

Maximizing use and availability of respirators

There are means of maximizing efficiencies in the use and availability of single-use respirators including the following:

- Workers keeping the respirators that were used to fit test them, rather than discarding them immediately after the fit test (provided the respirators were not damaged during the test).
- Developing and maintaining up-to-date respirator programs.

- Fit testing of large groups of workers at a time.
- Selecting the most practical respirator for the intended purpose (e.g., moving to reusable elastomeric types as appropriate rather than using single-use N95s, where workers are repeatedly entering hazardous areas during a shift).
- In order to avoid a shortage of respirators, employers should consider purchasing respirators from a number of different manufacturers. Different respirators could be used in various departments or for different cohorts of workers. If one manufacturer is unable to supply a particular make or model of respirator the employer may be able to use an alternate (workers will still have to be fit tested for the new respirator).
- Where an N95 filtering facepiece respirator is required for worker protection, any other filtering facepiece respirator that provides equal or greater protection (e.g., R95, P100) could be considered as a substitute. The requirement for fit testing would still apply to these respirators.

G8.41 User seal check - Alternate standard

Issued February 14, 2020

Regulatory excerpt

Section 8.41 of the *OHS Regulation ("Regulation")* states in part:

(1) Before each use of a respirator which requires an effective seal with the face for proper functioning, a worker must perform a positive or negative pressure user seal check in accordance with *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*.

...

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

Section 8.41 of the *Regulation* requires that a worker must perform a positive or negative pressure user seal check in accordance with *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*. Section 4.4(2)(a) permits WorkSafeBC to accept another standard to be used for the selection of respiratory protection.

The purpose of this guideline is to provide an acceptable alternate standard to the requirement in section 8.41 of the *Regulation*.

Acceptance of *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators*

A person that is required to comply with the *CSA Standard CAN/CSA-Z94.4-02* specified in section 8.41 may comply with *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators* as an alternative standard.

G8.42 Medical Assessment

Issued August 1999; Editorial Revision October 2004; Editorial Revision February 14, 2020; Editorial Revision June 30, 2021

Section 8.42 of the *OHS Regulation ("Regulation")* states:

If a worker is required to use a respirator and there is doubt about the worker's ability to use a respirator for medical reasons, the worker must be examined by a physician, and the examining physician must be provided with sufficient information to allow the physician to advise the employer of the ability of the worker to wear a respirator.

Purpose of guideline

The purpose of this guideline is to provide sources of information for medical evaluation regarding wearing of a respirator.

Medical assessment

When being evaluated for medical fitness to wear a respirator, the worker needs to bring the respirator that is to be worn to the physician doing the assessment. Some guidelines for medically assessing a worker's ability to use a respirator are provided in the following references:

- *CSA Standard CAN/CSA Z94.4-18, Selection, Use and Care of Respirators*
- *ANSI Standard Z88.6-1984, Physical Qualifications for Respirator Use*
- "Respirator Decision Logic", published by NIOSH (DHHS/NIOSH Pub. No. 87-108)

For additional information, consult occupational physicians of WorkSafeBC.

G8.44 Records

Issued February 14, 2020

Regulatory excerpt

Section 8.44 of the *OHS Regulation* ("Regulation") states:

The employer must maintain a record of

- (a) fit test results and worker instruction,
- (b) maintenance for air supplying respirators, powered air purifying respirators, and for sorbent cartridges and canisters, and
- (c) maintenance and repairs for each self-contained breathing apparatus and all air cylinders in accordance with the requirements of *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

The purpose of this guideline is to provide an acceptable alternate standard to the requirement in section 8.44 of the *Regulation*.

Section 8.44 of the *Regulation* requires that maintenance and repairs for each self-contained breathing apparatus and all air cylinders be done in accordance with *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*. Section 4.4(2)(a) permits WorkSafeBC to accept another standard to be used for the selection of respiratory protection.

Acceptance of *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators*

A person that is required to comply with the *CSA Standard CAN/CSA-Z94.4-02* specified in section 8.44, may comply with *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators* as an alternate standard.

G8.45 Maintenance and inspection of self-contained breathing apparatus

Issued May 17, 2006; Revised October 23, 2012; Revised August 28, 2020; Revised October 20, 2020

Regulatory excerpt

Section 8.45 (Maintenance and inspections) of the *OHS Regulation* ("Regulation") states:

- (1) Inspection of compressed air cylinders must be done in accordance with *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*.
- (2) Self-contained breathing apparatus, including regulators, must be serviced and repaired by qualified persons.
- (3) Compressed air cylinders must be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*.

Section 4.4(2)(a) of the *Regulation* states:

(3) When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

The purpose of this guideline is to accept two alternate (revised) standards under section 4.4(2)(a). It accepts *CSA Standard CAN/CSA Z94.4-18* as an alternate standard to *CSA Standard CAN/CSA-Z94.4-02* and *CAN/CSA B339-18* as an alternate standard to *CAN/CSA B339-96*.

This guideline also provides information on the application of the three requirements of section 8.45 of the *Regulation* on the inspection of self-contained breathing apparatus (SCBA), servicing and repair, and hydrostatic testing.

An SCBA includes a full facepiece incorporating a second stage regulator, compressed air cylinder, first stage regulator, pressure gauge, alarm, connecting tubes, harness assembly, and associated fittings. An SCBA offers one of the highest levels of respiratory protection available and is designed to provide protection in oxygen-deficient atmospheres and in situations where high or unknown concentrations of toxic air contaminants are present.

Section 8.45(1) - Inspection

Under this requirement, compressed air cylinders may also be inspected in accordance with *CSA Standard CAN/CSA Z94.4-18, Selection, use, and care of respirators*. This Standard covers inspection of SCBA cylinders, including those made of steel, aluminum, and composites. Inspections require an examination of both the exterior and interior of cylinders. Inspections must be done according to the requirements of the following:

- *CAN/CSA-B339*
- *CAN/CSA-B340*
- *CGA C-6, C-6.1, or C-6.2* as appropriate
- Transport Canada regulations under the *Transportation of Dangerous Goods Act*
- Manufacturer's instructions

Cylinder manufacturers typically provide detailed inspection instructions.

Internal inspections

Internal inspections are required for all cylinders at the time of hydrostatic testing. Transport Canada or the manufacturer may specify more frequent internal inspections. The purpose of the internal inspection is to look for the presence of corrosion, moisture, oil, or other deposits.

CSA Z94.4-18 requires at least annual inspections of steel and aluminum cylinders over 15 years old when the cylinders are in current use. *CSA Z94.4-18* requires composite cylinders to be removed from service if they are at least 15 years old.

External inspections

External inspections are conducted on a more frequent basis than internal inspections. *CSA Z94.4-18* requires that cylinders be inspected externally after each use and before refilling. In addition, cylinders for emergency use, such as emergency escape SCBA cylinders, must be inspected on a schedule to ensure readiness for the anticipated emergency use.

The purposes of the external inspection include the following:

- Identifying any obvious damage to the cylinder
- Verifying that the hydrostatic test date is current

Defective equipment is to be identified as "out of service" and removed from service until repaired and replaced.

Section 8.45(2) - Servicing and repair

This provision requires that SCBAs, including regulators and components like hose connectors, hoses, cylinders, facepieces, head straps, regulators, harness components, warning devices, and gauges are serviced and repaired by a qualified person. "Qualified," as defined by section 1.1 of the *Regulation*, means being knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience, or a combination thereof. For the purposes of section 8.45(2), qualified SCBA maintenance personnel will

- Be qualified through training and experience to inspect, maintain, and repair respirators in accordance with the manufacturer's written instructions
- Inspect, maintain, and repair SCBAs as required
- Ensure that maintenance tools are kept in good repair and properly calibrated
- Maintain appropriate records of maintenance and repair in accordance with section 8.44 of the *Regulation*

Only registered facilities can repair and requalify SCBA cylinders. Contact Transport Canada to locate a facility.

Section 8.45(3) - Hydrostatic testing

This provision requires that compressed air cylinders be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*. *CAN/CSA B339-18 Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods* is an acceptable alternative to the 1996 edition referenced in section 8.45(3) of the *Regulation*.

CSA Standard CAN/CSA-B339 specifies the requirements for the manufacturing, inspecting, testing, marking, requalifying, repairing, and rebuilding of cylinders, spheres, and tubes for the transportation of dangerous goods. Clause 24 of this Standard specifies the requirements for retesting, inspecting, reheat treatment, repairing, and rebuilding of used containers. The minimum frequency of hydrostatic testing is specified in Table 29.

For more information on Transport Canada requirements contact the Transportation of Dangerous Goods Pacific office at 604-666-3955 or TDGPacific-TMDPacifique@tc.gc.ca.

Contents

DEFINITIONS

G9.1-1 [Excluded confined spaces](#)

G9.1-2 [Definitions](#)

GENERAL REQUIREMENTS

G9.2 [General Requirements - Initial determination](#)

G9.3 [Prohibited entry](#)

G9.4 [Control of hazards](#)

G9.5 [Confined space entry program](#)

RESPONSIBILITIES

G9.6 [Administration](#)

G9.7 [Supervision](#)

G9.8 [Instruction](#)

HAZARD ASSESSMENT AND WORK PROCEDURES

G9.9-1 [Hazard assessment](#)

G9.9-2 [Visiting employers](#)

G9.11 [Confined spaces - Qualified persons](#)

IDENTIFICATION AND ENTRY PERMITS

G9.14 [Expiration of an entry permit](#)

LOCKOUT AND CONTROL OF HARMFUL SUBSTANCES

G9.18 [Control of harmful substance in adjacent piping](#)

G9.18.1 [Exemption to restriction on use of valves for isolation](#) [Retired]

G9.18(3)(b) [Certification of isolation by a professional engineer](#)

G9.20(1) [Blanks and blinds](#)

G9.22 [Alternate measures of control or isolation of adjacent piping - Making submissions](#)

G9.22-1 [Alternate measures - Making submissions](#) [Retired]

G9.22-2 [Alternate measures for confined spaces - Municipal sewage systems](#) [Retired]

VERIFICATION AND TESTING

G9.24 [Verifying all precautions](#)

G9.25 [Testing the atmosphere](#)

G9.26 [Procedures and equipment](#)

G9.26(2) [Qualified person for calibration of confined space atmospheric testing equipment](#)

CLEANING, PURGING, VENTING, INERTING

G9.27 [Cleaning, purging and venting](#)

G9.29 [Notifying WorkSafeBC about inerting a confined space](#)

STANDBY PERSONS

G9.34-1 [General requirements for a stand-by person](#)

G9.34-2 [Stand-by person for a low hazard atmosphere space](#)

G9.35 [Stand-by person for a moderate hazard atmosphere space](#)

G9.36 [Stand-by person for a high hazard atmosphere space](#)

RESCUE

G9.39 [Notification](#)

G9.41 [Rescue procedures](#)

LIFELINES, HARNESES AND LIFTING EQUIPMENT

G9.42 [When required](#)

G9.43 [Standards](#)

PERSONAL PROTECTIVE EQUIPMENT AND OTHER PRECAUTIONS

G9.47 [Emergency escape respirator](#)

G9.49 [Removal of oxy-fuel torches and hoses from confined spaces](#)

Guidelines Part 9 - Definitions

G9.1-1 Excluded confined spaces

Regulatory excerpt

Section 9.1 of the *OHS Regulation* ("*Regulation*") states:

"*confined space*", except as otherwise determined by the Board, means an area, other than an underground working, that

- (a) is enclosed or partially enclosed,
- (b) is not designed or intended for continuous human occupancy,
- (c) has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue or other emergency response service, and
- (d) is large enough and so configured that a worker could enter to perform assigned work;

Purpose of this guideline

The definition of confined spaces in section 9.1 of the *Regulation* permits WorkSafeBC to determine certain spaces to not be confined spaces for the purposes of the application of [Part 9](#) of the *Regulation*. The purpose of this guideline is to identify the types of spaces that WorkSafeBC has determined, as contemplated by the above definition, not to be confined spaces, and the criteria the employer must assess to exclude them. Also, it outlines the process for making the determination for other spaces.

Exclusion Criteria

Enclosed spaces that are not "confined spaces" for the purposes of the application of Part 9 must satisfy specific exclusion criteria.

To determine that a space is not a confined space, it must be identified as a space described in Column A and must meet all the criteria in Column B.

Column A	Column B
<p>Spaces that may be excluded from Part 9, provided that all the criteria in Column B are met</p> <ul style="list-style-type: none"> • Swimming pools • Crawl spaces under school portables or other non-industrial buildings • Excavations • Attic space • Open, unconnected wet wells or dry wells for storm or sewer hookups at new construction sites • Elevator shafts • HVAC plenums • Agricultural feed mixer wagons and trucks that are permanently open on top, and empty <p>Note: Underwater spaces during occupational diving operations have special considerations, refer to section 24.17 of the <i>Regulation</i>, Safe diving procedures.</p>	<p>Exclusion criteria</p> <ol style="list-style-type: none"> 1. The design, construction, location, and intended use of these spaces will ensure these spaces are characterized by clean respirable air at all times. 2. The space must have an interior volume of not less than 64 cubic feet per occupant. 3. The space must have openings to the atmosphere that are known to provide natural ventilation. 4. There must be no potential for a high or moderate hazard atmosphere, as defined in section 9.1 of the <i>Regulation</i>, to exist or develop immediately prior to any worker entering the space or during any work within the space. 5. There must not be a need to mechanically ventilate, clean, purge, or inert the space prior to entry for any reason. 6. There must be no potential for a hazardous substance to migrate through any media (e.g., air, soil, conveyance, piping, or structure) to infiltrate the space. 7. The space must be free of residual material (e.g., waste, sludge, debris) that if disturbed could generate air contaminants that could immediately and acutely affect a worker's health. 8. There must not be any risk of entrapment or engulfment to workers entering the space. 9. The space must not contain, have introduced, or be adjacent to tools, equipment, or involve processes that could generate air contaminants that could immediately and acutely affect a worker's health.

Where all the exclusion criteria are met, an employer through consultation with a worker, worker health and safety representative, or joint committee may make a determination that the space is not a confined space for purposes of Part 9 of the *Regulation*, and document that decision. The employer is expected to have suitable knowledge and expertise in confined space identification and assessment otherwise the assistance of a qualified person should be sought.

Other hazards to be controlled

A determination must also be made whether or not the space may contain or may have contained a harmful substance (as defined in section 9.1 of the *Regulation*) before any workers enter the space. For example, a crawlspace that contains asbestos pipe insulation might be excluded using the criteria in the table above; however, workers would still have to wear appropriate personal protective equipment while working in the space.

Although an enclosed space might not be considered to be a "confined space," it may have other hazards that must be controlled. The other parts of the *Regulation* still apply and must be considered when planning entry and work in these spaces. Other relevant provisions that the employer needs to consider include the following:

- [Lockout \(Part 10\)](#)
- [Working Alone \(Part 4\)](#)
- [Occupational First Aid \(Part 3\)](#)
- [Personal Protective Clothing and Equipment \(Part 8\)](#)
- [Diving Operations \(Part 24\)](#)

Determination regarding other spaces

WorkSafeBC may determine other types of spaces to be excluded from the application of Part 9 of the *Regulation* which do not meet the exclusion criteria or include spaces where an employer proposes to perform work that will generate air contaminants. Such determinations will be made based on an evaluation by a committee of WorkSafeBC personnel with expertise in confined spaces.

Persons interested in having WorkSafeBC assess whether a certain type of space should be determined not to be a confined space for the purposes of Part 9 of the *Regulation* may contact the OHS Practice and Engineering Support department or the [WorkSafeBC office in their region](#).

G9.1-2 Definitions

Issued August 1, 1999; Revised February 11, 2004; Revised April 9, 2008; Revised August 23, 2011; Editorial Revision consequential to August 4, 2015 Regulatory Amendment; Revised November 2, 2016

Regulatory excerpt

Section 9.1 of the *OHS Regulation* ("*Regulation*") states:

"*confined space*", except as otherwise determined by the Board, means an area, other than an underground working, that

- (a) is enclosed or partially enclosed,
- (b) is not designed or intended for continuous human occupancy,
- (c) has limited or restricted means for entry or exit that may complicate the provision of first aid, evacuation, rescue or other emergency response service, and
- (d) is large enough and so configured that a worker could enter to perform assigned work;

"*high hazard atmosphere*" means an atmosphere that may expose a worker to risk of death, incapacitation, injury, acute illness or otherwise impair the ability of the worker to escape unaided from a confined space, in the event of a failure of the ventilation system or respirator

"*low hazard atmosphere*" means an atmosphere which is shown by pre-entry testing or otherwise known to contain clean respirable air immediately prior to entry to a confined space and which is not likely to change during the work activity, as determined by a qualified person after consideration of the design, construction and use of the confined space, the work activities to be performed, and all engineering controls required by this *Regulation*;

Purpose of guideline

This guideline provides information to further explain some of the terms that appear in 9.1 (Definitions) of the *Regulation*. Matters discussed include

- Underground workings
- Not designed or intended for continuous human occupancy
- Restricted means for entry or exit
- Entering the space
- High hazard atmosphere
- Low hazard atmosphere

1. Underground working

The definition for "confined space" in section 9.1 of the *Regulation* excludes underground workings. An underground working is defined in [section 22.1](#) of the *Regulation*, as including "any adit, tunnel, underground excavation, chamber, caisson, raise, shaft, winze or natural entry." The exclusion applies while the underground area is under construction. Once construction is complete, the underground area will be a confined space if it meets the criteria listed in paragraphs (a) to (d) of the definition for confined space in section 9.1.

2. Not designed or intended for continuous human occupancy

According to the definition of a confined space in section 9.1 of the *Regulation*, if an enclosed or partially enclosed space is designed or intended for continuous human occupancy, then it is not a confined space. When identifying confined spaces for the purposes of [Part 9](#), an employer needs to include the following principles in determining whether each space is designed or intended for continuous human occupancy.

If a space is designed or intended for continuous human occupancy, it will generally:

- Incorporate a permanent Heating, Ventilation and Air Conditioning (HVAC) or similar system
- Rely in its design on relevant codes as applicable, including the *BC Building Code*, *National Fire Code*, *BC Electrical Code*, *BC Plumbing Code*, *Mechanical Refrigeration Code*, and municipal by-law requirements
- Include installed utility services that anticipate human occupancy e.g., hard-wired lighting rather than portable lamps, plumbed water lines rather than hoses etc.
- Not be designed as a container or conveyance of a product or substance
- Be entered for purposes other than periodic inspection, maintenance, repair or construction
- Include designed access and egress means such as doorways and staircases
- Incorporate features intended solely to accommodate continuous occupancy e.g., have amenities associated with continuous occupancy such as furniture, flooring material, wall coverings
- Be designed to allow worker self-rescue if there is a failure of the above features.

A space needn't have all the features described above in order to be designed or intended for continuous human occupancy. The more of these characteristics that are included in the design and use, the more likely the space will be considered to be designed and intended for continuous human occupancy and therefore not fall within the definition of a confined space.

3. Restricted means for entry or exit

To be considered a confined space, a work area must meet *all* four criteria in the definition. A criterion that often raises questions is paragraph (c), which addresses limited or restricted means of entry or exit that may complicate the provision of emergency response.

Entry or exit refers to crossing the portal between the confined space and the outside work area, but also includes consideration of the routes inside the confined space for gaining access to the work area in the space, or returning to the portal from it.

Criterion (c) lists four types of emergency responses.

- First aid, which refers to treatment for the purpose of preserving life and minimizing the consequences of injury until medical treatment is obtained, and treatment of minor injuries.
- Rescue, which involves removing a worker or workers from danger, in circumstances where they have become incapable of removing themselves.
- Evacuation, which refers to the exit of the entire workforce from the work area in an emergency situation.
- Other emergency response, which includes scenarios such as firefighting, and hazardous materials spill response.

The issue in paragraph (c) is whether the means of entry or exit "may complicate" the provision of one or more of the four types of emergency response. Some factors to consider for different types of emergency situations are provided below.

First aid and rescue: First aid and rescue are often closely related in practice. First aid includes both injury treatment and preparation of an injured worker for transport on a device such as a spine board, stretcher, sked, or ked. Rescue may involve some initial injury treatment at the site of injury, and will always involve removal of a worker from danger, for example, by use of a transport device, or other means such as a lifeline and harness. When carrying a worker on a transport device the normal practice for the response team is to carry it at about hip level with the arms of the bearers extended downward.

The following are *some* examples of situations where the means of entry or exit will typically be considered to have complicated the provision of first aid or rescue:

- A space for which the means of exit prevents the use of a first aid transport device, and requires a worker to be removed from the space by other means such as a harness, lifeline, and possibly a lifting device.
- A space in which circumstances impede the ability to transport an injured worker. For example:
 - The exit port of the space is narrower than the width of the transport device.
 - The exit port is so constructed that a person carrying the device has no alternative but to put it down in order to get through the port or pass it to another person through the port.
 - The transport device needs to be lifted at any time to shoulder height or higher when exiting the space with the injured worker in it. (Such lifting might be needed, for example to get a stretcher over top of a piece of machinery on the way to the exit port, or if the exit port was well above floor level and access on a stairway or ramp was not possible.)
 - The transport device needs to be inclined at any time to an angle of 45 degrees or more above horizontal. (This might occur, for example, when easing the device up to the exit port and out of the space.)
 - Specialized equipment such as a block and tackle or other equipment is *necessary* during the exit scenario to lift or direct the transport device.
- A space with a potentially dangerous atmosphere and a means of entry or exit that is so constructed that first aid or rescue workers wearing self-contained breathing apparatus (SCBA) must remove tanks from their backs at any point when entering or exiting.

Evacuation: Whether or not the means of exit may complicate the evacuation of workers from a space will typically depend on factors such as the potential speed of onset of danger, the number of workers in the space, and the obstacles they may encounter when exiting.

If there is the potential for rapid onset of danger, for example, from release of a flammable or toxic atmosphere into the space, it is essential that exits are sufficiently accessible so that workers can exit the space without any delay, regardless of the number of workers. If the impediments to evacuation would result in any delay then the means of exit will be considered to have complicated the capability to evacuate the space.

On the other hand, a space may be one in which the onset of danger would be slow, for example, where the danger could arise from water flowing through a small diameter pipe into a large space, at such a low rate that any danger to workers would only occur after a considerable period of time. In such cases, it may be safe for workers to evacuate the space over a longer period, as long as the evacuation was done in a timely manner, and the time needed did not compromise the safety of any worker.

Other emergency response services: Depending on the space, other emergency response scenarios could include services such as fire fighting or controlling hazardous material spills. If emergency response workers in these situations would need to wear an SCBA or other personal protective gear, and the means of entry or exit is so constructed that any of the gear must be removed when entering or exiting, then the provision of the emergency response will have been complicated by the means of entry and exit.

4. Entering the space

Paragraph (d) of the definition for confined space in section 9.1 requires that the area in question be "large enough and so configured that a worker could enter to perform assigned work." A worker should be considered to have entered a confined space when the breathing zone of the worker crosses the plane of the confined space access.

5. High hazard atmosphere

The exposure limits in the Table of Exposure Limits for Chemical and Biological Substances (refer to [OHS Guideline G5.48-2](#)) are not used to define the boundary between a moderate and high hazard atmosphere confined space. [Section 1.1](#) of the *Regulation* defines IDLH atmosphere as "an atmosphere containing a substance at a concentration which is immediately dangerous to life or health (IDLH) because the concentration is greater than that from which one could escape without any escape-impairing symptoms or irreversible health effects, and includes an atmosphere with an unknown concentration with the potential to be immediately dangerous to life or health."

IDLH levels for specific contaminants are available from sources such as *Documentation for IDLH Concentrations, NIOSH May 1994*, or may be specified on the SDS for the substance. An atmosphere meeting this definition would be high hazard under section 9.1. However, the definition of high hazard also covers other situations. In determining whether a confined space contains a high hazard atmosphere, consideration should be given to

- The space's original atmospheric conditions
- The contaminants that will be generated by the work to be done in the space
- The ventilation or other engineering controls applied to remove or reduce the level of contaminants
- The rate at which the atmosphere will deteriorate on failure of the engineering controls
- The ability to recognize failure of engineering controls
- The time required for a worker to leave the space unaided

The atmosphere will generally be classified according to the level of contaminants after the application of engineering controls. However, if on failure of the controls, the level of contaminants may increase at a rate that will prevent the worker from escaping unaided, the atmosphere is high hazard.

6. Low-hazard atmosphere

The definition of low hazard atmosphere includes a reference to a qualified person. Qualified is generally defined in section 1.1 of the *Regulation*. However, the determination whether an atmosphere is low hazard is part of the hazard assessment required to be done by a qualified person under [sections 9.9](#) and [9.11](#). Section 9.11 sets out specific requirements for who is a qualified person for this purpose. Refer also to [OHS Guideline G9.11](#).

The definition also refers to "an atmosphere which is shown by pre-entry testing or otherwise known to contain clean respirable air..." Paragraph 9.25(7)(c) states "Pre-entry atmospheric testing is not required in a confined space with a low hazard atmosphere if...prior representative sampling has demonstrated that the atmosphere within the space or group of similar spaces meets the low hazard atmosphere definition." Refer also to [OHS Guideline G9.25](#). This sampling will commonly be the basis for it being "otherwise known" that a space contains clean respirable air.

Guidelines Part 9 - General Requirements

G9.2 General Requirements - Initial determination

Issued August 1, 1999; Editorial Revision November 23, 2006

Section 9.2 of the *OHS Regulation* requires the employer to identify each confined space and determine whether it will require worker entry. Compliance will require a site inspection/survey. The results of the inspection/survey are then used as the basis for action under [sections 9.3 to 9.5](#), depending on whether workers must enter the confined space or not.

Section 9.2 is a specific requirement and supplements the general requirement to inspect the workplace under section [3.5](#) of the *OHS Regulation*. The results of an inspection/survey done for compliance with section 9.2 should be documented as required by paragraph [3.3\(f\)](#) of the *OHS Regulation*. General workplace inspections, required by section [3.5](#), should include regular review of the status of compliance with [Part 9](#) Confined Spaces.

G9.3 Prohibited entry

Issued August 1, 1999

Section 9.3 states "If a confined space exists at a workplace but no worker entry is required, the employer must ensure that each point of access to the confined space is secured against entry or identified by a sign or other effective means which indicates the nature of the hazard and the prohibition of entry, and that workers are instructed not to enter."

In some circumstances, use of signs or securing a confined space may be impracticable, for example, for sewer manholes on roadways. Examples of "other effective means" of identification are colour coding and mapping of locations on plans, or using descriptors of covers, manholes and inspection ports in worker education.

The end result should be that workers are able to identify all confined spaces at their workplace, understand the hazards of these spaces and any prohibition of entry. Hazardous areas not intended to be accessible to workers should be secured as required by section [4.34](#) of the *OHS Regulation*. For example, a sewer manhole on a road has a cover that is heavy and usually requires a tool for removal, thus it is generally secure against entry by anyone without an appropriate tool to lift the lid off.

G9.4 Control of hazard

Issued August 1, 1999

Section 9.4 of the *OHS Regulation* states "The employer must ensure that all confined space hazards are eliminated or minimized and that work is performed in a safe manner."

This may require the employer to take measures in addition to the other requirements of [part 9](#). The employer should consider alternative ways of doing the work that avoid or reduce the need to enter a confined space. For example, increasing the interval time between entries to perform routine maintenance in a confined space may be a way to reduce the overall total time workers must work in the space. New methods may eliminate or substantially reduce the need for a worker to enter a confined space. For example, consider an in-place cleaning system for tanks, such as brewery tanks, that flushes and cleans the tanks automatically. If either of these alternatives is practicable, they should be considered.

G9.5 Confined space entry program

Issued August 1, 1999

Section 9.5 of the *OHS Regulation* requires the employer to have and implement a written confined space entry program before a worker is required or permitted to enter a confined space. The section sets out detailed requirements for the program, which are largely the matters covered by the other sections in part 9 of the *OHS Regulation*. Aspects that should be addressed in the program and worker training are:

- a worker in a confined space is to immediately leave the confined space on being instructed by the standby person of a health or safety concern, and
- adequate procedures for preparing for entry into a confined space (for example, to cover the risk of dangerous contaminants flowing out of the entrance to the confined space when it first opened), as well as procedures for working inside the space.

Paragraph 9.5(c) specifies a list of topics to be addressed, where applicable, for each of the hazards identified under sections [9.9](#) and [9.10](#). Subparagraph (x) refers to "coordination of work activities". Coordination will be necessary if there are activities, either inside or outside the confined space that could affect the health and safety of any worker inside the space. Where the activities involve workers of more than one employer, [section 3.3](#) of the *OHS Regulation* applies, and in the case of a "construction project", [section 20.3](#).

Guidelines Part 9 - Responsibilities

G9.6 Administration

Issued August 1, 1999

Section 9.6 of the *OHS Regulation* states "The employer must assign overall responsibility for administration of the confined space entry program to a person or persons adequately trained to do so."

The administration of the program required by section [9.5](#) may be undertaken by the employer's own staff, or it may be assigned to another person or persons. The person(s) appointed responsible for administration of the program must be given the authority and means to ensure the effective operation of the program.

G9.7 Supervision

Issued August 1, 1999

Section 9.7(1) of the *OHS Regulation* states "The employer must assign responsibility for supervision to a person who is adequately trained to supervise the job before any worker enters a confined space."

Section 9.7 requires the supervision of a worker entering or working in a confined space. Section 9.7(2) describes some specific duties of the supervisor. Section 9.6 requires the employer to assign someone responsible for the administration of the employer's overall confined space program. This division of responsibility may require the program administrator(s) and the supervisor(s) to carry different levels of authority within the program for its efficient operation. The administrator may also fulfill the responsibilities of the supervisor. This may be the case in smaller operations.

G9.8 Instruction

Issued August 1, 1999

Section 9.8 of the *OHS Regulation* requires that all persons who are "assigned duties or responsibilities related to entry into a confined space must be adequately instructed and trained". Specific training is required for persons contributing to the work activity, even those not entering the confined space, for example, standby workers and rescue workers.

Guidelines Part 9 - Hazard Assessment and Work Procedures

G9.9-1 Hazard assessment

Issued August 1, 1999

The hazard assessment required by section 9.9 of the *OHS Regulation* must be performed by a "qualified person", as defined under [section 9.11](#). Once the assessment has been done for a specific activity within a particular space or group of similar spaces, it may provide the basis for procedures for every occasion when workers enter those spaces. On each such occasion, the circumstances of the proposed job should be considered beforehand by the supervisor (who need not be a "qualified person" under section 9.11) to ensure that the criteria or conditions upon which the hazard assessment is based remain substantially the same. If the conditions are different in a way that might affect the outcome of the hazard assessment previously done by a qualified person, then the circumstances should be reviewed and entry procedures revised as necessary, by a "qualified person". The assessment of a "qualified person" cannot be changed without the concurrence of the same or another "qualified person".

Paragraph 9.9(2)(b) states that the hazard assessment required under section 9.9(1) must consider a list of specific circumstances as well as "other hazardous conditions". In general, the conditions referred to here represent requirements addressed in other parts of the *OHS Regulation*. These include, but are not limited to, fall protection, hearing conservation, radiation, heat stress, extreme climactic conditions such as flooding from heavy rains, and lockout of equipment and processes.

G9.9-2 Visiting employers

Issued August 1, 1999; Editorial Revision April 6, 2020

The process of identifying confined spaces, assessing hazards and developing work procedures in a workplace is the responsibility of the employer who operates the business carried on at the workplace. However, employers commonly perform jobs at workplaces that they do not own or control. If an employer is sending a worker to another employer's or owner's operation, the following need to be considered to ensure the "visiting" employer meets their obligations under [Part 9](#).

1. The visiting employer need not repeat the process of identifying and placing signs on confined spaces as required by sections 9.2 and 9.3 if this has already been done by an effective confined space entry program of the resident employer. The visiting employer should, however, inform its workers of the location and nature of any confined spaces that might affect their work and activities. The owner of a workplace, or the employer controlling a workplace, should provide this information. See also section 24 of the *Workers Compensation Act* and section 20.3 of the *OHS Regulation*.
2. If a visiting employer does work that requires one of their workers to enter a confined space, the visiting employer must have its own confined space entry program under section 9.5. The program may be generic in nature covering the general types of confined spaces its workers would be expected to enter in the course of their visits to different sites. Such generic procedures would then be supplemented by specific procedures for the activity and confined space to be entered, which may be developed in conjunction with the resident employer or site owner. All persons with duties related to confined space entry must be trained in these specific procedures before any entry into a confined space.
3. If a visiting employer is utilizing some aspects of the resident employer or owner's confined space entry program, the visiting employer has to undertake sufficient hazard identification and risk assessment to ensure their activity will be in compliance if the host employer or owner's confined space entry program is used. For example, a contractor doing welding or painting may create hazards the owner's confined space entry program did not consider in their hazard identification and risk assessment.

G9.11 Confined spaces - Qualified persons

Regulatory excerpt

Section 9.11(1) of the *OHS Regulation ("Regulation")* requires a hazard assessment and written confined space entry procedures be prepared by a "qualified person who has adequate training and experience in the recognition, evaluation and control of confined space hazards"

Section 9.11(2) of the *Regulation* states "For the purposes of subsection (1)(a) qualifications which are acceptable as evidence of adequate training and experience include

- (a) certified industrial hygienist (CIH) or registered occupational hygienist (ROH) with experience in confined space entry,
- (b) certified safety professional (CSP), Canadian registered safety professional (CRSP) or professional engineer (P. Eng.), provided that the holders of these qualifications have experience in the practice of occupational hygiene as it relates to confined space entry, or
- (c) other combination of education, training and experience acceptable to the Board."

Purpose of guideline

The purpose of this guideline is to provide direction to employers on how to meet their obligations to select qualified persons to create confined space hazard assessments and work procedures. It also provides contact information on some of the accrediting agencies that issue professional certifications referenced in section 9.11.

Employer due diligence

Employers are responsible for selecting qualified persons, as defined in s. 9.11 of the *Regulation*, to undertake confined space hazard assessments and written entry procedures. The employer must exercise due diligence in the selection of the qualified person. This is especially necessary if the person being engaged does not hold one of the certifications or the license credentials specified in section 9.11(2) (a) or (b). While each case must be considered on its merits, reliance by an employer on a person holding a certification or license specified in section 9.11(2) as being a "qualified person" for the purposes of section 9.11 would normally be considered reasonable, however, due diligence in all cases includes a review of the person's experience as well as their accredited credentials.

Section 9.11(2)(c) permits persons not certified or licensed to be considered qualified for the purposes of this section. Anyone experienced, knowledgeable and capable of doing the required hazard assessments and writing appropriate safe work procedures may be considered to be a "qualified person." The education, training and experience required to complete a particular confined space entry assessment and to write appropriate procedures will depend on the complexity of each situation and the hazards to be controlled.

Factors employers should evaluate in determining whether a person selected to undertake the confined space hazard assessment and entry procedures under 9.11(2)(c) is qualified include:

- Specific education and training the person has received, and relevance to the industry or type of space the person will encounter
- Extent of experience with confined space entry relevant to the industry and type of space the person will encounter
- Experience with specific elements or tasks related to confined space entry, such as:
 - lockout and isolation
 - air monitoring
 - ventilation
 - use of lifeline, harness and lifting equipment
 - the use of personal protective equipment
 - participation in rescue drills
 - previous assessments conducted and procedures written.
- Proficiency with applying exposure limits

A deficient confined space risk assessment or work procedure may be an indication the person selected was not qualified to do the hazard assessment and/or develop the written confined space entry procedures. In all such situations, whether the person selected purports to be a qualified person under subsection (a), (b) or (c), prevention officers will enquire what steps the employer took to assess the person's qualifications. It should be noted that when evaluating the qualifications of a person who has prepared a hazard assessment and confined space procedures, the officer's primary focus will be the quality of the assessments and procedures rather than the person's credentials.

Where prevention officers encounter hazard assessments and work procedures that are deficient and the person selected meets the definition of "qualified person" in s. 9.11 (2) (a) or (b), the employer who engaged the "qualified person" may file a complaint with the accrediting agency.

Note that in addition to engaging qualified persons, employers are also responsible for ensuring that the confined space hazard assessment contains the required elements, and that the written confined space entry procedures have been developed based on the hazard assessment (see [s. 9.9\(2\) and s. 9.10](#)).

Prevention officers will also assess the extent to which the employer knew or should have known that the assessment and/or procedures were deficient. In particular, prevention officers will enquire into what steps the employer took to ensure that [ss. 9.9 and 9.10](#) were complied with.

Contact with accrediting agencies

Among other things, accrediting agencies often maintain web sites with contact information on accredited persons. For example, the Canadian Registration Board of Occupational Hygienists maintains contact information on persons with ROH's, which can be accessed at

<http://www.crboh.ca>. A list of persons with CIHs can be found on the American Board of Industrial Hygiene web site at <http://www.abih.org>. Lists of persons with CRSPs, which are issued by the Board of Canadian Registered Safety Professionals, are available at <http://www.bcrsp.ca>

Guidelines Part 9 - Identification and Entry Permits

G9.14 Expiration of an entry permit

Issued August 1, 1999

Paragraph 9.14(d) of the *OHS Regulation* states that an entry permit must identify "the time of expiration of the permit".

An entry permit will cover a specific task or project, which may occur over a number of shifts. The time of expiration of the permit is based on the estimated time to complete the project's work activities and will be identified on the permit. An entry permit should be treated as expired sooner than the stated time of expiration if one of the following occurs:

- the confined space is placed back in service,
- continuity in responsible supervision for the confined space is broken, or
- the task or project is interrupted for a significant time because of an emergency that affects the confined space, such as an accident, rescue requirement, or a breakdown of engineering control equipment.

Once an entry permit has expired, a new permit must be issued before entry into the confined space is allowed.

Guidelines Part 9 - Lockout and Control of Harmful Substances

G9.18 Control of harmful substance in adjacent piping

Issued April 9, 2008; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision June 29, 2017

Regulatory excerpt

Section 9.18 (Control of harmful substance in adjacent piping) of the *OHS Regulation* ("*Regulation*") states:

(1) Before a worker enters a confined space where adjacent piping contains a harmful substance that is

- (a) a liquid with sufficient volatility to produce a hazardous concentration of an air contaminant, or
- (b) a gas or vapour,

the harmful substance in the adjacent piping must be controlled by either disconnecting the adjacent piping or isolating it using blanks or blinds that meet the requirements of section 9.20.

(2) Subject to subsection (3), before a worker enters a confined space where adjacent piping contains a harmful substance that is neither

- (a) a liquid with sufficient volatility to produce a hazardous concentration of an air contaminant, nor
- (b) a gas or vapour,

the harmful substance in the adjacent piping must be controlled by either disconnecting the adjacent piping or isolating it using blanks or blinds that meet the requirements of section 9.20 or using a double block and bleed system that meets the requirements of section 9.21.

(3) Before a worker enters a confined space where adjacent piping contains a substance that is harmful only because of the temperature, pressure or quantity of the substance, the harmful substance must be controlled

- (a) by either disconnecting the adjacent piping or isolating it using blanks or blinds that meet the requirements of section 9.20 or using a double block and bleed system that meets the requirements of section 9.21,
- (b) by isolating the adjacent piping in a manner that a professional engineer has certified will make the confined space safe for a worker to carry out the intended work, or
- (c) if there is no head pressure in the adjacent piping, by de-energizing and locking out each pressure source for the adjacent piping and depressurizing the adjacent piping.

(4) Where a confined space is

- (a) subject to the ingress of gases from a gravity-flow municipal or domestic sanitary sewer system or storm sewer system, and
- (b) protected from the ingress of gases by a p-trap,

a worker may enter the confined space only if the atmosphere of the confined space has been tested immediately before entry and the test results confirm that the confined space contains clean respirable air.

(5) If a worker enters a confined space of the type referred to in subsection (4), the following must be undertaken:

- (a) the operational integrity of the p-trap must be confirmed immediately on the entry of the worker;
- (b) while the worker is inside the confined space, the atmosphere of the confined space must be continuously monitored and confirmed to contain clean respirable air.

Purpose of guideline

Section 9.18 of the *Regulation* addresses the isolation of harmful substances that exist in adjacent piping. Isolation is intended to address hazards arising from fluids (typically liquids, vapours, and gases) and other flowable materials such as slurries, dust, and powders.

This guideline clarifies when section 9.18 applies, and provides interpretive information for each of its subsections.

Adjacent piping

The definition of adjacent piping in section 9.1 of the *Regulation* is

"adjacent piping" means a device such as a pipe, line, duct or conduit which is connected to a confined space or is so located as to allow a substance from within the device to enter the confined space;

Under this definition there are two general types of adjacent piping.

- Piping that is "connected to a confined space," which is piping that has openings in the space creating the possibility of emptying its contents into the confined space.
- Piping that is not physically connected to the confined space but may be located nearby in a manner that could allow a substance from the piping to enter the space. An example would be a bleed pipe that may dump contents onto a drain that leads to a pipe connected to the confined space.

Under the definition there are two types of circumstances where piping or conduit in or near a confined space is not adjacent piping.

- *A piping system that passes through the confined space:* Such piping would not be considered to be adjacent piping if it is designed and maintained so there are no openings or other locations in the piping where leakage may occur, and work on or around the piping will not cause leakage. In such cases, measures must be adopted under [section 9.4](#) (Control of hazards) to ensure worker safety when working in proximity to the piping. If any work in the space may result in leakage, then the piping must be treated as adjacent piping, in which case the control measures under section 9.18 apply. Leakage could occur for example, during a repair to a piping connection or replacement of a valve stem gland.
- *Orifices between spaces:* In some configurations there are adjacent spaces with one or more orifices in a common wall between them. Section 9.18 is based on the use of control measures such as blanks, blinds, disconnects, and double block and bleed devices. A wall between two spaces is typically of a width and configuration that the use of such devices is not possible. As such, an orifice in a wall between a confined space and another space is not adjacent piping. Therefore, the blank, disconnect, double block and bleed, and blind requirements do not apply.

However, the employer must ensure that workers are protected against any hazards associated with orifices under other provisions such as section 9.4 (Control of hazards). The application of section 9.4 means that the potential for fluid discharge into the confined space must be controlled so that the hazards to workers are eliminated or minimized.

Examples of controls might include a gate over the orifice designed to prevent any leakage and secured in place so that it could not be dislodged from the closed position. For fluids that do not pose a vapour or gas hazard it may be appropriate to use a device to control fluid level in one of the spaces so that it does not rise to and flow through an orifice into the confined space where workers are present.

In the remainder of this guideline the isolation measures permitted under the various provisions of section 9.18 are described. Section 9.18(1) provides for the most general circumstances for adjacent piping and the subsequent subsections provide for more specific circumstances.

Application of section 9.18(1) - Basic isolation options

This provision specifies three basic options for isolating adjacent piping: disconnection, blanks, and blinds.

1. **Disconnection:** Disconnecting is defined in section 9.1 of the *Regulation* as follows:
"disconnecting" means physically disconnecting adjacent piping from a confined space to prevent its contents from entering the space in the event of discharge;
For example, if a pipe is disconnected, either a length of the pipe at least 10 times its diameter should be removed or the open ends of the disconnected pipe should be moved out of line so that leaks will not bypass the disconnection and continue into the confined space. In any disconnect procedure the requirements of the *Regulation* related to the protection of workers from contents of the piping must be complied with.

2. *Blanking and blinding*: Blanks and blinds are defined in section 9.1 of the *Regulation* as follows:

"*blank*" means a solid plate installed through the cross-section of a pipe, usually at a flanged connection;

"*blind*" means a solid plate installed at the end of a pipe which has at that point been physically disconnected from a piping system;

"*blanking or blinding*" means the absolute closure of adjacent piping, by fastening across its bore a solid plate or cap that completely covers the bore and that is capable of withstanding the maximum pressure of the adjacent piping;

The goal of a blank or blind is to eliminate any possibility of fluid entering a confined space. Since a conventional blank bisects flanges, if any fluid leakage were to occur it would discharge directly into the atmosphere. Fluid leakage cannot be allowed to pressurize an enclosed area, resulting in the possible entry of leakage into the downstream portion of the pipe. Requirements for blanks and blinds are specified in [section 9.20](#) and described in the WorkSafeBC publication [Confined Space Entry Program: A Reference Manual](#).

Application of section 9.18(2) - Harmful substances that are not volatile liquids, gases, or vapours

This provision applies to substances in adjacent piping that cannot result in worker exposure to a gas or a vapour in the confined space. For this circumstance, another isolation measure is permissible - a double block and bleed system. This provision involves closing valves in the piping by locking out a drain or vent valve in the open position in the line between two valves that are locked out in the closed position. Requirements for a double block and bleed system are specified in *Regulation* [section 9.21](#) and described in [Confined Space Entry Program: A Reference Manual](#).

Application of section 9.18(3) - Materials hazardous only because of pressure, temperature, or quantity

This provision applies to materials that are not toxic or corrosive, and are harmful only because of pressure, temperature, or quantity. Typically this requirement applies to systems carrying water or steam. Three isolation options are outlined in the *Regulation*.

1. *Controls meeting the requirements of section 9.18(2)*: This alternative specifies the options of disconnecting, blanking, blinding, or a double block and bleed system.
2. *Isolation per engineering certification (section 9.18(3)(b))*: This alternative enables an employer to have a professional engineer certify a means of isolation as making the confined space safe for a worker to carry out the intended work in the confined space. Refer to OHS Guideline [G9.18\(3\)\(b\)](#) for more details.
3. *De-energizing and locking out the pressure source*: This control option applies if there is no head pressure in the adjacent piping (i.e., from neither gravity nor pumps). With this option, it is acceptable to de-energize and lock out each pressure source and depressurize the adjacent piping.

For this option to apply, the layout of the adjacent piping has to be such that if all of the valves are opened with pumps locked out, fluid would not flow into the confined space. In such cases, locking out the pumps and depressurizing the line provides sufficient control.

Prohibition on the use of valves

The use of one or more valves as a means of isolation is not permitted except in certain specified cases for substances that are not volatile liquids, gases, or vapours; or are harmful only because of pressure, temperature, or quantity. If a double block and bleed system is used, it must meet the requirements of section 9.21.

The *Regulation* permits the use of valves as a means of isolation in the following two circumstances:

- Where a double block and bleed system is permitted under sections 9.18(2) and 9.18(3)(a)
- Systems of isolation as permitted under section 9.18(3)(b). (refer to OHS Guideline [G9.18\(3\)\(b\)](#))

Application of sections 9.18(4) and (5) - Gravity flow sewer systems

This provision could apply to an industrial or sewage system confined space facility that has a sink or other plumbed device that connects to a sewer system.

A p-trap may be used as a means of isolation if all the following conditions are met:

1. The confined space is being isolated from a municipal or domestic sanitary or storm sewer system.
2. The sewer system is gravity flow only at the point of isolation. (The p-trap option does not apply to locations in sewer systems that are pressurized by a pump.)
3. The atmosphere is tested immediately prior to entry and the test results show that the space contains clean respirable air. Clean respirable air is defined in *Regulation* section 9.1.
4. The operational integrity of the p-trap is confirmed immediately on the entry of the worker. This may be as simple as pouring water into the trap in some cases.
5. Clean respirable air is maintained (as shown by continuous monitoring) while the worker is inside the space.

G9.18.1 Exemption to restriction on use of valves for isolation

Retired on February 1, 2011

Some of the information in this guideline is not applicable after the *OHS Regulation* amendments of February 1, 2011 and has been retired. Other information from the guideline has been moved to new guideline G9.18(3)(b).

Issued February 1, 2011

Regulatory excerpt

Section 9.18(3)(b) of the *OHS Regulation* ("Regulation") states:

(3) Before a worker enters a confined space where adjacent piping contains a substance that is harmful only because of the temperature, pressure or quantity of the substance, the harmful substance must be controlled...

(b) by isolating the adjacent piping in a manner that a professional engineer has certified will make the confined space safe for a worker to carry out the intended work, or...

Purpose of guideline

This guideline provides general information on the application of section 9.18(3)(b) and specific information on two circumstances where an employer might choose for a professional engineer to certify that the adjacent piping is isolated in a manner that makes it safe for a worker to carry out the intended work inside the confined space.

Application of section 9.18(3)(b)

This section applies to substances that are harmful only because of the temperature, pressure, or quantity of the substance (and are not classified as harmful by virtue of their toxic, irritant, corrosive, or other harmful properties). Section 9.18(3)(b) does not apply if the substance can create a hazard while at the same time providing poor warning of the hazard. The lack of warning that a potential hazard exists is an additional hazard. For instance, this section does not apply to nitrogen or inert gases.

Mainly this section will apply to water or steam. WorkSafeBC recognizes that, for these substances, there are circumstances where it is impracticable to isolate the substance by disconnecting, blinding, blanking, or using double block and bleed technology, and this section provides for an alternative manner of isolation.

An example of a situation where this means of isolation might apply is where an employer uses an inflatable bladder in a water line to stop the flow of water into the confined space. Another example is where, in a waterworks system, an engineered shutoff float in a chamber is used as a means to prevent water from rising to a height where it would be discharged via a pipe to a confined space. If the rate of flow could endanger workers if the float failed, a professional engineer must certify that the adjacent piping is isolated in a manner that will make the space safe.

Engineering certifications specifically need to address worker safety and should typically include consideration of the amount of leakage, age, and maintenance history of the piping components and any other means in place to make the confined space safe for a worker to carry out the intended work. Certifications are expected to be site specific and time limited, and the engineer will need to make the determination of the applicable time period as part of the certification process.

A professional engineer may not always have sufficient information about a valve that is to be used to control potential flow into the confined space and may not be able to examine it. In this case, the engineer could consider information such as the age, history, and maintenance records for the adjacent piping system, leakage rates, and measures such as leak control or line pressure reductions that can be accomplished etc.

Certifications by engineers under section 9.18(3)(b) will need to be available for review by a WorkSafeBC prevention officer where necessary to assess compliance with the requirements. If a prevention officer has concerns about an engineering certification under this section, the prevention officer should discuss the concerns with the WorkSafeBC Engineering Department (refer to OHS Guideline [G1.1](#)).

Two common circumstances where section 9.18(3)(b) applies are public water supply systems (e.g., valve and meter chambers where work may affect the integrity of piping systems passing through the confined space) and dam water passageways.

Public water supply systems provide water for domestic uses such as human consumption, food preparation, and cleaning purposes. They also provide water distribution networks for fire suppression, which are typically an integral part of public water supply systems.

Note: In some cases, public water will be used downstream for industrial uses, for example in a process industry or a manufacturing facility. Section 9.18(3)(b) does not apply to such industrial systems if chemical additives could be present or the spaces present hazards other than just temperature (e.g., hot or cold), pressure (e.g., force of the flow), or quantity (immersion hazard).

The system of isolation may be one or more closed valves, use of inflatable bladders, or some other means of isolation. The professional engineer must certify that the adjacent piping is isolated in a manner that makes it safe for a worker to carry out the intended work. The engineer will need knowledge of the valves or other closure devices as well as the nature of the substance in the adjacent piping.

Dam water passageways: At a dam and associated hydroelectric station there may be a number of confined spaces, for example, fuel storage tanks, which are not part of the dam water flow system, and for which this section would not apply. The application of section 9.18(3)(b) is restricted to dam water passageways at the site.

Regulatory excerpt

Section 9.20(1) of the *OHS Regulation* ("*Regulation*") states:

Unless certified by a professional engineer to provide adequate safety for the particular conditions of anticipated pressure, temperature and service, a blank or blind must be manufactured in accordance with the specifications of one of the following standards:

- (a) *ANSI Standard API 590-1985, Steel Line Blanks*;
- (b) *ANSI Standard ASME/ANSI B16.5-1988, Pipe Flanges and Flanged Fittings*;
- (c) *ANSI Standard ASME B31.1-1992, Power Piping*;
- (d) *ANSI Standard ASME B31.3-1993, Chemical Plant and Petroleum Refinery Piping*.

Purpose of guideline

This guideline provides information on an alternative standard for the standard referenced in section 9.20(1)(a) of the *Regulation* regarding blanks and blinds.

Authority to accept alternative standards

Section 4.4(2)(a) of the *Regulation* addresses the capability of WorkSafeBC to accept alternative standards. This provision states:

When this *Regulation* requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board.

WorkSafeBC has determined that the following standard is an acceptable alternative to the standard referenced in section 9.20(1)(a) of the *Regulation*.

Acceptable alternative standard

WorkSafeBC accepts *ANSI Standard ANSI/ASME B16.48-2010 Line Blanks* as an alternative standard to *ANSI Standard API 590-1985, Steel Line Blanks*.

G9.22 Alternative measures of control or isolation of adjacent piping â€“ Making submissions

Issued October 30, 2018; Editorial Revision April 9, 2019

Regulatory excerpt

Section 9.22 of the *OHS Regulation* ("*Regulation*") states:

- (1) Section 9.18 does not apply if
 - (a) a measure specified in section 9.18 to control or isolate harmful substances contained in adjacent piping from a confined space is not practicable, and
 - (b) the employer implements alternative measures of control or isolation that are acceptable to the Board.
- (2) All workers affected by measures implemented under subsection (1) must be informed of the measures taken and instructed in any applicable work procedures.

Purpose of guideline

This guideline outlines who an employer should contact at WorkSafeBC to determine if alternative measures under section 9.22 of the *Regulation* are acceptable, and the types of information to include in the submission. It also provides information on how WorkSafeBC will issue its decisions.

Contacting WorkSafeBC for acceptance of alternative measures

If an employer develops a set of alternative measures for a confined space within or connected to a municipal sewage system, the employer should make the submission to regional offices of WorkSafeBC to have the application reviewed and accepted by the local WorkSafeBC prevention officer.

If an employer wants to implement alternative measures for other land-based sewage systems, such as industrial systems which are not connected to municipal sewers, or for all other types of confined spaces, submissions should be made to the OHS Practice and Engineering Support department of the Worker and Employer Services division of WorkSafeBC in Richmond at: varohs@worksafebc.com

Work may not be conducted until the alternative measures have been reviewed and accepted by either the local prevention officer or the OHS Practice and Engineering Support department. The applicant may be an employer who owns or operates the confined space, or a contractor or a consultant working on behalf of the owner.

What to include in the submission

A submission may cover a single confined space or a group of confined spaces that share similar characteristics. The focus of any alternative measures should be on the liquids, gases and vapours, and other flowable materials that would be controlled by the isolation measures listed under section 9.18 of the *Regulation*.

In some cases it may be impracticable to isolate the adjacent piping but partial or complete isolation may be possible with temporary dams, inflatable bladders, or other means such as rerouting of fluid flow. However, in other cases, alternative measures to ensure worker safety will involve a set of occupational hygiene and safety precautions other than, or in addition to, isolation. In all cases, the selection of controls must align with the risk associated with the substance being controlled and potential for the control system to fail.

Main elements of the submission

The submission should address matters that include the following elements:

1. Scope of application - A description of the space and work activities, or the group of confined spaces with similar characteristics for which the submission is made. Photographs/diagrams are useful in describing the space.
2. Why isolation using the measures specified in section 9.18 of the *Regulation* are not practicable.
3. Contact information for the person who administers the confined space program, and for the qualified person(s) who conducted the hazard assessment and prepared the alternative measures.
4. A description of the hazards to be addressed by the alternative measures, the hazard classification of the undisturbed space, and the hazard classification following the implementation of control measures.
5. The alternative measures that will be used to address the hazards, and how workers will receive protection from the hazards through use of the measures.
6. How workers who are required to use the proposed measures will be informed of the measures taken and instructed in the applicable work procedures, as required by section 9.22(2).
7. How use of the alternative measures will be supervised and who will be responsible for supervision on the site.
8. The time period for which the alternative measures will be needed.

The submission should also include information from the joint OHS committee or worker health and safety representative, as applicable, indicating their comments on the proposal, or other information that indicates the affected party has been consulted on the alternative measures. (Section 9.11(1)(b) of the *Regulation* requires consultation with these parties on confined space hazard assessments and written procedures.)

Information needed for Element #4 - hazards to be addressed

Hazards associated with the isolation of the confined space typically involve those arising from liquids, gases and vapours, and other materials such as slurries, dusts, and powders that could flow into the space. The submission should address matters such as the following, where applicable:

- Potential for material to flow into the space
- Characteristics of the material including pressure, temperature, quantity, toxicity, and corrosive properties
- Other hazards associated with the flow of material into the space, such as engulfment, slips and falls, electric shock, reduced visibility, and moving machinery or equipment
- Review of historical air monitoring for site (if available and applicable)
- Any potential for work being done in the space that could introduce or contribute to a hazardous condition

Information needed for Element #5 - Alternative measures to be used

The measures chosen should be based on careful consideration of the hazards, and provide the most effective means of dealing with them. The submission should cover matters such as the following, where applicable:

- Means of controlling or eliminating the hazard, and related procedures (e.g., engineers' certification and instructions regarding suitability and operation of valves used for single valve isolation, where applicable)
- Monitoring and measurement of flow rates of materials and/or levels in the confined space
- Installation and monitoring of bladder pressure devices
- The method of communication between a person or system for monitoring material flow and entry workers
- Emergency and rescue procedures in the event of any isolation system failure
- Manufacturer's instructions and specifications
- Process for verifying control measures
- Roles and responsibilities specific to the alternative measures

Issuing a decision

Decision made by a prevention officer on behalf of WorkSafeBC: As needed, the prevention officer may contact the Engineering department, senior occupational hygienists, or the OHS Practice and Engineering Support department for advice. The prevention officer may also request other information and supporting documents related to the confined space (e.g., hazard assessments, entry procedures, historical data, or information from previous acceptances).

The prevention officer's decision will be recorded, including the terms of the decision and time period for which it is issued, in the text of an inspection report for the firm. The prevention officer will provide a copy to the employer, who must post a copy at the worksite as required by the *Regulation*. Once the decision is made, the prevention officer will forward the request and decision to the OHS Practice and Engineering Support department.

Decision made by the OHS Practice and Engineering Support department: The OHS Practice and Engineering Support department will issue

the decision to the applicant using the standard format for Acceptance Request (AR) decisions. The applicant will post a copy of the acceptance at the worksite and ensure copies are distributed to workplace parties, as required by the terms of the acceptance.

Copies will be sent to the WorkSafeBC local prevention field services manager and prevention officer responsible for the firm, and to others who contributed information to the decision-making process.

All decisions may consider whether the acceptance will apply to one firm or to multiple firms, depending on the specific circumstances. If the alternative measures are accepted, the prevention officer's decision will state that the measures set out in the application package must be followed. It may also include additional terms. The decision will also specify the time period for which the acceptance will apply, to a maximum of three years.

All decisions will focus on the issue of alternative measures for isolation of the confined space under section 9.22 of the *Regulation*. They will not, as a rule, address the issue of compliance with other provisions of the *Regulation* and must not be taken as an endorsement of the overall confined space program for the site.

Additional information related to alternative control measures in municipal sewage systems that may assist in preparing submissions.

NB: None of the information in this guideline is to be used as a substitute to preparing a site-specific hazard assessment and development of associated safe procedures by a qualified person, as required under sections 9.9 - 9.11 of the Regulation.

General comments and consideration on hazards and alternative control measures in sewage systems

1. Hazards

For any storm or sanitary sewage system, hazards that can be encountered include engulfment or immersion, exposure to toxic gases or vapours, oxygen deficiency, flammable atmospheres, slipping or tripping hazards, and electrical hazards where energized conductors or electrical equipment are exposed to damp conditions or liquid contact.

The potential for immersion will vary depending on factors including the frequency and volumes of discharges to the system, precipitation, and the relationship between the rate of possible fluid flow into the confined space to the dimensions of the space. For example, if the space is relatively small, and the diameter of inlet piping is substantial, there may be a relatively high potential for immersion. The contrary is the case where the floor area and volume of the space is large relative to possible fluid flows into it.

Water in sewage systems may be contaminated by materials such as oils from roadway runoff or industrial discharges, and in some cases materials such as ferrous chloride or other substances may be added for purposes of corrosion or odour control.

Air contaminants of concern in sewage systems include hydrogen sulfide, carbon monoxide, carbon dioxide, methane, ammonia, and organic vapours from oils or fuels that have entered the systems from roadway runoff. Decomposition gases such as hydrogen sulfide and methane can be a particular issue where sludge and other organic matter have been allowed to accumulate, and can be off gassed, particularly when the materials are disturbed. The term "sewer gas" is often used to refer to gases in sewage systems. It is an imprecise term, sometimes used in reference to hydrogen sulfide, but also to the complex mixture of gases that can be present.

In sanitary sewage systems, fluids may contain waterborne organisms that may cause disease (for example, hepatitis, giardiasis, and leptospirosis). Diseases affecting the gastrointestinal or respiratory systems have been reported among sewage workers.

Hazards from exposure to fluids and gases in piping may be complicated by other issues such as restricted visibility, limits to communication, and distance from exit points.

2. Alternative control measures

Various aspects of alternative control measures are discussed below, from fluid control to instruction and training.

- **Fluid control:** In some cases fluid flow can be controlled in sewage systems.

Examples of fluid control techniques include the following:

- Inserting inflatable rubber bladders into pipes
- Cutting into pipes to install removable sealing devices
- Closing valves or gates
- Installing mechanical blocking devices that consist of double seals designed so that the space between the seals may be monitored or pressurized to greater than the pressure of the hazardous fluid
- Directing fluid flows through piping or channels adjacent to the space in question
- Freezing of the pipe contents to form a plug in the pipe
- Performing work when events such as heavy rainfall or tides ensure that the fluid level does not present a hazard

The choice of method for fluid control will depend on what is feasible in the situation. In all cases the basic principle is that the most effective of the feasible methods should be chosen. Wherever manufactured devices are used, manufacturer's instructions and safe work practices must be followed. For example, the safe use of bladders will typically include measures such as cleaning the piping into which the bladder is placed, inflating the bladder only to permitted pressures, and securing the bladder so that it is not displaced in the pipe by a buildup of pressure behind it.

If devices that control the fluid flow are capable of being locked out then the requirements of Part 10 (De-energization and lockout) of the

Regulation apply. The analysis of valves as a control measure should assume that all valves leak. However, there is no expectation that a properly installed and maintained valve will fail catastrophically if no work is being performed on it.

- **Leakage of liquid and pumping:** It is recognized that systems will often permit some leakage, and in that event, a means of pumping out the fluid may be necessary. A means of monitoring leakage, coupled with procedures for evacuation in the event leakage rates or fluid levels exceed safety criteria, is often a necessary feature of the safety system. Liquid level alarms or visual checks may be required to monitor liquid levels. It may be possible to set up a leakage check system from a central control location using camera monitors or other means.
- **Air monitoring and ventilation:** The historical record of atmospheric testing inside of the confined space needs to be considered along with the recent physical condition of the space. For instance, historical atmospheric testing during conditions of normal fluid flows may have not indicated atmospheric hazards. However, a space that has been left stagnant may have allowed material to decompose and create atmospheric hazards. The use of personal air monitors or other means of continuous monitoring will assist with worker safety where there is the potential for air contaminants to be present.

Ventilation must be adequate, and be provided in conformity with the requirements in Part 9 (Confined spaces) of the *Regulation*. When used as part of an alternative measure, the ventilation may have to be increased to displace potentially contaminated air, as well as supply sufficient clean respirable air to the workers in the space.

- **Communications:** A means of communication with workers in the confined space will need to be provided and periodically verified as being effective.
- **Personal protective equipment:** Workers must be supplied with and use appropriate personal protective equipment as required by the *Regulation* to protect against hazards that cannot be eliminated. This will include protective clothing and gloves, as well as respiratory protection.
- **Slipping, tripping, and electrical hazards:** Sewage systems are typically damp or wet environments, and appropriate measures must be taken regarding slipping, tripping, and electrical hazards. If fluid entering the confined space conceals trip and fall hazards such as floor holes or openings, these hazards need to be addressed, as well as any hazards involving the potential for liquid contact with energized conductors and equipment.
- **Evacuation planning:** Where there is a danger from the uncontrolled entry of liquid into the confined space, the time required to evacuate workers from the confined space needs to be shorter than the minimum possible time it would take fluid entering the confined space to create a condition that would impede exit from it. In general, the time is calculated using the maximum possible flow from the pipes that could be created by the failure of any single system element, and the relationship of that flow to the floor area of the space. The time required for evacuation should make allowance for possible problems during evacuation. The number, location, and types of exits are relevant in determining the evacuation time. Means of access and egress should be made as convenient as possible. It is recognized that in some cases catastrophic failure of the control system could lead to immediate danger to workers from fluid flow. For that reason, isolation measures need to provide a high level of assurance that such circumstances will not occur. Evacuation measures need to be designed to minimize the time needed to exit, and rescue plans must be in place.

Evacuation times in the event of the development of harmful atmospheres may be more difficult to predict, and steps must be taken to ensure that personal protective equipment and rescue measures are up to the task. Depending on the potential exposure, workers in the confined space may be required to be permanently attached to a lifeline, or detach from the lifeline where entanglement of the line is a potential hazard.

- **Instruction and training:** All workers affected by alternative measures must be informed of the measures taken and instructed in any applicable work procedures, including emergency measures. Workers also need to be informed of any residual hazards not fully controlled by other measures. Some considerations are provided in the remainder of this guideline for three typical parts of sewage systems: piping, pumping stations, and sewage treatment plants.

Specific comments on various consideration for piping, pumping stations, and treatment plants

1. Storm and sanitary sewage piping

When a worker enters a sewage pipe, the pipe itself is the confined space, not "adjacent piping" from which the space must be isolated as required by section 9.18 of the *Regulation*. However, the feeder pipes that discharge into the pipe that is entered can be considered to be adjacent piping.

When dealing with piping systems, there may be limits on the practicability of some standard occupational hygiene control measures. For example, ventilation as a means of assuring a safe atmosphere may not be practicable if the work must be done over a length of the piping system a substantial distance away from access points. However, wherever ventilation is feasible, it should be used, and it must always be provided where required by the *Regulation*. If ventilation cannot assure a safe atmosphere, reliance may need to be placed on air monitoring and respiratory

protection, including air supplied respirators where the circumstances warrant.

Hazards in piping will vary somewhat depending on whether the piping is a storm or sanitary sewer, or both. Often the piping will carry both storm and sanitary sewage in a combined system.

Sanitary sewers will have hazards associated with organic matter, including biological hazards, as well as air contaminants such as hydrogen sulfide or methane from the decomposition of organic matter. Such gases may be particularly an issue where sludge and other materials have been allowed to accumulate, and are subsequently disturbed. Where sewage flows at a rate of 2-3 feet per second (2-3 km/h) sedimentation and sludge build up is less likely. However, in such cases blockages can still occur where objects impede flow, or the diameter of the piping is an issue.

Flow volumes and rates will vary according to sewage discharge patterns in the catchment area and precipitation. Predicting patterns of flow will assist with worker safety.

Storm sewers will typically include hazards associated with water flows, which will vary with precipitation and drainage patterns in the area. Drainage from streets and parking areas is likely to be contaminated with oil and other hydrocarbon residues from vehicles. Also, where access locations to the sewers are in proximity to idling vehicles, for example at intersections and parking areas, there is the potential for exposure to exhaust gases including carbon monoxide.

Both sanitary and storm sewers may be contaminated with industrial or household chemicals, and with potentially harmful objects such as needles.

2. Sewage pumping stations

For pumping stations that are confined spaces the adjacent piping will typically be the sewer lines that feed into a reservoir or sump and the pipes used to discharge the sewage. There may also be drains that are arranged so that the contents of the drain could enter a sump and merge with the general sewage flow. Gases must be considered as well as liquids. Various means of controlling fluid flow may be possible. Given the proximity to a point of access, and the limited space involved, it should always be possible to provide effective ventilation into a pumping station.

The timing of events must also be considered in the hazard analysis. For instance, the level and composition of off-gassing may depend on how long it has been since a channel or pipe has been emptied of residue. It may also be affected by the extent of liquid agitation and the surface area in contact with the atmosphere in partially-filled pipes.

Knowledge of historical flow patterns and contamination problems could be of assistance in performing the required hazard analysis. Anticipated weather patterns may also affect the scheduling of the work inside of the confined space in order to minimize worker exposure to hazards of fluid flow.

3. Sewage treatment plants

Many of the hazards from fluid flow in sewage treatment plants are similar to those encountered elsewhere in sewage systems. Treatment plants offer certain advantages in terms of hazard control given that work activities occur at fixed sites and often above ground. The design of the system at the site may help ensure that the need for alternative measures is minimized.

Some of the hazard issues at the plants include chemicals used to treat sewage, potential for exposure to tidal water for facilities on the coast, and hazards arising from the treatment system. For example, the potential for hydrogen sulfide and methane to develop from the decomposition of organic material may be a particular issue in desludging operations in secondary sedimentation tanks, on the tops of sewage digesters, and in any tanker loading or unloading operations.

Sewage treatment plants may have channels that are connected by orifices or weirs. Such connections are not necessarily "adjacent piping." However, any hazards created by these adjacent channels need to be addressed. The hazards to workers from entry into channels will vary somewhat depending whether or not the channels are open or closed.

A means of fluid control that is possible in some circumstances is to channel fluid flow around the space in which worker entry is required. Alternative fluid control measures that can be used include sealing devices that are installed through holes drilled in the side of pipes and inflatable bladders. In such cases, ensure that the manufacturer's instructions and other necessary safe procedures are followed.

Where discharge occurs into tidal water it may be possible to plan the timing of work so that ocean tides do not create a liquid hazard from the outlet side.

G9.22-1 Alternate measures - Making submissions

Issued August 1, 1999; Editorial Revision October 2004; Editorial Revision February 7, 2006; Editorial Revision June 6, 2006; Editorial Revision June 22, 2007; Revised April 9, 2008; Editorial Revision to include February 1, 2011 regulatory amendments; Retired October 30, 2018

This guideline is no longer required due to the creation of new guideline *G9.22 Alternative measures of control or isolation of adjacent piping - Making submissions*.

G9.22-2 Alternate measures for confined spaces - Municipal sewage systems

Issued April 9, 2008; Editorial Revision June 10, 2010; Editorial Revision to include February 1, 2011 regulatory amendment; Revised September 21, 2011; Retired October 30, 2018

This guideline is no longer required due to the creation of new guideline *G9.22 Alternative measures of control or isolation of adjacent piping - Making submissions*.

Guidelines Part 9 - Verification and Testing

G9.24 Verifying all precautions

Issued August 1, 1999

Section 9.24 of the *OHS Regulation* states "Before a worker enters a confined space, pre-entry testing and inspection must be conducted to verify that the required precautions have been effective at controlling the identified hazards and that it is safe for a worker to enter."

[Section 9.25](#) of the *OHS Regulation* requires the atmosphere in a confined space to be tested in a number of circumstances before a worker enters the confined space. The requirements of section 9.24 are not limited to atmospheric testing. Other hazards, such as entrapment, radiation, heat stress, noise and cold stress may also be present. These require assessment regarding the degree of risk to workers.

In addition, it is necessary to inspect before entry to ensure that all required controls are in place. These are similar to requirements for supervisor responsibility stated in [section 9.7\(2\)](#).

G9.25 Testing the atmosphere

Issued August 1, 1999; Revised November 17, 2003

Additional testing

Section 9.25(4) of the *OHS Regulation* states "While a worker is inside a confined space with a moderate or high hazard atmosphere, additional testing must be conducted as necessary to ensure the worker's continuing safety."

The intervals at which additional testing should occur depends on the outcome of the hazard assessment, the operations being performed in the space and the risk of the atmosphere changing substantially. In addition, the selection of appropriate instrumentation for testing of the space, together with the requirement of section 9.25(5) for continuous monitoring, may determine the frequency of testing that is practicable.

Continuous monitoring

Section 9.25(5) states "Whenever practicable, continuous monitoring of the atmosphere must be done."

"Practicable" is defined in section 1.1 of the *OHS Regulation* as meaning "that which is reasonably capable of being done". In determining what is "practicable", the relevant factors include:

- the availability in the marketplace of continuous monitoring devices,
- the reliability of continuous monitoring devices to detect contaminants within acceptable ranges to provide worker protection (this means in the range of the exposure limit or lower), and
- the potential for cross contamination or poisoning of the sensors for the instrumentation selected.

Low hazard atmospheres

Section 9.25(7) permits entry into low hazard atmospheres without pre-entry atmospheric testing if the conditions listed in paragraphs (a) to (d) are met. Condition (c) is that "prior representative sampling has demonstrated that the atmosphere within the space or group of similar spaces meets the low hazard atmosphere definition".

"Representative sampling" is acceptable if the sampling data is

- statistically significant,
- provides for the reliable determination of worker exposure, and
- obtained in accordance with the confidence limits stated in OHS Guideline [G5.48-9](#).

G9.26 Procedures and equipment

Issued August 1, 1999

Section 9.26(4) of the *OHS Regulation* states "Test results, other than continuous monitoring results, must be posted without delay at all points of entry to the confined space."

Continuous monitoring provides continuous feedback to the personnel entering and working in the confined space. In effect, this provides better feedback than the posting of test results at all entrances to the confined space. However, the section does not exempt the employer from recording continuous monitoring test results at appropriate intervals as required by section 9.26(3). Many instruments used for this purpose are equipped with a data logging capability that makes it easy to record test results and to interpret the data. Otherwise, readings can be manually recorded at appropriate time intervals.

Keeping records of continuous monitoring will be particularly important for employers wanting to eliminate pre-entry atmospheric testing for a low hazard atmosphere confined space, as it may be a source for the data required by paragraph 9.25(7)(c).

G9.26(2) Qualified person for calibration of confined space atmospheric testing equipment

Issued consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 9.26(2) of the *OHS Regulation* ("Regulation") states:

Each confined space test must be carried out by a qualified person who has training and experience to calibrate, operate and monitor testing equipment and interpret readings from the testing equipment.

Section 4.3(2) states:

Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out

(a) In accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or

(b) as specified by a professional engineer.

Purpose of guideline

The purpose of this guideline is to provide guidance on the qualifications necessary to perform calibration of confined space atmospheric testing equipment.

Calibration in accordance with manufacturer's instructions

Under section 4.3(2) of the *Regulation*, employers must ensure that the calibration of confined space testing equipment is done in accordance with the manufacturer's instructions or the instructions of a professional engineer.

Qualifications for confined space tester performing calibration

When atmospheric testing is performed in a confined space as required under [section 9.25](#), section 9.26(2) specifies that it be performed by a qualified person who has training and experience to calibrate the equipment. Calibration of testing equipment is a rigorous process and may require laboratory equipment or specialized procedures available only to the manufacturer or manufacturer's representative. The *Regulation* does not require that the qualified person identified in section 9.26(2) perform laboratory or factory calibration of the equipment. However, the qualified person (tester) needs to understand the calibration process in order to understand instrument setup and performance.

The manufacturer's instructions will usually also specify more frequent field calibrations and calibration checks (bump tests) than a periodic laboratory or factory calibration. In this case, the qualified person must be trained to perform this field calibration or calibration check.

Guidelines Part 9 - Cleaning, Purging, Venting, Inerting

G9.27 Cleaning, purging and venting

Issued August 1, 1999

Section 9.27(1) of the *OHS Regulation* states "When practicable, the employer must ensure that a confined space to be entered contains clean respirable air." Section 9.27(2) states "If a confined space is known, or shown by pre-entry testing to contain other than clean respirable air, the hazard must be controlled by cleaning, purging or venting the space and the atmosphere must be retested before a worker enters the space."

More than one cleaning, purging or venting may be required to achieve a confined space with clean respirable air. It depends on what is practicable and reasonable in the circumstances. If continued cleaning, purging or venting will further the objective of having a clean respirable atmosphere, these processes should be repeated. If continuing these processes will not effectively improve the residual atmospheric quality, then the employer may proceed with entry in accordance with section 9.28 of the *OHS Regulation*.

G9.29 Notifying WorkSafe BC about inerting a confined space

Issued August 1, 1999; Revised May 9, 2006; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision consequential to August 4, 2015 Regulatory Amendment

Regulatory excerpt

Section 9.29 (Inerting) of the *OHS Regulation* ("Regulation") states:

(1) The employer must notify the Board in writing, and submit a copy of the proposed work procedures, at least 7 days before a worker enters a confined space which has been inerted.

(2) The employer must follow any additional precautions that are prescribed by the Board after review of the notification.

(3) If a confined space has been inerted

- (a) all entry precautions for high hazard atmospheres must be followed, except the requirement for continuous ventilation,
- (b) every worker entering the confined space must be equipped with a supplied-air respirator meeting the requirements of Part 8 (Personal Protective Clothing and Equipment),
- (c) all ignition sources must be controlled, and
- (d) the atmosphere inside the confined space must remain inerted while workers are inside.

(4) Subsection (1) does not apply to entry for the purpose of performing emergency rescue duties.

Purpose of guideline

This guideline provides information for employers on how to notify WorkSafeBC prior to inerting a confined space, and the types of information to include in the submission. It also provides information to WorkSafeBC prevention officers to assist with reviewing applications.

How to notify WorkSafeBC

Section 9.29(1) of the *Regulation* requires an employer to notify WorkSafeBC in writing of an intent to enter an inerted confined space, and to submit a copy of proposed work procedures at least seven days before entry. As noted in section 9.29(4), this obligation does not apply if the entry is in an emergency situation for the purpose of performing rescue duties.

Information can be sent by post, fax, or by e-mail. However, regardless of the means of communication, the written communication must be received by WorkSafeBC at least seven calendar days before planned entry. It is not sufficient to call WorkSafeBC seven days or more before entry and then submit the written request in less than the required time.

The request should be sent to the nearest WorkSafeBC office, to the attention of the Prevention Regional Manager, or to the Occupational Hygiene Officer responsible for the worksite where the entry will occur. Notifications often arise from refining and fuel manufacturing operations in the oil and gas sector. Typically such operations are found in Northeast or Northwest B.C., or in the Lower Mainland. For these locales, inspectional programs are handled, respectively, from the Prince George, Terrace and the Burnaby/Coquitlam offices of WorkSafeBC.

Information on how to contact offices of WorkSafeBC is found on the web site at www.worksafebc.com. Click on the "[Contact Us](#)" button on the home page. Or alternatively, the information is available by calling the Prevention Information Line at 604-276-3100, or toll free in B.C. at 1-888-621-7233.

Preparing the submission

While section 9.29 of the *Regulation* deals with requirements specific to inerting, other requirements of Part 9 (Confined spaces) also apply. Of central concern is that the necessary hazard assessment has been done and associated work procedures developed, as required by [sections 9.9 to 9.11](#). Under these provisions the hazard assessment and work procedures must be prepared by a qualified person(s) and, as applicable, the joint occupational health and safety (OHS) committee or worker OHS representative must be consulted.

The work associated with inerting is often highly specialized, and may involve the services of a contractor. Where a prime contractor or owner arranges for a contractor to conduct the work, then the contractor's joint OHS committee or worker OHS representative will need to be consulted. Where workers of the prime contractor will be engaged in any of the work associated with the confined space, for example, in preparation of the space, work in it or in an emergency rescue, then consultation with the prime contractor/owner's joint OHS committee or worker OHS representative will also be needed.

To permit proper assessment by WorkSafeBC, the submission will need to include the following:

- The worksite location and specific identity of the confined space, and the date of intended entry.
- The identity of the qualified person(s) who prepared the hazard assessment and work procedures, the confined space entry program administrator, the person supervising the job and, where applicable on a multi-employer site, the person coordinating work activities.
- Information on consultation with the joint OHS committee or worker OHS representative, as applicable, on the hazard assessment for the confined space and associated work procedures.
- The written hazard assessment of the confined space to be inerted. The assessment, which is key to developing safe work procedures, will address the factors outlined in [section 9.9](#) of the *Regulation*, including any factors related to inerting, such as the presence of any pyrophoric (spontaneously flammable), oxidizing, flammable or other reactive materials, and any sources of ignition.
- Written work procedures for entry and work in the confined space, which specify the means to eliminate or minimize all hazards likely to be present. Procedures also will need to address the safe removal of any waste material and the installation of any replacement material, as applicable. The procedures must also be in compliance with the four conditions outlined in section 9.29(3) related to
 - precautions for high hazard atmospheres
 - a supplied-air respirator
 - control of ignition sources
 - the necessity that the inert atmosphere will be in place for the entire time that workers are inside the confined space
- Safety data sheet(s) or hazardous waste profile sheet(s) for any waste material to be removed from the space.

Reviewing the submission

The assigned prevention officer will be responsible for reviewing the application and making a determination of any concerns or issues with the

proposed procedures to be addressed by the applicant. Precautionary information should be entered into inspection text on an Inspection Report and communicated to the employer prior to entry. Where work is being done by a contractor, both the prime contractor and contracted employer will need to be advised.

To assist with the review, the prevention officer may wish to examine previous decisions related to inerting confined spaces, or consult with persons who have been involved with such decisions. This may include the Occupational Hygiene Variance Coordinator or Senior Occupational Hygienist, the Senior Prevention Adviser or, as applicable, other prevention officers and the Regional Manager. Consultation may be particularly appropriate in circumstances such as reviewing procedures for types of spaces not previously considered by WorkSafeBC.

If the applicant is a visiting contractor, it may be necessary for the contractor to do a final hazard assessment after arrival on site. It is expected in such cases that the assessment process will ensure that all significant hazards are addressed in the submission to WorkSafeBC, and that a final hazard assessment would only be for the purposes of fine tuning work procedures on minor issues. The hazard assessment and work procedures submitted to WorkSafeBC should be as specific as possible to the conditions on the site where the work will be done.

For example, if the contractor had previously done inerting work in a confined space, then the assessment and procedures should, at minimum, be based on the specific circumstances of that previous work, coupled with any adjustments arising from additional information received from the prime contractor or owner prior to the present job. Any final minor adjustments to the hazard assessment and procedures will be done by a qualified person in consultation with workplace parties, as required by [section 9.11](#).

The prevention officer may, in these or other circumstances, attend the site prior to the confined space being inerted.

Copy to OHS Practice and Engineering Support

Once the prevention officer's review is complete, materials will be entered into a firm file following normal procedures. A copy of the submission, any additional relevant materials, and the prevention officer's determination regarding the need for further precautions will also be forwarded to the OHS Practice and Engineering Support department of WorkSafeBC.

Guidelines Part 9 - Stand-by persons

G9.34-1 General requirements for a stand-by person

Issued August 1, 1999

Sections 9.34 to 9.36 of the *OHS Regulation* require that, whenever a worker enters a confined space, another worker or workers must be assigned as the standby person(s). The positioning and functions of the standby person differ, depending on whether the atmosphere in the confined space has been determined through the hazard assessment under section [9.9](#) to be low, moderate or high.

Depending on the rescue procedures, a stand-by person may also be trained and serve as a rescue person for the purpose of sections 9.37 to 9.41(3) of the *OHS Regulation*. In accordance with section [9.41\(3\)](#), the stand-by person may not enter the space to effect rescue until at least one other worker is present and prepared to render assistance to the rescue worker.

G9.34-2 Stand-by person for a low hazard atmosphere space

Issued August 1, 1999

The requirement for low hazard atmosphere confined spaces in section 9.34 allows the stand-by worker to effectively serve as a person-check for a worker working alone in the space. The standby person does not have to be located at or near the entrance to the space if there is a "continuous means of summoning the standby person". However, the standby person cannot be located inside the confined space. The stand-by person must check on the well being of the worker inside the confined space every 20 minutes or more frequently if required by the entry procedures.

G9.35 Stand-by person for a moderate hazard atmosphere space

Issued August 1, 1999

A moderate hazard atmosphere confined space requires a stand-by person to be located at or near the entrance. At least every 20 minutes, the standby must visually observe or otherwise check the well being of the workers in the space. The standby can have other duties if they do not interfere with the standby person remaining at or near the entrance to the space, or interfere with the checking of workers in the space. See also OSH Guideline [G9.34-1](#).

G9.36 Stand-by person for a high hazard atmosphere space

Issued August 1, 1999

A high hazard atmosphere confined space requires the stand-by person to be stationed at the entrance to the space and dedicated to the task of monitoring the workers in the space. The standby worker cannot have other duties. See also OSH Guideline [G9.34-1](#).

[Back to Top](#)

G9.39 Notification

Issued August 1, 1999

Section 9.39 of the *OHS Regulation* requires the notification of rescue persons before workers enter a confined space. Section 9.39(3) states "If more than one confined space is to be entered at the same time, notification of rescue personnel to be on alert status at the commencement of work is adequate."

In determining the rescue services to be provided, the employer should assess the risks from workers entering into more than one space entry at the same time. If the rescue services are called upon for one space, and there is insufficient rescue capacity to deal with emergencies in other confined spaces at the same time, the employer must terminate the entry or use of workers in other spaces during the rescue operations.

Examples of industries that may involve several confined space entries at the same time are petroleum refineries, pulp mills, tank and rail car cleaning operations and bulk storage facilities.

G9.41 Rescue procedures

Issued August 1, 1999

Section 9.41(3) of the *OHS Regulation* states "A rescue worker must not enter a confined space unless there is at least one additional worker located outside to render assistance."

The stand-by person required by [sections 9.34 to 9.36](#) may serve as a rescue worker, or as the backup worker required by section 9.41(3), provided the person is properly trained and adequately equipped. Where this occurs, the confined space rescue situation will involve a minimum of 3 people: the worker in the confined space needing rescue, the standby/rescue worker, and a third worker to meet the requirements of section 9.41(3). Four or more persons may be required if the standby person does not serve as one of the rescue workers required by section 9.41(3).

[Paragraph 9.36\(e\)](#) requires that in a high hazard atmosphere confined space the stand-by worker must be "equipped and capable of immediately effecting rescue using lifting equipment if required, or otherwise performing the duties of rescue persons". Wherever possible, rescue procedures and plans should rely on rescue of workers in a manner that does not require additional personnel to be placed at risk. For example, rescue from outside the space using lifting devices, and the stand-by worker as the rescue worker, puts no rescue workers at risk. In addition, rescue without entry would not necessarily require an additional rescue worker to render assistance under section 9.41(3).

The means of supplying rescue services are part of the hazard assessment under section 9.9 and covered by the written procedures under sections [9.5](#) and [9.10](#).

Guidelines Part 9 - Lifelines, Harnesses and Lifting Equipment

G9.42 When required

Issued August 1, 1999

Section 9.42(4) of the *OHS Regulation* states "The use of a lifeline is not required if the risk assessment identifies obstructions or other conditions that make its use impractical or unsafe".

"Risk assessment" refers to the "hazard assessment" done under section 9.9.

G9.43 Standards

Issued August 1, 1999

Section 9.43 of the *OHS Regulation* states "Harnesses, lifelines and lifting equipment must meet the requirements of standards acceptable under this Regulation".

This primarily refers to the standards accepted under parts 4,8,11 and 32 of the *OHS Regulation*.

Guidelines Part 9 - Personal Protective Equipment and Other Precautions

G9.47 Emergency escape respirator

Issued August 1, 1999

Section 9.47 states "Workers entering a confined space which contains a high hazard atmosphere must carry on their person or have within arm's reach an emergency escape respirator sufficient to permit them to leave the confined space without assistance."

The selection and use of appropriate escape respirators for high hazard atmosphere confined spaces must be in accordance to the requirements of part 8 of the *OHS Regulation*, particularly [section 8.36](#).

Issued May 24, 2002

Section 9.49 of the *Occupational Health Safety Regulation* states:

When practicable, torches and hoses used for welding, brazing or cutting must be removed from a confined space when not in use and when the confined space is vacated.

A "Note" is included under section 9.49. It states:

It may be impracticable to remove hoses for some short duration breaks of 60 minutes or less, particularly where the confined space is large or where the removal of hoses may create some risks to workers, for example, when hoses are removed from scaffolding. If removal is impracticable, alternate measures must be adopted under [sections 9.4 and 9.5](#). The preferred method in most cases is to disconnect at source with safe venting procedures together with procedures to ensure no inadvertent reconnection while workers are on the break or, if this is not practicable, closing and putting a tag on connections located outside the confined space. Other applicable requirements in [Part 9](#) must also be followed including those on ventilation, standby persons and retesting prior to re-entry. For further information, see the OHS Guideline on section 9.49 on the Board's Internet site.

The intent of section 9.49 is to minimize the possibility of oxygen and/or fuel gas accumulating in the confined space due to leaks or improperly closed valves. Gas can accumulate rapidly in a confined space and present a high risk of fire or explosion when workers return to the space to resume work. An action such as lighting a torch could result in a catastrophic explosion and fire. Hence, when using an oxy-fuel process in a confined space, the priority is to remove the hose and torch from the confined space upon completion of the work or whenever the worker using the equipment leaves the confined space.

Due to the lay-out, size, and complexity of some confined spaces and the number and lengths of oxy-fuel hoses involved, removal of torches and hoses is not always practicable for short duration breaks (such as for coffee or lunch; typically a maximum of 60 minutes). Examples of confined spaces where removal may be impracticable include a pulp mill recovery boiler and a workspace inside the hull of a large ship berthed for repairs in a shipyard. For the latter, oxy-fuel hoses are typically fed from the dock (the usual location of the regulator/manifold), over the sides of the ship, along the deck, and extended down into the ship, to the workspace. Depending on the work required on a large vessel, many (5-15) oxy-fuel hoses may be required, each extending up to 45 metres (150 feet) in length.

Where it is not practicable for a worker to remove an oxy-fuel hose and torch from a confined space when taking a short break, the following protocol is acceptable, when it forms part of a confined space entry program (see section 9.5 of the *OHS Regulation*).

- Prior to leaving for a break, the torch is shut off by the worker and left in the confined space.
- The worker leaves the confined space and goes directly to the manifold or regulator.
- The worker shuts off the oxy-fuel lines supplying the worker's torch.
- The worker disconnects both lines from the manifold or regulator, in a manner that ensures bled-off fuel gas and oxygen from the hoses is released into an open, well-ventilated area with no sources of ignition in the immediate vicinity.
- Lines left disconnected should be protected from contamination, if necessary.
- Upon return from the break, the worker reconnects and charges the hoses.
- Before a worker re-enters the confined space to resume work:
 1. the confined space is tested (as required by [section 9.25](#)),
 2. the mechanical ventilation system is functioning (as required by [section 9.30](#)),
 3. the standby person is ready (as required by [sections 9.34 to 9.36](#)), and
 4. rescue provisions are in place (as required by [sections 9.37 to 9.41](#)).

Torches and hoses should be shut off and removed from the confined space when this equipment will not be used for an extended time, such as breaks beyond 60 minutes or overnight, or upon completion of the work.

Additional information can be found in parts 10 and 11 of CSA Standard W117.2-94, Safety in Welding, Cutting and Allied Processes. Refer also to OSHA Regulations (Standards -- 29 CFR) Fire Protection in Shipyard Employment -- 1915 Subpart P available on the Internet at

https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10337

Contents

DE-ENERGIZATION AND LOCKOUT

G10.3 [Worker entry into J-bar sorting system in sawmills](#)

G10.4(1) [Lockout of multiple control devices](#)

G10.4(6) [Use of means other than personal locks](#)

G10.10(2) [Approval of control system isolating devices](#)

G10.11 [Locks not required](#)

Guidelines Part 10 - De-energization and Lockout

G10.3 Worker entry into J-bar sorting systems in sawmills

Issued August 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 10.3(1) of the *OHS Regulation* ("Regulation") states:

If machinery or equipment is shut down for maintenance, no work may be done until

- (a) all parts and attachments have been secured against inadvertent movement,
- (b) where the work will expose workers to energy sources, the hazard has been effectively controlled, and
- (c) the energy isolating devices have been locked out as required by this Part.

Purpose of guideline

The purpose of this guideline is to outline that a J-bar sorting system must be locked out, in accordance with Part 10 of the *Regulation*, before anyone enters into the bin areas, either above or below the lifts.

Securing the lifts

Sections 10.3(1)(a) and [12.15\(b\)](#) of the *Regulation* require actions to be taken to ensure the lifts will not move when a worker is present in the bin area. WorkSafeBC recognizes either of the following means of securing the lifts against inadvertent movement:

- a) Lowering the lifts onto positive mechanical stops of adequate size, or onto the bin removal chains. (Safety stops cannot be depended on to withstand the impact of a falling lift, for example, from hydraulic or mechanical failure in suspension system.)
- b) Another means of restraint when circumstances require entry of a worker into a bin to clear a lumber hang-up which prevents lowering of the lift onto a positive stop.

Blocking and restraining devices must be:

- a) Capable of performing the functions for which they are to be used, which may be shown by documentation from the equipment manufacturer (sections [4.3](#) and [4.8](#) of the *Regulation* apply), and
- b) Maintained as specified by the manufacturer (section 4.3 applies).

Guarding of the bin removal chain drives is not be required as this is a restricted access area and the system must be locked out before entry is permitted.

G10.4(1) Lockout of multiple control devices

Effective August 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 10.4(1) of the *OHS Regulation* ("Regulation") states:

When lockout of energy isolating devices is required, the devices must be secured in the safe position using locks in accordance with procedures that are made available to all workers who are required to work on the machinery or equipment.

Purpose of guideline

The purpose of this guideline is to provide guidance around the lockout of multiple control devices as required by section 10.4(1) of the *Regulation*.

Multiple control devices

In some lockout situations, several energy isolating devices located near each other, such as in a motor control center, need to be locked out. One alternative is to use a personal lock to secure each isolating device in the off or safe position. WorkSafeBC will also accept the running of a cable, bar, or chain through the lock points of the devices (once they are in the off or safe position) and securing the cable, bar, or chain against removal with a personal lock if the following criteria are met:

- The control devices are effectively secured in the off or safe position. (The strength, diameter, and routing of the cable, chain, or bar are sufficient to prevent the control devices being activated.)
- The locking mechanism is secure. (The construction and strength of fittings are sufficient to prevent the removal of a personal lock without the use of tools and destruction of the lock or fitting to which the personal lock is affixed.)
- The multiple lockout system addresses all aspects of lockout requirements. Items such as the use of group lockout procedures, and the use of a personal lock simultaneously with multiple control device lockout schemes is clearly established in the written procedures.
- Training and supervision is provided.

There is no limit on the length of cable, bar, or chain acceptable or the maximum number of control devices that may be secured at one time as long as the system ensures equivalent protection to the use of personal locks on each energy isolating device.

G10.4(6) Use of means other than personal locks

Effective August 1999; Revised April 30, 2015; Revised November 29, 2021

Regulatory excerpt

Section 10.4(6) of the *OHS Regulation* ("*Regulation*") states:

If the use of a personal lock is not practicable for lockout, another effective means, if approved by the Board, may be used in place of a personal lock to secure an energy isolating device in the safe position.

Purpose of guideline

There are some situations where use of a personal lock will not be practicable. The purpose of this guideline is to identify those alternate effective means that have been approved by WorkSafeBC.

School breaker panel

One example of such a situation would be a school with a circuit breaker panel in a hallway used by students. The panel cover is normally locked, and the maintenance and other personnel who are authorized to access the panel have a key. When maintenance requires a circuit to be locked out, an approach used in the past was to fix a lockable arrangement on the outside of the panel door to allow the worker to switch off the circuit and then lock the panel door shut with a personal lock. This prevented others from accessing other breakers in the panel, but is now prohibited by [section 10.5](#) of the *Regulation*.

There are devices that can be installed on individual circuit breakers to allow the breaker to be locked out with a personal lock. However, in some cases the personal lock may not allow the panel door to be closed and secured with the panel door lock. This allows unauthorized access to the breakers by students or others. An alternate device acceptable for use in these types of situations would be a "non-reusable seal" that is installed with adequate identification to show who put it on and that it is installed for lockout purposes. All persons with access to the panel must be trained to know the seal is part of a lockout procedure, and is not to be removed by anyone other than the person who installed it. The employer must limit the use of this alternative to situations where a personal lock cannot reasonably be used.

Secure blocking, pinning, plugging, or other industry specific methods

Another area where the use of a personal lock to secure an energy isolating device may not be practicable is when blocking, pinning, plugging, or other devices are used to control sources of hazardous energy typically in pipelines. The lockout procedure must be clear on how such devices are to be installed and secured in place. All workers must know such devices are part of a lockout procedure and are not to be removed except with the permission of all the persons involved in the lockout. A risk assessment identifying potential hazards and failure modes should be conducted before using these systems.

Cryogenic supply system

A cryogenic supply system meeting the specifications in clause 7.4 and Annex K of *CSA Standard Z460-13 — Control of hazardous energy — Lockout and other methods*, is approved for cases where freezing of the pipe contents to form a plug in the pipe (freeze plug) is used to block piping and isolate equipment. The cryogenic supply system must be monitored at all times to ensure that the integrity of the freeze plug is maintained and the plug has not melted or loosened within the piping. The cryogenic supply system which will be used to freeze the pipe contents to effectively control the energy source should be identified in the pertinent lockout procedure. Lockout or tagout should be done on the cryogenic supply system to prevent an inadvertent shutdown of the freezing supply system, and workers need to place personal tags at the freeze points to indicate their presence and to prohibit the cessation of the freeze.

Plug systems

Piggable pipeline pressure isolating tools that are designated to self-lock in their set position are an acceptable alternative means to secure sources of hazardous energy. These tools are typically used to provide isolation of a work location from pipeline operating pressure for activities such as repair and maintenance. A permit to work must be issued only after it has been determined that the tool is set, and the seal must be monitored for an established duration to verify that the tool is sealing and set. An area isolation assurance certificate must be generated for each plugging operation before a Permit to Work is issued. Measures must be taken to prevent inadvertent un-setting or unsealing of the tool from the tool's computer control system and/or from the operator's console.

Failure of the seal must trigger an audio and visual alarm at the work area and at the operator control.

G10.10(2) Approval of control system isolating devices

Issued August 1999; Editorial Revision October 2004; Editorial Revision February 6, 2006; Revised April 27, 2010; Editorial Revision June 30, 2021

Regulatory excerpt

Section 10.10(2) of the *OHS Regulation* ("*Regulation*") states:

Control system isolating devices and the procedures for using them must be approved in writing by the Board, and must be used by workers qualified and authorized to carry out the work.

Section 10.1 of the *Regulation* states, in part:

"control system isolating device" means a device that physically prevents activation of a system used for controlling the operation of

machinery or equipment.

Purpose of the guideline

This guideline describes "control system isolating devices" and describes the approval process for these devices and the procedures for using them.

What is a control system isolating device?

Regulation section 10.1 defines a control system isolating device (CSID) as a device that physically prevents activation of a system used for controlling the operation of machinery or equipment. The *system* in this definition means the control system used for controlling the operation of machinery and/or equipment where work is being undertaken.

As per the definition, a CSID operates *physically* to a mode or position to override or disable the control system so that it prevents risk of injury to workers from the movement of the machinery and/or equipment, or exposure to an energy source.

A switch as a control system isolating device

A switch can be an acceptable CSID if it is rated in the amperage and voltage of the circuit in which it is installed, and is capable of interrupting its rated current at the rated voltage.

The switch is required to be used as per the manufacturer's specification and instruction (e.g., a switch that is rated only for a dry environment cannot be installed in a wet environment; switches used in a hazardous environment need to bear the appropriate approval markings).

Note that *Regulation* section 10.10(1)(c) specifies that, for machinery or equipment designed and equipped with effective control system isolating devices, the devices must be locked out before work is done on the machinery or equipment.

An electronic switch (e.g., light curtain, photo eye, or software logic generated output) is not considered to meet the requirements for a CSID since it does not *physically* prevent activation. *IEEE Standard 100* defines a 'physical system' as a part of the real physical world that is directly or indirectly observed or employed.

A dual-channel safety interlock switch as a control system isolating device

A dual-channel safety interlock switch (SIS) that is (i) safety rated (as defined in *CSA Z460-05 Control of Hazardous Energy -- Lockout and other methods**), (ii) has a direct opening action, and that (iii) is used in the positive mode of operation can be an acceptable CSID.

**CSA Z460-05* states that safety-rated switches are tamper-resistant and mechanically actuated devices with positively driven multiple contacts. Magnetic switches can be safety rated if they are coded and have monitored contacts.

To be acceptable, the SIS needs to be installed as part of a control system that uses safety certified control components meeting design architecture of *ISO 13849-1 Safety of Machinery* category 3 or 4. These are called *control reliable* control systems and are described in *CSA Z432-04 Safeguarding of Machinery*.

The safety related parts of the control system (defined in *ISO 13849: 2006 Safety of Machinery*, referenced in [OHS Guideline G19.36\(1\)](#)) need to provide acceptable risk-reduction for the task that is being performed under its protection. A SIS installed as above is excluded from fault of non-opening of the contact and/or non-actuation of the switch due to mechanical failure.

How to request written approval

A request under section 10.10(2) of the *Regulation* for approval to use a CSID as an isolation device (i.e., to use control circuit lock-out) is considered an acceptance request and should follow the process described on the following website:

worksafebc.com/en/health-safety/create-manage/managing-risk/controlling-risks/variances-ohs-regulation

The applicant should conduct a risk assessment and the submission should include the following information:

1. A list of the tasks or activities intended to be done using CSID's.
2. A description of the hazard(s) which workers will be protected from by using the CSID and procedures.
3. How the hazards are controlled by installing the control system (or the control system supplied from the manufacturer).
4. An explanation of why it is not practicable to implement lockout through use of energy isolating devices rather than CSID's.
5. A description of the proposed control circuit system that will be isolated using the CSID. A schematic diagram of the control circuit system.
6. The procedures for using the CSID. The procedures should describe in detail (step-by-step) how to perform each task safely while using a CSID (i.e., provide information on how a particular task will be performed using CSID's, not simply how to operate the equipment or machine using the control system). There should also be a procedure for what action the operator and/or worker is to undertake in case of failure of the control system.
7. How the control system limits the machine (e.g., when the gate is open the cutter runs at a lower speed).
8. If SIS's are used as a CSID, provide documentation to show that the safety related parts of the control system use safety certified components and the design architecture meets Category 3 or higher.

After conducting a review of the application, OHS Practice and Engineering Support will issue a decision letter with respect to approval of the CSID and the associated procedures.

G10.11 Locks not required

Effective August 1999; Revised March 7, 2011

Regulatory excerpt

Section 10.11(a) of the *OHS Regulation* ("Regulation") states:

The application of a lock is not required under section 10.3 or 10.10 if

(a) the energy isolating device is under the exclusive and immediate control of the worker at all times while working on the machinery or equipment, or ...

Purpose of guideline

The purpose of this guideline is to explain the conditions under which work may be performed on machinery or equipment, using means other than the application of a lock to control various energy sources.

Locks not required

This provision applies only if the energy isolating device is under the exclusive and immediate control of the worker, and it is not reasonably foreseeable that the machine or equipment could be started inadvertently by the worker performing the work, or by any other worker. It is intended to allow for tool changes on equipment such as a drill press or lathe without requiring lockout through the use of a personal lock.

Given the variation in the types of energy isolating devices that are installed on equipment and machinery, employers need to assess these devices to ensure that they cannot be readily activated in the case of inadvertent movement, such as a worker leaning on or brushing against the energy isolating device. In cases where these energy isolating devices are susceptible to inadvertent activation, this section does not apply. The work must be done as prescribed in accordance with lockout procedures set out in sections [10.3](#) and [10.4](#) of the *Regulation*.

WorkSafeBC will accept that a worker has exclusive and immediate control of the energy isolating device if all of the following criteria have been met:

- The machine or equipment has only one set of operating controls, the equipment is stopped, and all potential sources of energy are reduced to a zero energy state.
- The energy isolating device remains in the field of vision of the worker at all times while the task is being done and is located so any move by another worker to activate the control will be immediately obvious to the worker doing work on the machine or equipment.
- Written safe work procedures exist for the task, and the affected workers are trained in and follow those procedures.
- The written safe work procedures are specific as to what tasks can be done without the application of a personal lock. Any other maintenance or servicing activities must be done as prescribed by sections 10.3 and 10.4 of the *Regulation*.

Contents

FALL PROTECTION

- G11.1 [Definitions - Anchor and anchorage](#)
- G11.2-1 [Calculation of fall distance when on a sloped roof](#)
- G11.2-2 [Selecting a method of fall protection](#)
- G11.2-3 [Defining a fall restraint versus fall arrest system](#)
- G11.2-4 [Tilt-up construction](#)
- G11.2-5 [Fall protection in agriculture](#)
- G11.2(5)-1 [Safety monitor system as a work procedure acceptable to WorkSafeBC](#)
- G11.2(5)-2 [Fall protection and structural concrete block construction](#)
- G11.2(5)-3 [Other acceptable work procedures](#)
- G11.2(5)-4 [Work procedures to minimize risk of injury due to a fall in fixed-seating areas such as stadiums, arenas, or theatres](#)
- G11.2(6)-1 [Instruction in fall protection system](#)
- G11.2-6 [Fall protection during stunt work](#)
- G11.3 [Fall protection plan](#)
- G11.4 [Belts and harnesses](#)
- G11.5-1 [Equipment standards](#)
- G11.5-2 [Equipment standards - Vertical lifelines](#)
- G11.5-3 [Equipment standards - Lanyards](#)
- G11.5-4 [Equipment standards - Prusik sling/Triple sliding hitch](#)
- G11.5-5 [Equipment standards - Double line system controlled descent devices](#)
- G11.5-6 [Equipment standards - Connecting equipment](#)
- G11.5-7 [Equipment standards - Protection against abrasion or burning](#)
- G11.6-1 [Anchors](#)
- G11.6-2 [Anchor selection and use](#)

- [G11.6-3 Anchors - Cornice hook and parapet clamp use](#)
- [G11.7 Temporary horizontal lifelines](#)
- [G11.8 Requirements for engineering - Permanent horizontal lifelines](#)
- [G11.9 Inspection and maintenance - Fibre rope suspension](#)
- [G11.10\(0.1\) Fall protection anchors - Inspection and removal from service](#)

Guidelines Part 11 - Fall Protection

G11.1 Definitions - Anchor and anchorage

Issued consequential to April 1, 2013 Regulatory Amendment; Editorial Revision June 30, 2021

Regulatory excerpt

Section 11.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"*anchor*" means a component or subsystem of a fall protection system used to connect the other parts of a fall protection system to an anchorage, and includes an anchorage connector;

"*anchorage*" means a secure connection point for a fall protection system;

Purpose of guideline

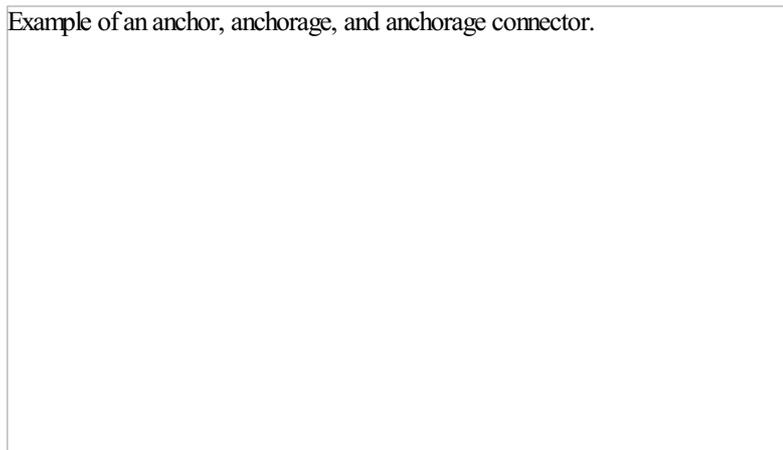
The purpose of this guideline is to clarify the application of the *Regulation* to anchors and to provide examples to help clarify use of the terms anchor, anchorage, and anchorage connector.

Anchors and anchorages

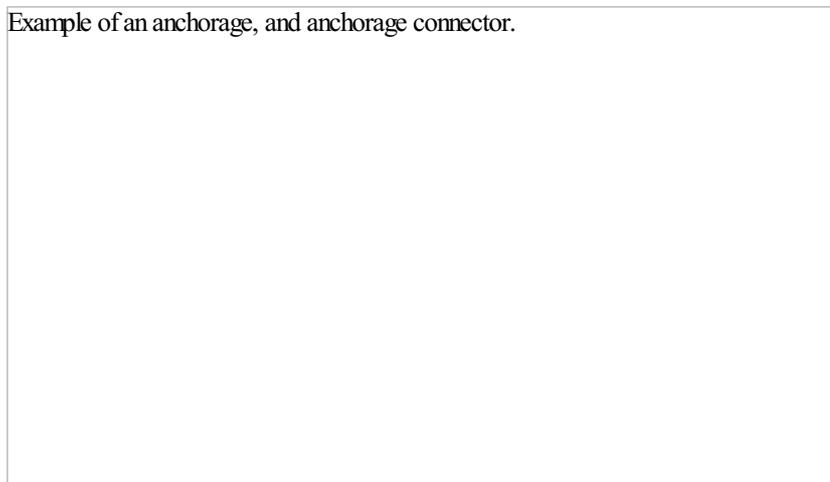
An anchor is a component or subsystem of a fall protection system and is subject to the regulatory requirements for a fall protection system. Under *Regulation* section 11.5(c), an anchor must meet and be used in accordance with an applicable standard. Refer to OHS Guidelines [G11.5-1 Equipment standards](#) and [G11.6-2 Anchor selection and use](#) for an explanation of applicable standards.

The following diagrams show examples of an anchor, anchorage, and anchorage connector.

Example of an anchor, anchorage, and anchorage connector.



Example of an anchorage, and anchorage connector.



Example of an anchorage.

G11.2-1 Calculation of fall distance when on a sloped roof

Issued August 16, 2000; Revised January 1, 2005

Regulatory excerpt

Section 11.2(1) of the *OHS Regulation* ("Regulation") states:

Unless elsewhere provided for in this Regulation, an employer must ensure that a fall protection system is used when work is being done at a place

(a) from which a fall of 3 m (10 ft) or more may occur, or

(b) where a fall from a height of less than 3 m involves a risk of injury greater than the risk of injury from the impact on a flat surface.

Purpose of guideline

The purpose of this guideline is to explain how to calculate the fall distance when workers are on a sloped roof.

Calculating fall difference

At a minimum, the fall distance will be the distance from the bottom edge of the roof to the next safe lower surface or ground below. The vertical distance from the worker's position to the unguarded roof edge should be added when on a roof with a slope greater than 4 vertical in 12 horizontal. [Section 20.75](#) of the *Regulation* requires a worker on a roof with a slope ratio of 8 vertical in 12 horizontal or greater to use personal fall protection, or a safety net must be used; toe holds must be used if the roofing material allows for it. Refer to [OHS Guideline G20.75](#).

G11.2-2 Selecting a method of fall protection

Issued August 16, 2000; Revised January 1, 2005; Editorial Revision consequential to February 1, 2015 Regulatory Amendment; Revised December 18, 2015; Editorial Revision July 27, 2016

Regulatory excerpt

Sections 11.2(2) to (5) of the *OHS Regulation* ("Regulation") state:

(2) The employer must ensure that guardrails meeting the requirements of Part 4 (General Conditions) or other similar means of fall restraint are used when practicable.

(3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.

(4) If subsection (3) is not practicable, the employer must ensure that one of the following is used:

(a) a fall arrest system;

(b) a rope access system that meets the requirements of Part 34.

(5) If subsection (4) is not practicable, or will result in a hazard greater than if a fall arrest system or a rope access system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.

Purpose of guideline

Section 11.2 of the *Regulation* prescribes a hierarchy of controls in sections (2) to (5). This guideline explains the hierarchy of controls and gives examples of how the circumstances of the workplace affect the selection of fall protection.

Selection of fall protection method

The employer must use "guardrails ... or other similar means of fall restraint" under section (2) if it is practicable for the work process. If it is not practicable, the employer can use another fall restraint system under section (3). However, the employer cannot use a fall arrest system or a rope

access system under section (4) unless it is impracticable to use any fall restraint system under sections (2) and (3). Only if it is impracticable to use a fall restraint, fall arrest, or rope access system under sections (2) to (4), or if the use of a fall arrest or rope access system will result in greater hazards, is the employer permitted under section (5) to use work procedures alone to minimize the risk of injury to a worker from a fall.

The selection of a method for fall protection under section 11.2 depends on what is practicable. Employers are expected to make a reasonable assessment and use good judgment in making this decision. What is practicable depends on the circumstances of each workplace and is a matter of assessment and judgment. The following examples cover some typical situations:

- Guardrails will generally be considered practicable in work areas where numerous workers are working at or near the edges of elevated floors and roofs on buildings or structures under construction.
- Where a roof is under repair, it may not be practicable to install guardrails because of such factors as the small number of workers involved and the short duration of the job. In this situation, it will generally be practicable to use a fall restraint system that consists of a belt or harness and a lifeline connected to a suitable anchor and rigged to prevent the worker from going beyond the unguarded edge(s).
- When a worker needs to position and fasten joists or trusses to the top plate of a wood frame structure, fall protection is required if a fall of 3 metres (10 feet) or more may occur, or if a fall from a height of less than 3 metres involves a risk of injury greater than the risk of injury from the impact on a flat surface. Generally this condition will exist along the outer side of the perimeter walls. It will normally be practicable to erect guardrails along the outer side of the wall, or to work from a single pole scaffold (with guardrails if necessary) from either side of the wall, or to use another method of fall restraint or arrest.
- It may be necessary to remove a guardrail to accommodate work. If so, under [section 4.58.1](#) of the *Regulation*, only that portion of the guardrail necessary to allow the work to be done may be removed. Workers exposed to a fall hazard must be protected by another fall protection system when the guardrail is absent. The guardrail must be replaced when the unguarded area is left unattended, and after the work is completed if the circumstances still require guardrails.
- If guardrails currently exist, an employer cannot tear them down and substitute another form of fall protection, such as a safety monitor and control zone system, simply because it will make the work easier. The fact that guardrails currently exist suggests that it is practicable to use that form of fall protection (refer to section 4.58.1 of the *Regulation*).
- A fall arrest system or rope access system will likely be practicable where there is no sizable work platform (e.g., on a bridge girder) or where it would not be cost-effective to build platforms on which guardrails or other fall restraint systems could be used because the work is of short duration and uses relatively few workers.

Some provisions outside of Part 11 of the *Regulation* that require fall protection in particular areas limit the range of choices that might otherwise exist. Notably, [section 13.33](#) of Part 13 (Ladders, Scaffolds and Temporary Work Platforms) contains specific requirements for fall protection.

Determining the fall hazard area

Section 11.2(1) of the *Regulation* requires the use of a fall protection system when work is being done at a place from which a fall of 3 metres (10 feet) may occur, or where a fall from a height of less than 3 metres involves a greater risk of injury. The place from which a fall may occur is also referred to as the "fall hazard area."

The employer is responsible for determining the fall hazard area (i.e., the safe distance from the unguarded edge). Some of the factors that the employer will need to take into consideration include, but are not limited to, the following:

- The nature of the work to be conducted
- The hazards that are present in the workplace
- Environmental conditions, such as temperature, ice, rain, or heavy winds
- Whether the work is carried out at an elevation relative to the unguarded edge (e.g., working on an air-handling unit from a ladder)
- Whether the risk is increased by the use of tools or other equipment in the work area

In the case of flat or low-sloped work surfaces (not exceeding 4 vertical to 12 horizontal or 4/12), that distance will be at least 2 metres (6.5 feet) from the unguarded edge.

G11.2-3 Defining a fall restraint versus fall arrest system

Issued August 16, 2000; Revised January 1, 2005; Editorial Revision consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Sections 11.2(3) to (4) of the *OHS Regulation* ("*Regulation*") state:

- (3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.
- (4) If subsection (3) is not practicable, the employer must ensure that one of the following is used:
 - (a) a fall arrest system;
 - (b) a rope access system that meets the requirements of Part 34.

Purpose of guideline

When assessing the requirement for personal fall protection where there is a relatively short potential fall distance, it is sometimes unclear if a situation should be treated as fall restraint or fall arrest. This guideline clarifies the difference between a fall restraint and a fall arrest system.

Fall restraint

Fall restraint normally means a fall protection system arranged such that a worker cannot fall lower than the surface on which the worker was supported before the fall started. For example, a personal fall restraint system for a worker on an elevated flat surface would be arranged so the worker could go up to the edge of the work surface, but not beyond the edge in the event of a slip or fall. The system, in the event of a slip or fall, would result in the worker landing on the work surface, and perhaps very close to going over the edge. Other work positioning arrangements, such as a firefighter secured to an aerial ladder, or a tree trimmer or power line technician using a climbing belt and pole strap, will normally result in the worker going through some vertical drop in the event of a slip. To allow their fall protection to be considered as fall restraint, their equipment should be arranged to limit the vertical drop as much as possible, and in no case, should the total fall distance be more than 30 centimetres (1 foot).

A fall restraint system should only be used where a worker likely can regain footing or otherwise self-rescue immediately after a slip or fall. Fall protection equipment and components that are intended only for fall restraint applications should be clearly and permanently marked to indicate such a limitation.

Fall arrest

If the equipment cannot be arranged to limit the vertical drop to 30 cm, then the personal fall protection system should be a fall arrest type, and the system will need to address the additional requirements for fall arrest. For example, [section 11.4\(1\)](#) of the *Regulation* requires workers to wear a full body harness or other harness acceptable to WorkSafeBC when using a personal fall protection system for fall arrest. Further, the anchor the worker is connected to must meet the requirements of [section 11.6\(3\)](#) of the *Regulation*.

G11.2-4 Tilt-up construction

Issued August 16, 2000; Revised January 1, 2005; Revised October 23, 2009; Revised April 13, 2011; Editorial Revision consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Sections 11.2(2) to (4) of the *OHS Regulation* ("*Regulation*") state:

- (2) The employer must ensure that guardrails meeting the requirements of Part 4 (General Conditions) or other similar means of fall restraint are used when practicable.
- (3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.
- (4) If subsection (3) is not practicable, the employer must ensure that one of the following is used:
 - (a) a fall arrest system;
 - (b) a rope access system that meets the requirements of Part 34.

Section 4.58(4) of the *Regulation* states:

Guardrails temporarily installed during the construction, demolition, maintenance or renovation of a work area must be able to withstand a load of 550 N (125 lbs.) applied perpendicular to the span in a horizontal or vertically downward direction at any point on the top rail, or be built to the criteria of subsection (5).

Section 4.58(4.1) of the *Regulation* states:

If part or all of the top rail or a midrail of a guardrail that is temporarily installed during the construction, demolition, maintenance or renovation of a work area is made of fibre rope, wire rope, chain or other non-rigid material, that part of the guardrail must meet the requirements of *WorkSafeBC Standard - Guardrails using rope or other non-rigid material*, as set out in [Schedule 4-A](#) to this Part.

Section 4.54 of the *Regulation* provides the following definitions:

"*guard*" means a protective barrier around an opening in a floor or along the open sides of stairs or a ramp, landing, balcony, mezzanine, raised walkway or any other area to prevent a fall to a lower level, or inadvertent entry into a dangerous area;

"*guardrail*" means a guard consisting of a top rail 102 cm to 112 cm (40 in to 44 in) above the work surface, and a midrail located approximately midway between the underside of the top rail and the top of the toeboard, if one is provided, or the work surface if no toeboard is provided.

Purpose of guideline

The purpose of this guideline is to explain the process for converting a perimeter horizontal lifeline at a tilt-up construction site into a temporary guardrail system.

Use of wire rope guardrail

Once the roof deck is in place, a perimeter horizontal lifeline at a tilt-up construction site may be converted into a guardrail system by adding a suitable rope at midrail level. [Section 4.58\(4.1\)](#) of the *Regulation* specifies that guardrails made of fibre or wire rope temporarily installed during the construction, demolition, or renovation of a work area must meet the requirements of *WorkSafeBC Standard - Guardrails using rope or*

other non-rigid material ([Schedule 4-A](#)).

Note that while it may be permissible to use a horizontal lifeline system as the basis for a wire or fibre rope guardrail system if modified according to the criteria set out in *WorkSafeBC Standard - Guardrails using rope or other non-rigid material*, as set out in Schedule 4-A, it is not the case that a system designed as a rope guardrail can readily be converted and used for the purposes of a horizontal lifeline. The strength requirements for rope guardrail systems are far lower than those for horizontal lifelines.

G11.2-5 Fall protection in agriculture

Issued January 1, 2005; Editorial Revision consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 11.2 of the *OHS Regulation ("Regulation")* states:

- (1) Unless elsewhere provided for in this Regulation, an employer must ensure that a fall protection system is used when work is being done at a place
 - (a) from which a fall of 3 m (10 ft) or more may occur, or
 - (b) where a fall from a height of less than 3 m involves a risk of injury greater than the risk of injury from the impact on a flat surface.
- (2) The employer must ensure that guardrails meeting the requirements of Part 4 (General Conditions) or other similar means of fall restraint are used when practicable.
- (3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.
- (4) If subsection (3) is not practicable, the employer must ensure that one of the following is used:
 - (a) a fall arrest system;
 - (b) a rope access system that meets the requirements of Part 34.
- (5) If subsection (4) is not practicable, or will result in a hazard greater than if a fall arrest system or a rope access system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.
- (6) Before a worker is allowed into an area where a risk of falling exists, the employer must ensure that the worker is instructed in the fall protection system for the area and the procedures to be followed.
- (7) A worker must use the fall protection system provided by the employer.

Purpose of guideline

There are several circumstances in agriculture, for example in greenhouse, dairy, and some other animal husbandry operations, which may present some unique challenges for fall protection. This guideline describes the application of the fall protection hierarchy in those circumstances.

Fall protection hierarchy

In greenhouse operations, equipment designed to provide fall protection for use on roofs during work activities such as repairing, glazing, and cleaning greenhouse glass may provide a practicable means of hazard control. The use of such equipment is increasingly common in this sector.

In the dairy and some other animal husbandry sectors, haylofts may be an area of concern. In some cases it may be feasible to use guardrails, particularly along edges that are not in use. Another option that may be appropriate is a system of retractable netting to provide fall restraint next to the work area, which is drawn into place when workers are on the loft. If such systems are not practicable in a workplace, personal fall restraint or fall arrest systems may be feasible.

In circumstances where systems of fall restraint or fall arrest, or rope access are not practicable, or a system of fall arrest or rope access will result in a hazard greater than if the system is not used, a further option provided by the fall protection requirements is the use of other acceptable work procedures that will minimize the potential for a worker to fall. Refer to the OHS Guidelines for [G11.2\(5\)](#) for more information on the use of control zones, safety monitors and other procedures.

G11.2(5)-1 Safety monitor system as a work procedure acceptable to WorkSafeBC

Issued August 16, 2000; Revised January 1, 2005; Revised December 2, 2011; Editorial Revision consequential to February 1, 2015 Regulatory Amendment; Revised December 18, 2015

Regulatory excerpt

Section 11.2(5) of the *OHS Regulation ("Regulation")* states:

- If subsection (4) is not practicable, or will result in a hazard greater than if a fall arrest system or a rope access system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a

worker from a fall.

Purpose of guideline

This guideline describes the use of a safety monitor system as an acceptable work procedure under section 11.2(5).

Control zones and safety monitors

Section 11.2 of the *Regulation* prescribes a hierarchy of fall protection controls in sections (2) to (5). A safety monitor system may be used as the means of fall protection under section 11.2(5) where it is not practicable to use a method of fall restraint, fall arrest, or rope access; or where the use of a fall arrest or rope access system will result in a greater hazard.

In this guideline the following definitions apply:

- "Control zone" means the area between an unguarded edge of a building or structure and a safe distance of at least 2 metres (6.5 feet).
- "Safety monitor system" means a system in which a trained worker is designated to monitor work activities in a control zone to ensure that work is done in a manner that minimizes the potential for a worker to fall.

The safety monitor system is intended for level or low-sloped work surfaces. It is not to be used on a working surface where the slope of that surface exceeds 4 vertical to 12 horizontal (4/12), for skeletal structure work, or for scaffold erection and removal. If workers will at all times remain further from the unguarded edge than the width of the control zone, no safety monitor or other fall protection system is required.

Width of the control zone

The width of a control zone is to be at least 2 metres (6.5 feet), with additional distance if any of the following conditions exist:

- The working surface is slippery or sloped
- The work is carried out at an elevation relative to the unguarded edge (e.g., working on an air-handling unit from a ladder)
- The risk is increased by the use of tools or other equipment near the control zone
- The risk is increased by environmental conditions such as ice, rain, or heavy winds

Raised warning line

A line defining the control zone is to be established along the internal edge of the control zone by a raised warning line or other equally effective means at all times during such work. For example, an acceptable raised warning line includes a line with both of the following:

- A high-visibility material, or a line flagged or clearly marked with high-visibility materials at intervals not exceeding 2 metres (6.5 feet).
- Rigged and maintained to be between 0.85 metres and 1.15 metres (34 and 45 inches) above the working surface.

For clarification purposes, a raised warning line is only required when the safety monitor system will be used as the means of fall protection under section 11.2(5). A raised warning line is not required when other methods of fall protection are used, such as fall restraint. However, an employer may choose to use a raised warning line to increase the workers' awareness of the fall hazard area.

Safety monitor

Only workers directly required for the work at hand will be inside the control zone. The role of the safety monitor is to ensure that the work activity in the control zone is performed in accordance with the fall protection plan and in a manner that minimizes the potential for a worker to fall. A safety monitor will:

- Be experienced in the work overseen and trained in the role of safety monitor
- Be present at all times when a worker is in the control zone
- Have complete authority over the work as it relates to the prevention of falls
- Engage in no other duties while acting as the safety monitor
- Be positioned to have a clear and continuous view of the work

Also, a safety monitor will:

- Be able to have normal voice communication with the workers being protected
- Monitor no more than eight workers
- Be instantly distinguishable from other workers

The written fall protection plan for the workplace (required by section [11.3](#)) will specify the name of each safety monitor.

On a narrow roof, such as one less than 12 metres (40 feet) wide, an employer may proceed with a safety monitor system without using a raised warning line by declaring the entire work surface the control zone. This will be specifically noted in the fall protection plan. The safety monitor will be positioned in a safe location and have a clear view of the work.

G11.2(5)-2 Fall protection and structural concrete block construction

Issued March 28, 2002; Revised January 1, 2005

Regulatory excerpt

Section 11.2(5) of the *OHS Regulation* ("*Regulation*") states:

If subsection (4) is not practicable, or will result in a hazard greater than if a fall arrest system or a rope access system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.

Purpose of guideline

The purpose of this guideline is to outline an acceptable work procedure under section 11.2(5) for structural concrete block construction when fall restraint or fall arrest systems or rope access systems are not practicable.

Masonry construction

The use of guardrails or other fall protection is practicable for most masonry construction, but is impracticable in some situations during the placement of structural concrete block during wall construction. Structural masonry is the use of 200 mm (8 inches) or wider concrete block or structural clay brick laid and reinforced as stand-alone walls. Typical applications are for warehouses, schools, or commercial buildings, with wall heights generally of 3 to 7 metres (10 to 23 feet), occasionally reaching 9 metres (30 feet).

Generally masonry work more than 1.5 metres (5 feet) above ground or floor level is done from a scaffold work platform. For platform heights of less than 3 metres (10 feet), guardrails or other fall protection is not required. Work off platforms 3 metres or more high requires fall protection. This is generally provided on the backside and ends of the work platform through use of guardrails. If the masonry or block is being laid against an existing building wall, there is no forward fall hazard, so no guardrails need to be on the front or working side of the work platform. However, if the structural wall is a stand-alone wall, there is no "front wall" or barrier immediately behind the new wall. As the wall construction progresses beyond 3 metres in such cases, section 11.2 of the *Regulation* requires fall protection measures be taken. It is not practicable to have guardrails and support posts in the same workspace where the structural masonry units are being laid. This guideline describes work practices acceptable in these circumstances.

For the first 3 courses of block (approximately 60 centimetres or 24 inches) above the level of the work platform, a personal fall restraint system is to be used by workers laying block and working on the forward edge of the work platform. After the completion of at least 3 courses of block being laid, the worker(s) laying block may remove the personal fall protection and continue laying block with the newly laid block wall being considered as effective fall protection for masons working at the front or working face of the work platform.

Note that the work platform is always positioned at least 3 courses (60 centimetres) below the top of the last full course of structural masonry laid, so personal fall protection is not needed. However, if the work platforms are repositioned so that the distance from the platform surface up to the top of the last full course of masonry laid is less than 60 centimetres, personal fall protection needs to be used.

If the above procedure is to be used, a written fall protection plan for the work is required by [section 11.3\(1\)\(b\)](#) of the *Regulation*.

G11.2(5)-3 Other acceptable work procedures

Issued August 16, 2000; Revised January 1, 2005; Revised December 2, 2011

Regulatory excerpts

Section 11.2(5) of the *OHS Regulation* ("*Regulation*") states:

If the use of a fall arrest system is not practicable, or will result in a hazard greater than if the system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.

Purpose of guideline

This guideline provides examples of typical situations where work procedures (other than control zones and safety monitors) may be used and describes some acceptable work procedures under section 11.2(5) to minimize the risk of injury to a worker from a fall. If work procedures are used under section 11.2(5) of the *Regulation*, section 11.3 requires there be a written fall protection plan for the work site.

Work procedures other than control zones and safety monitors

- **Installation or removal of fall protection equipment** (first person up/last person down rule).
- **Light duty work for short duration.** The use of a ladder may be acceptable for certain "light duty" tasks, as long as the work is completed under certain circumstances:
 - Working off of a portable ladder doing a "light duty task," such as an inspection or painting, where the ladder will be set up with its base at the same physical location for sporadic, short-term work. Some examples of sporadic short-term work include the following: inspecting exterior vents, gutters, and window seals; caulking; touch-up painting; and maintenance-type work (such as changing light bulbs). While performing the task, the worker should keep his/her centre of gravity (worker's waist) between the side rails of the ladder, and should generally have one hand available to hold on to the ladder or other support to maintain three points of contact. The ladder is not to be positioned near an edge, drop in height or floor opening that would significantly increase the potential fall distance. (Note that if the work on a ladder is likely to exceed 15 minutes at one physical location, some form of fall restraint or fall arrest protection should be used.) Where terrain and accessibility allow for other means of performing the work (e.g., a scissor lift or movable work platform), the use of other such means is to be considered prior to completing the work from a portable ladder.
 - Where work duration is approximately 15 minutes or less and the tasks are "light duty," the work may be completed from a portable ladder where use of a work platform is not practicable.
 - Work done from a ladder must be done in full compliance with Part 13 of the *Regulation* (especially Division 2 - Ladders, including [sections 13.4](#), [13.5](#), and [13.6](#)). Section 13.6(1) of the *Regulation* states that "if work cannot be done from a ladder without hazard

to a worker, a work platform must be provided." If the work cannot be completed in full compliance with the requirements for safe ladder use under Part 13 a ladder must not be used for that work.

- In circumstances where frequent ladder movement is required to complete multiple short duration tasks, each task may be considered as a separate instance of "short duration" work (e.g., light work such as touch-up painting at a residential dwelling may require multiple set-ups at various locations, and exceeding a total of 15 minutes for such a project is acceptable.)
- The total duration of the entire job should also be considered in determining situations where other work safety measures should be used (e.g., work to be completed at a specific site over the course of several days may not be considered as "short duration," depending on the specific circumstances at the time.)
- Employers should consider
 - The frequency with which a ladder is being used at a site (overly frequent use may indicate that other means of completing the work are more appropriate)
 - The duration of use at a site (if length of use tends toward longer periods of use, other means should be considered where practicable)
 - The overall practicability of using other work platforms to complete use (e.g., scissor lifts, boom lifts, scaffolding, etc.)
- **Roof inspection or estimation.** Provided the worker minimizes exposure to any unguarded edge as much as possible and provided other factors such as environmental conditions (e.g., wind or ice), roof slope, and surface finish do not present an undue hazard.
- **Transfers between fall protection systems.** Brief transfers between fall protection systems where the worker is protected by having a three-point contact (two feet placed firmly on a suitable supporting surface along with one hand supporting the worker, while the other hand is used to transfer a connection from one fall protection system to another).
- **Work requiring constant repositioning.** For example, during the primary connection of skeletal structures, workers employed in the initial placement of skeletal members requiring climbing and walking on the bare structure may, depending on the particulars of the work to be done, be covered by section 11.2(5). Trades with activities of this nature typically include scaffold erectors, tower erectors, blowpipe ventilation erectors, structural steel erectors, and tower crane erectors. Workers on the structure engaged in welding, bolt installing, other fitting out work, and climbing or walking on skeletal members should be able to use the fall protection methods referred to in sections 11.2(2), (3), and (4).
- **Workers on roofs engaged in a process that may damage lifelines.** For example, workers doing roofing tar work (such as hot bitumen application on flat roofs), may have to work under the protection of work procedures under section 11.2(5), such as control zones and the safety monitor system.
- **Use of the normal fall protection methods results in greater hazard.** For example, in emergencies such as the correction of an unsafe condition or in firefighting - refer to [section 31.17\(4\)](#).

Refer to [G20.75](#) Roof work - Fall protection for a description of different fall protection systems for work on roofs, according to the amount of slope, using the hierarchy in section 11.2 of the *Regulation*.

G11.2(5)-4 Work procedures to minimize risk of injury due to a fall in fixed-seating areas such as stadiums, arenas, or theatres

Issued August 23, 2011; Editorial Revision consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 11.2 of the *OHS Regulation* ("*Regulation*") states:

- (1) Unless elsewhere provided for in this Regulation, an employer must ensure that a fall protection system is used when work is being done at a place
 - (a) from which a fall of 3 m (10 ft) or more may occur, or
 - (b) where a fall from a height of less than 3 m involves a risk of injury greater than the risk of injury from the impact on a flat surface.
- (2) The employer must ensure that guardrails meeting the requirements of Part 4 (General Conditions) or other similar means of fall restraint are used when practicable.
- (3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.
- (4) If subsection (3) is not practicable, the employer must ensure that one of the following is used:
 - (a) a fall arrest system;
 - (b) a rope access system that meets the requirements of Part 34.
- (5) If subsection (4) is not practicable, or will result in a hazard greater than if a fall arrest system or a rope access system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.
- (6) Before a worker is allowed into an area where a risk of falling exists, the employer must ensure that the worker is instructed in the fall protection system for the area and the procedures to be followed.
- (7) A worker must use the fall protection system provided by the employer.

Purpose of guideline

The purpose of this guideline is to provide direction to employers in how the fall protection provisions are to be applied to protect workers who engage in work at heights around fixed- seating in buildings such as stadiums, arenas, and theatres.

Safe work procedures

The *Regulation* sets out requirements for fall protection under section 11.2 in a set of cascading requirements. Many fixed-seating buildings such as theatres, stadiums, and arenas contain balconies or mezzanines that are greater than 3m above a lower area. In many of these buildings, guards exist that do not meet the requirements for guards or guardrails as outlined in [Part 4](#) of the *Regulation*. Under the applicable provincial and municipal building codes, lower guards at lower heights (e.g., 30 inches, as opposed to the 40-44 inch standard guardrail requirement under [section 4.58\(1\)](#)) are allowed due to the unique purpose of the building. No such exemptions or allowances exist in the *Regulation*, and section 11.2 must be followed to protect workers.

Where the risk of a fall from a height of greater than 3m exists, a "cascading" series of safety measures and requirements must be followed.

Where practicable, the employer must ensure that a guardrail or other similar means of fall restraint is in place meeting the requirements under Part 4 of the *Regulation*. The first option for fall protection should always be a guard or guardrail where it is practicable. In some fixed-seating buildings guards/guardrails meet the *Regulation* requirements, e.g., clear plastic/glass with full guardrails that do not obstruct sightlines in the building. However, where guards or guardrails are not practicable, the employer must ensure a different fall restraint system is used. If this is not practicable, a fall arrest system must be used. Finally, where a fall arrest system is not practicable, the employer must ensure that work procedures acceptable to WorkSafeBC are in place and are followed to minimize the risk of injury to a worker from falling.

It is recognized that in some situations, e.g., arena, theatre, etc., a fall restraint or fall arrest system may not always be practicable due to the nature and use of the audience seating area of the building.

Fixed-seating areas in such buildings often have configurations (e.g., balconies) that have guards at the edge that do not meet the typical requirements for standard guardrails in other situations. This is allowed through provincial and municipal building codes so as to afford an adequate sightline for seated spectators. The result is that the guards at lower heights are installed (e.g., 30 inches, as opposed to the 40-44 inch requirement under section 4.58(1)).

In these buildings where other alternative methods of fall protection are not practicable or may create a greater hazard than not using such methods, it is the responsibility of the employer to ensure that work procedures acceptable to WorkSafeBC are in place to ensure the safety of workers. The employer must ensure that workers are adequately trained in these procedures, as required in section 11.2(6). Procedures can include instructions for working at or near edges that are guarded by a rail less than 40 inches in height, avoidance of edges where it is not necessary to be near them, and instructions about hazard awareness. The employer must be able to provide these safe work procedures in writing to a prevention officer when requested, as well as be able to provide evidence that all workers that may be exposed to a hazard have been properly trained in and are using these procedures.

G11.2(6)-1 Instruction in fall protection system

Issued October 28, 2019

Regulatory excerpt

Section 11.2(6) *OHS Regulation ("Regulation")* states:

(6) Before a worker is allowed into an area where a risk of falling exists, the employer must ensure that the worker is instructed in the fall protection system for the area and the procedures to be followed.

Purpose of guideline

The purpose of this guideline is to outline some of the criteria that should be considered when determining the type of instruction that is required in order to comply with section 11.2(6) of the *Regulation*.

Instruction

The instruction must be specific to the area where the risk of falling exists and must include the particular work procedures to be used at the worksite. In order to satisfy the requirements of this section, it is not sufficient for employers to provide general instruction to workers about common forms of fall protection systems and procedures, nor is it adequate to simply have workers complete a fall protection training course. Although general instruction and/or training is beneficial in providing workers with a basic understanding of fall protection and common risks associated with working at heights, it does not ensure that workers have been adequately instructed on the specific systems and procedures to be used at a particular worksite.

Set out below is a non-exclusive list of different types of instruction that, depending on the particular fall protection system being used at a given worksite and the specific tasks assigned to a worker, may be required:

- Instruction on the type of fall protection system
- Review of manufacturer's instructions (or a professional engineer's instruction) related to the fall protection system and equipment (these instructions should be available on site for review and should include information on proper use, installation, inspection, maintenance and storage of equipment, criteria for taking the equipment out of service, etc.)
- Proper methods of donning, doffing, adjusting, and interconnecting of any personal protective equipment that is part of the fall protection

system

- Proper attachment points on the equipment
- Compatibility of components of the system
- Limitations of the system
- Anchor installation (including anchorage criteria), use, attachment points, maintenance, inspection, strength, etc.
- Anchor layout
- Any procedures to be followed for the specific fall protection system and/or worksite
- Any fall protection plans (if required)
- Emergency rescue procedures

In all cases employers need to assess each particular area where a risk of falling exists and then determine what instruction is required in order to ensure workers have sufficient knowledge and understanding to protect themselves from a fall. All workers required to work in an area where a fall could occur must receive appropriate instruction before being allowed to enter the area.

G11.2-6 Fall protection during stunt work

Issued May 9, 2006; Revised February 8, 2007; Revised February 1, 2008; Revised March 11, 2009; Editorial Revision consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 11.2 (Obligation to use fall protection) of the *OHS Regulation ("Regulation")* states:

- (1) Unless elsewhere provided for in this , an employer must ensure that a fall protection system is used when work is being done at a place
 - (a) from which a fall of 3 m (10 ft) or more may occur, or
 - (b) where a fall from a height of less than 3 m involves a risk of injury greater than the risk of injury from the impact on a flat surface.
- (2) The employer must ensure that guardrails meeting the requirements of Part 4 (General Conditions) or other similar means of fall restraint are used when practicable.
- (3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.
- (4) If subsection (3) is not practicable, the employer must ensure that one of the following is used:
 - (a) a fall arrest system;
 - (b) a rope access system that meets the requirements of Part 34.
- (5) If subsection (4) is not practicable, or will result in a hazard greater than if a fall arrest system or a rope access system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.
- (6) Before a worker is allowed into an area where a risk of falling exists, the employer must ensure that the worker is instructed in the fall protection system for the area and the procedures to be followed.
- (7) A worker must use the fall protection system provided by the employer.

Purpose of guideline

This guideline provides information to assist with implementing fall protection procedures for stunt work. Typically such work is done in the film sector and in other circumstances such as television and live performances.

The guideline discusses

- the application of the hierarchy of controls in section 11.2 of the *Regulation*
- criteria for acceptable work procedures where other forms of fall protection are not practicable, under section 11.2(5)
- a standard for personal fall protection equipment in stunt work that is an alternative to CSA or ANSI standards specified in section 11.5
- criteria for inspection of a personal fall protection system and removal of equipment from service under section 11.10(2) ; (3)

The guideline refers at various points to a "qualified person." For the purposes of the sectors covered by this guideline, typically the qualified person is a stunt coordinator or special effects rigger, a live performance technical director or rigging technician, or a professional engineer. The qualified person must be knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience or a combination of these.

Application of the hierarchy of controls

Section 11.2(2)-(5) of the *Regulation* provides a hierarchy of four types of fall protection, based on practicability. Section 1.1 of the *Regulation* defines "practicable" as "that which is reasonably capable of being done."

When applied to stunt work, there will be occasions where the use of guardrails or other means of fall restraint are practicable to use, for example in work positioning or where a stunt person is moved through space by means of a system designed to prevent falls. However, for many circumstances where a stunt involves a deliberate and planned fall these measures will not be practicable, and either a fall arrest system is required, or work procedures acceptable to WorkSafeBC.

For example, a fall arrest system would be appropriate for a stunt involving a fall over a limited distance where the fall can be designed so that arrest is the appropriate means of ensuring worker safety. Such systems would need to meet other requirements in [Part 11](#) of the *Regulation*, for example, section 11.5 on Equipment standards.

In some circumstances the production may require that a fall be unarrested so as to obtain the needed visual effect. In these cases, the fall must be designed and carried out to minimize the risk of injury to the stunt person, using procedures acceptable to WorkSafeBC, as required by section 11.2(5).

Note that [section 11.3](#) of the *Regulation* requires that wherever work is being done at a location where workers are not protected by permanent guardrails and from which a fall of 7.5 m (25 feet) or more may occur, or where work procedures are used as the means of fall protection under section 11.2(5), then a written fall protection plan must be in place before work begins.

Procedures that minimize the risk in a planned, unarrested fall - section 11.2(5)

In some circumstances, for reasons of practicability, a stunt will be planned for a fall without fall arrest. This circumstance typically arises where, for production reasons and visual effect, it is impracticable to use a system of fall arrest, or to use other measures that simulate the fall such as dummies or camera angles.

For such circumstances section 11.2(5) of the *Regulation* requires that procedures be followed that are acceptable to WorkSafeBC and which minimize the risk of injury to the stunt person.

It has been determined that acceptable procedures are those that meet at least all of the following criteria:

1. The risks to workers in the stunt are thoroughly assessed and controls adopted that minimize the risk.
2. Measures are implemented, where practicable, to minimize the height of the fall and control the rate of deceleration.
3. The fall is designed to ensure that a stunt person does not make unintended contact with a surface during a fall.
4. The area of intended contact is designed so that
 - o the dimensions are sufficient to ensure that the stunt person lands on it
 - o cushioning is provided to minimize any risk of injury, for example, by use of padding, collapsible boxing, air bags, safety nets or other means approved by a qualified person
 - o there are no protrusions or other circumstances in the area of intended contact that create a heightened risk of injury
5. Provision is made to address any circumstance where the stunt person may, after initial contact with the intended surface, be deflected into an adjacent area.
6. Trial tests or rehearsals are done prior to the stunt using a test torso or equivalent device, and any corrections to the stunt made as necessary. Note: such tests or rehearsals are both appropriate and needed in typical stunt circumstances. Any determination otherwise in a particular case will be made only by a qualified person.
7. Stunt persons and other personnel involved with the stunt are properly trained in the use of all applicable procedures and equipment involved in the stunt.
8. Supervision is provided to ensure activities are coordinated and safety standards are met.

Standards for equipment used in a fall protection system

[Section 11.5 \(Equipment standards\)](#) of the *Regulation* requires that equipment used in a fall protection system consist of compatible and suitable components and be sufficient to support the fall restraint or arrest forces. In addition, section 11.5(c) requires that the equipment,

"...meet and be used in accordance with, an applicable CSA or ANSI standard in effect when the equipment was manufactured, subject to any modification or upgrade considered necessary by the Board."

There are circumstances in stunt work where a safety harness meeting CSA or ANSI standards is impracticable or otherwise inappropriate. For example, in the actual conduct of a stunt such a harness may be too bulky or involve points of attachment that interfere with the intended fall.

Under [section 4.4\(2\)\(a\)](#) of the *Regulation* a person may, if a standard is referenced in the *Regulation*, comply with an alternative standard where acceptable to WorkSafeBC.

For the purposes of stunt work, WorkSafeBC accepts the alternative standard set out in italics below in circumstances where the use of equipment meeting CSA or ANSI standards is impracticable. The alternative standard provides several options for determining acceptable equipment.

<i>Alternative standard for fall protection equipment</i>

This standard applies to the selection and use of fall protection equipment in stunt work, for falls and suspended movements that are planned and conducted in a controlled manner. During a controlled fall, the maximum arrest force must not exceed four times the worker's weight.

Prior to selection of equipment used in a system for fall restraint or fall arrest, a risk analysis must be done to determine the hazard to workers. Equipment must be selected on the basis of that analysis.

The equipment in the fall protection system must meet at least one of the following applicable criteria:

1. *All equipment used in the system is certified as suitable for use in the manner intended in the stunt by the equipment manufacturer, the manufacturer's authorized representative, or by a professional engineer. (See OHS guideline [G1.1 "Professional engineer"](#) for further information on engineering practice.)*
2. *The system is designed*
 - *to withstand a restraint force or an arrest force of at least four times the worker's weight (4 G's), and*
 - *so that the harness and associated components will not fail when a static force representing the lesser of either twice the restraint or peak arrest force, as applicable, or 5,000 pounds (22.2 kN) is applied.*
3. *For fall arrest systems, prior to the stunt, a trial drop test (using a test torso or equivalent) is successfully performed that replicates the stunt, including the free fall distance and the worker's weight. A load cell will be used during the test to monitor the peak arrest force, and the recorded values shall not exceed four times the person's weight.*

The stunt must be designed so that all factors that could potentially cause the performance of the fall protection system to fail are considered and hazard, exposure of the system to chemicals, alteration of equipment, lifeline abrasion, entanglements and the attachment location of the lanyard to the harness.

Documentation must be available at the work location where the stunt is to be performed which establishes that the equipment meets the applicable criteria.

Re-using equipment after it has arrested a fall

If a personal fall protection system has been used to arrest a fall, [section 11.10\(1\)](#) of the *Regulation* requires that the system be removed from service, and not be returned to service until it has been inspected and recertified as safe for use by the manufacturer or its authorized agent, or by a professional engineer. Typically, the circumstances which this requirement is intended to address are accidental falls and may involve minimal shock absorption during the arrest of the fall.

In contrast, in the stunt performance sector, falls are planned and often involve the use of deceleration systems that substantially reduce arrest forces in the fall, thus reducing stresses on workers and equipment. Practicability issues are also of concern in this sector given that during normal use, a safety harness system will often be used repeatedly during a given stunt procedure.

On this basis, section 11.10(2) ; (3) provides an exemption to the recertification for personal fall protection systems designed and intended for reuse by a performer in the entertainment industry when conducting a planned fall sequence. The exemption applies only if all of the following conditions are met

- the system is designed and used in accordance with a standard acceptable to WorkSafeBC
- each use of the system is carried out in accordance with the plan for the conduct of the fall
- the peak arrest forces generated in the system during each use do not exceed the planned limits and the maximum forces allowed for the system, and
- after each use of the system, no part of it, including the anchorage, is reused until a qualified person has inspected it and determined it is in serviceable condition and safe for reuse

Note that section 11.9 of the *Regulation* also addresses inspection requirements. This provision requires that equipment used in a fall protection system be inspected by a qualified person before use on the work shift, kept free from substances and conditions that could contribute to its deterioration, and maintained in good working order.

The information provided in the remainder of this guideline is intended to assist with the inspection of equipment, and determination of whether it should be removed from service.

Inspecting equipment

It is important to inspect personal fall protection equipment on an ongoing basis to ensure safety. At minimum this involves inspection before use on each work shift, and after each use to arrest a fall. It is also recommended to inspect equipment just before each use if not already covered by one of the other inspection scenarios. Such inspections are only one aspect of the overall review and monitoring of conditions and procedures for the performance of stunts.

Inspections must be done in accordance with manufacturer instructions, if available, and in conformity with any standards which apply to the equipment. Inspections should cover at least the following items:

- With harnesses, check on aspects that include the following:
 - Integrity of stitching throughout the harness, on both outer and inner surfaces

- Signs of deformation, bunching, or deterioration of pick points on the harness
- Signs of contact with chemicals
- Signs of any part of the harness being cut, stretched, frayed, or otherwise damaged
- Integrity of shackles and straps on the harness
- Signs of exposure to high temperatures
- With other equipment such as shackles, carabiners, lines, and deceleration control devices, the examination of equipment will include the following:
 - All metal and other materials for any sign of deformation, wear, stretching, cracks, or kinking
 - All metal and other materials for any signs of corrosion or other chemical deterioration
 - All lines for wear on surfaces, and any potential or actual fraying, kinking, bird caging, heat fusion, or other damage
 - Moveable parts to ensure proper action, and the capability of all locking and other immobilizing devices to perform their function

Note: When evaluating the condition of equipment it is important to have an understanding of the circumstances of previous use, including conditions and frequency of use, and any substantial loads to which the harness was subjected. This information should be tracked in order to help ensure worker safety and to provide a means of helping to demonstrate compliance with sections 11.9 and 11.10(3)(d). A log book or other similar record can be an effective means of recording inspection information, and may have particular application to harnesses that are used on an ongoing basis. The log book provides a record which, among other things, can assist with a determination of the appropriate point of removal from service. Log book information needs to be specific to the equipment involved.

Removing equipment from service

- Harnesses should be removed from service in circumstances such as the following:
 - Any part of the harness, including stitching, has been cut, stretched, frayed or otherwise damaged
 - The harness has been exposed to temperatures above 200 degrees F (93 degrees C), or other temperature specified by the manufacturer. *Note: The specified temperature is just below the boiling point of water.*
 - The harness has been exposed to chemicals (e.g. solvents, acids, alkalis) that may affect the integrity of the harness
 - Any part of the harness has received a shock-load in excess of 1000 pounds (4.5 kilonewtons), or other maximum shock load specified by the manufacturer. *Note: a fall arrest system designed to meet the 4 G peak arrest criterion in the alternative standard in this guideline is not likely to experience a shock load exceeding 1000 pounds, except if a worker's weight exceeds 250 pounds (113 kg). Further, if the system includes a personal energy absorber (PEA), a person should not experience a peak arrest force exceeding the criterion unless the PEA fully deploys so that the lanyard extends fully and there is in an abrupt stop. Most PEAs deploy at an average force of 630 - 810 pounds (2.8 to 3.6 kN).*
 - The age of the harness exceeds manufacturer specifications. For example, one supplier has specified a maximum 2 years of use beyond the date of manufacture. *Note: If a harness exceeds a specified use life, as an alternative to removal from service, the user may wish to contact the manufacturer to see if the harness could be submitted for possible recertification.*
 - Manufacturer instructions or standards to which the equipment is manufactured would otherwise require removal
- With other equipment such as shackles, carabiners, lines, and deceleration control devices, equipment should be removed from service in circumstances such as the following:
 - Equipment with moveable parts is not capable of proper movement
 - Any locking or other immobilizing device is not capable of performing its function
 - Any metal or other material has signs of deformation, cracks, kinking, stretching or significant wear
 - Any metal or other material shows signs of corrosion or other adverse chemical deterioration
 - Lines show any sign of fraying, kinking, bird caging, or other damage. Note section 15.25 of the *Regulation* lists wire rope rejection criteria. Those criteria are considered absolute minimums in terms of rejection.
 - Manufacturer instructions or standards to which the equipment is manufactured would otherwise require removal

Any component removed from service for cause should either be disposed of in such a manner that it cannot accidentally be re-used, or must be identified in a manner that will ensure it is not used until repairs are complete and it is safe for further use, as required by section 4.3(3) of the *Regulation*.

G11.3 Fall protection plan

Issued August 16, 2000; Revised January 1, 2005; Revised consequential to April 1, 2013 Regulatory Amendment

Regulatory excerpt

Section 11.3 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must have a written fall protection plan for a workplace if
 - (a) work is being done at a location where workers are not protected by permanent guardrails, and from which a fall of 7.5 m (25 ft) or more may occur, or
 - (b) section 11.2(5) applies.
- (2) The fall protection plan must be available at the workplace before work with a risk of falling begins.

Purpose of guideline

This guideline outlines what is expected in a written fall protection plan.

Elements of a written fall protection plan

The plan should specify the following:

- The fall hazards expected in each work area
- The fall protection system or systems to be used in each area
- The procedures to assemble, maintain, inspect, use, and disassemble the fall protection system or systems
- The inspection requirements for the anchors and anchorage used and the respective rejection criteria (refer to OHS Guideline [G11.10\(0.1\) Fall protection anchors - Inspection and removal from service](#))
- The procedures for rescue of a worker who has fallen and is suspended by a personal fall protection system or safety net, but is unable to self-rescue

In certain locations and situations, the employer may meet the need for rescue procedures by participating in the Industrial High Angle Rope Rescue Program discussed in OHS Guideline [G4.13\(3\)\(a\) Industrial high angle rope rescue program](#).

Where a fall protection plan may not be required by the *Regulation*, the employer must still consider the need for rescue or evacuation under [section 4.13](#).

G11.4 Belts and harnesses

Issued January 1, 2005

Regulatory excerpt

Section 11.4(1) of the *OHS Regulation* ("Regulation") states:

- (1) A worker must wear a full body harness or other harness acceptable to the Board when using a personal fall protection system for fall arrest.

Regulatory excerpt

The purpose of this guideline is to explain why belts should not be used as part of a fall arrest system required by section 11.4(1) of the *Regulation*.

Belts

Belts should not be used as body support in a fall arrest system due to the possibility of death or injury from the following causes:

- Slipping out of a belt
- Abdominal injuries
- Back injuries
- Effects on the body of extended static suspension in a belt

For additional reference refer to [An Introduction to Personal Fall Protection Equipment](#).

G11.5-1 Equipment standards

Issued January 1, 2005; Revised consequential to April 1, 2013 Regulatory Amendment; Revised April 27, 2016

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("Regulation") states:

Equipment used for a fall protection system must

(a) consist of compatible and suitable components,

(b) be sufficient to support the fall restraint or arrest forces, and

(c) meet, and be used in accordance with, an applicable CSA or ANSI standard in effect when the equipment was manufactured, subject to any modification or upgrading considered necessary by the Board.

Purpose of guideline

This guideline lists applicable standards for fall protection systems and components.

Applicable standards

The following is a table of some standards that apply for fall protection equipment now commonly in use.

Fall Protection Equipment Standards

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Standard Agency	Standard Number	Standard Title
ANSI	A10.11	Construction and Demolition Operations - Personnel and Debris Nets
ANSI	A14.3	American National Standard for Ladders - Fixed - Safety Requirements
ANSI	Z359.0	Definitions for Fall Protection and Arrest
ANSI	Z359.1	Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ANSI	Z359.2	Minimum Requirements for a Comprehensive Managed Fall Protection Program
ANSI	Z359.3	Safety Requirements for Positioning and Travel Restraint Systems
ANSI	Z359.4	Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ANSI	Z359.6	Specifications and Design Requirements for Active Fall Protection Systems
ANSI	Z359.12	Connecting Components for Personal Fall Arrest Systems
ANSI	Z359.13	Personal Energy Absorbers and Energy Absorbing Lanyards
ANSI	Z359.14	Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems
CSA	CAN/CSA-Z259.10	Full Body Harnesses
CSA	CAN/CSA-Z259.11	Shock Absorbers for Personal Fall Arrest Systems
CSA	CAN/CSA-Z259.1	Safety Belts and Lanyards*
CSA	Z259.2.1	Fall Arresters, Vertical Lifelines, and Rails
CSA	Z259.2.2	Self-Retracting Devices for Personal Fall-Arrest Systems
CSA	Z259.2.3	Descent Control Devices
CSA	Z259.2.5	Fall Arresters and Vertical Lifelines
CSA	Z259.12	Connecting Components for Personal Fall Arrest Systems (PFAS)
CSA	Z259.15	Anchorage Connectors
CSA	Z259.16	Design of Active Fall-Protection Systems

* Newer versions of this Standard are entitled "Body Belts ; Saddles for Work Positioning and Travel Restraint."

Under [section 4.4](#) of the *Regulation*, WorkSafeBC can also recognize standards other than CSA or ANSI. Contact WorkSafeBC OHS Practice and Engineering Support to request acceptance of other standards.

Types of equipment that do not have applicable standards still must meet the requirements of sections 11.5(a) and (b).

Applicable standards for fall protection anchors (refer to OHS Guideline [G11.6-2 Anchor selection and uses](#))

For fall protection anchors associated with suspended equipment operations, *CSA Z259.16* references *CSA Z91* and *CSA Z271*.

Applicable standards for fall protection anchors that are not associated with suspended equipment operation include *CSA Z259.16* and the *ANSI Z359* series of standards.

G11.5-2 Equipment standards - Vertical lifelines

Issued August 16, 2000; Revised January 1, 2005; Revised November 21, 2007; Revised April 1, 2013

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("Regulation") states, in part:

Equipment used for a fall protection system must

- (a) consist of compatible and suitable components,
- (b) be sufficient to support the fall restraint or arrest forces, and

...

Purpose of guideline

The purpose of this guideline is to set out some factors to be considered in determining whether vertical lifelines are suitable and compatible for the intended application, and are sufficient to support fall arrest forces that may be imposed.

Selecting vertical lifelines

Factors to be considered when selecting vertical lifelines include the following:

- Compatibility with the other fall protection system components.
- Only one worker is to be attached to a lifeline, unless the vertical lifeline is used as part of a ladder safety device on a fixed ladder.
- The lifeline is to have a breaking strength specified by the manufacturer of at least 27 kN (6,000 lbs).
- The lifeline is to be free of knots or splices except at its termination. A termination knot or splice should not reduce the breaking strength of the lifeline to less than 22 kN (5,000 lbs).
- The lifeline and any related components are to be selected so that the resulting lifeline system minimizes the swing-fall hazard.
- A vertical lifeline is to extend to within 1.2 metres (4 feet) of ground level or other safe lower surface to which the worker might descend or fall. The intent is to ensure that a worker on a suspended stage, such as a swing stage or boatswain's chair, can be secured to a lifeline through the full range of travel of the staging unit.

Note: In some circumstances it is not practicable or safe for the lifeline to extend to within 1.2 metres of the lower landing spot. For example, if a stage is rigged over an underground parking entrance and the lower end of the rope were to come within 1.2 metres of the roadway, there would be a danger of the rope being caught by a vehicle, unless the use of the access was blocked. Blocking the access may not be practicable, in which case some means to terminate the lifeline rope at a safe distance above the danger area should be used. The stage should also be rigged to prevent it from being lowered into a zone where traffic could be a danger to the stage. A means to rescue workers also needs to be preplanned.

- Where vertical lifelines are of substantial length, particularly if more than 91 metres (300 feet), added consideration needs to be given to factors such as the elasticity of the line and the effects of wind loading. See below for more information on wind loading.

The longer the lifeline, the longer the total fall distance of a worker due to stretching of the line, with an increased risk that a worker may contact a hard surface before a fall is arrested. Use of lifelines with low elasticity will help control such risks.

Wind loading

On the issue of wind loading, *CSA Standard Z271-98, Safety Code for Suspended Elevating Platforms* and *CSA Z271-10, Safety Code for Suspended Platforms* restrict lifelines used with suspended staging to a maximum length of 150 metres (492 feet) if subject to wind conditions.

Note: Where suspension heights for swing stages, boatswain's chairs, or portable powered platforms are more than 91 metres (300 feet), section 13.32(d) of the Regulation requires certification from a professional engineer in writing. For heights over 91 meters (300 feet) WorkSafeBC recommends 30 km/h (19 mph) as the maximum wind speed in which to operate the staging. For shorter suspension heights WorkSafeBC and the industry recommend, subject to a site specific evaluation, 40 km/h (25 mph) as a maximum wind speed, or a lower speed where material being carried on the staging would create a sail effect, or a single point unit is used.

G11.5-3 Equipment standards - Lanyards

Issued January 1, 2005

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("Regulation") states, in part:

- Equipment used for a fall protection system must
- (a) consist of compatible and suitable components,
 - (b) be sufficient to support the fall restraint or arrest forces, and

...

Purpose of guideline

The purpose of this guideline is to describe the use of shock absorbers as a component of a fall protection system and management of fall arrest where shock absorbers are not used.

Lanyards and the use of shock absorbers

A shock absorber is to be used with the following:

- A lanyard made of wire rope or other inelastic material in a fall arrest system
- A wire rope vertical lifeline unless the lifeline is part of a ladder safety device

When a shock absorber is used in a fall arrest system, allowance should be made for the potential increase in the total fall distance. If a shock

absorber is used, a free fall of up to 2 metres (6.5 feet) is allowed, or the limit specified in the manufacturer's instructions, whichever is less.

If a synthetic fibre lanyard is used without a shock absorber, the fall arrest system should be arranged to limit the free fall of a worker to 1.2 metres (4 feet).

G11.5-4 Equipment standards - Prusik sling/Triple sliding hitch

Issued August 16, 2000; Revised January 1, 2005

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("*Regulation*") states, in part:

Equipment used for a fall protection system must

- (a) consist of compatible and suitable components,
- (b) be sufficient to support the fall restraint or arrest forces, and

...

Purpose of guideline

The purpose of this guideline is to provide criteria for assessing when a Prusik sling is a suitable and compatible part of a fall protection system and sufficient to support the fall restraint forces that may be imposed.

Prusik sling

A Prusik sling may be used in place of a rope grab if all of the following criteria are met:

- The Prusik sling is made using a piece of rope of synthetic fibre kernmantle construction, or equivalent, of at least 8 millimetre (1/3 inch) diameter, which has the ends tied together using a double fisherman's knot (also known as a grapevine knot) to create an "endless loop"
- The double fisherman's knot is tied as shown in Figure 1 below
- The rope on which the Prusik sling is used (main rope or lifeline) meets the general requirements for a vertical lifeline and has a diameter at least 2 millimetres (1/12 inch) larger than the diameter of the rope used to fashion the Prusik sling and
- The Prusik sling is tied to the main rope by means of a minimum two-wrap Prusik knot, as shown in Figure 2 below

A Prusik sling may be used for purposes other than a rope grab. For example, a Prusik sling may be used to deflect an equipment suspension line or a fall arrest line between its anchor and the drop location. This technique may be used to get the suspension or fall arrest line to approach and go over the edge at the drop location at a right angle to the face of the structure, thus reducing the risk of a swing fall. This is illustrated in Figure 3 below.

A triple sliding hitch is not to be used as part of a personal fall protection system. A triple sliding hitch is essentially a Prusik knot tied using a piece of rope that is not formed into an endless loop. It is shown in Figure 4 below.

Figure 1

Tying a Double Fisherman's Knot



Figure 2

Tying a Two-wrap Prusik Knot



Figure 3

Prusik Sling used to deflect line from Roof Anchor to drop location

Maximum angle between sling and line 120 deg.



Figure 4

Triple Sliding Hitch

The triple sliding hitch is not to be used as part of a personal fall protection system.

Figure 4 Triple Sliding Hitch

G11.5-5 Equipment standards - Double line system controlled descent devices

Issued August 16, 2000; Revised January 1, 2005

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("*Regulation*") states, in part:

Equipment used for a fall protection system must

- (a) consist of compatible and suitable components,
- (b) be sufficient to support the fall restraint or arrest forces, and

...

Purpose of guideline

The purpose of this guideline is to set out some factors to be considered in determining whether a double line system controlled descent device consists of suitable and compatible components, is sufficient to support fall arrest forces that may be imposed, and otherwise complies with the *Regulation*.

Double line system

A double line system, where both the lifeline and equipment suspension line are rigged through a common control descent device, is acceptable under sections 11.2 and 11.5 of the *Regulation* if the following system characteristics and procedures are implemented:

- To ensure free fall is minimized, the system provides fall arrest and descent control by maintaining both suspension lines at approximately the same tension during use.
- The system facilitates self-rescue with only one line functional.
- The system is used only by a worker who has been trained and has demonstrated an ability to safely use it.
- The system uses ropes of a type recommended by the manufacturer of the control descent device, or uses two nylon kernmantle ropes having a manufacturer's rated breaking strength of at least 27 kN (6,000 pounds);
- Each line is independently anchored, or alternatively the two lines are secured to one anchor and secured back to another by means of a minimum two-wrap Prusik sling.
- The descent control device is appropriate for a double line system, and automatic stopping capability ("deadman" stop feature) is provided by either a feature of the descent device or through use of a rope grab or Prusik sling.
- The worker wears a body harness meeting the requirements of the *Regulation* and of a type appropriate for the work to be done.

G11.5-6 Equipment standards - Connecting equipment

Issued January 1, 2005

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("*Regulation*") states, in part:

Equipment used for a fall protection system must

- (a) consist of compatible and suitable components,
- (b) be sufficient to support the fall restraint or arrest forces, and

...

Purpose of guideline

The purpose of this guideline is to set out some factors to be considered when assessing the suitability of connecting equipment under sections 11.5(a) and (b) of the *Regulation*.

Connecting equipment

The following factors are to be considered for suitability of connecting equipment under sections 11.5(a) and (b):

- A snap hook on a lanyard or lifeline is to be self-locking.
- When in use, a carabiner or similar connecting hardware is to be secured to prevent inadvertent opening.
- Carabiners, links, and rings are to have an ultimate load capacity of at least 22 kN (5,000 pounds) and are to be clearly marked with their load capacity and with a means of identifying the manufacturer.

G11.5-7 Equipment standards - Protection against abrasion or burning

Issued August 16, 2000; Revised January 1, 2005

Regulatory excerpt

Section 11.5 of the *OHS Regulation* ("*Regulation*") states, in part:

Equipment used for a fall protection system must

- (a) consist of compatible and suitable components,
- (b) be sufficient to support the fall restraint or arrest forces, and

...

Purpose of guideline

This guideline explains the need to protect components of fall protection systems from abrasion or burning in order for them to maintain sufficiency to support fall restraint or fall arrest forces as required by section 11.5 of the *Regulation*.

Protection of components of fall protection system

A vertical lifeline, lanyard, or safety strap should be effectively protected at points of attachment and elsewhere, as necessary, to prevent chafing or abrasion caused by contact with sharp or rough edges. When a tool is used that could sever, abrade, or burn a lifeline, lanyard, or safety strap, the lifeline, lanyard, or safety strap should be made of wire rope.

A worker working near an energized conductor or in another work area where a conductive lifeline, lanyard, or safety strap cannot be used safely need not use equipment of this type provided that two nonconductive lanyards or safety straps are used, or another effective means of fall protection is used.

G11.6-1 Anchors

Issued January 1, 2005; Editorial Revision May 17, 2006; Revised consequential to April 1, 2013 Regulatory Amendment

Regulatory excerpt

Section 11.6 of the *OHS Regulation* ("*Regulation*") states:

(1) In a temporary fall restraint system, an anchor for a personal fall protection system must have an ultimate load capacity in any direction in which a load may be applied of at least

- (a) 3.5 kN (800 lbs), or
- (b) four times the weight of the worker to be connected to the system.

(2) Each personal fall protection system that is connected to an anchor must be secured to an independent attachment point.

(3) In a temporary fall arrest system, an anchor for a personal fall protection system must have an ultimate load capacity in any direction required to resist a fall of at least

- (a) 22 kN (5 000 lbs), or
- (b) two times the maximum arrest force.

(4) A permanent anchor for a personal fall protection system must have an ultimate load capacity in any direction required to resist a fall of at least 22 kN (5 000 lbs).

Purpose of guideline

This guideline provides additional information for selecting anchors that are acceptable under section 11.6.

Anchors

The *Regulation* defines an anchor as "a secure point of attachment for a lifeline or lanyard." Types of anchors under this definition include

1. A device that has been purposefully manufactured and installed as an anchor to support a personal fall protection system
2. A substantial structure, such as a beam, column or similar substantial portion of the structure, selected as a point of anchorage where no dedicated anchor device is available. These *points of anchorage* generally require some supplemental rigging, such as a sling, to allow the anchorage connector of a personal fall protection system to connect to the anchorage.

Natural anchors, such as large well-rooted trees or rock outcroppings can be acceptable points of anchorage as well if deemed by a qualified person to be able to withstand the forces that may be imposed by the fall protection system.

The actual strength of an anchor is dependent on

- The design of the anchor
- The orientation of the anchor relative to the direction of loading
- The condition of the anchor
- The connection of the anchor to the supporting structure
- The adequacy of the structure to resist the imposed loading

Anchors in a temporary fall arrest system

If an employer proposes to use an anchor for a personal fall protection system in a temporary fall arrest system with an ultimate load capacity of less than 22 kN (5,000 lbs), the employer will need to be able to demonstrate that the anchor has an ultimate load capacity of two times the maximum arrest force (MAF) at the particular location. In some cases, and especially on complex fall protection systems, a professional engineer will design the system and calculate the expected MAF. WorkSafeBC considers the upper limit of an acceptable MAF to be 8 kN (1,800 lbs).

By using other methods to reduce the arrest forces in conjunction with the anchor, the employer may not need to obtain engineering advice. At work locations where that expertise is not readily available, the employer may choose to use a manufactured product that indicates on the label and within the product instructions what the MAF will be in the circumstances in which it is used. Shock absorbers are an effective way to reduce and control the MAF that can occur in the event of a fall. In the absence of advice from a professional engineer, a shock absorber should be included in a fall arrest system when connecting to an anchor that has a load capacity of less than 22 kN (5,000 lbs) but is designed to resist two times the maximum arrest force.

Standard *CAN/CSA-Z259.11-M92, Shock Absorbers for Personal Fall Arrest Systems*, requires that a shock absorber must limit the maximum arrest force to 4 kN (900 lbs) when at room temperature and dry.

As the calculation of the MAF in any situation can be complex and dependent to some degree on the particular circumstances of the place where the equipment is used, simply using such a product may not suffice. A person selecting an energy absorber is to consider his or her weight, atmospheric conditions, and fall distance in order to make the correct choice. Additional detail is available in the new *CSA Standard Z259.16-04 Design of Active Fall-protection Systems*.

A temporary anchor should be removed upon completion of the work for which it was intended.

G11.6-2 Anchor selection and use

Issued August 16, 2000; Revised January 1, 2005; Editorial Revision May 17, 2006; Editorial Revision August 11, 2010; Revised consequential to April 1, 2013 Regulatory Amendment; Editorial Revision April 14, 2022

Regulatory excerpt

Section 11.6 of the *OHS Regulation* ("*Regulation*") states:

- (1) In a temporary fall restraint system, an anchor for a personal fall protection system must have an ultimate load capacity in any direction in which a load may be applied of at least
 - (a) 3.5 kN (800 lbs), or
 - (b) four times the weight of the worker to be connected to the system.
- (2) Each personal fall protection system that is connected to an anchor must be secured to an independent attachment point.
- (3) In a temporary fall arrest system, an anchor for a personal fall protection system must have an ultimate load capacity in any direction required to resist a fall of at least
 - (a) 22 kN (5 000 lbs), or
 - (b) two times the maximum arrest force.
- (4) A permanent anchor for a personal fall protection system must have an ultimate load capacity in any direction required to resist a

fall of at least 22 kN (5 000 lbs).

Purpose of guideline

This guideline describes good practice with respect to anchor (also known as an anchorage connector) design, layout, selection, and use, and lists standards for fall protection anchors.

Good practice with respect to anchor design, layout, selection, and use

The following are guidelines for good practice with respect to anchor design, layout, selection, and use:

- A permanent anchor should be made of stainless steel, hot dipped galvanized steel, or other corrosion-resistant material having similar structural properties.
- An anchor should be located so a lifeline attached to it is not deflected over a guardrail or other part of the structure which has insufficient strength to support the maximum potential load from a fall arrest. Note also OHS Guideline [G11.5-7 Protection against abrasion or burning](#) on protecting the line from abrasion.
- An anchor in concrete should be cast in place or through-bolted with a backing plate for adequate load distribution.
- An anchor mounted on concrete with drilled in fasteners (expansion or adhesive type) should use a group of at least three fasteners supporting an anchor plate, sized, and arranged so that if any one fastener in the group is assumed to be carrying no load, the remaining fasteners will have a design capacity to carry the full design load of the anchor.
- An anchor should be located on a line perpendicular to the building edge at the drop location to eliminate the swing fall hazard. Where this is not practicable, an anchor may be offset so the angle between the line perpendicular to the building edge at the drop location and the lifeline or primary single point suspension line is not greater than 25 degrees or 12.5 degrees as shown in Figures 1 and 2 below. The distance from the perpendicular line to the anchor should be less than 3 metres (10 feet), as shown in Figures 1 and 2. As an alternative, the line may be deflected using a Prusik sling, provided the sling is made and used as outlined in OHS Guideline [G11.5-4 Equipment standards - Prusik sling/Triple sliding hitch](#).
- A temporary anchor for fall arrest may be established by wrapping a wire or synthetic fibre rope around the base of an anchorage, such as a the base of rooftop penthouse (refer to OHS Guideline [G11.1 Definitions - Anchor and anchorage](#)). This is illustrated in Figure 3 below. If the rope is installed so the sling angle at the point of attachment is not in excess of 120 degrees, rope with a rated breaking strength at least equal to that of the lifeline may be used. If the sling angle is in excess of 120 degrees, wire rope of sufficient strength to provide an anchor capability for the installed sling angle, of at least 22 kN (5,000 lbs), must be used. Only one fall arrest lifeline may be attached to each such independent rope wrap.
- If a lifeline is anchored to a parapet clamp on the parapet on the far side of the roof from the drop location, it may not be practicable to tie back the parapet clamp as required by [section 13.10](#). In such cases, the lifeline may be secured to a second anchor using a Prusik sling.

Independent attachment points (referred to as "connection points" in CSA standards)

Section 11.6(2) requires that each personal fall protection system that is connected to an anchor be secured to an independent attachment point. This means that each personal fall protection system must be independently secured to an anchor.

Applicable standards for fall protection anchors (refer to OHS Guideline [G11.5-1 Equipment standards](#))

Fall protection anchors associated with suspended equipment operations must meet and be used in accordance with the applicable requirements of *CAN/CSA Z271, Safety Code for Suspended Elevating Platforms* and *CSA Z91-02, Health and Safety Code for Suspended Equipment Operations*. Please also refer to [WCB Standard WPL2, Design, Construction and Use of Crane Supported Work Platforms, 2004](#), for standards on the design of lifeline anchors for personal fall protection systems for workers on platforms suspended from a crane or attached to a crane boom.

Fall protection anchors not associated with suspended equipment operations must meet and be used in accordance with the requirements of the applicable CSA or ANSI Standard. Acceptable standards from OHS Guideline [G11.5-1 Equipment standards](#) that include requirements for anchors and anchorages are as follows:

- *CSA Z259.16 Design of Active Fall-Protection Systems*
- *CSA Z259.15 Anchorage Connectors*
- *ANSI Z359.0 Definitions for Fall Protection and Arrest*
- *ANSI Z359.1 Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components*
- *ANSI Z359.2 Minimum Requirements for a Comprehensive Managed Fall Protection Program*

Figure 1 (Example plan view of lifeline anchor location)

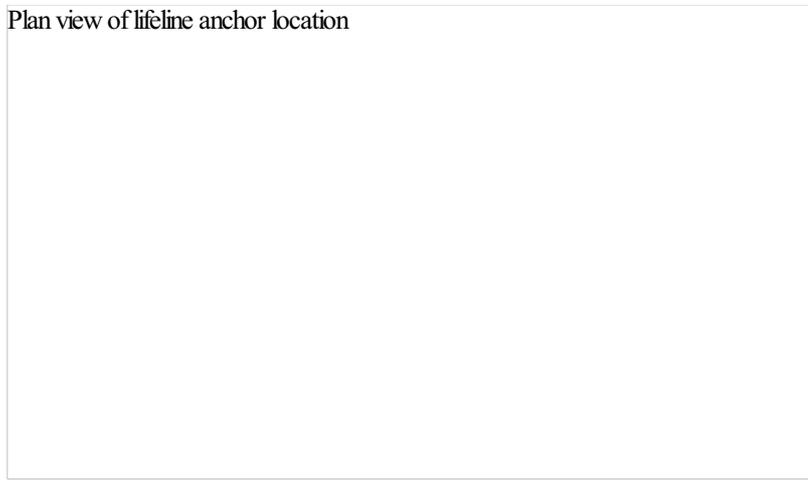


Figure 2 (Example plan view of single point suspension equipment anchor location)

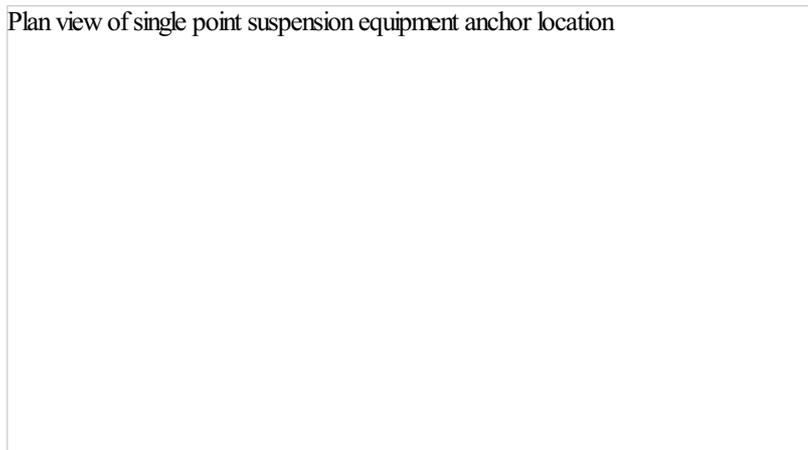
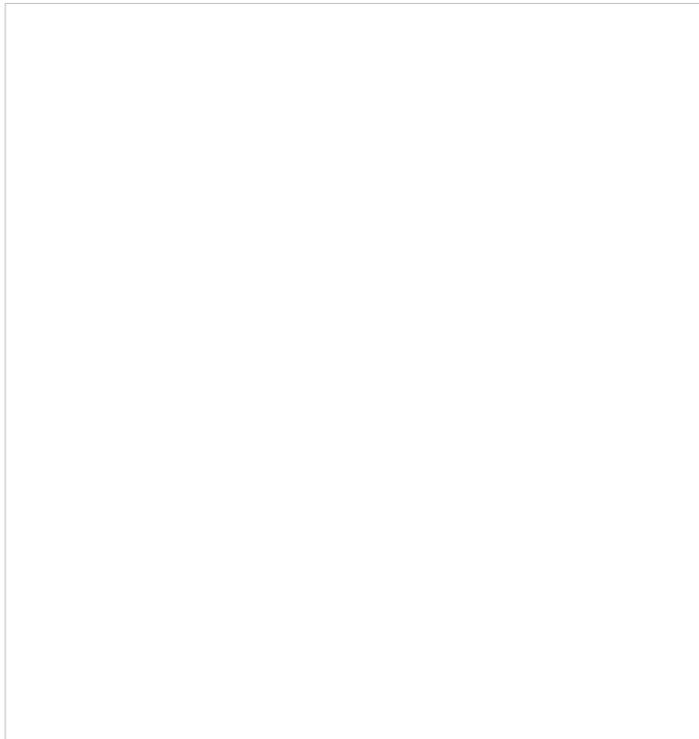


Figure 3 (Plan view of a temporary anchor wrapped around an anchorage)



G11.6-3 Anchors - Cornice hook and parapet clamp use

Issued August 1, 1999; Revised January 1, 2005; Editorial Revision May 17, 2006; Revised consequential to April 1, 2013 Regulatory Amendment

Regulatory excerpt

Section 11.6 of the *OHS Regulation* ("Regulation") states:

- (1) In a temporary fall restraint system, an anchor for a personal fall protection system must have an ultimate load capacity in any direction in which a load may be applied of at least
 - (a) 3.5 kN (800 lbs), or
 - (b) four times the weight of the worker to be connected to the system.
- (2) Each personal fall protection system that is connected to an anchor must be secured to an independent attachment point.
- (3) In a temporary fall arrest system, an anchor for a personal fall protection system must have an ultimate load capacity in any direction required to resist a fall of at least
 - (a) 22 kN (5 000 lbs), or
 - (b) two times the maximum arrest force.
- (4) A permanent anchor for a personal fall protection system must have an ultimate load capacity in any direction required to resist a fall of at least 22 kN (5 000 lbs).

Purpose of guideline

This guideline discusses the safe use of a cornice hook that functions as a portable or temporary anchor for a suspension line and parapet clamp that functions as a portable or temporary anchor for a suspension line, lifeline, or tieback line.

Guideline

A cornice hook is a device that functions as a portable or temporary anchor for a suspension line. A parapet clamp is a device that functions as a portable or temporary anchor for a suspension line, lifeline, or tieback line. As such, each hook or clamp should be designed for a minimum ultimate load of 5,000 lbs. Generally the suspension rigging for each end of a swing stage or portable powered platform has a safe working load of no less than 1,000 lbs. A factor of safety of four for ductile materials and five for brittle materials should be used, based on the breaking strength of the material.

A cornice hook should be installed so that the load from the suspended equipment acts in a vertically downward direction. A cornice hook should not be used as a lifeline or equipment tieback anchor.

A parapet clamp may be used where the load of the suspended equipment acts either vertically down (such as the suspension line for a swing stage), or horizontally (such as for a suspension rope deflected over the edge of a roof and anchored to a clamp on the opposite edge of the roof). If a parapet clamp is used to anchor a lifeline, or an equipment tieback line, a minimum ultimate strength of 5,000 lbs is required for the parapet clamp and parapet as a system, in the direction which the lifeline or tieback will apply a load. The design of a parapet clamp should anticipate usage for loads acting either downward or horizontally, and the instructions for its use should be clear on the allowable load configurations for the unit.

A cornice hook or parapet clamp can only function effectively as an anchor if it is positioned on a part of the building or structure that is structurally able to support the loads the clamp or hook will apply. If the parapet supporting a parapet clamp or cornice hook is made from cast-in-place concrete or from substantial precast elements, generally structural adequacy is not a problem. If the parapet supporting parapet clamps or cornice hooks is made from masonry wall or brick, or light wood framing finished with stucco, the load from the clamp or hook should be distributed through the use of adequate blocking. A 2x8 plank at least 4 feet long should be secured horizontally to the inside face of the parapet so the load from the hook or clamp is distributed over a length of the parapet. If a parapet is deteriorated, cracked, or shows other evidence of structural weakness, it should not be used for supporting parapet clamps or cornice hooks.

G11.7 Temporary horizontal lifelines

Issued August 16, 2000; Revised January 1, 2005; Editorial Revision May 17, 2006

Regulatory excerpt

Section 11.7 of the *OHS Regulation* ("Regulation") states:

A temporary horizontal lifeline system may be used if the system is

- (a) manufactured for commercial distribution and installed and used in accordance with the written instructions from the manufacturer or authorized agent, and the instructions are readily available in the workplace,
- (b) installed and used in accordance with written instructions certified by a professional engineer, and the instructions are readily available in the workplace, or
- (c) designed, installed and used in a manner acceptable to the Board.

Purpose of guideline

This guideline discusses "readily available" under sections 11.7(a) and 11.7(b) and describes an acceptable temporary horizontal lifeline system for

the purpose of section 11.7(c).

Readily available

Under section 11.7(a) if there are any written instructions from the manufacturer or authorized agent, the written instructions need to be readily available. Likewise, under 11.7(b), if there are any written instructions certified by a professional engineer, they must be readily available.

Design, installation, and use of temporary horizontal lifeline systems in a manner acceptable to WorkSafeBC

For the purpose of section 11.7(c), a temporary horizontal lifeline system for fall restraint is acceptable if it provides an ultimate load capacity of at least 3.5 kN (800 lbs) for each worker connected to it. "Ultimate load capacity" is determined with the design loads being applied perpendicular to the span of the line and at critical locations for sizing the components.

A temporary horizontal lifeline system used for fall arrest is acceptable under section 11.7(c) if it meets the following requirements:

- The horizontal lifeline is a minimum 12 millimetres (1/2 inch) diameter wire rope having a breaking strength specified by the manufacturer of at least 89 kN (20,000 lbs).
- The horizontal lifeline is free of splices except at the terminations.
- Connecting hardware such as shackles and turnbuckles has an ultimate load capacity of at least 71 kN (16,000 lbs).
- The span is at least 6 metres (20 feet) and not more than 18 metres (60 feet).
- End anchors have an ultimate load capacity of at least 71 kN (16,000 lbs).
- The horizontal lifeline has an unloaded sag of approximately the span length divided by 60.
- The elevation of the line at any point is at least 1 metre (39 inches) above the working surface.
- The free fall distance is limited to 1.2 metres (4 feet).
- A minimum of 3.5 metres (12 feet) of unobstructed clearance is available below the working surface.
- No more than three workers are secured to the horizontal lifeline.
- The horizontal lifeline is positioned so it does not impede the safe movement of workers.

G11.8 Requirements for engineering - Permanent horizontal lifelines

Issued January 1, 2005

Regulatory excerpt

Section 11.8 of the *OHS Regulation* ("Regulation") states:

The following types of equipment and systems, and their installation, must be certified by a professional engineer:

- (a) permanent anchors,
- (b) anchors with multiple attachment points,
- (c) permanent horizontal lifeline systems, and
- (d) support structures for safety nets.

Purpose of guideline

The purpose of this guideline is to explain the requirements for the drawings and instructions to be certified by a professional engineer with respect to a permanent horizontal lifeline system and its installation, pursuant to section 11.8(c) of the *Regulation*.

Drawings and instructions for permanent horizontal lifelines

The drawings and instructions required to be certified by a professional engineer should show the following:

- The layout in plan and elevation, including anchor locations, installation specifications, anchor design, and detailing
- Horizontal lifeline system specifications, including permissible free fall distance, clearance to obstructions below, and rope size, breaking strength, termination details, initial sag, or tension
- The number of workers permitted to connect to the lifeline, and maximum arrest force to each worker

G11.9 Inspection and maintenance - Fibre rope suspension

Issued August 1, 1999; Revised January 1, 2005

Regulatory excerpt

Section 11.9 of the *OHS Regulation* ("Regulation") states:

Equipment used in a fall protection system must be

- (a) inspected by a qualified person before use on each workshift,
- (b) kept free from substances and conditions that could contribute to its deterioration, and

(c) maintained in good working order.

Standard excerpt

WCB Standard WPL 3-2004 states:

4. Minimum Breaking Strength

...

(4) A rope used to suspend a boatswain's chair by other than a block and tackle must be a synthetic rope that has a minimum breaking strength of 27 kN (6,000 lbs).

Purpose of guideline

The purpose of this guideline is to outline that section 11.9 of the *Regulation* is required to ensure a fibre rope strength of 27kN is maintained before use on each workshift.

Breaking strength

A common question is why a rope strength of 27 kN is required, compared with the required anchor strength of 22 kN. The "breaking strength" of rope means the manufacturer's specified minimum (or nominal) strength of new rope under a straight pull test condition. The 5 kN difference between rope strength and anchor strength is to allow for losses in rope strength due to factors such as the rope terminations (such as knots or splices), the rope running over pulleys or other small radius surfaces, wear within generally accepted limits, and deterioration in the rope from regular use up to the time when rejection criteria dictate the rope be removed from service.

G11.10(0.1) Fall protection anchors - Inspection and removal from service

Issued consequential to April 1, 2013 Regulatory Amendment

Regulatory excerpt

Section 11.10(0.1) of the *OHS Regulation* ("*Regulation*") states:

If, at any time, a permanent anchor does not meet the requirements of section 11.5(c), the anchor must not be used until it has been inspected and recertified, by a professional engineer, as meeting the requirements of section 11.5(c).

Section 11.5(c) of the *Regulation* states:

Equipment used for a fall protection system must

(c) meet, and be used in accordance with, an applicable CSA or ANSI standard in effect when the equipment was manufactured, subject to any modification or upgrading considered necessary by the Board.

Purpose of guideline

The purpose of this guideline is to provide guidance for inspection of fall protection anchors and when they must be removed from service.

Instructions from applicable standards

Applicable standards for inspection and removal from service of fall protection anchors include the following:

CSA Z259.15 Anchorage Connectors

CSA Z259.16 Design of Active Fall-Protection Systems

ANSI Z359.2 Minimum requirements for a Comprehensive Managed Fall Protection Program

Some useful information from the standards is reproduced in this guideline. The entire standard should be consulted for complete requirements. The standards specify that the manufacturer's instructions are to be followed, or, in the case of an engineered system, the engineer's instructions for the removal from service of fall protection anchors.

Both *CSA Z259.15* and *Z259.16* require that anchorage systems be provided with instructions for inspection, maintenance, and retirement of the system and all of its components and that employers follow the recommended frequencies and procedures for inspection and maintenance. In addition, there are specified criteria for removal of an anchorage connector from service if it has deformed from its original installed configuration. *CSA* also specifies that an anchor is not to be altered, relocated, or modified with additional anchorage connectors.

ANSI Z359.2 specifies inspections by an authorized person prior to use and at least annually by a qualified or competent person in accordance with the manufacturer's or a qualified person's instructions. In addition, this standard recommends recertification of anchorage systems at regular intervals. The design, type, location, size of structural members, the type of anchorage connector, and the environment and weather conditions dictate how often such an anchorage system should be inspected and re-certified.

ANSI Z359.2 specifies that a fall protection anchorage system is to be removed from service when any inspection reveals that it may no longer serve the required function, that it may be unsafe due to damage or wear, or if the required inspection interval has been exceeded.

Contents

GENERAL REQUIREMENTS

- G12.2 [Safeguarding requirements for dynamometers](#) [Retired]
- G12.3 [Safeguarding requirement - Alternative standard](#)
- G12.11 [Operating controls \(portable powered tools, mobile equipment\)](#)

GUARDING MECHANICAL POWER TRANSMISSION PARTS

- G12.20 [Reach distance to overhead power transmission parts](#)

CONVEYORS

- G12.28(3) [Emergency stopping devices](#)

POWER PRESSES, BRAKE PRESSES AND SHEARS

- G12.29 [Power presses, brake presses, and shears - Standards](#)
- G12.31 [Exception for custom work](#)

POWDER ACTUATED TOOLS

- G12.56 (and 4.3(1)&(2)) [Powder actuated tools - Use and service in accordance with manufacturer's instructions](#) [Retired]

WOODWORKING TOOLS AND EQUIPMENT

- G12.59 [Removing guards](#)

MOBILE CHIPPERS

- G12.70 [Panic bars on driven-feed chippers](#) [Withdrawn]

AUTOMOTIVE LIFTS AND OTHER VEHICLE SUPPORTS

- G12.74-1 [Automotive lifts and other vehicle support standards - Evidence of compliance](#)
- G12.74-2 [Automotive lifts and other vehicle support standards - Applicable standards](#)
- G12.74-3 [Automotive lifts and other vehicle support standards - Alternate acceptable standard](#)
- G12.76 [Operation](#)
- G12.77 [Records](#)
- G12.78 [Inspection and testing](#)

MISCELLANEOUS EQUIPMENT

- G12.83 [Industrial robots](#)

ABRASIVE BLASTING AND HIGH PRESSURE WASHING

- G12.102(1) [Abrasive blasting cleanup](#)

WELDING, CUTTING AND ALLIED PROCESSES

- G12.120 [Reverse gas flow and flashback prevention](#)
- G12.124 [Respiratory protection and provision of ventilation for welding, cutting, and allied processes](#)

RAIL CAR MOVEMENT

- G12.168 [Blue flag rule](#) [Retired]

PRESSURE VESSELS

- G12.173(1) [Pressure vessels](#)

ROLL-ON/ROLL-OFF CONTAINERS

- G12.175 [Container safety standard for roll-on/roll-off containers](#)

Guidelines Part 12 - General Requirements

G12.2 Safeguarding requirements for dynamometers

Issued September 1999; Retired consequential to May 1, 2017 regulatory amendment

G12.3 Safeguarding requirement - Alternative standard

Issued November 21, 2006

Regulatory excerpt

Section 12.3 of the *OHS Regulation* ("Regulation") states:

The application, design, construction and use of safeguards, including an opening in a guard and the reach distance to a hazardous part, must meet the requirements of *CSA Standard Z432-94, Safeguarding of Machinery*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

Section 12.3 of the *Regulation* requires that safeguards be applied, designed, constructed and used in accordance with *CSA Standard Z432-94, Safeguarding of Machinery*. Section 4.4(2)(a) permits WorkSafeBC to accept another standard to be used for the safeguarding of machinery.

This guideline is to specify, in the case of section 12.3 of the *Regulation*, an alternate standard acceptable to WorkSafeBC, and to summarize the differences between the standards.

Acceptance of *CSA Standard Z432-04, Safeguarding of Machinery*

A person that is required to comply with *CSA Standard Z432-94, Safeguarding of Machinery* may comply with *CSA Standard Z432-04, Safeguarding of Machinery* as an alternative standard. (Note: For a copy of *CSA Standard Z432-04*, contact CSA at 604-244-6652 or <http://shop.csa.ca/page/home>, or your local library.)

Additional information

An updated edition of *CSA Standard Z432* was prompted by changing technology and at the request of regulators, employers, manufacturers, and labour representatives for a document that would reflect current trends concerning operator and equipment safety.

CSA Standard Z432-04 is expanded in scope compared to the earlier edition published in 1994. It now incorporates parts of new international standards on machinery design and performance (e.g. *ISO 12100 Parts 1 and 2*, *ISO 14121*, *ANSI B11 TR3*, and *BSI PD 5304*), and provides additional information for the identification of hazards, including non-mechanical hazards. This newer standard also contains expanded methodology to perform comprehensive risk assessment and control.

G12.11 Operating controls (portable powered tools, mobile equipment)

Effective September 1999; Editorial Revision May 6, 2011; Editorial Revision September 6, 2018; Editorial Revision consequential to the September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 12.11(2) of the *OHS Regulation* ("Regulation") states:

(2) Portable powered tools and mobile equipment must have operating controls conforming to an appropriate standard acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to provide a list of standards that are acceptable to WorkSafeBC for the purposes of section 12.11(2) of the *Regulation*.

Standards acceptable to WorkSafeBC

The following standards are acceptable to WorkSafeBC under this section for portable powered tools:

- CAN/CSA-C22.2 No.71.1-M89 Portable Electric Tools
- CAN/CSA-C22.2 No.72.2-M89 Electric Bench Tools
- BS 5304:1988 British Standard Code of Practice for Safety of Machinery
- ANSI/UL 45 Standard for Safety, Portable Electric Tools
- ANSI/UL 987 Standard for Safety, Stationary and Fixed Electric Tools
- ISO 447 Machine Tools — Direction of Operation of Controls

- ANSI B186.1-1984 Safety Code for Portable Air Tools
- CAN/CSA-Z431-M89 (IEC 73-1984) Colours of Indicator Lights and Push Buttons
- CAN/CSA-C22.2 No. 195-M1987 Motor Operated Food Processing Appliances (Household and Commercial)
- ANSI Z50.1-1997 Safety Requirements for Bakery Equipment
- BSI/EN 454 Food Processing Machinery-Planetary Mixer-Safety and Hygiene Requirements
- ANSI SNT-101-1993 Portable, Compressed-Air-Actuated Fastener Driving Tools-Safety Requirements
- CAN/CSA-Z166.1, Z166.2-M85 Powder Actuated Tools

The following Part II standards specify construction, marking, and test requirements as per B.C. Electrical Code 2015 requirements for hand-held motor-operated electric tools.

- CAN/CSA-C22.2 No. 60745-1-04 Hand-held Motor-Operated Electric Tools “ Safety Part 1: General Requirements
- CAN/CSA-C22.2 No. 60745-2-1-04 Part 2: Particular Requirements for Drills
- CAN/CSA-C22.2 No. 60745-2-2-04 Part 2: Particular Requirements for Screwdrivers and Impact Wrenches
- CAN/CSA-C22.2 No. 60745-2-4-04 Part 2: Particular Requirements for Sanders
- CAN/CSA-C22.2 No. 60745-2-5-04 Part 2: Particular Requirements for Circular Saws and Circular Knives
- CAN/CSA-C22.2 No. 60745-2-6-04 Part 2: Particular Requirements for Hammers
- CAN/CSA-C22.2 No. 60745-2-8-04 Part 2: Particular Requirements for Shears and Nibblers
- CAN/CSA-C22.2 No. 60745-2-9-04 Part 2: Particular Requirements for Tappers
- CAN/CSA-C22.2 No. 60745-2-11-04 Part 2: Particular Requirements for Reciprocating Saws
- CAN/CSA-C22.2 No. 60745-2-14-04 Part 2: Particular Requirements for Planers
- CAN/CSA-C22.2 No. 60745-2-17-04 Part 2: Particular Requirements for Routers and Trimmers

Guidelines Part 12 - Guarding Mechanical Power Transmission Parts

G12.20 Reach distance to overhead power transmission parts

Issued September 1999; Revised February 11, 2021

Regulatory excerpt

Section 12.20(2) of the *OHS Regulation* ("*Regulation*") states:

An installation of the type covered by subsection (1) in place before January 1, 1999, which has unguarded parts more than 2.1 m (7 ft) but less than 2.5 m (8 ft) above the floor, walkway or platform may have those portions remain unguarded unless the work process presents an undue risk to workers if those portions remain unguarded, or until such time as the installation is subsequently overhauled or renovated.

Purpose of guideline

The purpose of this guideline is to explain that an employer is not required to guard moving parts which are above the height limit of the previous requirement (Regulation prior to 1999 required guarding at 2.1 m), but below the limit of the *Regulation* (2.5 m), provided a risk assessment shows no undue risk to workers from the moving parts.

Background

The key elements to be determined by the risk assessment are the likelihood or probability of accidental contact with the overhead moving parts, and the likely outcome of a contact in terms of the severity of injury. The ISO 31000 Risk Management standard provides guidance for doing risk assessments.

Guidelines Part 12 - Conveyors

G12.28(3) Emergency stopping devices

Issued September 1999; Revised February 11, 2021

Regulatory excerpt

Section 12.28(3) of the *OHS Regulation* ("*Regulation*") states:

If a conveyor emergency stopping system uses a pull wire, the system must activate by a pull of the wire in any direction, or by a slack cable condition.

Purpose of guideline

The purpose of this guideline is to outline the requirements for an emergency stop pull wire system.

Background

Many conventional emergency stop pull wire systems used for conveyors in industry use a switch that does not comply with the full requirements of this section because the switch will not activate if the pull wire is slack or broken, or if a pull on the wire is in the direction away from the dead end (anchor end).

Requirements

Slack or broken wire protection can be provided by installing a switch that is held by tension in the neutral or armed position, and is activated either by a pull on the wire, or by the wire being cut or going slack. The second concern of a pull against the dead (or anchored) end can be fixed by installing a spring counter-balanced switch that activates when moved in either direction from the neutral position. (Two springs allow the switch to move in either direction from the neutral and therefore activate the switch.) An alternative means would be to install spring-loaded pull switches at each end of the activation cable.

Guidelines Part 12 - Power Presses, Brake Presses and Shears

G12.29 Power presses, brake presses, and shears - Standards

Issued September 1999; Editorial Revision April 2005; Revised February 11, 2021

Regulatory excerpt

Section 12.29 of the *OHS Regulation* ("Regulation") states:

Point of operation safeguarding, and the design, construction and reliability of operating controls of a power press, brake press, ironworker or shear must meet the requirements of the following applicable standard:

(a) *CSA Standard CAN/CSA-Z142-M90, Code for Punch Press and Brake Press Operation: Health, Safety, and Guarding Requirements*;

(b) *ANSI Standard B11.4-1993, American National Standard for Machine Tools - Shears - Safety Requirements for Construction, Care, and Use*;

(c) *ANSI Standard B11.5-1988(R1994), American National Standard for Machine Tools - Ironworkers - Safety Requirements for Construction, Care, and Use*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board,

Purpose of guideline

The purpose of this guideline is to provide guidance that section [4.4\(2\)\(a\)](#) permits the reliance on other standards which are acceptable to WorkSafeBC.

Alternate standard

Under section [4.4\(2\)\(a\)](#), WorkSafeBC recognizes *ANSI Standard B11.1-1988(R1994), American National Standard for Machine Tools - Mechanical Power Presses - Safety Requirements for Construction, Care, and Use*, as a standard acceptable to WorkSafeBC for "point of operation safeguarding" and "control reliability" for a mechanical (flywheel) power press.

G12.31 Exception for custom work

Issued September 1999; Revised March 7, 2011

Regulatory excerpt

Section 12.31 of the *OHS Regulation* ("Regulation") states:

The safeguarding for the point of operation of a brake press may be removed if custom or different bends are being done with each cycle of the machine, provided that safe work procedures are followed, and safeguarding is replaced upon completion of such custom work.

Purpose of guideline

This guideline explains the application of section 12.31 of the *Regulation* with respect to the safeguarding of brake presses in situations where the work being performed requires the temporary removal or disabling of safeguarding devices.

Exception for custom work

The point of operation of a brake press must meet the safeguarding requirements of the applicable standard referenced in section [12.29](#) of the *Regulation*. The required safeguarding is intended to control the hazards normally associated with the operation of a particular brake press.

There are situations where the workpiece is not compatible with the safeguarding that is effective with the vast majority of operations performed on the brake press. For example, additional bends may be performed on the same workpiece on the same press, where a subsequent bend breaks the beam of the light curtain, stopping the machine. Similarly, a workpiece may have to be initially formed into a shape that stops the machine during the press cycle by breaking a beam of light on the light curtain.

In these situations, under section 12.31, the minimum number of safeguarding devices required to facilitate this work may be temporarily disabled

(or removed) to accommodate the work. For example, a light curtain may have several beams blanked (turned off) to allow for the workpiece to be formed. Where possible, alternative means of safeguarding should be used to replace those removed.

It is important to emphasize that only the minimum number of safeguarding devices may be removed as are required to accommodate the work being done. When any of the safeguarding devices are removed or defeated, safe work procedures that address the new or additional hazards created by the removal or defeating of any of the safeguarding devices, must be developed and followed by the worker(s).

As soon as the workpiece is changed to one of different dimensions and/or a different combination or sequence of bends are being formed, all the safeguarding devices previously removed or disabled are to be replaced and enabled.

Guidelines Part 12 - Powder Actuated Tools

G12.56 (and 4.3(1)&(2)) Powder actuated tools - Use and service in accordance with manufacturer's instructions

Effective April 1, 2001; Editorial Revision April 2005; Retired February 11, 2021

This guideline is no longer required.

Guidelines Part 12 - Woodworking Tools and Equipment

G12.59 Removing guards

Issued September 21, 2011

Regulatory excerpt

Section 12.59(1) of the *OHS Regulation* ("Regulation") states:

If the use of a guard on woodworking machinery is clearly impracticable for a specific operation, the guard may be removed, but an appropriate pushstick, jig, feather board or similar device must be used to prevent the operator encroaching into the cutting area, and upon completion of the operation the guard must be replaced.

Purpose of guideline

This guideline provides guidance on determining whether it is "clearly impracticable" to perform a specific operation on a table saw, sliding table saw, panel saw, or other similar woodworking machinery with the blade guard in place.

Temporary removal of guards on table saws, sliding table saws, panel saws, and similar woodworking machinery

The *Regulation* allows for the removal of the guard where its use is clearly impracticable for a specific operation. That is, the guard may only be removed when it is clear that there is no reasonable means of performing a specific operation with the guard in place and functioning.

Prior to considering the removal of the guard, the specific operation should be assessed to determine if the equipment is appropriate for the particular task. That is, the need to remove the guard to complete the specific operation may indicate that the equipment chosen is unsuitable for the particular operation. If it is determined that the equipment is suitable, additional factors should then be considered to establish if keeping the guard in place is clearly impracticable. Factors include, but are not limited to the following:

- The cost and availability of effective aftermarket guards, fences, or other devices that can be used in conjunction with or in place of the manufacturer's guard and/or fence.
- The capability of the employer to fabricate effective jigs or other devices that can be used in conjunction with or in place of either the manufacturer's guard or an aftermarket guard.
- The frequency of the particular cutting operation. The greater the frequency, the more reasonable it is for an employer to purchase and/or fabricate guards, fences, jigs, or other devices such that the specific operation can be completed with a guard in place.

The devices or combination of devices chosen must effectively prevent the operator from encroaching into the cutting area. Once the particular cutting operation is completed, the guard must be reinstalled

Guideline Part 12 - Mobile Chippers

G12.70 Panic bars on driven-feed chippers

Withdrawn August 12, 2009

Guidelines Part 12 - Automotive Lifts and Other Vehicle Supports

G12.74-1 Automotive lifts and other vehicle support standards – Evidence of compliance

Issued August 15, 2006; Revised September 21, 2012; Revised January 29, 2014

Regulatory excerpt

Section 12.74 of the *OHS Regulation* ("Regulation") states:

(1) An automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALCTV-1998, American National Standard for Automotive Lifts - Safety Requirements for Construction, Testing and Validation*.

(2) The operation, inspection and maintenance of an automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance*.

(3) Portable automotive lifting devices and vehicle supports must meet the requirements of the applicable section of *ANSI Standard ASME PALD-2003, Safety Standard for Portable Automotive Lifting Devices*.

Section 1.1 of the *Regulation* defines a professional engineer as follows:

"professional engineer" means a person who is registered or licensed to practice engineering under the provisions of the *Engineers and Geoscientists Act*.

Purpose of guideline

The purpose of this guideline is to provide guidance on acceptable evidence that automotive lifts meet the required ANSI standard and on the operation, inspection, and maintenance of lifts.

Evidence that lifts meet the requirements of ANSI standard *ANS/ALI ALCTV-1998*

Automotive lift manufacturers would typically ensure their lifts meet the ANSI standard by having their lifts certified at the manufacturer's facility by a Nationally Recognized Testing Laboratory (NRTL). Certification cannot be performed after installation because requirements for such things as material composition, stress calculations, and welder's qualifications cannot be verified.

The U.S. Occupational Safety and Health Administration provides a list of NRTLs at www.osha.gov/dts/otpca/nrtl/nrtllist.html.

Further information regarding certification of automotive lifts can be found at the website of the Automotive Lift Institute www.autolift.org/faq.php.

Refer to OHS Guideline [G12.74-2 Automotive lifts and other vehicle support standards - Applicable standards](#).

Operation, inspection, and maintenance of lifts as required by *Regulation* section 12.74(2)

ANSI/ALI ALOIM-2000 is a companion standard to the *ANSI/ALI ALCTV-1998*. The *ANSI/ALI ALOIM-2000* standard provides guidance to owners or employers with regard to the operation, inspection, and maintenance of installed automotive lifts. The *ANSI/ALI ALOIM-2000* standard specifies the required qualifications, training, reporting, and documentation for operators, inspectors, and maintenance personnel. This *ANSI/ALI ALOIM-2000* standard also provides sample forms and checklists to help the owners or employers comply with the requirements in the standard.

Evidence of compliance to standard *ANSI/ALI ALOIM-2000* consists of ongoing documentation prepared by the automotive lift owner, employer, and qualified inspector who will verify that the requirements of the standard have been met.

G12.74-2 Automotive lifts and other vehicle support standards – Applicable standards

Issued September 22, 2006; Editorial Revision February 15, 2019; Editorial Revision September 25, 2019

Regulatory excerpt

Section 12.74 of the *OHS Regulation* ("*Regulation*") states:

(1) An automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALCTV-1998, American National Standard for Automotive Lifts - Safety Requirements for Construction, Testing and Validation*.

(2) The operation, inspection and maintenance of an automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance*.

(3) Portable automotive lifting devices and vehicle supports must meet the requirements of the applicable section of *ANSI Standard ASME PALD-2003, Safety Standard for Portable Automotive Lifting Devices*.

Section 4.4(1) of the *Regulation* states:

If this *Regulation* requires that a tool, machine or piece of equipment manufactured before April 15, 1998 must meet a code or standard, the tool, machine or piece of equipment must conform to the edition of the code or standard referred to in this *Regulation* or the edition of the code or standard published at the time the tool, machine or piece of equipment was manufactured, subject only to the modification or upgrading specified to be necessary in this *Regulation* or in a directive issued by the Board.

Purpose of guideline

This guideline lists the standards applicable to automotive lift equipment manufactured prior to the date of the standards referenced in section 12.74 of the *Regulation*, and shows the design of decals used to verify certification to the standard.

In addition, the guideline provides guidance for the certification of equipment where a standard is not available, both for automotive lifts and for portable automotive lifting devices.

Applicable standards

Automotive lifts, portable automotive lifting devices, and vehicle supports must meet the requirements of section 12.74 of the *Regulation*. For equipment manufactured prior to the year of the standards listed, section 4.4(1) of the *Regulation* states that equipment must meet the requirements of the edition of the standard published at the time the equipment was manufactured.

One or more of the following standards apply to automotive lifts and other portable automotive lifting devices, depending on the make, model, and year of the equipment. The standards are published by the American National Standards Institute (ANSI), Automotive Lift Institute (ALI), and American Society of Mechanical Engineers (ASME).

For automotive lifts the applicable standards are the following:

- A. ANSI B153.1-1974 *Safety Requirements for the Construction, Care, and Use of Automotive Lifts*
- B. ANSI B153.1-1981 *Safety Requirements for the Construction, Care, and Use of Automotive Lifts*
- C. ANSI/ALI B153.1-1990 *American National Standard for Automotive Lifts - Safety Requirements for the Construction, Care, and Use*
- D. ANSI/ALI ALOIM -1994 *American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance*
- E. ANSI/ALI ALCTV -1998 *American National Standard for Automotive Lifts - Safety Requirements for Construction, Testing and Validation*
- F. ANSI/ALI ALOIM -2000 *American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance*

For portable automotive lifting devices the applicable standards are the following:

- G. ANSI Standard ASME PALD-1980 *Safety Standard for Portable Automotive Lifting Devices*
- H. ANSI Standard ASME PALD-1993 *Safety Standard for Portable Automotive Lifting Devices*
- I. ANSI Standard ASME PALD-1997 *Safety Standard for Portable Automotive Lifting Devices*
- J. ANSI Standard ASME PALD-2003 *Safety Standard for Portable Automotive Lifting Devices*

These standards are available from [Automotive Lift Institute \(ALI\)](#).

Evidence of compliance

OHS Guideline G12.74-1 provides information on the acceptable forms of evidence that show automotive lifts meet the applicable standard. Automotive lifts are typically labelled to show compliance with one of the standards listed above. Examples of the decals are shown below.

Automotive lift devices manufactured since 1998

The following decals indicate compliance with the ANSI/ALI standards for automotive lifts built since 1998:

ALI Certified – Electrical & Mechanical (U.S. & Canada)



ALI Certified – Mechanical Only (U.S. & Canada)

automotive lift certificate

Automotive lift devices manufactured from 1990 to 1997

The following decals indicate compliance with the ANSI/ALI standards for automotive lifts built from 1990 through 1997:

automotive lift decal 1990 to 1997

automotive lift decal 1990 to 1997

Automotive lift devices manufactured from 1974 to 1989

Automotive lifts manufactured from 1974 through 1989 may not have a compliance decal; however, evidence of compliance may be in the form of a "Statement of Compliance" found in the manufacturer's labels, invoices, or sales literature. This statement reads as follows:

This automotive lift conforms to the requirements of American National Standard B153.1, developed cooperatively with the industry and those substantially concerned with its scope and provisions. Responsibility for the construction of this product to the standard is assumed by the manufacturer.

For automotive lifts manufactured from 1974 to 1989 if the manufacturer cannot confirm that the equipment meets an ANSI/ALI standard, the process outlined below, (for those manufactured prior to 1974), may be followed.

Automotive lifts manufactured prior to 1974

The standards noted above in this guideline do not apply to automotive lifts manufactured prior to 1974. For these lifts, the employer must still ensure compliance with the requirements of the *Regulation*, in particular, sections 4.3, 4.5, 4.8, and applicable sections of Part 12. In short, this means that with the assistance of a professional engineer and a qualified automotive lift inspector, the employer must ensure each of the following:

- The lift is safe to use and written instructions are provided that explain how to use it safely.
- A professional engineer specifies how to install, inspect, test, repair, and maintain the lift.
- Any modifications (e.g., wheel chocks, swing arm restraints) are certified by a professional engineer.
- A professional engineer certifies the rated load capacity of the lift.
- Compliance with sections 12.75 through 12.80 of the *Regulation*.

Portable automotive lifting devices

Portable automotive lifting devices (PALDs) must meet one of the standards G, H, I, or J listed earlier in this guideline. The requirements of these standards can be summarized as follows:

1. The rated capacity must be marked on the PALD.
2. The original manufacturer or supplier must be identified on the PALD.
3. Manufacturer's (or supplier's) safety signs/labels must be affixed to each PALD. Examples of safety markings and messages for specific types of PALDs are shown in paragraph 3.1 of each part of the standard (G, H, I, or J).
4. Provide instructions on how to operate the device, including safety messages, maintenance, and inspection procedures.

5. Refer to Parts 1 through 18 of the applicable standard for safety markings and messages specific to each type of device and for the performance requirements for each device.

Portable automotive lifting devices that do not meet the requirements listed above, or are manufactured prior to 1980, must be certified by a professional engineer and have written instructions explaining how to use them safely.

Any equipment that has been altered, appears damaged in any way, is worn, or operates abnormally must be removed from service. Such equipment may be repaired by the manufacturer's or supplier's authorized repair facility, or following instructions of a professional engineer.

G12.74-3 Automotive lifts and other vehicle support standards - Alternate acceptable standard

Issued September 22, 2015; Editorial Revision November 21, 2017

Regulatory excerpt

Section 12.74 of the *OHS Regulation* ("Regulation") states:

(1) An automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALCTV-1998, American National Standard for Automotive Lifts – Safety Requirements for Construction, Testing and Validation*.

(2) The operation, inspection and maintenance of an automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts – Safety Requirements for Operation, Inspection and Maintenance*.

(3) Portable automotive lifting devices and vehicle supports must meet the requirements of the applicable section of *ANSI Standard ASME PALD-2003, Safety Standard for Portable Automotive Lifting Devices*.

Section 4.4(2) of the *Regulation* states in part:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board

...

Purpose of guideline

The purpose of this guideline is to specify an alternate standard to the one listed in section 12.74(1) of the *Regulation* for automotive lifts.

Background Information

Section 12.74(1) of the *Regulation* requires automotive lifts to meet the requirements of *ANSI Standard ANSI/ALI ALCTV-1998, American National Standard for Automotive Lifts – Safety Requirements for Construction, Testing and Validation*. Section 4.4(2)(a) of the *Regulation* permits WorkSafeBC to accept another standard as an alternate standard.

Acceptable standard

WorkSafeBC has determined that the European Standard *EN 1493:2010 Vehicle Lifts Standard* is an acceptable alternate standard for automotive lifts. If an automotive lift meeting this standard is installed, the employer must ensure that any electrical components are either Canadian Standards Association (CSA) approved or meet the BC Safety Authority's (operating as Technical Safety BC) *Electrical Safety Regulation*, enacted under the *Safety Standards Act*.

G12.76 Operation

Issued August 15, 2006; Editorial Revision November 21, 2017; Editorial Revision February 15, 2019

Regulatory excerpt

Section 12.74(2) of the *OHS Regulation* ("Regulation") states:

(2) The operation, inspection and maintenance of an automotive lift must meet the requirements of *ANSI Standard ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts - Safety Requirements for Operation, Inspection and Maintenance*.

Section 12.76 of the *OHS Regulation* ("Regulation") states:

Operation, inspection, repair, maintenance and modification of an automotive lift, portable automotive lifting device, or other vehicle support must be carried out according to the manufacturer's instructions or the written instructions of a professional engineer.

Purpose of guideline

The purpose of this guideline is to describe circumstances where automotive lifts may not be able to meet the requirements stated in section 12.74(2) and where compliance with section 12.76 of the *Regulation* provides an acceptable alternative. It also describes some important differences between successive editions of the ANSI standards for automotive lifts.

Section 12.76 as an alternative to section 12.74(2)

An owner, employer, or other person is expected to comply with section 12.74(2) of the *Regulation* (Standards) with regard to the operation, inspection, and maintenance of all automotive lifts and vehicle supports. However, an owner, employer, or other person may refer to section 12.76 of the *Regulation* (Operation) for the operation, inspection, repair, maintenance or modification of an automotive lift, portable automotive lifting device, or vehicle support in the following circumstances:

- a) The standard referenced in section 12.74(2) of the *Regulation* is not applicable to the equipment given its year of manufacture
- b) An earlier edition of the standard does not cover repair or modification (e.g., 1981, 1974). The 1990, 1994, and 2000 editions of the standard only require manufacturer's consent for modification or reconstruction, not necessarily manufacturer's instructions.
- c) The automobile lift apparatus is not of a type covered in the standard (e.g., vehicle display or storage lifts, and some portable lifting devices).
- d) The manufacturer is no longer in business (a professional engineer can provide instructions in lieu of the manufacturer).
- e) Repair or modification to structural components has not been designed or inspected by the manufacturer (a professional engineer can provide the design, necessary instructions, and final inspection).

In some cases, such as in (d) and (e), compliance with the remainder of the requirements of the standards in 12.74(2) of the *Regulation* may still be possible, and must be met.

If the services of a professional engineer are used in B.C., that engineer must be licensed to practice by Engineers & Geoscientists British Columbia (EGBC).

Changes to ANSI automotive lift standards

The 1974 and 1981 editions of American National Standard ANSI B153.1 *Safety Requirements for the Construction, Care and Use of Automotive Lifts* refer to the manufacturer for maintenance, operation, and inspection instructions, but do not explicitly include repair and modification. The 1990 edition adds the requirement for manufacturer's consent prior to modifications.

The 1994 version, renamed ANSI/ALI ALOIM, adds instructions for repair maintenance, with reference to recommendations of the lift manufacturer. The 1994 standard is superseded by *ANSI/ALI ALOIM-2000 Safety Requirements for Operation, Inspection and Maintenance*, which references manufacturer's recommendations for maintenance, repairs, and manufacturer's permission for modification or reconstruction. In addition, *ANSI/ALI ALOIM-2000* stipulates further requirements that may not be specified by the manufacturer.

The 1993 and 2003 editions of *ANSI standard ASME PALD Portable Automotive Lifting Devices* references product instructions for operation, maintenance, and inspection; they also include that repairs be performed by the manufacturer or supplier's authorized repair facility.

G12.77 Records

Issued August 15, 2006

Regulatory excerpt

Section 12.77 of the *OHS Regulation* ("*Regulation*") states:

The employer must keep a maintenance, inspection, modification and repair record for each automotive lift.

Purpose of guideline

The purpose of this guideline is to advise employers on appropriate record-keeping, and to clarify certain differences between each record.

Records

Pursuant to *Regulation 12.74(2)*, inspection and maintenance procedures must follow the requirements of standard *ANSI/ALI ALOIM-2000 Safety Requirements for Operation, Inspection and Maintenance*.

A record of each periodic inspection should be prepared by a qualified automotive lift inspector as defined in *ANSI/ALI ALOIM-2000*. The record should include observations of all points of inspection as recommended by the manufacturer, and the subsequent repairs or replacements made.

In addition to the above, thorough records of all preventive maintenance and repairs performed should be prepared by the auto lift owner, employer or others performing the work. These records should include the specific checks made, measurements taken, adjustments, parts replaced, recommendations, and repairs performed.

The inspection, maintenance, modification and repair records should be maintained by the auto lift owner or employer and kept at the auto lift or in a place that is immediately available to the auto lift operator or to any other person involved with inspection and maintenance of the equipment.

Examples of a preventive maintenance log, repair maintenance log, inspection checklists and an inspection certificate are provided in the appendices of standard *ANSI/ALI ALOIM-2000*. Further examples of automotive lift inspection checklists are provided in [OHS Guideline 12.78](#).

G12.78 Inspection and testing

Regulatory excerpt

Section 12.78 of the *OHS Regulation ("Regulation")* states:

An automotive lift must be inspected and tested monthly, in a manner acceptable to the Board, unless the manufacturer requires more frequent inspection and testing.

Purpose of guideline

The purpose of this guideline is to describe who should perform the inspecting and testing of automotive lifts on a monthly basis. The *ANSI Standard ANSI/ALI ALOIM-2000, American National Standard for Automotive Lifts* "Safety Requirements for Operation, Inspection and Maintenance Regulation" referenced in section 12.74(2) requires a minimum of an annual inspection; however, it also specifies that the owner or employer must follow the manufacturer's recommendations. Section 12.78 of the *Regulation* requires that the inspection and testing take place at a minimum of monthly, or more frequently, if the manufacturer requires.

Note that monthly inspections are in addition to inspections specified by the manufacturer or the ANSI standard on an annual or more frequent basis.

Requirements of the person inspecting and testing automotive lifts on a monthly basis

The automotive lift owner or employer is responsible to ensure monthly inspection and testing is performed on each automotive lift. The monthly inspection is typically performed by workers having the necessary training and experience, such as a qualified automotive lift operator. Personnel performing monthly inspections should meet the automotive lift operator qualifications and training requirements specified in section 4.1 and 4.2 of the standard *ANSI/ALI ALOIM-2000*. Section 5.2 of the standard provides guidance on further training recommended for automotive lift inspectors. The following resources can be used to train operators on how to perform monthly auto lift inspections:

- Manufacturer's instructions and warning labels.
- [Automotive Lift Institute](#) publications, "Quick Reference Guide, Vehicle Lifting Points for Frame Engaging Lifts", "Lifting It Right", "Safety Tips".
- ANSI Standard *ANSI/ALI ALOIM-2000 Safety Requirements for Operation, Inspection and Maintenance*.
- Qualified automotive lift inspectors (qualified pursuant to section 5 of the above standard).
- Manufacturer's representatives.

The inspection and test points should include the following:

- those listed for daily inspections in section 4.4.4 of *ANSI ANSI/ALI ALOIM-2000*; and
- those required by the auto lift manufacturer to be performed on a monthly, or more frequent, basis. If the manufacturer does not specify monthly or more frequent inspections, a monthly inspection should follow the inspection and test points that are typical in the industry for that type of equipment.

An example of a monthly inspection checklist is provided on the ["Monthly Auto Lift Inspection"](#) form. The checklist provided may not be inclusive for all types of automotive lifts. For a complete checklist, refer to the automotive lift manufacturer's instructions or contact the manufacturer.

Guidelines Part 12 - Miscellaneous Equipment

G12.83 Industrial robots

Issued October 28, 2019

Regulatory excerpt

Section 12.83 of the *OHS Regulation ("Regulation")* states:

An industrial robot or robot system must be installed, safeguarded, maintained, tested and started, used, programmed and workers trained to meet the requirements of

- (a) CSA Standard CAN/CSA-Z434-94, Industrial Robots and Robot Systems "General Safety Requirements, or ...

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

The purpose of this guideline is to identify CSA Z434-14 as an acceptable alternate standard to Z434-94 for an industrial robot or robot system.

Background information

CSA standards are reviewed and updated on a regular basis. These updated versions generally take into account newer information and technological advances. New equipment is generally manufactured according to the most current standard.

Acceptable standard

CSA Z434-14 has been reviewed and has been determined acceptable as an alternate standard to Z434-94 for the purpose of compliance to section 12.83 of the *Regulation*.

Guidelines Part 12 - Abrasive Blasting and High Pressure Washing

G12.102(1) Abrasive blasting cleanup

Issued May 24, 2002; Revised February 11, 2004; Editorial Revision January 1, 2009

Regulatory excerpt

Section 12.102 of the *OHS Regulation* ("*Regulation*") states:

- (1) Used abrasive blasting materials which contain a substance designated under section [5.57](#) must be removed from the work area by using effective procedures designed to minimize the generation of airborne dust, and suitable personal protective equipment.
- (2) Removal under subsection (1) must take place by the end of each shift unless
 - (a) a risk assessment establishes that the risks from removal will exceed the risks from leaving the materials in place,
 - (b) no workers will be exposed to the materials before removal occurs, or
 - (c) the materials cannot be separated from the environment in which the abrasive blasting takes place.
- (3) If removal is delayed pursuant to subsection (2), the employer must assess the risks arising from delaying the removal and develop safe work procedures.
- (4) The work procedures developed under subsection (3) must be in writing.

Purpose of guideline

The purpose of this guideline is to discuss abrasive blasting materials and the requirements under [Part 5](#) of the *Regulation* for designated substances which may be present in abrasive blasting materials.

Abrasive blasting materials

Section 12.102 of the *Regulation* applies to used abrasive blasting materials and the hazardous substances such materials may contain and the potential risk for worker exposure. Section 12.102 and this guideline do not apply to new, unused abrasive blasting material.

Abrasive blasting involves the removal of a coating, or an encrustation such as dirt or rust, from an object such as a metal structure. The type of surface coating, the nature of the encrustation, the composition of the base material being treated, as well as the abrasive material itself are some of the sources of contaminants that may be present in used abrasive material.

Section 12.102(1) of the refers to "used abrasive blasting materials which contain a substance designated under section [5.57](#)..." Designated substances are identified under section [5.57\(1\)](#) and in the [Table of Exposure Limits for Chemical and Biological Substances](#) (see OHS Guideline [G5.48-2](#)) by any of the following notations, abbreviations, or endnotes:

- ACGIH A1 or A2
- IARC 1, 2A, or 2B carcinogen
- ACGIH reproductive toxin
- ACGIH sensitizer
- ACGIH L endnote.

Exposure to designated substances must be kept as low as reasonably achievable.

Section 5.57 requires the employer replace a substance with one of the above designations with a material less hazardous to the worker, where this is practicable. For the purposes of section 12.102, it is not feasible, nor practicable, for the employer to have control over the content of the material that is being removed by the abrasive blasting process. However, there is a reasonable expectation for the employer to be aware of the composition of the material being removed and of the base material, and to be aware of any substance with one of these designations that may end up being present in the used abrasive material. For example, for a job involving removal of paint from a steel bridge structure, the employer is expected to determine the composition of the coating - does it contain lead or other hazardous substances? If so, section 12.102 applies and procedures must be established to minimize the generation of airborne dust and workers must wear suitable personal protective equipment. Note that the employer has control over the type of abrasive grit selected for the blasting task. Where practicable, a non-silica-containing grit is to be used as a substitute for silica-containing grits, as required by section [12.100](#).

Examples of substances with a designation covered in section [5.57](#) that could be found in used abrasive material include mercury, lead, lead chromate, crystalline silica, asbestos, and cadmium. Used abrasive material can also contain high concentrations of fine dust, making it considerably more hazardous than new abrasive material. Any disturbance of used abrasive material can create large amounts of airborne dusts that can be readily inhaled. For this reason, particular attention must be paid to the handling and disposal of this material. Refer to section [12.111](#) and [Part 8](#) of

the *Regulation* to determine the type of personal protective equipment that may be required for cleanup.

Regular removal of accumulations of used abrasive materials from the work area, such as at the end of the work shift as required by section 12.102(2), is an effective work practice for lowering the potential exposure of workers to harmful contaminants. Vacuum recovery is the most effective method of removing large quantities of spent abrasive materials but other effective control methods may also be used, for example, a wet floor scrubber. Wet sweeping or shoveling should not be used except where vacuuming or other effective means are not practicable. Due to the high concentrations of airborne dust that may be generated, compressed air should not be used for cleanup. Refer to [section 4.42](#) of the *Regulation* for restrictions related to cleaning with compressed air.

It is recognized that complete removal from the work area of used abrasive blasting material containing a designated substance may not always be possible. For example, small traces of material or dust may be unavoidably left in places that the normal methods of cleaning will not reach. Section 12.102(2) states that removal under section 12.102(1) must take place at the end of each shift except in three situations. The first of the exceptions is where the risk of removal will exceed the risks from leaving the materials in place. Some examples of this are

- The dust enters places that are difficult to access and would involve risks for workers attempting to reach the material
- The used material is combined with water and forms a solid cake that is safe to work on, but would have to be broken up, with a consequent creation of dust, in order to remove it

The second exception, section 12.102(2)(b), is where workers are not be expected to be exposed to used abrasive material containing a substance designated under section 5.57 prior to its eventual removal. There may be no need to remove the materials if the work process results in the used materials collecting in a location where workers are not present. Some examples are

- Blasting done in a completely closed environment to which workers do not have access during the blasting process
- Blasting done remotely from where the workers controlling the process are located
- Blasting conducted in a frame building, either wood or steel, where the spent abrasive material tends to collect on ledges and flanges of the structure with minimal or no impact on workers below

The third exception, section 12.102(2)(c), states that removal need not take place at the end of the shift if the used abrasive material containing a substance designated under section 5.57 "cannot be separated from the environment in which the abrasive blasting takes place." This is intended to cover situations where blasting takes place outdoors and the used material containing such a substance becomes inextricably mixed with the existing natural material. Some examples are

- Sandblasting non-lead paint from a metal bridge over water where the used material falls into the water (where permitted by environmental regulations)
- Sandblasting at a location with sandy ground

For the last example above, removal may be practicable if, for example, the work creates a distinct pile of used material. In that case, it is reasonable to expect removal of the pile of used abrasive material. Cleanup in this example may be further aided by placing a tarp or similar covering on the ground below where the blasting will take place.

Section 12.102(3) states: "If the removal is delayed pursuant to subsection (2), the employer must assess the risks arising from delaying the removal and develop safe work procedures." These work procedures must be available in writing, as stated in section 12.102(4). [OHS Guideline G5.54-3](#) provides general guidelines on conducting a risk assessment. The intent of the work procedures is to ensure

- Workers are not unduly exposed to dusts from waste abrasive materials containing a substance designated under section 5.57
- Steps are taken to monitor the risks imposed by the remaining quantity of waste material
- Unauthorized, unprotected workers do not approach or walk through waste material
- Workers involved in cleanup are wearing the appropriate personal protective equipment
- There are provisions for a thorough cleanup at the end of the particular job or task

Guidelines Part 12 - Welding, Cutting and Allied Processes

G12.120 Reverse gas flow and flashback prevention

Issued June 6, 2003; Editorial Revision April 2005; Revised February 11, 2021

Regulatory excerpt

Section 12.120 of the *OHS Regulation* ("*Regulation*") states:

Suitable safety devices to prevent reverse gas flow and to arrest a flashback must be installed on each hose in an oxyfuel system, between the torch and the regulator.

Purpose of guideline

The purpose of this guideline is to provide guidance for the two hazard conditions addressed by section 12.120: reverse gas flow and flashbacks.

Reverse gas flow

Devices to prevent reverse gas flow, usually referred to as "reverse flow check valves," function only to stop the reverse flow of gases. They are not designed to stop a flame in a flashback.

Reverse gas flow may happen if one of the following conditions occurs:

- One of the gas cylinders empties before the corresponding valve on the torch is closed, and gas from the other hose and/or cylinder flows back up the hose, possibly as far as the regulator.
- Both cylinder valves are closed at the end of the task and both torch valves are opened to bleed off the oxygen and fuel gas, in which case the oxygen will likely reverse flow into the lower-pressure fuel gas hose and possibly into the regulator.
- The torch tip gets plugged and gas from the higher-pressure line (usually the oxygen supply) reverse flows into the line with lower pressure.

Flashback

A flashback may happen if either of the following occur:

- (a) A combustible mixture of oxygen and fuel gas exists in the torch body, a hose and/or the regulator
- (b) An ignition source starts the mixture burning.

The burning action in a flashback is usually explosive as the flame front travels very rapidly back through the combustible mixture. A device to arrest such a flashback is usually referred to as a "flashback arrestor," and it works by extinguishing the flame front when it reaches the device.

Reverse flow check valve

Many new torch models have reverse flow check valves and flashback arrestors built into them. The devices are also available as separate components that can be installed between the torch and the regulators. The best protection for the oxyfuel system is achieved if the reverse flow check valves and flashback arrestors are installed in or at the torch. Most devices will have an arrow indicating the direction of gas flow to assist with ensuring the devices are installed in the proper orientation. The manufacturer's name or recognized trademark should be visible on the devices. Devices without such marking should not be used. Usually the devices are Underwriters Laboratory (UL) approved.

Installation, inspection, and testing

Section 4.3(2) of the *Regulation* requires the devices be installed in accordance with the manufacturer's instructions or as specified by a professional engineer. The devices should be inspected and tested regularly in accordance with the manufacturer's recommendations or as specified by a professional engineer. Reverse flow check valves should be tested to ensure operational efficiency:

- At least once each month (unless the manufacturer recommends a more frequent test interval)
- If a flashback occurs
- If there is a decrease in gas flow on demand with ample supply of gas in the cylinder or other source

A simple test procedure for reverse flow check valves is to remove the valves from the equipment and do the following two checks:

- Submerge only the inlet end of the valve in water and blow into the opposite end. Any evidence of bubbles indicates the valve is leaking and defective.
- Blow in the inlet end of the valve to test for free flow operation. A restriction to free flow indicates the valve may be plugged with debris or stuck to the valve seat and not operating properly.

G12.124 Respiratory protection and provision of ventilation for welding, cutting, and allied processes

Issued May 24, 2002; Revised February 11, 2004; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision December 14, 2012

Regulatory excerpt

Section 12.124 of the *OHS Regulation* ("*Regulation*") states:

A respirator must be provided and worn if an effective means of natural, mechanical or local exhaust ventilation is not practicable

- (a) during short duration welding, burning or similar operations, and
- (b) during emergency work.

Purpose of guideline

The purpose of this guideline is to provide direction on when a respirator must be worn where an effective means of natural, mechanical, or local exhaust ventilation is not practicable in certain circumstances.

When respirator must be worn

The intent of section 12.124 of the *Regulation* is to ensure that if an effective means of natural, mechanical, or local exhaust ventilation is not feasible or practicable during a short duration welding, burning, or similar operation, that respiratory protective equipment be provided and worn. It implies that respiratory protective equipment is not required if effective natural, mechanical, or local exhaust ventilation is in place. This may be appropriate for some welding processes such as shielded metal arc welding (SMAW) on mild steel; respirators are not necessary once ventilation controls are in place. For other processes, such as welding on chromium or cadmium alloy metals, a respirator should be worn as supplementary protection to ventilation controls. Of particular concern is worker protection during welding, burning, or similar process in a confined space. In consideration of these factors, this guideline has been developed to provide direction in determining when ventilation should be used, the type of

ventilation effective in different situations, and when respiratory protection should be used.

As provided by section 12.124, exposure control can include natural ventilation for processes where exposure levels to airborne contaminants are inherently low, such as tack welding on mild steel using a mild steel rod or wire. Natural ventilation is air movement within an indoor work area provided by open doors or windows, or in an outdoor location by being exposed to natural air movement (wind). Natural ventilation cannot be depended on in a work location containing structural barriers that can restrict natural air movement.

The requirements for wearing respiratory protection during welding and related processes are based on the potential risk of overexposure to airborne contaminants that may be generated by the specific welding, burning, or related process. Some processes pose significantly greater risk to the worker than others. For example, a worker welding on mild steel in an unenclosed, outdoor location with good natural ventilation may not be overexposed to airborne contaminants from the process. Note, however, that workers must not be exposed to concentrations exceeding the exposure limits. If exposure levels could exceed an applicable exposure limit with ventilation controls in place, then respiratory protection is required.

The potential for overexposure is also determined by the location of the welding process and the conditions in which the welder is working. Is the area well ventilated, either by natural or mechanical means? Is the welder working in an open, limited, or confined area? What is the welder's position relative to the welding plume? These questions can be answered by identifying the hazards and assessing the risks for overexposure as specified under section 5.53 of the *Regulation*. Refer to [OHS Guideline G5.54-3](#) for further guidance on risk assessment.

Based on experience and the knowledge obtained about exposure levels associated with a particular welding, burning or similar process, the level of production, and the degree of confinement in the work area (outdoor location, open or limited work space, or a confined space), Table 1 and Table 2 may be used to determine the following:

- The type of ventilation that would be appropriate (natural, mechanical, local exhaust ventilation, or a combination thereof)
- When respiratory protective equipment should be used

Table 1 covers metals that contain less than 3% chromium or less than 5% total alloys.

Table 2 applies to metals coated with or containing alloy material, metals containing more than 3% chromium and more than 5% total alloys, and to non-ferrous metals such as brass.

Refer to the "Notes" at the end of each table for a description for the various headings and abbreviations.

Table 1: Ventilation and respiratory protection guidelines for welding, cutting, and allied processes of uncoated low-alloyed steels or unalloyed steels. Nominal chromium content not exceeding 3%, and nominal total alloying content not exceeding 5%.^{1, 2}

Process	Production level ⁴	Degree of confinement in work area ³			
		Outdoor	Open Work Space	Limited Work Space	Confined Space
Gas preheating, Gas welding, Gas tungsten arc welding (GTAW)	Normal High	N N	N or M LE	M LE	LE LE
Brazing and soldering	Any	N	N or M	M	LE
Flame cutting, Flame gouging	Any	N	N or M	M	LE
Gas metal arc welding (GMAW)	Normal High	N N	N or M LE	LE LE	M & LE M & LE
Flux-cored arc welding (FCAW), Shielded metal arc welding (SMAW)	Normal High	N N	N or M LE	LE LE	M & LE M & LE
Plasma arc cutting and gouging	Normal High	N N	LE LE or water table	LE LE or water table	LE LE & RPD
Submerged arc welding (SAW), Electroslag welding, Electrogas welding	Normal High	N N	N N	N N	M M
Thermite welding, Air carbon arc gouging	Normal High	N N	M LE	LE LE & RPD	LE LE & RPD

Resistance welding	Normal High	N N	N M	M M	LE LE
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Notes:

Table adapted from Table 5 of *CSA Standard W117.2-94 Safety in Welding, Cutting, and Allied Processes*.

- ¹N = natural ventilation
- M = mechanical ventilation
- LE = local exhaust ventilation
- RPD = respiratory protective device.

Refer to [OHS Guideline G8.33-1](#) for selection of the appropriate RPD. Where an RPD is indicated, it is supplemental to mechanical ventilation as stipulated under *Regulation*, section [5.55](#) (hierarchy of control measures).

² Refer to section [5.70](#) of the *Regulation* (recirculation of discharged air into the work area).

³ Degree of confinement is defined as follows:

Open Work Space:

- (a) Large work area without obstructions
- (b) Open to outdoors and wind
- (c) Fume is free to escape.

Limited Work Space:

- (a) A work area that does not fit the definition of "open"
- (b) An open area that may become limited when doors and windows are closed during cold weather or when working in close proximity to walls, corners, or obstructions
- (c) Fume is hindered from escaping

Confined Space:

- (a) Inside a *confined space* as defined under section [9.1](#) of the *Regulation*
- (b) Fume cannot escape or is very limited in its ability to escape.

⁴ High production refers to duty cycles exceeding approximately 40% or high amperage processes exceeding 350 A, or both. The rated duty cycle of an arc welding machine (at rated current) is the percentage of actual arc time allowed based on a 10-minute period. The 10-minute time frame is standard for most welding machines. If a machine is rated at 300 A at 40% duty cycle, the load of 300 A should not be applied for more than 4 minutes out of every 10-minute period. The machine should be allowed to idle for the remaining 6 minutes (cool down period). If an arc welding machine is to be operated at a current greater than its rating, the allowable duty cycle should be reduced accordingly. Conversely, if the rated duty cycle is to be exceeded, the allowable current output is to be reduced.

Using welding machines beyond ampere or duty cycle ratings can cause overheating and increase the potential for premature deterioration of the insulation, increasing the risk for an electrical shock.

Table 2: Ventilation and respiratory protection guidelines for welding, cutting, and allied processes of coated and alloyed steels, and non-ferrous metals. Nominal chromium content over 3% and nominal total alloying content over 5%. ^{1,2}

Material	Contaminant ⁴	Production level ^{5, 6}	Degree of confinement in work area ³			
			Outdoor ⁷	Open Work Space	Limited work Space	Confined Space
Aluminum	Aluminum oxides, ozone	Normal	N	M	LE	LE
		High (GTAW)	-	M	M	LE
		High (GMAW)	-	M	M & LE	LE & RPD

Barium	Barium oxides and fume	Normal (FCAW)	LE	LE	LE	LE & RPD
Beryllium	Beryllium oxides and fume	Any	All locations LE and RPD or special glove box.			
Cadmium	Cadmium oxide	Any	LE	LE	LE and RPD or special glove box	
Chromium	Chromium VI oxide ⁸	Normal High High (SAW)	M LE -	LE LE N	LE LE M	LE & RPD LE & RPD LE
Copper	Copper oxides	Normal High	M LE	M LE	LE LE	LE & RPD LE & RPD
Fluorine	Fluorides (of calcium, sodium, potassium)	Normal High High (SAW)	N - -	N M N	M LE N	LE LE LE
Lead	Lead fumes	Normal High	M LE	M LE	LE LE	LE & RPD LE & RPD
Manganese	Manganese oxides	Any	N	M	LE	LE & RPD
Nickel	Nickel fumes	Normal High High (SAW)	M LE -	LE LE N	LE LE N	LE & RPD LE & RPD LE & RPD
Zinc	Zinc oxide	Any	N	M	LE	LE

Notes:

Table adapted from Table 6 of *CSA Standard W117.2-94 Safety in Welding, Cutting, and Allied Processes*.

¹N = natural ventilation
M = mechanical ventilation
LE = local exhaust ventilation
RPD = respiratory protective device.

Refer to [OHS Guideline 8.33-1](#) for selection of the appropriate RPD. Where an RPD is indicated, it is supplemental to mechanical ventilation as stipulated by under *Regulation*, section [5.55](#) (hierarchy of control measures).

² Refer to section [5.70](#) of the *Regulation* (recirculation of discharged air into the work area). Recirculation of certain contaminants into the work area is restricted by the provisions of [Table 5-1](#) of the *Regulation*.

³ Degree of confinement is defined as follows:

Open Work Space:

- (a) Large work area without obstructions
- (b) Open to outdoors and wind
- (c) Fume is free to escape.

Limited Work Space:

- (a) A work area that does not fit the definition of "open"
- (b) An open area that may become limited when doors and windows are closed during cold weather or when working in close proximity to walls, corners, or obstructions
- (c) Fume is hindered from escaping.

Confined Space:

- (a) Inside a *confined space* as defined under section 9.1 of the *Regulation*
- (b) Fume cannot escape or is very limited in its ability to escape.

⁴ Refer to the the [Table of Exposure Limits for Chemical and Biological Substances](#) for exposure limits and designations (see OHS Guideline [G5.48-2](#)).

⁵ High production refers to duty cycles exceeding approximately 40% or high amperage exceeding 350 A, or both. The rated duty cycle of an arc welding machine (at rated current) is the percentage of actual arc time allowed based on a 10-minute period. The 10-minute time frame is standard for most welding machines. If a machine is rated at 300 A at 40% duty cycle, the load of 300 A should not be applied for more than 4 minutes out of every 10-minute period. The machine should be allowed to idle for the remaining 6 minutes (cool down period). If an arc welding machine is to be operated at a current greater than its rating, the allowable duty cycle should be reduced accordingly. Conversely, if the rated duty cycle is to be exceeded, the allowable current output is to be reduced.

Using welding machines beyond ampere or duty cycle ratings can cause overheating and increase the potential for premature deterioration of the insulation, increasing the risk for an electrical shock.

⁶ SMAW = shielded metal arc welding
GMAW = gas metal arc welding
GTAW = gas tungsten arc welding
FCAW = flux-cored arc welding
SAW = submerged arc welding

⁷ Where mechanical ventilation is recommended for welding outdoors, a fan may be used to disperse fumes before they enter the breathing zone of the welder or of other workers.

⁸ For chromium II and III compounds, ventilate as recommended for copper oxides.

Guidelines Part 12 - Rail Car Movement

G12.168 Blue Flag Rule

Issued September 1999; Editorial Revision January 1, 2009; Retired July 3, 2018

The document referred to "[Canadian Rail Operating Rules](#)" is available online and this guideline is no longer required.

Guidelines Part 12 - Pressure Vessels

G12.173(1) Pressure vessels

Issued consequential to February 1, 2013 Regulatory Amendment; Editorial Revision November 21, 2017

Regulatory excerpt

Section 12.173(1) of the *OHS Regulation* ("*Regulation*") states:

(1) In this section "pressure vessel" has the same meaning as in the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation, B.C. Reg. 104/2004.

Purpose of guideline

The purpose of this guideline is to explain the intent of section 12.173(1) of the *Regulation* and to set out the definition of a "pressure vessel."

Intent of Regulation

The intent of this regulatory requirement is to provide safety requirements for pressure vessels not already addressed under other legislation. Pressure vessels rated for operation at a pressure of more than 103 kPa (15 psi) are normally within the jurisdiction of the BC Safety Authority (operating as Technical Safety BC — "TSBC"). The TSBC enforces regulations that ensure that such pressured vessels are safe, including provisions for appropriate pressure relief devices.

Definition of pressure vessel

The *Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation* ("*Pressure Vessel Regulation*") defines a pressure vessel as "a vessel and its fittings, other than a boiler, that is capable of being used to contain, store, distribute, transfer, distil, process or otherwise handle gas, vapour or liquids under pressure."

Guidelines Part 12 - Roll-on/Roll-off Containers

G12.175 Container safety standard for roll-on/roll-off containers

Issued consequential to February 1, 2015 Regulatory Amendment; Revised November 20, 2015

Regulatory excerpt

Section 12.175 of the *OHS Regulation* ("*Regulation*") states:

In sections 12.176 to 12.183:

"container safety standard" means ANSI Standard ANSI Z245.30-2008, American National Standard for Equipment Technology and Operations for Wastes and Recyclable Materials - Waste Containers - Safety Requirements;

"roll-on/roll-off container" means a container that

(a) is typically used to receive, store and transport refuse, and

(b) is designed to be used with a vehicle equipped with hydraulic or mechanical tilt-frame and hoist-type equipment, commonly referred to as roll-offs or hook-lifts.

Section 12.176 of the Regulation states:

(1) A supplier of a roll-on/roll-off container manufactured on or after February 1, 2015, must ensure that the container is designed and manufactured in accordance with the requirements of the container safety standard.

(2) Employers must ensure that workers handle roll-on/roll-off containers in accordance with the requirements of the container safety standard.

Purpose of guideline

The purpose of this guideline is to identify the clauses of the container safety standard (ANSI Standard ANSI Z245.30-2008, American National Standard for Equipment Technology and Operations for Wastes and Recyclable Materials - Waste Containers - Safety Requirements) that apply to roll-on/roll-off containers.

Applicable clauses of the standard

Roll-on/roll-off containers within the scope of sections 12.175 through 12.183 include all containers used to receive, store, and transport refuse. This includes open-top, closed-top, and compacting refuse containers which may be used to transport construction debris or other types of refuse.

The container safety standard covers both roll-on/roll-off containers and other types of containers that are outside the scope of sections 12.175 through 12.183. This includes containers that are used to receive and store, but not to transport refuse. As a result, not all clauses of the standard are applicable to roll-on/roll-off containers. For convenience, Table 1 identifies the applicable and inapplicable clauses of the standard.

Table 1: Applicable Container Safety Standard Clauses

Part	Applicable clauses	Inapplicable clauses
0. Introduction	All clauses	None
1. Scope	All clauses	None
2. Normative references	References to the following standards: <ul style="list-style-type: none"> • ANSI Z245.60-2008 • ANSI Z535.1-2002 • ANSI Z535.2-2002 • ANSI Z535.3-2002 • ANSI Z535.4-2002 	References to the following standards or regulations: <ul style="list-style-type: none"> • ANSI Z245.1-2008 • ANSI Z245.21-2008 • ANSI/NFPA 82-2004 • SAE Standard J594 • US Code of Federal Regulations
3. Definitions	All clauses	None
4. Construction, installation, reconstruction, and modification	All clauses other than 4.2.1.1, 4.2.1.2, and 4.2.2	4.2.1.1, 4.2.1.2, and 4.2.2
5. Manufacturer/ rebuilder/ modifier responsibilities	All clauses	None
6. Employer, owner, employee, and other user's responsibility for containers	6.1, 6.2, 6.2.1, and 6.2.4	6.1.1 through 6.1.5, 6.2.2, 6.2.3, and 6.2.5
7. Technical requirements	7.1 through 7.1.3.1, 7.1.5 through 7.1.6.3, and 7.2 through 7.2.1.6	7.1.3.2 through 7.1.4.4, 7.1.6.4 through 7.1.7, and 7.2.1.7 through 7.2.5.4.1

For added clarity, sections 12.175 to 12.183 of the Regulation do not apply to carts - two-wheeled plastic refuse containers generally having a capacity of between 75 and 450 liters. These include two-wheeled plastic carts used for the disposal of household wastes, recycling, and organic waste.

Contents

DIVISION 1 - GENERAL

G13.1 [Types of work platforms](#)

G13.2 [Standards](#)

- G13.2(1) [Ships' ladders](#)
- G13.2(1)(b) [Ladders in manholes](#)
- G13.2(1)-2 [Application of CSA and ANSI standards for suspended stages](#)
- G13.2(1)-3 [Training requirements for operators of elevating work platforms](#)

DIVISION 2 - LADDERS

- G13.4 [Ladder ratings and selection](#)

DIVISION 3 - WORK PLATFORMS

- G13.8 [General requirements - Chair design](#)

DIVISION 4 - SCAFFOLDS

- G13.14 [Guardrails on end frame scaffolds](#)
- G13.19 [When and how to ground metal scaffold](#)

DIVISION 5 - MOVABLE WORK PLATFORMS

- G13.23(1) [Inspection and certification of elevating work platforms](#)
- G13.25 [Warning devices](#)
- G13.28(2) [Safe work procedure acceptable to the Board to prevent two-blocking in pile driving and similar applications](#)
- G13.29 [Lower travel limit devices](#)
- G13.30 [Lift truck mounted work platforms](#)
- G13.32 [Prior permission - Platform use in high risk situations](#) [Retired]
- G13.32-1 [Work in high-risk situations - Inspection and testing requirements](#)

Guidelines Part 13 Division 1 - General

G13.1 Types of work platforms

Issued January 1, 2005; Revised March 8, 2007; Editorial Revision June 30, 2021

Regulatory excerpt

Section 13.1 of the *OHS Regulation* ("Regulation") states:

"boom-supported" means supported by an elevating device that telescopes, articulates, rotates or extends relative to the machine base or vehicle, so that the platform can be positioned completely beyond the base;

"boatswain's chair" also known as a bosun's chair, means a seat attached to a suspended rope designed to accommodate one person in a sitting position;

"elevating work platform" means a movable work platform that self-elevates to overhead work locations;

"movable work platform" means a work platform that can be re-positioned during the course of the work;

"permanent powered platform" means a movable work platform that

- (a) is raised or lowered by other than manual means, and
- (b) is permanently installed on or attached to a building or structure;

"portable powered platform" means a movable work platform that

- (a) is raised or lowered by other than manual means, and
- (b) is not permanently installed on or attached to a building or structure;

"scaffold" means any temporary elevated work platform and its supporting structure used for supporting workers, materials or equipment;

"self-propelled" means the capability of an elevating work platform to travel under power with the primary controls on the work platform;

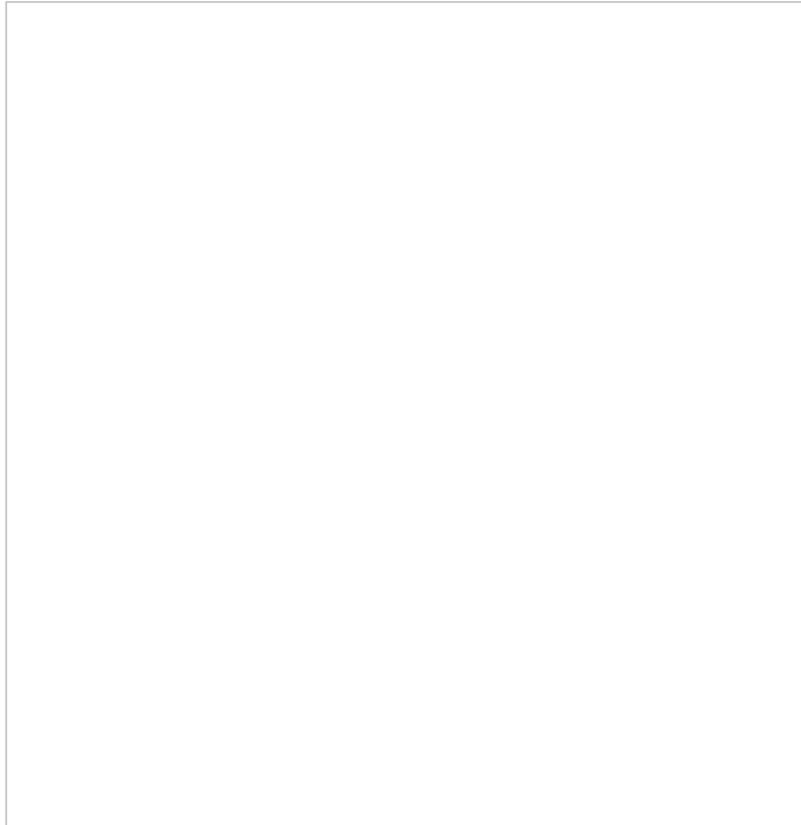
"swing stage" means a work platform that is raised and lowered by manual or powered hoisting equipment, supported by 2 or more suspension lines;

"work platform" means an elevated or suspended temporary work surface used for supporting workers and includes a scaffold and boatswain's chair.

Purpose of guideline

The purpose of this guideline is to provide a chart to show the various types of work platforms covered by [Part 13](#) of the *Regulation*, and a brief explanation of some types of movable platforms.

Chart - Types of work platforms



Explanation of terms

Confusion sometimes arises about the differences between some of the terms in the chart, particularly related to movable work platforms. The following explanations are intended to assist the reader.

Movable work platforms: A movable work platform is a platform that can be moved, manually or by power, in either the vertical or horizontal direction, or both, and covers a range of types of equipment. The different types of movable work platforms shown in the chart can be discussed in three groups: suspended staging, elevating work platforms, and platforms supported by other equipment.

- **Suspended staging** (permanent powered platforms, swing stages, and boatswain's chairs): These are all movable platforms that are supported by line(s) from a building or structure, and can be repositioned vertically during use.
- **Elevating work platforms:** An elevating work platform is one that self-elevates, and includes design features for lateral mobility (travel). If the platform travels under power when operated by controls on the work platform it is termed "self-propelled." There are two types of self-propelled units; those that are boom-supported, and other designs, such as self-propelled scissor lifts. Alternatively, if an elevating work platform is moved by hand or is attached to the deck of a powered vehicle, it is called a "portable elevating work platform." There are a range of types of portable elevating work platforms in use, from elevating equipment mounted on service trucks, to compressed gas power lifts that are moved by hand. Mast climbers that provide access to the face of a building, and that can be repositioned vertically as work proceeds, are also included in this group.
- **Platforms supported by other equipment** (lift truck supported, and crane or hoist supported): A platform that is elevated by another piece of equipment is not an elevating work platform because the platform itself is not designed to be capable of elevating. Examples of this type of work platform are those that are positioned and supported by a crane, hoist, or lift truck. These platforms are movable, but they are not elevating.

G13.2 Standards

Issued January 1, 2005; Editorial Revision May 2005; Editorial Revision August 12, 2008; Editorial Revision September 1, 2009; Editorial Revision March 31, 2010; Editorial Revision May 17, 2012; Revised April 1, 2013; Editorial Revision July 15, 2019

Regulatory excerpt

Section 13.2(1) of the *OHS Regulation* ("Regulation") states:

A ladder, window cleaner's belt or work platform must meet and be used in accordance with

(a) the applicable CSA or ANSI standard in effect when the equipment or structure was manufactured, except as otherwise determined by the Board,

(b) another standard acceptable to the Board, or

(c) if there is no applicable standard under paragraphs (a) or (b), the requirements of a professional engineer.

Purpose of guideline

The purpose of this guideline is to provide a list of some common applicable standards under section 13.2(1)(a). The guideline also provides a list of standards acceptable to WorkSafeBC under section 13.2(1)(b). Refer to OHS Guideline [G13.2\(1\)-2 Application of CSA and ANSI standards for suspended stages](#).

List of standards under section 13.2(1)

Agency	Standard number	Standard title ⁶
CSA ¹	B354.6:17	Mobile elevating work platforms - Design, calculations, safety requirements and test methods (ISO 16368:2010, MOD)
CSA	B354.7:17	Mobile elevating work platforms - Safety principles, inspections, maintenance and operation (ISO 18893:2014, MOD) - the acceptance of this standard by WorkSafeBC allows it to be used retroactively for older Mobile elevating work platforms
CSA	B354.8:17	Mobile elevating work platforms "Operator (driver) training (ISO 18878:2013, MOD)
CSA	B354.1	Portable Elevating Work Platforms (withdrawn in 2018)
CSA	B354.2	Self-propelled Elevating Work Platforms (withdrawn in 2018)
CSA	B354.4	Self-propelled Boom-Supported Elevating Work Platforms (withdrawn in 2018)
CSA	B354.5	Mast-climbing work platforms
CSA	C225	Vehicle-Mounted Aerial Devices
CSA	S269.2	Access Scaffolding for Construction Purposes
CSA	Z11	Portable Ladders
CSA	Z91-02	Health and Safety Code for Suspended Equipment Operations
CSA	Z185	Safety Code for Personnel Hoists
CSA	Z271	Safety Code for Suspended Platforms
CSA	Z323.5	Mechanical/Electromechanical Lifting Devices for Persons
CSA	Z797	Code of Practice for Access Scaffold
WCB ²	WPL2-2004	Design, Construction and Use of Crane Supported Work Platforms
WCB	LDR1-2004	Job Built Ladders
WCB	WPL3-2004	Safety Factor and Minimum Breaking Strength for Suspended Work Platforms and Associated Components
WCB	WPL1-2004	Design, Construction and Use of Wood Frame Scaffolds
WCB	WorkSafeBC13.30	Work Platforms Supported by Lift Trucks
ANSI ³	A10.22	Safety Requirements for Rope-Guided and Non Guided Workmen's Hoists
ANSI	A10.8	American National Standard for Construction and Demolition Operations - Scaffolding - Safety Requirements
ANSI	A120.1	Powered Platforms for Exterior Building Maintenance
ANSI	A14.1	Safety Requirements for Portable Wood Ladders
ANSI	A14.2	Safety Requirements for Portable Metal Ladders
ANSI	A14.3	American National Standard for Ladders - Fixed - Safety Requirements
ANSI	A14.5	Safety Requirements for Portable Reinforced Plastic Ladders
ANSI	A14.7	Safety Requirements for Mobile Ladder Stands and Mobile Ladder Stand Platforms
ANSI	A39.1	Safety Code for Window Cleaning
ANSI	A92.1	Mobile Ladder Stands and Scaffolds (Towers), Manually Propelled
ANSI	A92.2	Vehicle-Mounted Elevating and Rotating Aerial Devices (Work Platforms)

ANSI	A92.20 - 2018	Design, Calculations, Safety Requirements and Test Methods for Mobile Elevating Work Platforms (MEWP's)
ANSI	A92.22 - 2018	Safe Use of Mobile Elevating Work Platforms (MEWP's)
ANSI	A92.24 - 2018	Training Requirements for the USE, Operation, Inspection, Testing and Maintenance of Mobile Elevating Work Platforms (MEWP's)
ANSI	A92.3	American National Standard for Manually Propelled Elevating Aerial Platforms (withdrawn in 2019)
ANSI	A92.5	Boom-Supported Elevating Work Platforms (withdrawn in 2019)
ANSI	A92.6	American National Standard for Self-propelled Elevating Work Platforms (withdrawn in 2019)
ANSI	A92.8	American National Standard for Vehicle-Mounted Bridge Inspection and Maintenance Devices (withdrawn in 2019)
ANSI	A92.9	American National Standard for Mast-Climbing Work Platforms
ASME ⁴	B30.23	Personnel Lifting Systems
ANSI	B56.1	Safety Standard for Low Lift and High Lift Trucks
ANSI	B56.6	Safety Standard for Rough Terrain Forklift Trucks
ANSI	A14.4	Job-Made Ladders, Safety Requirements for
ASTM ⁵	C 478M	Standard Specification for Precast Reinforced Concrete Manhole Sections

¹CSA: Canadian Standards Association (CSA Group)

²WCB: WorkSafeBC (Workers' Compensation Board of British Columbia)

³ANSI: American National Standards Institute

⁴ASME: American Society of Mechanical Engineers

⁵ASTM: American Society for Testing and Materials (ASTM International)

⁶Standard titles may vary between published editions of a Standard

G13.2(1) Ships' ladders

Issued May 25, 2005

Regulatory excerpt

Section 13.2(1) (Standards) of the *OHS Regulation* ("*Regulation*") states:

- (1) A ladder, window cleaner's belt or work platform must meet and be used in accordance with
 - (a) the applicable CSA or ANSI standard in effect when the equipment or structure was manufactured, except as otherwise determined by the Board,
 - (b) another standard acceptable to the Board, or
 - (c) if there is no applicable standard under paragraphs (a) or (b), the requirements of a professional engineer.

Purpose of this guideline

This guideline sets out the circumstances where a "ship's ladder" would normally be acceptable for use. It also provides guidance on the expectations of the Board for the design, installation and use of such a ladder.

What is a ship's ladder?

A ship's ladder, as addressed by this guideline, means a permanently installed steep pitched stair-like structure having rigid treads supported by rigid side rails, with handrails on each side. It does not include a ladder configuration made of treads or rungs supported by "side rails" made of fibre or wire rope. While the ladder is referred to as a ship's ladder, the usage covered in this guideline is with respect to land-based applications as described below.

Where are they appropriate?

A ship's ladder should only be considered for use where a conventional stairway cannot be installed due to limited space. Installation should be limited to places where only occasional use is required, such as for servicing machinery or equipment on a typical frequency of less than daily.

There is no CSA or ANSI standard that has been issued to address ship's ladders. In the absence of a standard the Board has a number of expectations for the design, installation and use of these ladders under section 13.2(1) of the *Regulation*, which are outlined below.

Ladder design and installation

A ship's ladder should:

- be designed so the angle between the side rails and the horizontal is between 50 and 70 degrees. The preferred angle is in the range of 60 to

68 degrees.

- serve only a single platform or landing and have a maximum height of 4 metres (12 feet)
- have treads at least 130 millimetres (mm) (5 inches) wide, with a nonskid finish, uniformly spaced at not more than 305 mm (12 inches). Treads should be at least 430 mm (17 inches) long, but not longer than 630 mm (24 inches).
- have a minimum design working load of 1.1 kiloNewtons (kN) (250 pounds) applied uniformly to a 90 mm (3.5 inch) strip across the centre of the tread
- have handrails provided on both sides of the ladder at approximately 900 mm (36 inches) above the tread nosing
- have a safety guard installed parallel to the slope of the ladder and offset approximately 150 mm (6 inches) from the rear of the treads. (This guard is to stop a worker's leg from passing through to the backside of the ladder if a foot slips off the back side of the tread.)

Note that a ship's ladder is a permanent load-carrying structure and needs to be properly engineered, as required by section 13.2(1)(c). Design drawings and specifications should show all information necessary for the fabrication and installation of the ship's ladder, including details on how it is to be secured in place. The completed installation will need to be certified by a professional engineer as being fabricated and installed in accordance with good engineering practice.

Ladder use

The user of a ship's ladder should:

- be trained on the correct way to use the ladder
- face the ladder when ascending or descending
- have both hands free to grasp the handrails when using the ladder. Tools or other items which prevent both hands from being free to grasp the handrails should not be carried up or down the ladder.
- maintain "three points of contact" when using the ladder. Three points of contact means two feet and one hand or two hands and one foot in contact with the ladder and handrails at all times. (This is recommended practice when using any type of ladder.)

G13.2(1)(b) Ladders in manholes

Issued January 1, 2005; Editorial Revision June 30, 2021

Regulatory excerpt

Section 13.2(1) of the *OHS Regulation* ("Regulation") states:

- (1) A ladder, window cleaner's belt or work platform must meet and be used in accordance with
 - (a) the applicable CSA or ANSI standard in effect when the equipment or structure was manufactured, except as otherwise determined by the Board,
 - (b) another standard acceptable to the Board, or
 - (c) if there is no applicable standard under paragraphs (a) or (b), the requirements of a professional engineer.

Purpose of guideline

This guideline sets out a standard acceptable to WorkSafeBC for the design and construction of an individual rung ladder in a manhole that is part of a water, sewer, or storm sewer system.

Manholes

These manholes typically have an outside diameter of 1200 millimetres (48 inches) or less, and may have a tapering cone section near the top. For these structures it is recognized that the amount of interior space for access and to perform work is limited and the access ladder arrangement needs to provide for safe access while not protruding unnecessarily into the entry and work space. WorkSafeBC recognizes the *ASTM Specification C 478M Standard Specification for Precast Reinforced Concrete Manhole Sections* ("*ASTM Specification C 478M*") as a standard acceptable to the Board under section 13.2(1)(b) for an individual rung ladder in such manholes. (Note this version is the metric companion to *ASTM Specification C 478*, which is also acceptable to WorkSafeBC.) This standard refers to an individual rung as a "step."

ASTM Specification C 478M was developed for manholes assembled using precast concrete components for the base, riser, cone, and top sections. Manholes are also assembled using components for these sections made from other materials. Manhole steps or individual rungs will be cast, mortared, or attached by mechanical means to the walls of base, riser, or cone sections. Steps or rungs in a manhole must meet the design, material, dimension, and testing and acceptance criteria of the *ASTM Specification C 478M*, regardless of the material used to make the risers or cone sections.

Ladders in manholes

ASTM Specification C 478M requires steps in a manhole's base, riser(s), and conical top section be aligned to form a continuous ladder with steps (rungs) equally spaced vertically at a maximum spacing of 400 millimetres (16 inches). Rungs must project a minimum clear distance of 100 millimetres (4 inches) from the wall of the base, riser, or cone section measured at the point of embedment or attachment. The minimum clear distance between the rung and the opposite wall of the riser or cone must be 450 millimetres (18 inches) measured at the centre face of the rung. The minimum width of a step or rung is 250 millimetres (10 inches).

The maximum distance down from the entry level (rim of the manhole cover) to the centerline of the first rung below entry level in any manhole should be 500 mm (20 inches) where no handhold is provided above the first rung. Where a handhold is provided between the entry level and the

first rung, the maximum distance may be increased to not more than 660 mm (26 inches).

ASTM Specification C 478M does not require any additional ladder safety features, such as a cage, rest platform, or ladder climbing device, regardless of the length of climb. Safety cages and rest platforms should not be used in a manhole as they may impede rescue or retrieval procedures. A worker entering a deep manhole, such as one more than 5 metres (16 feet) deep, should use a personal fall protection or rescue harness system, which will arrest a fall and allow for rescue or recovery if necessary. Such systems are often part of the employer's confined space entry program for work in and around manholes.

Training

A worker assigned to enter manholes should receive training that includes awareness of the limited step depth and width for manhole rungs and the need to proceed cautiously when climbing into or out of a manhole. Training should also include procedures to assess the integrity of the steps or rungs when going into a manhole that has not been entered for a while, as rungs may have deteriorated due to corrosion or become loose due to deterioration of the supporting concrete or other material in the riser or cone sections.

Application

The above acceptance of *ASTM Specification C 478M* is intended to apply to manholes where entry into such manholes is infrequent; for example, access to manholes is typically in the range of once or twice per year. If more regular access is required, such as monthly or more frequently, ladder access meeting the requirements of *ANSI Standard A14.3 American National Standard for ladders-fixed-safety requirements* should be provided. It is not the intention of WorkSafeBC to require existing manholes which are currently used frequently to be modified to accommodate a fixed ladder. However, new facilities where frequent entry is going to be made should be sized and installed with a proper fixed ladder. A ladder in a well or shaft is required to meet the ANSI standard.

G13.2(1)-2 Application of CSA and ANSI standards for suspended stages

Issued December 3, 2007; Revised April 1, 2013

Regulatory excerpt

Section 13.2(1) of the *OHS Regulation ("Regulation")* states, in part:

A ladder, window cleaner's belt or work platform must meet and be used in accordance with

(a) the applicable CSA or ANSI standard in effect when the equipment or structure was manufactured, except as otherwise determined by the Board,

...

Purpose of guideline

WorkSafeBC has determined that suspended stage work platforms must meet and be used in accordance with specific standards. The purpose of this guideline is to describe the required standards for suspended stage work platforms.

Background information

Suspended stages are movable work platforms that are supported by line(s) from a building or structure, and can be repositioned vertically during use. They include permanent powered platforms, swing stages, and boatswain's (bosun's) chairs. Refer to [OHS Guideline G13.1 - Types of work platforms](#).

There are a number of Canadian Standards Association (CSA) and American National Standards Institute (ANSI) standards that address design, construction, installation, and use of work platforms. Refer to OHS Guideline [G13.2 - Standards](#) for a list of some of these standards. The listed standards specific to suspended stages are (standard titles may vary between different published editions) as follows:

CSA Z271 Safety code for Suspended Platforms

CSA Z91-02 Health and Safety Code for Suspended Equipment Operations

ANSI A120.1 Safety Requirements for Powered Platforms for Building Maintenance

ANSI A10.8 American National Standard for Construction and Demolition Operations - Scaffolding - Safety Requirements

Each of these standards has multiple editions, and a number of elements of design, construction, and use are addressed in more than one standard. This has resulted in some confusion as to which is the applicable standard.

Determination of applicable standards for design, construction, and installation of suspended stage equipment

WorkSafeBC has determined that suspended stages must meet the design, construction, and installation requirements (and any associated maintenance requirements) of any of the following applicable CSA and ANSI standards in effect when the equipment was manufactured:

CSA Z271

ANSI A120.1

ANSI A10.8

The applicable editions of *CSA Z271* standards for design, construction, and installation of suspended stages used for gaining access to exterior and interior building surfaces and other structures for the purpose of construction, demolition, or building maintenance are as follows:

- A. CSA Z271-10 Safety Code for Suspended Platforms
- B. CSA Z271-98 Safety Code for Suspended Elevating Platforms
- C. CSA Z271-M84 Safety Code for Suspended Powered Platforms
- D. Supplement No.1-1977 to CSA Z271-1974
- E. CSA Z271-1974 Safety Code for Powered Platforms

The applicable editions of ANSI A120.1 standards for design, construction, and installation of powered suspended stages used to gain access to building surfaces for building maintenance are as follows:

- A. ANSI/ASME A120.1-2008 Safety Requirements for Powered Platforms and Traveling Ladders and Gantries for Building Maintenance
- B. ANSI/ASME A120.1-2006 Safety Requirements for Powered Platforms and Traveling Ladders and Gantries for Building Maintenance
- C. ANSI/ASME A120.1-2001 Safety Requirements for Powered Platforms for Building Maintenance
- D. ANSI/ASME A120.1-1996 Safety Requirements for Powered Platforms for Building Maintenance - Addenda A - 1997; Addenda B - 11/12/1999
- E. ANSI/ASME A120.1-1992 Safety Requirements for Powered Platforms for Building Maintenance
- F. ANSI/ASME A120.1-1970 Safety Requirements for Powered Platforms for Building Maintenance

Maintenance includes "specific activities such as exterior building cleaning, painting, application of sealants and insulation, brickwork repointing, renovations, inspections, and related building/structure maintenance. . . . (and) may also be applied to non-traditional activities, such as observation or photography, that may occasionally be carried out from suspended equipment." (ref. CSA Z91-02, *Health and Safety Code for Suspended Equipment Operations*). Exterior building cleaning includes window cleaning.

The applicable ANSI A10.8 standards for design, construction, and installation of suspended stages used to gain access to building surfaces for construction and demolition operations are as follows:

- A. ANSI/ASSE A10.8-2011 Scaffolding Safety Requirements
- B. ANSI/ASSE A10.8-2001 American National Standard for Construction and Demolition Operations - Safety Requirements for Scaffolding
- C. ANSI A10.8-1998 American National Standard for construction and demolition operations - scaffolding - safety requirements
- D. ANSI A10.8-1988 American National Standard for construction and demolition operations - scaffolding - safety requirements
- E. ANSI A10.8-1977 American National Standard Requirements for Scaffolding

Determination of applicable standard for the use of suspended stage equipment

WorkSafeBC has determined that the use of a suspended stage must meet the requirements of CSA Z91-02 *Health and Safety Code for Suspended Equipment Operations*. This is the required standard regardless of the year of manufacture of the equipment. The standard specifies safety requirements for use of equipment normally used for window and general cleaning, painting, maintenance, inspection, construction operations, and similar work. The following elements of use are addressed in CSA Z91-02:

- Training requirements for operation and occupancy of suspended stages
- General safety requirements such as weather restrictions, equipment and tool use and storage, signage, overhead protection, and fall protection
- Equipment operation, including general safety requirements, maintenance, use of suspended lines and lifelines, fall-arrest equipment, anchorage, support systems, work units, acceptable landings, special applications such as working from operable windows, and rigging techniques and practices
- Periodic inspection and testing of temporary and permanently installed equipment and anchor systems
- Documentation, such as the equipment log, roof plan, work plan, rigging plan, and fall protection procedures

There are also informative appendices to this standard. Although these are non-mandatory parts of the standard, they provide useful safety information for users of suspended stages. The appendices are entitled *Work Plan* and *Emergency Response Plan* and *Washing Windows in Complete Safety*.

Other acceptable standards

There may be an instance where a person finds it impracticable to comply with the above standards. In this case, application should be made to WorkSafeBC OHS Practice and Engineering Support for acceptance of an alternate standard.

Note that *Regulation section 2.3* specifies that the provisions of the *Regulation* prevail if there is any conflict between a prescribed code or standard and the *Regulation*.

G13.2(1)-3 Training requirements for operators of elevating work platforms

Issued December 19, 2013; Editorial Revision April 6, 2020

Regulatory excerpt

Section 13.2(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) A ladder, window cleaner's belt or work platform must meet and be used in accordance with
 - (a) the applicable CSA or ANSI standard in effect when the equipment or structure was manufactured, except as otherwise

determined by the Board,

(b) another standard acceptable to the Board, or

(c) if there is no applicable standard under paragraphs (a) or (b), the requirements of a professional engineer.

Purpose of guideline

The purpose of this guideline is to clarify the training requirements for operators of elevating work platforms.

Applicable standards

Section 13.2 of the *Regulation* requires that elevating work platforms must be used in accordance with the applicable standards. These standards provide information applicable to the training and retraining of the operators of this equipment, and list the topics that must be covered during the training. The following are some of the standards that include requirements for training operators of elevating work platforms:

- *CSA B354.1 Portable Elevating Work Platforms*
- *CSA B354.2 Self-Propelled Elevating Work Platforms*
- *CSA B354.4 Boom-type Elevating Work Platforms*
- *ANSI/SLA A92.2 Vehicle-Mounted Elevating and Rotating Aerial Devices*
- *ANSI/SLA A92.3 Manually Propelled Elevating Aerial Platforms*
- *ANSI/SLA A92.5 Boom-Supported Elevating Work Platforms*
- *ANSI/SLA A92.6 Self-Propelled Elevating Work Platforms*

Trainer qualifications

The CSA and ANSI standards referenced in the *Regulation* also set out the qualifications for the trainer. Persons providing the training must be qualified in accordance with the requirements of the standard that the particular elevating work platform being operated has been manufactured to. Elevating work platforms may also be manufactured to meet more than one standard, such as both the applicable CSA and ANSI standards.

The employer may choose to have the operator training provided by a training agency, a qualified person working for the employer, or by some other qualified individual.

Proof of Training

The standards either require or recommend that upon successful completion of the training, the training provider issues the operator with a document that indicates proof of the training received. Generally, the standards require that the following information is provided:

- The name of the person trained
- The date the training took place
- The name of the organization or entity that provided the training
- The name of the trainer(s) that delivered the training
- The specific type of elevating work platform covered by the training (e.g., scissor lift, boom-supported elevating work platform, etc.)
- The applicable standard under which the program of training was provided

The requirement for the retention of proof of training and retraining documents vary, depending on the applicable standard. In general, CSA standards require that the operator keep the proof of training document with them at all times while operating the equipment; whereas ANSI standards typically require the employer to retain training and retraining records for a period of at least four years, but place no obligation on the operator to keep the proof of training documents with them while operating the equipment.

Retraining and upgrade training

The applicable standards do not require that retraining be conducted at a specific interval. Rather, employers are required to provide retraining to an operator based upon their observations and evaluation of an operator's competency. Where deficiencies are identified, the employer must arrange to provide retraining that addresses the specific operational deficiencies that were identified.

Employers may wish to provide operator retraining on a regular fixed interval. Employers have a duty under [section 21\(2\)\(e\)](#) of the *Workers Compensation Act* ("Act") to provide to their workers the information, instruction, training, and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace. Provided that any operational deficiencies that are identified in the period between the established formal retraining intervals are addressed appropriately, and employers comply with the above requirement, they may determine the frequency of any retraining program they wish to implement.

Where operators are required to operate an elevating work platform that they are not familiar with, the employer must provide operators with adequate upgrade training to ensure that they can demonstrate proficiency in the operation of the particular elevating work platform. Operators must receive upgrade training when any of the following circumstances arise:

- New equipment is introduced in the workplace that is unfamiliar to the operator
- The equipment is modified in a manner that affects its safe operation or load capacity
- The operating conditions or the environment in which the operator works has changed
- The operator has been involved in an incident relating to the equipment
- Skill or knowledge deficiencies have been identified
- The requirements of the applicable standards or the *Regulation* change

Retraining or upgrade training may be provided by a training agency, a qualified person working for the employer, or by some other qualified individual, depending on the individual learning needs of the operator at that time.

Ensuring compliance

Employers must adhere to the requirements specified in the standard that applies to the particular equipment they are using. Since the individual elements of the various standards differ in areas such as operator training, retraining, the proof of training provided, and the retention of records, this can present a challenge with respect to ensuring compliance on an ongoing basis.

To ensure compliance, employers are encouraged to review the training related elements of the various standards that apply to the elevating work platforms they use, and consider adopting the most stringent elements of the standards that apply to that type of equipment. For example, ensure that all operators possess a suitable proof of training document, and keep that document with them at all times while operating the equipment.

Employers have a duty under section 21(2)(e) of the *Act* to provide to their workers the information, instruction, training, and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace.

Employers also have a duty under sections [3.23 and 3.24](#) of the *Regulation* to ensure that new workers are given health and safety orientation and training specific to that workplace. As defined in [section 3.22](#), a new worker is any worker who is new to the workplace, returning to a workplace where the hazards have changed, affected by a change in the workplace hazards, or relocated to a new workplace if the hazards are different.

In addition, there must be compliance with the applicable mobile equipment requirements set out in [Part 16](#) of the *Regulation*. Guidelines Part 13 Division 2 - Ladders

G13.4 Ladder ratings and selection

Issued January 1, 2005; Revised December 19, 2014; Revised February 1, 2016; Revised July 27, 2016

Regulatory excerpt

Section 13.2(1) of the *OHS Regulation* ("Regulation") states:

A ladder, window cleaner's belt or work platform must meet and be used in accordance with

- (a) the applicable CSA or ANSI standard in effect when the equipment or structure was manufactured, except as otherwise determined by the Board,
- (b) another standard acceptable to the Board, or
- (c) if there is no applicable standard under paragraphs (a) or (b), the requirements of a professional engineer.

Section 13.4 of the *Regulation* states:

A manufactured portable ladder must be marked for the grade of material used to construct the ladder and the use for which the ladder is constructed.

Purpose of guideline

The purpose of this guideline is to describe how portable ladders are classified under the applicable CSA and ANSI standards according to their intended use.

Portable ladder grades and types

Section 13.2(1) of the *Regulation* requires ladders to meet and be used in accordance with the following:

- (a) the applicable CSA or ANSI standard in effect when they were manufactured
- (b) another standard acceptable to WorkSafeBC
- (c) if there is no applicable standard, the requirements of a professional engineer

Under the applicable CSA and ANSI standards (listed under OHS Guideline [G13.2](#)), portable ladders are classified as follows:

Duty Rating	Load Rating	CSA Ladder Grade	ANSI Ladder Type
Special duty	170 kg (375 lb)	1AA	IAA
Extra heavy duty	136 kg (300 lb)	1A	IA
Heavy duty	113 kg (250 lb)	1	I
Medium duty	102 kg (225 lb)	2	II
Light duty	91 kg (200 lb)	3	III

Note: ANSI Standard A14.2 requires the use of Type I, IA, or IAA ladders with ladder jacks, and stage and scaffold planks.

If a portable ladder meeting a CSA or ANSI standard is not marked in accordance with the classification summarized in this table, then the ladder will not meet the requirements of section 13.4 of the *Regulation*.

Selecting an appropriate ladder

When considering a portable ladder for a work activity, the employer must select one of the appropriate grade/type. As described in the applicable CSA and ANSI standards, the employer must consider the following factors when selecting a ladder: the requirements of the worker, the task, the environment, the length required, the working load, the duty rating, and the frequency of use to which the ladder will be subjected.

For instance, depending on these factors and the particular circumstances:

- Grade 1/Type I ladders (or higher) will typically be required for the types of work activities undertaken on construction sites.
- Grade 2/Type II ladders will generally be appropriate for tasks such as light maintenance and light painting, but only after conducting an assessment of the factors listed above.
- Grade 3/Type III ladders are light duty and typically only suitable for household use; not workplace use.

Guidelines Part 13 Division 3 - Work Platforms

G13.8 General requirements - Chair design

Issued August 1, 1999; Revised January 1, 2005; Revised April 1, 2013

Regulatory excerpt

Section 13.8 of the *OHS Regulation* ("*Regulation*") states:

Each work platform must

- (a) have sufficient strength to bear the load to be placed on it, and
- (b) be secured against separation from the supporting equipment, structure or surface to which it is attached.

Purpose of guideline

This guideline explains design requirements for boatswain's (bosun's) chairs in order to meet strength requirements.

Design information

A boatswain's chair is a work platform under *Regulation* sections [13.2](#) and [13.8](#). A boatswain's chair raised and lowered by manually powered hoisting equipment, or used with a "descent only" rigging arrangement, must be designed to support a minimum load of 250 pounds. Please refer to the applicable CSA or ANSI standards for general requirements of a boatswain's chair design, e.g., *ANSI/ASSE A10.8-2001 Safety Requirements for Scaffolding* and *CSA Z271*. Refer to OHS Guideline [G13.2 Standards](#).

Guidelines Part 13 - Division 4 - Scaffolds

G13.14 Guardrails on end frame scaffolds

Issued August 1999; Revised January 1, 2005; Revised December 19, 2014

Regulatory excerpt

Section 13.14 of the *OHS Regulation* ("*Regulation*") states:

- (1) The platform of each scaffold must
 - (a) be a minimum nominal width of 50 cm (20 in), except that a nominal 30 cm (12 in) wide work platform may be used with ladder jacks, pump jack or similar systems,
 - (b) not leave more than one opening in the work platform, which must be no greater than 25 cm (10 in) in width, and
 - (c) if not level, be designed to ensure adequate footing for workers using the platform.
- (2) Guardrails may be omitted from the edge of a work platform if
 - (a) the platform is adjacent to a structure that provides protection equivalent to guardrails, and
 - (b) the open space between the platform and the structure is equal to or less than 30 cm (12 in.)

Purpose of guideline

The purpose of this guideline is to set out that cross-bracing is not an acceptable alternative to guardrails.

Cross-bracing

Standard tubular or other cross-bracing that forms an "X" pattern on cross-braced end-frame scaffolding does not provide a compliant alternative to standard guardrails because it does not provide at least equal protection to a top rail and intermediate rail.

G13.19 When and how to ground metal scaffold

Issued January 1, 2005; Editorial Revision June 30, 2021

Regulatory excerpt

Section 13.19 of the *OHS Regulation ("Regulation")* states:

A scaffold must be effectively grounded if

- (a) it is a metal scaffold and is located close to a high voltage energized electrical conductor or equipment, and
- (b) a hazardous level of electrical charge is likely to be induced in the scaffold.

Purpose of guideline

This guideline is intended for metal scaffolds only and describes when a metal scaffold near an energized high-voltage conductor or equipment should be grounded. It also provides guidance to consider grounding when a metal scaffold is near a low voltage but "high energy" system.

Grounded scaffold or grounded metal scaffold

When a metal scaffold is erected parallel to an energized high-voltage electrical conductor or equipment there is a potential hazard of voltage being induced into the scaffold. The actual voltage level induced into the scaffold will be influenced by a number of factors such as the following:

- Distance from the conductor or equipment (whether overhead or underground)
- Length of the scaffold parallel to the conductor or equipment
- Voltage and/or current flow in the conductor or equipment

The metal scaffold should be grounded immediately in either of the following situations:

- A worker feels an electric shock at any time, including during the erection of the scaffold
- A voltage potential of more than 30 volts is measured between the scaffold and a ground point at least 5 metres (15 feet) from the base of the scaffold

The following example explains how conditions may vary. Consider a metal scaffold system being erected parallel to an energized high-voltage conductor (power line), and about 6 metres (20 feet) away from the line. When the scaffold is about 30 metres (100 feet) long, a potential difference of 29 volts is measured between the scaffold and the chosen ground point. A voltage less than 30 volts is not considered hazardous, so no grounding would be required (unless workers report feeling an electric shock). When the scaffold was extended to 100 metres (300 feet) long, the induced voltage is now measured at 90 volts. Workers touching the scaffold while standing on the ground, or touching part of an adjacent building or structure while on the scaffold, may feel a shock. Although there may not be sufficient power to cause a direct electrical injury, the shock could startle the worker and the worker's reaction could result in a forceful contact with an object or in a fall. In this case the scaffold should be sufficiently grounded before further use.

If the metal scaffold is erected adjacent to the main power feed and/or distribution panel for a large building, or adjacent to the supply conductor for a large electric motor, the voltage of the electrical equipment may be below the limit of "high voltage" (750 volts) but due to the high current flow in the electrical equipment, a strong electric field may be present and capable of inducing a voltage in the scaffold. For example, the main power supply to a large building may be operating at 600 volts and carrying 400 amperes of current. Likewise, an electric motor for a large saw or pump in a mill may be operating at 440 volts and drawing 150 amperes of current. These systems are usually isolated by effective cover to eliminate any hazard of direct electrical contact, but scaffold elements erected parallel to the electrical equipment may have a voltage induced due to the high electric field present around such electrical equipment. If a worker reports feeling electric shocks upon touching the scaffold, or if a voltage of more than 30 volts is measured between the scaffold and a ground point, the scaffold should be grounded.

Effective grounding

There are different methods of grounding the metal scaffold so that any induced voltage is immediately dissipated so as not to pose a hazard to workers. The ground-connecting fixture should be connected to the scaffold with a #2 AWG copper conductor. The scaffold should be grounded at both ends. Suitable ground-connecting fixtures are ground plates or rods.

The installation of the grounding should be in accordance with the *BC Electrical Code*.

Guidelines Part 13 Division 5 - Movable Work Platforms

G13.23(1) Inspection and certification of elevating work platforms

Issued January 1, 2007; Revised December 19, 2013; Revised June 19, 2020

Regulatory excerpt

Section 13.23(1) (Testing) of the *OHS Regulation ("Regulation")* states:

- (1) A vehicle-mounted elevating work platform and a self-propelled boom-supported elevating work platform must be
 - (a) inspected in accordance with good engineering practice at least every 12 months, and
 - (b) certified in writing by the equipment manufacturer or a professional engineer as complying with this Part and safe for use.

Purpose of guideline

This guideline outlines some of the factors that should be considered when determining if an inspection has been conducted in accordance with "good engineering practice" under section 13.23(1) of the *Regulation*. It also provides information on who is authorized to certify that the inspection has been done and that the equipment complies with the *Regulation* and is safe for use.

Good engineering practice

The Engineers and Geoscientists of BC (EGBC), in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*, describes the standard of practice that engineering professionals should follow when carrying out equipment inspections and certifications. WorkSafeBC considers following this EGBC guideline as following good engineering practice for the annual inspections and certifications of vehicle-mounted elevating work platforms and self-propelled boom-supported elevating work platforms.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

Who may do the certification?

Certification will generally be done by a professional engineer. If the inspection, assessment and any necessary repair work is done in B.C., the professional engineer, as required by the [Engineers and Geoscientists Act](#), must be licensed to practice in B.C. If this work is being done outside of B.C., for example in Alberta, the professional engineer must be licensed to practice in that jurisdiction.

If certification is to be provided by the equipment manufacturer, the person signing on behalf of the manufacturer must be specifically authorized in writing by the manufacturer to make such a certification on behalf of the manufacturer.

Inspection and certification process

The EGBC has defined the annual inspection and certification process for a vehicle-mounted elevating work platform and a self-propelled boom-supported elevating work platform in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

G13.25 Warning devices

Issued January 1, 2005; Editorial Revision June 30, 2021

Regulatory excerpt

Section 13.25 of the *OHS Regulation ("Regulation")* states:

- (1) An elevating work platform, except a vehicle-mounted work platform, must have a warning system consisting of an intermittent horn or flashing light that
 - (a) is automatically activated during any motion of the work platform, and
 - (b) can be seen or heard by other workers in proximity to the work platform.
- (2) If the safe operation of an elevating work platform requires its carrier vehicle to be on a level surface or level within specified degrees, the platform must be fitted, as the carrier requires, with a device to warn the operator that
 - (a) the carrier is not level, or
 - (b) the carrier is outside the permitted degrees from level.

Purpose of guideline

This guideline describes appropriate warning signals to indicate any motion of a work platform and devices to warn when the vehicle is not level.

Motion of elevated work platform

Section 13.25(1)(a) of the *Regulation* uses the phrase "any motion of the work platform." This phrase applies to raising and lowering the work platform as well as movement of the support base. The raising or lowering motion may create pinch or shear points in the exposed support mechanisms, or components of the support mechanism or platform may enter work areas occupied by other workers.

Warning system

The design or selection of an appropriate warning system (intermittent horn or flashing light) to satisfy the requirement of section 13.25(1)(b) of the

Regulation will depend on the circumstances of use of the platform.

- If an audible warning device is selected, an automobile-type horn or a "backup alarm" is generally found to be satisfactory for this purpose, provided it is loud enough to be heard by workers over the ambient noise level in the work area, including any workers wearing hearing protection. An audible warning system may have a volume adjustment to allow the warning signal volume to be raised or lowered to accommodate worksite conditions.
- If a flashing light warning system is selected, a rotating beacon or a strobe-type light, visible for 360 degrees about the machine, is generally found to be satisfactory.

Section 13.25(2) of the *Regulation* requires a device to warn the operator when the carrier is off level or beyond the tilt limit specified by the manufacturer.

- One method of complying with this section is to have a "tilt alarm" or other suitable signalling device that activates automatically when the platform is elevated and the carrier is off level beyond the specified tilt limit. Few "finished floor" surfaces are perfectly level but they generally do not have a slope of more than 5 degrees. A carrier vehicle tilted less than 5 degrees is generally considered as level.
- If a manually read indicator is used, it should allow the operator to determine when the carrier is off level by more than the manufacturer's specified limit or 5 degrees, whichever is less.

Tilt indicator

Some elevating work platforms are designed so the work platform always has the same tilt as the carrier or base; for example, most scissor lifts would be this type. For such units, a manually read tilt indicator mounted where it can be viewed during operation of the unit's controls may be suitable. A spirit level type arrangement used as a manually read tilt indicator (for example, a bent tube containing liquid or a moving ball or a cat's eye bubble) may be suitable, as long as the device will reliably indicate when the maximum permitted tilt angle is reached or has been exceeded.

G13.28(2) Safe work procedure acceptable to the Board to prevent two-blocking in pile driving and similar applications

Issued March 31, 2010

Regulatory excerpt

Section 13.28 of the *OHS Regulation* ("*Regulation*") states:

(1) A crane or hoist used to raise a work platform on a load line must be equipped with

- (a) a device to prevent two-blocking at all points, or
- (b) in the case of a lattice boom crane, a two-blocking warning device.

(2) Despite subsection (1), a work procedure acceptable to the Board may be followed to minimize the risk of two-blocking if it is not practicable to maintain a two-blocking prevention or warning device on a conventional lattice boom crane used for pile driving and similar applications.

Purpose of guideline

The purpose of this guideline is to provide guidance on the development of an acceptable work procedure to minimize the risk of two-blocking if it is not practicable to maintain a two-blocking prevention or warning device on a conventional lattice boom crane used for pile driving and similar applications.

Acceptable work procedure

Regulation subsection 13.28(1) requires the use of a two-blocking prevention device or, for a lattice boom crane, a warning device when a crane or hoist is used to raise a work platform on a load line. For a crane used for pile driving or similar applications, subsection 13.28(2) recognizes that it may not be practicable to use a prevention or warning device. For example, a device to prevent two-blocking may not be durable enough to withstand the work process.

When it is not practicable to use the prevention or warning device, a work procedure acceptable to the Board may be followed to minimize risk of two-blocking. The Board will consider the work procedure to be acceptable if it includes all of the following:

1. The minimum separation between the travelling block and the stationary block is determined by performing a trial lift through the complete travel path of the work platform.
2. Where the minimum separation between the travelling block and the stationary block is at least 20 feet, the load line is identified so that 20 feet of separation between the travelling and stationary block is apparent to all concerned.
3. Whenever a crane suspended work platform is utilized and the minimum separation between the travelling block and the stationary block is less than 20 feet, the load line is flagged 6 feet above the load block or headache ball and the employer has assigned a worker to act as a safety watch.
4. The worker assigned as a safety watch will be equipped with an air horn or similar warning device that will be activated to warn the crane operator whenever the load block or headache ball is hoisted to within 6 feet of the boom tip.
5. The warning device is effective in alerting the crane operator in the ambient conditions at the site.
6. The crane operator will stop the hoisting operation immediately when the air horn or similar warning device is activated.
7. The line speed is kept as low as reasonably practical and will not exceed 100 feet per minute when hoisting personnel.
8. Adequate supervision is provided to ensure the safe work procedure required to comply with these conditions is followed.

In order for the work procedure to be acceptable, the above criteria will be incorporated in a specific safe written work procedure for the use of the crane suspended work platform. The procedure should be reviewed with each worker involved in the work process in a pre-job meeting before work commences.

Other work procedures

If an employer wishes to use a work procedure that does not meet the criteria outlined in this guideline, the employer may submit an alternative procedure for review to the OHS Practice and Engineering Support department at WorkSafeBC with a request for an acceptance of this alternative procedure. The application should include an explanation of why the safe work procedure described in this guideline cannot be implemented.

G13.29 Lower travel limit devices

Issued May 17, 2006

Regulatory excerpt

Section 13.29 of the *OHS Regulation* states:

- (1) Cranes, winches and other devices used for hoisting and lowering movable work platforms must
 - (a) be operated as slowly as practicable while supporting the work platform,
 - (b) be lowered under power, if the device is powered, and
 - (c) not be equipped with a free running boom or hoisting winch controlled only by brakes.
- (2) If a moveable work platform is suspended from a crane, winch or other device over a structure that cannot safely support its weight or if other hazards exist below the platform, lower limit travel devices compatible with the hoist system must be used to ensure the platform cannot be lowered beyond the safe lower limit of travel.
 - (2.1) If the lower limit travel devices required by subsection (2) are not practicable, the employer must ensure that work procedures acceptable to the Board are used that will minimize the risk of the platform going beyond the safe lower limit of travel.
- (3) A trial lift for a work platform suspended from or attached to a crane or hoist must be performed at all work locations before the platform is occupied.

Purpose of guideline

This guideline provides information on the application of section 13.29(2) and (2.1) of the *OHS Regulation*. In particular, it addresses the issue in subsection (2) of hazards below the platform, and in subsection (2.1) the circumstances in which lower limit travel devices may not be practicable.

Hazards below the platform

The intent of section 13.29(2) is to ensure that lower limit travel devices are used to prevent a work platform, including a permanent or portable powered work platform, or a boatswain's chair, from being lowered beyond a safe level. These devices are needed if the work platform is suspended over a structure that cannot safely support its weight, or if other hazards exist below the platform.

Some examples of the hazards that might exist below a work platform include water that is deep enough to present a hazard of drowning, energized and exposed high voltage equipment, a canopy entrance to a building, the entrance to the underground parking area of a building, or circumstances where the platform is above vehicle traffic or moving machinery.

Practicability of lower travel limit devices

Lower limit travel devices are generally practicable if the hoisting equipment being used is a powered swing stage (permanent or portable powered platform). The *CSA Standard Z271 Safety Code for Suspended Elevating Platforms*, clauses 7.3.12.4.2 and 8.3.6.4.3, requires such equipment to have lower limit travel devices if there is a hazard in the event of descent beyond a predetermined point. Most permanent powered platforms will have automatic lower limit travel devices. Many portable powered platforms use a cable climbing hoist. For these types of hoists, the use of cable clips positioned at the appropriate spot on the hoist line(s) may be considered a lower limit travel device.

In circumstances where section 13.29(2) and (2.1) apply, the use of a lower limit travel device is the preferred means of worker safety. The use of work procedures will be acceptable only where lower limit travel devices do not exist or are not practicable.

Lower limit travel devices are generally not practicable for work platforms suspended from a crane load line or a winch load line. If a winch or drum hoist is being used, painting a warning mark on the hoist line at an appropriate spot may be part of the work procedures for controlling lower travel limits. The work procedure would need to include the use of a signaler to direct the crane, or a hoist operator where the operator does not have an adequate view of the platform to safely move the platform under the direction of a designated signaler on the platform.

G13.30 Lift truck mounted work platforms

Regulatory excerpt

Section 13.30 of the *OHS Regulation ("Regulation")* states:

- (1) In this section, "work platform" means a movable work platform that is supported by a lift truck.
- (2) A work platform may be used to support workers only if other conventional means of access for the task, such as ladders, scaffolds and elevating work platforms, are not practicable.
- (3) An employer must ensure that a work platform intended for use by workers was designed, and is used by workers, in accordance with
 - (a) *ANSI/ITSDF B56.1-2009, Safety Standard for Low Lift and High Lift Trucks*, if the platform is being used with a high lift truck as defined in Part IV of that standard, or
 - (b) *ANSI/ITSDF B56.6-2011, Safety Standard for Rough Terrain Forklift Trucks*, if the platform is being used with a rough terrain forklift truck as defined in section 2 of that standard.
- (4) The employer must ensure that a work platform intended for use by workers is legibly marked in a conspicuous place to show
 - (a) the name of
 - (i) the manufacturer of the platform, or
 - (ii) the professional engineer who certified the platform as having been built to meet the applicable standard referred to in subsection (3),
 - (b) if the platform was built by a manufacturer,
 - (i) the model number and serial number, or
 - (ii) other unique marking or identification that links the platform with the manufacturer's documentation respecting the platform's design and use,
 - (c) if the platform was custom built, the unique identification number or code that links the platform with the professional engineer's documentation for the platform's design and use,
 - (d) the title of the safety standard or standards the platform was designed to meet,
 - (e) the weight of the platform when the platform is empty,
 - (f) the rated load of the platform, and
 - (g) the minimum width, as measured in accordance with subsection (5), and minimum rated capacity a lift truck must have to support the platform in a manner that complies with the applicable standard in subsection (3) when the platform is loaded to its rated load.
- (5) The width of a lift truck referred to in subsection (4) (g) must be measured in a straight line from any point on the outer part of the right load bearing tire to the corresponding point on the outer part of the left load bearing tire.
- (6) The employer must ensure that a qualified person inspects both the work platform and the lift truck supporting the work platform
 - (a) each time the platform is mounted on the lift truck, and
 - (b) at the start of each work shift, if the platform is already mounted on the lift truck at the start of the work shift,to ensure the platform is properly secured to the lift truck and the lift truck and the platform are safe for use.
- (7) The employer must ensure that the inspections referred to in subsection (6) take place before either the work platform or the lift truck is used by a worker.
- (8) Only a worker who is qualified and authorized by the employer may operate a work platform, and the lift truck supporting the work platform, for the purpose of supporting workers on the platform.
- (9) A worker must not operate either a work platform or the lift truck supporting the work platform unless
 - (a) there is effective two-way voice communication between the lift truck operator and a worker on the platform who is designated by the employer to provide the lift truck operator with directions for platform movement, and
 - (b) the lift truck operator and the designated worker on the platform prearrange hand and arm signals, if the voice communication

referred to in paragraph (a) relies on the use of a radio or other electronic system, to allow the designated worker to signal the lift truck operator to bring the platform to the ground or floor level in the event the radio or other electronic system fails.

(10) A lift truck operator must remain at the controls of the lift truck at all times there are any workers on the platform supported by the lift truck.

(11) Before a work platform may be used to support workers, the lift truck operator must conduct a trial lift of the platform, with no workers on the platform, to assess the suitability of the surface bearing the weight of the lift truck and whether the platform is clear of all obstructions, unless

(a) the lift truck is on a type of surface the employer has identified as capable of safely supporting the lift truck and the platform when the platform is loaded to its rated load, and

(b) the space in and around which the platform is to be raised is clear of all obstructions.

Purpose of guideline

The purpose of this guideline is to explain selected portions of the standards referenced in section 13.30 of the *Regulation* that are applicable to the design and use of lift truck mounted work platforms.

Explanatory notes for specified sections

Availability of standards (Section 13.30 (3))

Section 13.30 references two standards that apply to the design and use of lift truck mounted work platforms: *ANSI/ITSDF B56.1-2009, Safety Standard for Low Lift and High Lift Trucks* and *ANSI/ITSDF B56.6-2011, Safety Standard for Rough Terrain Forklift Trucks*. Both ANSI/ITSDF standards are available at no cost from the Industrial Truck Standards Development Foundation at <http://www.itsdf.org>.

Definitions

ANSI/ITSDF B56.1-2009 applies to both low lift and high lift trucks. "Low lift" refers to a variety of lift trucks generally designed and intended to raise the load just enough to accommodate horizontal movement. Some equipment, such as low lift order pickers, may be capable of raising a work platform to a maximum of 1200 mm (approx. 47 inches). "High lift" trucks are defined as a "self-loading truck equipped with an elevating mechanism designed to permit tiering." Tiering is "the process of placing one load on or above another."

ANSI/ITSDF B56.6-2011 applies to rough terrain forklift trucks, which are defined as "a wheeled-type truck designed primarily as a fork truck with a vertical mast and/or a pivoted boom, variable reach or of fixed length, which may be equipped with attachments. This truck is intended for operation on unimproved natural terrain as well as the disturbed terrain of construction sites. This definition excludes machines designed primarily for earth moving, such as loaders and dozers, even though their buckets and blades are replaced with forks, and machines designed primarily as over-the-road trucks equipped with lifting devices."

Work platforms built prior to February 2013

Work platforms meeting the version of *ANSI B56.1* or *ANSI B56.6* in place when the work platform was manufactured meet a standard acceptable to WorkSafeBC under section [4.4\(1\)](#) or [4.4\(2\)\(a\)](#) of the *Regulation*.

Work platforms meeting [WorkSafeBC Standard 13.30 Work Platforms Supported by Lift Trucks](#) may continue to be used, subject to the following:

- Work platform floor depth does not exceed twice the load centre distance of the lift truck
- Work platform width is not greater than the overall width of the truck plus 250 mm (10 inches) on either side

Marking and use requirements specified in section 13.30(4) of the *Regulation* are followed, regardless of the age of the work platform

Work platforms that are designed by a professional engineer using the exemption in clause 4.7 of *WorkSafeBC Standard 13.30* are no longer acceptable for use.

Work platforms meeting the WCB A324 Standard

WCB Standard A324 was withdrawn in April 1998. Work platforms constructed to meet that standard must be permanently removed from service as of February 1, 2013, until such time as they are evaluated by a professional engineer and brought into compliance with the applicable standard referenced in section 13.30 of the *Regulation*.

Changing lift truck location

ANSI/ITSDF B56.1-2009 does not allow high lift trucks to be moved from location to location while workers are on the work platform. Minor adjustments in horizontal positioning are permitted, but only at the request of workers on the work platform.

ANSI/ITSDF B56.6 2011 does not allow any movement of rough terrain forklifts while the platform is raised. Platforms may be raised and lowered or the boom adjusted while the workers are on the platform, but these movements must only be done at the request of workers on the work platform.

Custom built work platforms (Section 13.30(4))

Custom built work platforms are normally built to order on a one-off basis. Work platforms built by manufacturers are normally commercially available, produced in larger quantities, and listed in catalogues. A custom built work platform must have a unique identification number or code

that links the platform with the professional engineer's documentation for the platform's design or use. The employer will need to have a copy of the documentation for use and at a minimum should have a letter with the professional engineer's seal indicating that the work platform meets the requirements of *ANSI/ITSDF B56.1-2009* or *ANSI/ITSDF B56.6-2011* as applicable.

Remaining at the controls (Section 13.30(10))

Lift truck operators are deemed to be at the controls of the lift truck if lift truck operators are seated in the operator's position, ready to operate the equipment.

Trial lifts (Section 13.30(11))

A trial lift is required to verify the capability of the supporting surface to support the lift truck and that there is adequate clearance from any obstructions, except where the following applies:

- Lift truck is supported on a floor surface designed for lift truck operation or in an established yard or road area where the truck is regularly used
- Employer knows that the surface can safely support the lift truck with a load
- Area is clear of obstructions such as structures, overhead electrical conductors or vegetation that may interfere with the positioning of the platform

Lifts performed with the lift truck positioned on natural ground or disturbed ground such as that occurring on a construction site will require a trial lift to verify the ground can support the load. The work platform does not need to be loaded with test weights for the trial lift.

Fall protection

The ANSI/ITSDF standards require that work platforms that can be elevated to a height of greater than 1200 mm (approx. 47 inches) have a means of fall protection such as guardrails or a means for securing workers such as a body belt or lanyard. The guardrail may be hinged, removable or consist of chains.

The standards may permit the use of body belts; however, fall protection must be selected and used in accordance with [Part 11](#) of the *Regulation*. In circumstances where a fall can occur, personal fall arrest equipment must be used.

G13.32 Prior permission - Platform use in high risk situations

Issued August 1999; Revised January 1, 2005; Revised February 8, 2007; Retired February 1, 2011

Prior permission is no longer required - see section [13.32](#) as amended.

G13.32-1 Work in high-risk situations - Inspection and testing requirements

Issued April 1, 2013; Revised consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 13.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"*swing stage*" means a work platform that is raised and lowered by manual or powered hoisting equipment, supported by 2 or more suspension lines;

Section 13.32 of the *Regulation* states:

Before a swing stage, boatswain's chair or portable powered platform is used in any of the following circumstances, a professional engineer must have certified in writing that the design, installation and proposed use of the swing stage, boatswain's chair or portable powered platform, as the case may be, meets the requirements of [CSA Standard CAN/CSA Z271-10 Safety code for suspended platforms](#) and [CSA Standard CAN/CSA Z91-02 \(R2008\) Health and Safety Code for Suspended Equipment Operations](#):

- (a) one work platform will be used above or below any portion of another work platform,
- (b) a deck or planking will be used to span a gap between two independent work platforms,
- (c) the work platform will exceed 10 m (32 ft) in length, or
- (d) the suspension height will exceed 91 m (300 ft).

Purpose of guideline

This guideline is to clarify the requirements for inspection and testing in *CSA Standard CAN/CSA Z271-10 safety code for suspended platforms* ("*Standard*") and to identify the difference between a "swing stage" and a "multi-point suspended platform."

Background information

Section 13.32 of the *Regulation* requires that in high-risk situations, the design, installation, and proposed use of swing stages (including multi-point suspended platforms), boatswain's (bosun's) chairs, or portable powered platforms meet the requirements of the *Standard*. This *Standard* contains requirements on inspection and testing.

Inspection and testing requirements

The *Standard* sets out separate inspection and testing requirements for the following events or intervals, and the *Standard* should be reviewed for the details of the inspections:

- (a) Prior to first use of a new or altered suspended platform
- (b) Prior to first use following erection or relocation of a suspended platform
- (c) Each use
- (d) After an accident or equipment failure
- (e) Periodically
- (f) Annually
- (g) Five years

Performance of inspecting and testing

Many of the required inspections and tests may be performed by a service representative of the suspended platform manufacturer, a supplier, or a competent person. The *Standard's* definition of 'competent person' aligns with WorkSafeBC's definition of 'qualified' under the *Regulation*.

For example, the *Standard* requires periodic inspection and testing of all electrical and mechanical parts of a suspended platform, and permits this inspection to be done by a service representative of the suspended platform manufacturer, a supplier, or a competent person.

However the *Standard* does require certain inspections and tests to be performed by a professional engineer or in some cases the engineer's delegate, as outlined below:

- New or altered anchorage connectors must be inspected and tested prior to first use (professional engineer or engineer's delegate)
- A multi-point suspended platform that has been erected or relocated must be inspected prior to first use (professional engineer only)
- A suspended platform involved in an accident or equipment failure (professional engineer or engineer's delegate)
- The structural components of a suspended platform must be inspected annually (professional engineer or engineer's delegate)
- The structural components of the equipment and attachments to the structure must be inspected every five years (professional engineer or engineer's delegate).

Multi-point suspended platforms

Multi-point suspended platforms (MPSPs) are defined in the *Standard* as:

A suspended platform that is supported from at least three separately spaced points and is more than 0.75 m in width

In the *Regulation* the definition of a "swing stage" includes work platforms suspended by two or more suspension lines, so any section of the *Regulation* that refers to "swing stages" will also apply to MPSPs.

Contents

DEFINITIONS AND APPLICATION

G14.1 [Elevating Devices Safety Act repealed](#) [Retired]

GENERAL REQUIREMENTS

G14.2-1 [Standard - Tower cranes](#)

G14.2(3)(c) [Alternate acceptable standard](#)

G14.3 [Identification](#)

G14.5 [Rated capacity indication on bridge cranes](#)

G14.11 [Support structure](#)

G14.13 [Inspection, maintenance, and repair](#)

G14.29 [Operator protection](#)

EQUIPMENT OPERATION

G14.34 [Operator qualifications and competencies](#)

G14.34.1 [Operator certification](#)

G14.48(2) [Acceptable standard for audio and video communication](#)

MOBILE CRANES, BOOM TRUCKS AND SIGN TRUCKS

G14.64(3) [Definition of "duty cycle work"](#)

G14.71 [Mobile crane and boom truck annual inspections](#)

G14.72(4) [Crane certification during pile driving and dynamic compaction operations versus lifting service](#)

TOWER CRANES

G14.88(5) [Alternative means of jib access](#)

CONSTRUCTION MATERIAL HOISTS

G14.96 [Light duty portable construction material hoists](#)

Guidelines Part 14 - Definitions and Application

G14.1 *Elevating Devices Safety Act* repealed

Issued August 13, 2008; Retired consequential to February 1, 2012 Regulatory Amendment

Guidelines Part 14 - General requirements

G14.2-1 Standard - Tower cranes

Issued September 1999; Editorial Revision February 1, 2008; Editorial Revision consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Sections 14.2(6) and (7) of the *OHS Regulation ("Regulation")* state:

(6) A tower, hammerhead crane or self erecting tower crane must meet the requirements of *CSA Standard Z248-2004, Code for Tower Cranes*.

(7) A portal, tower or pillar crane must meet the requirements of *ANSI Standard ASME B30.4-2003, Portal, Tower, and Pedestal Cranes*.

Purpose of guideline

The purpose of this guideline is to clarify the scope and application of *CSA Standard Z248-2004, Code for Tower Cranes* and *ANSI Standard ASME B30.4-2003, Portal, Tower, and Pedestal Cranes*.

Application of the Regulation

Both sections 14.2(6) and 14.2(7) set out standards applicable to tower cranes. However, the application of each section is determined by the difference in the "Scope" description in each standard. The scope of the *CSA Standard Z248-2004* makes it applicable to all tower cranes, irrespective of use or industry service. The scope of the *ANSI Standard ASME B30.4-2003*, as it applies to tower cranes, is limited to a tower crane not used in construction.

G14.2(3)(c) Alternate acceptable standard

Issued October 20, 2020

Regulatory excerpt

Section 14.2(3) of the *OHS Regulation ("Regulation")* states:

(3) A bridge, jib, monorail, gantry or overhead travelling crane must meet the design requirements of

(a) *ANSI Standard MH27.1-2003, Specifications for Patented Track Underhung Cranes and Monorail Systems*,

(b) Crane Manufacturers Association of America (CMAA) Specifications for Top Running Bridge & Gantry Type Multiple Girder Electric Overhead Traveling Cranes - No. 70 (2004), or

(c) Crane Manufacturers Association of America (CMAA) Specifications for Top Running and Under Running Single Girder Electric Overhead Cranes Utilizing Under Running Trolley Hoist - No. 74 (2004).

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

Section 4.4(2)(a) of the *Regulation* provides WorkSafeBC the authority to accept alternative standards to those listed in the *Regulation*. The

purpose of this guideline is to specify the 2015 version of the CMAA No.74 as an acceptable alternative standard under section 14.2(3)(c).

Alternative standard

The Crane Manufacturers Association of America (CMAA) *Specifications for Top Running and Under Running Single Girder Electric Overhead Cranes Utilizing Under Running Trolley Hoist - No. 74 (2015)* is accepted as an alternative standard.

G14.3 Identification

Issued September 1999; Editorial Revision February 1, 2008

Regulatory excerpt

Section 14.3(2) of the *OHS Regulation ("Regulation")* states:

Each major interchangeable structural component of a crane or hoist must be uniquely identified and must be legibly marked to enable confirmation that the component is compatible with the crane or hoist.

Purpose of guideline

The purpose of this guideline is to provide information on identification of interchangeable structural components for cranes or hoists.

Identification

This requirement is applicable to, but not limited to, lattice boom mobile cranes and tower cranes. Generally the lattice boom on a mobile crane is made up of several boom sections connected together. The configuration of the boom can be varied to meet the needs of the particular lifting task. The crane manufacturer will specify what components must be used to make up the boom to achieve any particular allowable boom configuration. Some components will be interchangeable, and may be shared between similar equipment from the same manufacturer.

Similarly, a tower crane is made up using tower and jib sections. The configuration of the crane at each setup can be varied, within limits set by the manufacturer, to suit the needs of the location. As with the mobile crane boom, it is possible to interchange components from similar equipment. To ensure that only the components that the manufacturer approves for use with the configuration are used, it is necessary to identify the components.

A catalogue or part number is sufficient for the purpose of identifying compatibility, but there are also strict inspection and certification requirements for these components. Unique identification allows cross-referencing with the inspection or certification documents to ensure the component in use is the component inspected or certified. Ideally, the identifier on each component will be a serial number provided by the manufacturer. However, interchangeable components are usually only identified by the manufacturer with a part number. This satisfies one reason for the requirement (identifying interchangeable components) but not the need to correlate documents to specific components. An additional and unique identifier is required. The identifier must be legible and durable.

G14.5 Rated capacity indication on bridge cranes

Issued September 1999; Editorial Revision February 1, 2008; Revised consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 14.5(1) of the *OHS Regulation ("Regulation")* states:

The rated capacity of a crane or hoist, other than a crane or hoist to which subsection (2) or (3) applies, must be permanently indicated on each of the following:

- (a) the superstructure;
- (b) the hoist;
- (c) the load block.

Purpose of guideline

The purpose of this guideline is to provide information on the term 'superstructure' with respect to bridge cranes.

Rated capacity indication on bridge cranes

With respect to a bridge crane, the "superstructure" refers to the bridge girders. It is not necessary to mark the rated capacity on the crane runways or the supporting structure for the bridge crane runways.

G14.11 Support structure

Issued consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 14.11(1) of the *OHS Regulation ("Regulation")* states:

The rated capacity of a crane or hoist must not exceed the rated capacity of the structure supporting the crane or hoist.

Sections 14.5(1) and (2) of the *Regulation* state:

(1) The rated capacity of a crane or hoist, other than a crane or hoist to which subsection (2) or (3) applies, must be permanently indicated on each of the following:

- (a) the superstructure;
- (b) the hoist;
- (c) the load block.

(2) The rated capacity of a monorail crane must be permanently indicated on each of the following:

- (a) the hoist;
- (b) the load block;
- (c) the monorail beam, at intervals not exceeding 10 m (33 ft.).

Purpose of guideline

The purpose of this guideline is to provide information on how to comply with section 14.11(1) of the *Regulation*.

Options for compliance

Installations where the rated capacity of the crane or hoist is greater than the rated capacity of its supporting structure are not compliant with section 14.11(1). The installation cannot be used until section 14.11(1) has been complied with. Among the methods of complying are:

- Replacing the crane or hoist with one having a rated capacity equal to or less than that of the support structure
- Obtaining a certificate from a professional engineer that the support structure has a rated capacity equal to or greater than the hoist capacity, and marking the support structure accordingly

Downgrading the rated capacity of a crane or hoist

Section 14.5 provides that the rated capacity of a crane (except a monorail crane) or hoist must be permanently indicated on the superstructure, the hoist and the load block. It also provides that, with respect to monorail cranes, the rated capacity must be permanently indicated on the hoist, the load block, and the monorail beam at intervals not exceeding 10 m (33 ft.). In addition, [section 4.8](#) states that the rated capacity of a machine is that specified by the manufacturer (or by a professional engineer if the manufacturer's specification cannot be produced or the equipment or machine has been modified in a manner that will change its rated capacity).

Because cranes and hoists can be inadvertently overloaded, their rated capacity cannot be downgraded by simply posting on them a rated capacity equal to that of the support structure. In order to properly reduce the rated capacity of a crane or hoist, changes must be made in accordance with the instructions of the manufacturer or a professional engineer (refer to sections 4.8, 14.15 and 14.16 of the *Regulation*).

G14.13 Inspection, maintenance, and repair

Issued September 1999; Editorial Revision February 1, 2008; Editorial Revision April 15, 2021

Regulatory excerpt

Section 14.13(1) of the *OHS Regulation* ("*Regulation*") states:

Each crane and hoist must be inspected and maintained at a frequency and to the extent required to ensure that every component is capable of carrying out its original design function with an adequate margin of safety.

Section 14.13(3) of the *Regulation* states:

Any repair to load bearing components of a crane or hoist must be certified by a professional engineer or the original equipment manufacturer as having returned the component to a condition capable of carrying out its original design function with an adequate margin of safety.

Purpose of guideline

The purpose of this guideline is to provide information about the frequency of inspections and load bearing components.

Frequency of inspections

Inspection and maintenance must be done to the extent and frequency recommended by the original equipment manufacturer or the applicable standard referenced in Part 14 of the *Regulation*, whichever is more stringent, and as required based on the frequency and nature of use. (Refer to [section 14.2\(1\)](#) of the *Regulation* for a list of the relevant standards.)

Load bearing components

"Load bearing components" include any component that transfers load through the crane or hoist to the surface supporting the crane or hoist.

G14.29 Operator protection

Regulatory excerpt

Section 14.29 of the *OHS Regulation ("Regulation")* states:

The operator of a crane or hoist must be protected against hazardous conditions such as falling or flying objects and excessive heat or cold that could adversely affect the health or safety of the operator.

Section 26.13.1(1) of the *Regulation* states:

- (1) Protective guards must be provided and used on a self-loading log transporter or similar equipment unless
 - (a) it is not practicable to do so, and
 - (b) the absence of guards does not pose a hazard to the equipment operator.

Purpose of guideline

The purpose of this guideline is to discuss the application of section 14.29 to self-loading log trucks under section 26.13.1(1).

Self-loading log trucks

Section 26.13.1(1) of the *Regulation* provides an exception to the requirements of section 14.29 that is applicable to self-loading log trucks and similar equipment. Under section 26.13.1(1) the equipment may only be used without overhead protective guards if the absence of such guards does not present a risk of injury to the operator.

Guidelines Part 14 - Equipment operation

G14.34 Operator qualifications and competencies

Issued October 28, 2015

Regulatory excerpt

Section 14.34 of the *OHS Regulation ("Regulation")* states:

- (1) A crane or hoist must only be operated by a qualified person who has been instructed to operate the equipment.
- (2) A person must demonstrate competency, including familiarity with the operating instructions for the crane or hoist and the code of signals for hoisting operations authorized by the Board before operating the equipment.

Purpose of guideline

An operator of a crane or hoist (including an operator of equipment with a different primary design function that is being used in a hoisting or lifting application) needs to be knowledgeable and competent in assembly, set-up, erection, start-up, shutdown, dismantling, maintenance, inspection, and safe operation, as applicable and relevant to the specific equipment being operated.

This guideline outlines the requirement for the operator to be qualified and competent on the various types of equipment covered under section 14.34 of the *Regulation*.

The guideline also provides an explanation of the minimum qualifications that must be held and competencies that must be demonstrated by a qualified person before the person is permitted to operate the equipment covered under section 14.34.

The requirements in section 14.34 apply to cranes and hoists of a type required to meet a standard specified in section 14.2 and to any other equipment with a different primary design function that is being used in a hoisting or lifting application (refer also to section 14.1.1). This includes logging equipment that uses a load line for lifting. It does not include a front end loader, an excavator, or other earth moving equipment that is being used

- (a) In applications consistent with its primary design purpose, or
- (b) During a lifting task incidental to its primary design purpose if the manuals and operating instructions of the manufacturer of that equipment provide criteria for that lifting task.

Qualifications

Equipment may only be operated by a person qualified to do so. This means that the person must be knowledgeable of the work being done, the hazards involved, and the means to control the hazards, by reason of education, training, experience, or a combination of these. Also, the person must have been instructed in how to operate the specific equipment being used. This applies to operation of a crane or hoist, and where other equipment is being used in a hoisting or lifting application. For example, a rotating pipe layer or a side boom tractor is used in a hoisting or lifting application when placing pipes into position. The requirements of section 14.34 of the *Regulation* apply.

For a mobile crane, tower crane, or boom truck, there are additional operator certification requirements under section 14.34.1 of the *Regulation*.

Competencies for equipment used in hoisting or lifting operations

Before operating a crane, hoist, or other equipment being used in a hoisting or lifting application, an operator must demonstrate competency to do so, as appropriate to the equipment being used and as appropriate to the operator's responsibilities, including but not limited to the following:

- (a) Understanding the information in the equipment manufacturer's operating manual and safety decals, including emergency procedures; understanding the limitations of the equipment (e.g., slopes, terrain, loads, extensions); understanding the applicable requirements of the *Regulation*
- (b) Ability to recognize worksite potential hazards, including overhead, underground, ground conditions (slope/soil/excavation), other trades in proximity, pedestrians, and mobile traffic
- (c) Ability to assemble and disassemble the crane or hoist in accordance with the manufacturer's instructions and specifications
- (d) Selecting the appropriate boom, jib, track/outrigger extension, parts of load line, and counterweight to meet lift requirements and determine the net lifting capacity of this configuration
- (e) Knowing, understanding, and properly using the load charts with respect to actual lifting components installed and the configuration being used
- (f) Selecting, configuring, and using the controls and control panel, computer, and limiting device functions with respect to the actual machine components installed
- (g) Inspecting the equipment components (e.g., pre-operational checks and regular periodic inspections) and performing minor maintenance as required by, and at intervals required by, the manufacturer's specifications, applicable Standard, or the employer
- (h) Maintaining the equipment log book with respect to pre-shift inspections and safety checks, and entering any observed defects, operating difficulty, or need for maintenance; reporting required repairs immediately to the employer
- (i) Operating the equipment in a proper, safe, controlled, and smooth manner in accordance with the manufacturer's specifications; understanding and implementing safe rigging and lifting procedures
- (j) Understanding and using hand signals and radio protocol for hoisting operations
- (k) Calculating (as necessary) and understanding lift plans
- (l) Understanding critical lift definitions, supervision, planning, and meeting the applicable requirements
- (m) Shutting down and securing the equipment when it is unattended

If the assessment reveals any gaps in the worker's knowledge or skills, the employer needs to ensure these gaps are addressed through further training and instruction.

Verification of competence

As part of an inspection by a WorkSafeBC prevention officer, employers may be asked to verify compliance with the requirement that the operator of the crane or hoist is qualified and has demonstrated competence. This verification would entail reviewing records relating to the competency assessment and the qualifications of the operator. The extent of documentation expected would reflect the nature of the crane or hoisting equipment, in particular the size and complexity of the equipment. For example, it is likely to be much simpler to assess competencies of an operator of a small shop crane than it is to assess competencies for an operator of a large warehouse bridge crane.

G14.34.1 Operator certification

Issued January 1, 2007; Editorial Revision May 3, 2007; Revised December 1, 2008; Revised July 9, 2009; Revised March 7, 2011; Revised November 21, 2017

Regulatory excerpt

Section 14.34.1 of the *OHS Regulation* ("*Regulation*") states:

On and after July 1, 2007, a mobile crane, tower crane or boom truck must be operated only

- (a) by a person with a valid operator's certificate issued by a person acceptable to the Board, and
- (b) in accordance with any conditions stipulated on the certificate.

Purpose of guideline

The purpose of this guideline is to identify who is considered "a person acceptable to the Board" and has the authority for certifying crane operators in the province of British Columbia, in accordance with section 14.34.1 of the *Regulation*.

Types of equipment operators covered

Section 14.34.1 applies to operators of all mobile cranes, boom trucks, and tower cranes with a rated capacity equal to or greater than five tons (4.54 tonnes) and/or with a boom length equal to or greater than 25 feet (7.62 meters) based on manufacturer's specifications. WorkSafeBC considers this equipment to include the following:

Mobile Cranes and Boom Trucks:

As described in

- CSA Standard Z150-1998, Safety Code for Mobile Cranes
- ANSI Standard ANSI/ASME B30.5-2004, Mobile and Locomotive Cranes
- ANSI Standard ANSI/ASME B30.22-2005, Articulating Boom Cranes

Tower Cranes

As described in

- CSA Standard Z248-2004, Code for Tower Cranes
- ANSI Standard ASME B30.4-2003, Portal, Tower, and Pillar Cranes

Crane operator certification

Crane operator certification is administered through the British Columbia Association for Crane Safety (BC Crane Safety). As the administrator, BC Crane Safety is responsible for the certification process; including application, assessment, quality assurance, and maintenance of the certification scheme. BC Crane Safety has the authority to issue crane operator certification in B.C.

Full details on how to become certified as a crane operator are available at www.bccranesafety.ca.

Credential recognition — Other jurisdictions

Crane operators from other jurisdictions must have their credentials validated by BC Crane Safety to receive a certificate acceptable to WorkSafeBC.

Enforcement

On inspections at workplaces, a WorkSafeBC prevention officer may require a crane operator to produce a valid BC Crane Operator Certificate. An employer that permits a non-certified operator to operate a crane will be subject to orders from the prevention officer. In some situations, the employer may be subject to administrative penalties. The non-certified operator may also be subject to orders prohibiting the operator from continuing to operate a crane.

G14.48(2) Acceptable standard for audio and video communication

Issued February 11, 2009

Regulatory excerpt

Section 14.48(2) of the *OHS Regulation* ("Regulation") states:

Audio and video communication systems used in a hoisting operation must be designed, installed, operated and maintained according to a standard acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to specify an acceptable standard for audio and video communication systems used in a hoisting operation.

Wireless systems

Section 14.48(2) of the *Regulation* requires that audio communication systems used in a hoisting operation be designed, installed, operated, and maintained in accordance with a standard acceptable to WorkSafeBC. Generally, audio communication in hoisting operations will be conducted using two-way radios. These radio communication systems are to be

- Certified for use in Canada by Industry Canada
- Operated in conformance with all applicable licensing requirements of Industry Canada
- Designed, installed, operated, and maintained by qualified persons
- Single channel radios (as required by section [14.49\(2\)](#) of the *Regulation*)
- Designed so that they do not have controls that allow the operator to vary the power output

In addition, operators of such radio communication systems are to check for interference before use, and to cease use if interference is experienced. Radio communication systems designed, installed, operated, and maintained in accordance with these criteria are considered to meet a standard acceptable to WorkSafeBC.

Hardwired systems

In some cases, it may be necessary to use video or audio communication systems that do not use radio frequencies. For example, a tunneling operation where a hoist is used to lower or raise materials through a shaft may find radio communication systems unreliable. In these scenarios, audio or video communication systems can be hardwired. Such hardwired systems are to be

- Designed, installed, operated, and maintained by qualified persons
- Able to immediately indicate any communication failure
- Compliant with applicable codes, bylaws, or legislation governing their design, installation, operation, or maintenance. For example, such systems are compliant with section 60 of the *Canadian Electrical Code* dealing with electrical communication systems

Hardwired audio or video communication systems meeting these criteria are considered to meet a standard acceptable to WorkSafeBC.

Guidelines Part 14 - Mobile cranes, boom trucks and sign trucks

G14.64(3) Definition of "duty cycle work"

Issued August 16, 2000; Editorial Revision February 1, 2008

Regulatory excerpt

Section 14.64(3) of the *OHS Regulation* ("*Regulation*") states:

A crane being used for duty cycle work is exempt from the requirements of subsection (1) if the load applied to the crane is safely below the rated capacity of the crane and if the possibility of an unexpected overload does not exist.

Purpose of guideline

The purpose of this guideline is to provide information on the concepts of 'duty cycle work,' and 'safely below the rated capacity of the crane.' The guideline also discusses pulling and repositioning a pile, and support activities.

Duty cycle work

"Duty cycle work" means the use of a crane to do dragline, clamshell, dynamic compaction, or pile driving work, or with an electromagnet such as for handling scrap metal. Pile extraction using a vibrating pile extraction device is also considered duty cycle work. In duty cycle operations the loads are generally known and/or can be maintained "safely below the rated capacity" for the crane. Pile extraction without a vibrating extraction device is not to be considered within the scope of the exemption of section 14.64(3), as the load applied to the crane cannot be assured of being safely below the rated capacity of the crane.

Safely below the rated capacity of the crane

The phrase "safely below the rated capacity of the crane" means the total load being handled should not exceed 75% of the rated capacity of the crane. The rated capacity of a mobile crane varies with the configuration of the crane, such as the length of boom installed, and the boom angle/load radius. Good craning practice requires the operator to accurately know the weight of the total load to be lifted, and the rated capacity of the crane for the full range of movement of the lifted load. Typically the lifting tasks needed to support duty cycle work should involve loads of less than 50% of the rated capacity of the crane.

Pulling and repositioning a pile

When starting to drive a pile, occasionally the lower end of the pile will drift or move off of its intended position to the extent the crew will need to stop driving that pile, pull the pile back out, and reposition it before resuming driving that pile. Typically the need to do this will arise once or twice a shift, and the decision to pull and reposition the pile will be made before about 10% of the intended pile depth in the ground has been achieved. Pulling a pile in these circumstances is not typically considered a "pile extraction" operation. Generally the friction load from the soil acting on such a short length of a pile which has just been driven should be low relative to the weight of the pile. Provided the total lift needed in these circumstances can be reasonably determined to be safely below the rated capacity of the crane, it may be done by the crane being used for driving the pile without installing a load weight indicating device on that crane.

Support activities

During operations such as clam shell dredging and pile driving there are generally other lifting tasks to be performed to support the pile driving or dredging function. For example, piling material may need to be off-loaded from a truck or repositioned on the worksite or a welder or air compressor may need to be repositioned. Provided such support activities involve lifts of known weight that are safely below the rated capacity of the crane, they may be done by the crane being used for the duty cycle work without installing a load weight indicating device on that crane.

A crane on site not being directly used in the duty cycle application must conform to the requirements of sections [14.64\(1\) and \(2\)](#) of the *Regulation*.

G14.71 Mobile crane and boom truck annual inspections

Issued February 1, 2008; Revised June 10, 2010; Editorial Revision February 6, 2012; Revised June 19, 2020

Regulatory excerpt

Section 14.71 of the *OHS Regulation* ("*Regulation*") states:

- (1) A mobile crane or boom truck must be inspected at least once every 12 months in accordance with good engineering practice to ensure it meets
 - (a) the crane or boom truck manufacturer's specifications,
 - (b) the requirements of the applicable design or safety standard specified in section 14.2, and
 - (c) the requirements of this *Regulation*
- (2) A mobile crane or boom truck must not be used after an inspection under subsection (1) unless a professional engineer certifies it is safe for use on the basis of that inspection.

Section 14.2(5) of the *Regulation* states:

A mobile crane, telescoping or articulating boom truck or sign truck must meet the requirements of

- (a) CSA Standard Z150-1998, Safety Code for Mobile Cranes,
- (b) ANSI Standard ANSI/ASME B30.5-2004, Mobile and Locomotive Cranes, or
- (c) ANSI Standard ANSI/ASME B30.22-2005, Articulating Boom Cranes.

Purpose of guideline

The purpose of this guideline is to outline some of the factors that should be considered when determining if an inspection has been conducted in accordance with "good engineering practice" under section 14.71 of the *Regulation*. It also provides information on who is authorized to certify that the inspection has been done and that the crane or boom truck is safe for use.

Good engineering practice

The Engineers and Geoscientists of BC (EGBC), in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*, describes the standard of practice that engineering professionals should follow when carrying out equipment inspections and certifications. WorkSafeBC considers following this EGBC guideline as following good engineering practice for the annual inspections and certifications of mobile cranes or boom trucks.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

Certification

Certification must be done by a professional engineer. If the inspection, assessment, and any necessary repair work are done in B.C., the professional engineer, as required by the *Engineers and Geoscientists Act*, must be licensed to practice in B.C. If this work is being done outside B.C., for example in Alberta, the professional engineer must be licensed to practice in that jurisdiction.

Inspection and certification process

The EGBC has defined the annual inspection and certification process for a mobile crane or boom truck in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

G14.72(4) Crane certification during pile driving and dynamic compaction operations versus lifting service

Issued March 7, 2011

Regulatory excerpt

Section 14.72(4) of the *OHS Regulation* ("*Regulation*") states:

A crane used in any operation described in subsection (1) or (2) must not be returned to lifting service unless a professional engineer inspects the crane and certifies that it is safe for such use.

Purpose of guideline

This guideline explains the circumstances where engineering inspection and certification is and is not required under *Regulation* section 14.72(4).

Background

Regulation section 14.72(4) requires that a crane used for pile driving, pile extraction, or dynamic compaction (foundation-duty cycle work) be inspected by a professional engineer and certified as safe to use, prior to the crane being returned to lifting service. The intention of this requirement is to ensure that the crane is safe for lifting service after the crane has been used in foundation-duty cycle work. This requirement is in addition to the boom inspection and engineering certification required under sections 14.72(1), (2), and (3) of the *Regulation*. Certification must be performed at least quarterly for crane booms used with a vibratory hammer for driving piles or monthly for crane booms used with a vibratory pile extractor or drop hammer, or used for dynamic compaction.

Activities in support of and ancillary to the foundation-duty cycle work

The following work activities are considered to be in support of and ancillary to the foundation-duty cycle work and do not constitute a return to lifting service. Therefore, these activities may be performed by the crane being used for the foundation-duty cycle work without the engineering inspection and certification required under section 14.72(4).

In each of the following activities, the load may not weigh more than 75% of the rated capacity of the crane

- Lifting and loading a pile into the vertical leads
- Lifting and vertically stacking (positioning) a length of piling onto a previously driven pile
- Material handling, including moving piling, driving frames, equipment, or materials at the worksite, that supports the foundation-duty cycle operation

- Girder launching that is required to advance the crane onto the next bridge span or dock structure (marine or land based). This excludes the sequential placement of multiple spans

Lifting a worker(s) on a work platform suspended from a crane to support the foundation-duty cycle work is also an activity that can be conducted without the crane being "returned to lifting service." With respect to the work platform, *Regulation* section [13.27](#) specifies that the weight of the work platform and its rigging, plus the rated capacity, must not exceed 50% of the rated capacity of the crane. Note that other regulatory requirements apply, for example the following:

- Part 13 specifies requirements for the crane, fall protection, trial lifts, and the design and installation of the work platform ([WCB Standard WPL 2-2004 Design, Construction and Use of Crane Supported Work Platforms](#))
- *Regulation* section [20.102](#) regulates the use of multiple load lines
- Part 14 specifies requirements for critical lifts

When the lifting is no longer in support of and ancillary to the foundation-duty cycle work being done at a work location, either because the foundation-duty cycle work is complete or it has been suspended for an extended period of time so that lifting work can be performed, or when the crane has been moved to a new work location or work task, the crane inspection and certification specified in section 14.72(4) is required before the crane is used in lifting service.

Guidelines Part 14 - Tower cranes

G14.88(5) Alternative means of jib access

Issued February 1, 2008

Regulatory excerpt

Section 14.88 (Access) of the *OHS Regulation* ("*Regulation*") states:

- (1) A tower crane must have a fixed ladder installed in or on the mast to provide access to the jib and crown of the crane.
- (2) The ladder under subsection (1) must meet the following requirements:
 - (a) the ladder must be able to support two 1.1 kN (250 lbs.) point loads between any two consecutive points where the ladder is attached to the crane;
 - (b) there must be a minimum horizontal distance of 15 cm (6 in.) between the rungs and the object to which the ladder is attached;
 - (c) landing platforms must be provided at least every 9 m (30 ft.) on the ladder;
 - (d) each section of the ladder must be offset horizontally from adjacent sections or the landing platforms must have trap doors;
 - (e) if a section of the ladder has a climb exceeding 6 m (20 ft.) in length, that section of ladder must have a ladder safety cage 68 cm to 76 cm (27 in. to 30 in.) in diameter or a ladder safety device must be used.
- (3) Each tower crane jib must have a continuous walkway from the mast to the tip.
- (4) The walkway referred to in subsection (3) must meet the following requirements:
 - (a) the walkway must be at least 30 cm (12 in.) wide and constructed with a non-skid surface;
 - (b) a handline, which is approximately 1 m (39 in.) above the level of the walkway, and a midline must be provided on both sides of the walkway not more than 30 cm (12 in.) out from the edge of the walkway and supported at intervals not exceeding 3 m (10 ft.);
 - (c) the handline and midline referred to in paragraph (b) must be wire rope of at least 1 cm (3/8 in.) diameter;
 - (d) if it is not practicable to provide handlines in accordance with paragraph (b), alternative means of fall protection, such as a horizontal lifeline system, must be provided in accordance with the requirements of [Part 11](#) (Fall Protection) and must be set out in the fall protection plan.
- (5) If, due to the design or size of the tower crane, it is not practicable to meet the requirements set out in subsections (1) to (4), alternative safe means of access must be provided.
- (6) The climbing space of a tower crane mast must be clear of protruding objects and must provide a safe and unobstructed passage.
- (7) A written fall protection plan, which addresses the requirements of fall protection when a person is operating, inspecting, servicing and maintaining the tower crane, must be developed and implemented.

Purpose of guideline

The purpose of this guideline is to provide information on

- The functions of the walkway required by section 14.88(3) & (4)

- Possible alternatives where walkways as specified by section 14.88(3) & (4) are not practicable
- An outline of the issues that typically need to be addressed when designing and implementing alternative safe means of access

For some tower cranes it may not be practicable to attach a walkway to the jib in a manner that would meet the requirements of section 14.88(3) & (4). For example, in some cases, there may be a walkway that can extend only as far as the trolley drive assembly, and on others it may not be feasible to fit a walkway at all.

Under section 14.88(5), other options for access can be considered, as long as they provide a safe means of access.

The functions of the walkway

When designing safe means of access as alternatives to walkways it is important to recognize the functions or purposes served by walkways.

The walkway is intended to provide a means of safe access by a worker to all points along the jib. Access along the full length is needed for the purposes of inspections, maintenance, and any repairs on the jib or its support system. The walkway also provides access to the operator's cab, if mounted on the jib. In addition, it may provide an emergency access route if it is necessary to rescue a worker from the jib.

The *CSA Standard Z248-2004 Code for Tower Cranes* lists the types of inspections that must be done on the components of the crane, and their frequency. Inspections typically done from the walkway include

- Daily inspections of load trolley ropes, load hoist ropes that can reasonably be expected to be used during the shift, and their points of attachment
- Weekly inspections of structural pins and keepers, trolley rollers and tracks, gear shaft and belt drives, sheaves, bushings, pins, all rope attachments, pendant lines, cable clips, thimbles, and ferrules
- Monthly inspections of all running ropes, the jib structure, sheaves, bearings, and mounts

If the crane will be in place for an extended period of time, annual inspections are needed of the jib structure using nondestructive testing methods, all load carrying equipment (including sheaves, blocks, rings, shackles and hooks), and all wire ropes.

Possible alternatives to walkways

When provision of a walkway required by section 14.88(3) & (4) is not practicable on a tower crane there may be a number of other options for inspection and maintenance of components. Examples include

- For self erect cranes, lowering the jib to allow inspection and maintenance of jib components
- Use of an elevating work platform to access the jib area
- Use of a walkway narrower than specified in section 14.88(4), in combination with a horizontal lifeline along the jib
- Use of a work platform (basket) attached to the tower crane trolley, in combination with a personal fall arrest system. *Note: European Standard EN14439:2006 Cranes-Safety-Tower Cranes requires both a basket attached to the trolley, and a walkway with side protection or a horizontal lifeline along the full length of the jib.*

Issues that need to be addressed with alternative means of access

When designing and implementing a means of alternative access it is essential to ensure issues such as those listed below are addressed. The issues listed under item A would apply in all circumstances. Those listed under item B are more specific to work platforms attached to trolleys. *Neither list is intended to be complete as in the final analysis a hazard assessment specific to the equipment needs to be done and appropriate protective measures implemented.*

A. Issues of general application

- Communication procedures and equipment that will allow safe use of the access system.
- Assurance that any work platform or walkway used provides firm, non-slip footing.
- The means of compliance with the requirements for personal fall protection in [Parts 11](#) and [13](#) of the *Regulation*.
- The means of inspection and certification of the device, in compliance with section 14.77 (Structural inspection) of the *Regulation*, if the device is part of the tower crane.
- An emergency procedure and means of rescuing a worker in the event that the access system fails, or the worker becomes incapacitated.
- Lockout of the energy supply to the tower crane in accordance with the requirements of [Part 10](#) (Lockout) of the *Regulation*, as required for inspection and maintenance.
- Where applicable, guarding meeting the provisions of *CSA Standard Z248-2004, Code for Tower Cranes*, as required by section 14.2(6) of the *Regulation*.
- Instructions for use of the system and the training of workers.

B. Additional issues specific to work platforms attached to trolleys

- The means of compliance with certain provisions of *CSA Standard Z248-2004, Code for Tower Cranes*. (Among other things, for trolley systems, the Standard sets out requirements for braking the trolley, the means to prevent the trolley from becoming detached in the event of wheel or axle breakage or sidelading, and the means of stopping the outward movement of the load trolley in the event of trolley drive rope breakage.)
- The design and fabrication of the work platform and the means of attaching it to the trolley. (The platform should be designed and fabricated by the crane manufacturer specifically for the crane on which it is used, and be permanently marked with the manufacturer's information, the rated capacity, a part number, and the number of occupants for which it is designed (at 115 kg

(250 lbs)/occupant). The system for attaching the platform to the trolley will need to ensure the platform is securely attached and remains level when occupied. If a platform system is built by another party, it will need to be accompanied by an engineering certificate and drawings that address the engineering issues involved.)

- The means of compliance with section 14.21 (Fenders) of the *Regulation*. (This section requires that trolley wheels be fitted with fenders or guards if there is a possibility of injury to the worker from contact with trolley wheels moving along the rail.)
- The means of compliance with section 4.58 (Specifications for guards and guardrails) of the *Regulation*, as it applies to the platform.
- The means of guarding against shearing and entanglement hazards when the platform is traveled along the jib.
- The means of compliance with the requirements of [Part 10](#) (Lockout) of the *Regulation* so that the platform is immobilized during servicing and inspection of machine parts, and the worker is protected from movement of any equipment while performing work.
- The means of safe access to and egress from the platform.
- The installation, operation, and inspection requirements for the trolley, including any additional requirements for the attached platform provided by the tower crane manufacturer or other applicable party. (Note: The instructions for use are to include a stipulation that no loads are to be handled by the crane while the platform is occupied.)

Guidelines Part 14 - Construction material hoists

G14.96 Light duty portable construction material hoists

Issued May 1, 2013; Revised consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 14.96 of the *OHS Regulation* ("Regulation") states:

- (1) Before a construction material hoist is put into use, a professional engineer must certify that
 - (a) the hoist is safe for use, and
 - (b) the installation of the hoist complies with
 - (i) the design criteria for that installation,
 - (ii) the hoist manufacturer's specifications,
 - (iii) the requirements of *CSA Standard CAN/CSA-Z256-M87, Safety Code for Material Hoists*, and
 - (iv) the requirements of this Regulation.
- (2) If, after certification under subsection (1), a modification is made to the structure, mechanical components or control system of a construction material hoist or it is changed through the addition or removal of a support section of the hoist, the hoist must not be used until it is recertified as safe for use by a professional engineer.
- (3) Subsections (1) and (2) do not apply to a light duty portable material hoist installed and operated in accordance with the hoist manufacturer's instructions.
- (4) A copy of the certifications required in subsections (1) and (2) or the manufacturer's instructions referred to in subsection (3) must be available at the workplace where the hoist is installed.

Section 14.2(8) of the *Regulation* states:

- (8) A construction material hoist, other than a light duty portable material hoist, must meet the requirements of *CSA Standard CAN/CSA-Z256-M87, Safety Code for Material Hoists*.

Purpose of guideline

Light duty portable construction material hoists are widely used in workplaces throughout the province. While light duty, they may offer ergonomic benefits, increased productivity, and safety when properly installed and used.

The purpose of this guideline is to provide examples of construction material hoists that are typically manufactured to be light duty and portable under section 14.96(3) of the *Regulation*. The guideline also highlights some of the key requirements that apply to hoists and sets out the relevant sections of the *Regulation*.

Light duty portable material hoists

Sections 14.96(1) and (2) of the *Regulation* require that certain certifications by a professional engineer be in place before a construction material hoist is put into use. In particular, a professional engineer must certify that the installation of the hoist complies with *CSA Standard Z256-M87, Safety Code for Material Hoists*.

These requirements do not apply to "light duty portable" material hoists (section 14.96(3)). These include, for example, track-guided, wire rope, base-mounted drum hoists that are supported by a scaffold, as well as ladder-based hoists, provided the following occurs:

- They are considered by the manufacturer to be light duty portable

- Their original capacity does not exceed 500 lb.

Light duty portable material hoists are also exempted from the requirements of *CSA Standard Z256-M87* under section 14.2(8) of the Regulation. Light duty portable material hoists were not intended to be subject to the requirements of that standard. For example, the standard requires hoistway doors to be equipped with locks, while light duty portable material hoists typically do not have doors. Likewise, there are requirements in the standard for counterweights, which are normally not present in light duty portable material hoists. As a result, section 14.2(8) of the *Regulation* does not apply to light duty portable material hoists.

Key applicable requirements

While *CSA Standard Z256-M87* does not apply to light duty portable material hoists, there are still hazards associated with them that need to be controlled. For that reason, all other relevant requirements of the *Regulation* apply. Some of the regulatory obligations that apply to light duty portable material hoists are set out below (Note: This is not an exhaustive list of all applicable requirements).

Scaffold

- Scaffolds that are used to support a crane or hoist (other than a manually-powered one) must be constructed, installed, and used in accordance with the instructions of a professional engineer ([section 13.11\(1\)\(e\)](#)).
 - The employer must ensure that scaffolds are in a safe condition and are able to withstand the load ([section 13.13](#)).
 - The major components of scaffolds must be used in accordance with technical data provided by the manufacturer, or in writing by a professional engineer ([section 13.15](#)).
- If specifications for use with a construction material hoist are not provided by the manufacturer, then the major components will need to be used in accordance with the written instructions of a professional engineer.

Hoisting system

- The hoist must meet good engineering practice and be able to safely perform its function ([section 14.2\(15\)](#)).
- The rated capacity of the hoist must not exceed the capacity of the structure supporting the hoist ([section 14.11\(1\)](#)).
- The hoist must be installed and operated in accordance with the hoist manufacturer's instructions ([section 14.96\(3\)](#)).
- The hoist must be inspected and maintained in accordance with the manufacturer's instructions and the standard(s) it is required to meet, or as specified by a professional engineer ([section 4.3\(2\)](#)).
- The hoist must be inspected and maintained at a frequency, and to the extent required to ensure that every component is capable of carrying out its original design function with an adequate margin of safety ([section 14.13\(1\)](#)).

In the case of track-guided, wire rope, base-mounted drum hoists, this will include inspection and maintenance of components, such as the following:

- Drum
- Wire rope
- Guarding of the area under the carriage
- Shackles
- Pins
- Attachment points
- Sheave
- Track system
- Carriage
- Controls
- Braking system

In the case of ladder-based hoists, this will include inspection and maintenance of components, such as the following:

- Base of the unit
- Set up area
- Electrical connection (if electrically powered)
- Guarding and safety features
- Track or rail connections
- Drive system
- Braking system
- Bracing (if required)
- Carriage and attachments

- Any repair to load bearing components (e.g., carriage, track, sheaves, brakes, etc.) must be certified by a professional engineer or the original manufacturer ([section 14.13\(3\)](#)).
- Records of inspection and maintenance must be kept ([section 14.14\(f\)](#)).
- The manufacturer's manual (or, if not available, an engineer's instructions) must be reasonably accessible to the operator and other persons inspecting or maintaining the hoist at the workplace ([section 14.12](#)).
- The employer must ensure that the hoist is capable of safely performing the functions for which it is used ([section 4.3\(1\)\(a\)](#)).
- The hoist must be selected, used, and operated in accordance with the manufacturer's instructions (if available), safe work practices, and the

requirements of the *Regulation* ([section 4.3\(1\)\(b\)](#)). For example, this will include the following:

- The use of communication to prevent the unintended removal of the hoist, as well as procedures for guardrail removal while unloading
- Barricading of the area around the hoist base to prevent inadvertent worker entry
- Workers must not ride on the hoist unless it is necessary to do so for inspection and maintenance ([section 14.97](#)).
- The hoist must prominently display a notice stating that no person may ride on the equipment, and the net rated capacity of the hoist must be clearly and durably marked on its structure ([section 14.98](#)).
- The components of the hoisting system must meet the requirements of all standards that apply under the *Regulation*.
- All applicable rigging requirements in [Part 15](#) of the *Regulation* must be complied with.
- All applicable guarding requirements of the *Regulation* must be complied with to prevent shear and pinch points on each landing (for example, sections [12.2](#) and [12.12](#)).

Contents

GENERAL REQUIREMENTS

[G15.5 Component identification](#)

[G15.9 Wedge socket connections](#)

Guidelines Part 15 - General requirements

G15.5 Component identification

Effective August 1, 1999; Editorial Revision June 4, 2009

Regulatory excerpt

Section 15.5 of the *OHS Regulation* ("*Regulation*") states:

- (1) Rigging fittings must be marked with the manufacturer's identification, product identifier and the working load limit or sufficient information to readily determine the WLL.
- (2) The WLL of existing fittings not identified as specified in subsection (1) must be determined by a qualified person, marked on the fitting and such fittings must be removed from service by January 1, 2001.

Purpose of guideline

The purpose of this guideline is to discuss what is considered sufficient information to readily determine the working load limit (WLL) under subsection 15.5(1).

Sufficient information

Subsection 15.5(1) requires that rigging fittings must be marked with the manufacturer's identification and the product identifier. Subsection 15.5(1) also requires that the rigging fitting must be marked with either the working load limit (WLL) for the fitting, or sufficient information to readily determine the WLL.

Where the WLL is not marked on the fitting, the WLL can be determined using the manufacturer's catalogue or the manufacturer's specification sheet. For these fittings, sufficient information for the purposes of subsection 15.5(1) includes the manufacturer's identification and the product identifier/part number, as well as any other technical information necessary to look up the fitting in the catalogue or specification sheet. A copy of the manufacturer's catalogue or specification sheet should be available in order for such information to satisfy the condition of being able to "readily determine" the WLL for the fitting

G15.9 Wedge socket connections

Issued August 1, 1999; Editorial Revision April 15, 2021

Regulatory excerpt

Section 15.9 of the *OHS Regulation* ("*Regulation*") states:

If a wedge socket is used as a wire rope termination, the dead end of the rope must be secured to prevent release of the wedge or rope slippage at the socket.

Purpose of guideline

The purpose of this guideline is to further discuss what is required if a wedge socket is used as a wire rope termination.

Securing the dead end of the rope

Section 15.9 of the *Regulation* states "If a wedge socket is used as a wire rope termination, the dead end of the rope must be secured to prevent release of the wedge or rope slippage at the socket."

The dead end of the rope must be secured in accordance with the wedge socket manufacturer's instructions (refer to [section 4.3\(1\)](#) of the *Regulation*). These manufacturers do not condone securing the dead end of the rope to the live portion of the rope using a wire rope clip. There

are a number of products available that provide a convenient means of securing the dead end of the rope and preventing rope slippage at the socket.

Contents

DIVISION 1 - GENERAL OPERATING REQUIREMENTS

G16.8(3) [Rider restriction](#)

DIVISION 2 - GENERAL MACHINE REQUIREMENTS

G16.24 [Alternate means of escape - Purpose-built window breaking device](#)

G16.30 [Load handling attachments - Forklifts](#)

G16.33 [Protective structures for hydraulic excavators pioneering on steep side hills](#)

G16.33-2 [Protective structures - Acceptable alternate standards](#)

G16.35 [ROPS standards - Acceptable alternate standard](#)

DIVISION 3 - ADDITIONAL REQUIREMENTS FOR SPECIFIC PRIME MOVERS

G16.40(8) [All terrain vehicles - Modifications](#)

G16.43(2)-1 [Lift truck operator training](#)

G16.43(2)-2 [Lift truck operator training - Alternative standards](#)

G16.43(5) [Pedestrian and equipment traffic](#)

RETIRED GUIDELINES

[Guidelines retired consequential to September 1, 2021 Regulatory Amendments](#)

[Guidelines retired prior to September 1, 2021](#)

[Guidelines Part 16 - Division 1 - General Operating Requirements](#)

G16.8(3) [Rider restriction \(formerly G16.31\(4\)\)](#)

Issued August 1999; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 16.8(3) of the *OHS Regulation ("Regulation")* states:

- (3) A person other than the operator may only ride on a ROPS-equipped prime mover for the purpose of training or maintenance and, for that purpose, the prime mover
- (a) must not be operated in a rollover hazard area, and
 - (b) must not be engaged in an operation that could
 - (i) cause the mobile equipment to become unstable, or
 - (ii) cause the person to fall or be ejected, pinched or dragged.

Purpose of guideline

The purpose of this guideline is to highlight section 16.8(3) of the *Regulation* that sets out certain requirements if a worker other than the operator must ride on ROPS equipped mobile equipment.

Rider requirements

Section 16.8(5) of the *Regulation* outlines the safety requirements for workers riding on prime movers that are not equipped with ROPS. These requirements include:

- A seat that meets the requirements of section 16.20
- A footboard or platform
- Hand-holds
- A safety belt, harness, guardrail, or other means of restraint

Although these requirements are not specifically mandated by section 16.8(3) for workers riding on ROPS-equipped prime movers, these or similar requirements should be met so that the rider can be transported safely.

[Section 4.3\(1\)](#) of the *Regulation*, which relates to safe machinery and equipment, still applies.

G16.24 Alternate means of escape - Purpose-built window breaking device (formerly G16.17)

Issued August 18, 2014; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 16.24 of the *OHS Regulation* ("*Regulation*") states:

- (1) If mobile equipment manufactured after January 1, 2000 has a single cab entrance door, the mobile equipment must have an alternative means of escape that is clearly marked both inside and outside the cab and that
 - (a) is not located on the same surface as the cab entrance door,
 - (b) is usable regardless of the position of movable components or accessories of the machine,
 - (c) does not pose additional hazards to the operator,
 - (d) can be opened from both the inside and outside without the use of tools when the mobile equipment is in use,
 - (e) requires a force of not more than 135 N (30.3 lbf) to open, and
 - (f) provides a clear opening, the minimum dimensions of which comply with *ISO Standard 2867-2011(R2016), Earth-moving machinery - Access systems*.
- (2) Mobile equipment manufactured before January 1, 2000 with a single cab entrance door must meet the requirements for an alternative means of escape required at the date of manufacture.

Purpose of guideline

This guideline describes when a purpose-built window breaking device may meet the requirements of section 16.24 of the *Regulation*.

Background

Section 16.24 of the *Regulation* requires an alternate means of escape for mobile equipment with a single cab entrance door. The intent of this requirement is to allow a secondary means of escape if the primary means is obstructed, e.g., due to fire, overturn, submersion, or other mishap.

In most circumstances an openable window can be built into a cab design, or a second door or hatch can be installed in the cab. This is what is anticipated by section 16.24(1) of the *Regulation*.

There may be circumstances where it is not practicable to install or retrofit the cab of mobile equipment with openable windows or to install a second door or hatch, such as the following:

- Cab structural strength would be significantly altered by installing an alternate means of escape
- A redesigned alternate means of escape would affect the machine capacity or range of motion

In these circumstances, it may be acceptable to install a purpose-built device to break a window in an emergency so that a person can escape from a cab. For example, this could be a commercially available device that permanently attaches directly to the window and can be used by the operator to break the glass by punching the device. Although the device does not open the window directly, it does open an egress point by breaking the window.

Use of a tool

The *Regulation* states that the alternate means of escape must be openable without the use of a tool. Therefore, it is not acceptable to rely on a hammer or other loose commercial glass breaking devices in the cab for the purpose of breaking a window. Even if the device is tethered to the window, it is still not an acceptable means because there is a significant chance of the device being removed or otherwise being unavailable in an emergency.

However, if a device can be permanently installed on a window so that it cannot be removed in any normal way (i.e., becomes integral with the glass), and can be readily used to break the window, then it would not be considered a tool and could be acceptable under the *Regulation*.

Mobile equipment manufactured after January 1, 2000

For mobile equipment manufactured after January 1, 2000, all the requirements of section 16.24(1) of the *Regulation* apply.

As an alternate means of escape, an openable hatch or window has some important advantages in terms of reliability. For example, a hatch can be tested and drills can be run regularly to check that the operator can open it in an emergency situation, whereas the purpose-built device cannot readily be tested to ensure the operator can use it to break a window in an emergency. Factors that may affect the utility and reliability of the purpose-built device include the following:

- The device will only be effective with certain types of window glass, e.g., tempered glass versus non-tempered or laminated glass. Not all window glass is tempered glass, and even when it is, it is not always labelled as such. An employer may need to contact the mobile equipment, device, and/or glass supplier to determine whether the glass is of a type that will be broken by the device.

- The device will only be effective for certain thicknesses of glass. An employer will need assurance that the device will work when required in an emergency.
- Tempered glass breaks into fragments rather than sharp shards. While the fragments do not represent the same high hazard as sharp angular shards, there is still a danger of fragments lodging in the skin or eye, and workers need to be made aware to take precautions when breaking the glass.
- When a tempered glass window breaks, it may stay relatively in place in the frame and will then need to be pushed in order to remove it from the frame.
- All equipment operators must be trained in how to properly use the device in an emergency, and refresher training may be required periodically.
- The device needs to be part of a regular inspection regime to ensure it remains in place and undamaged. There is no practical way to test the functioning of the device on a periodic basis. The device may have an expiry date and this will need to be part of the inspection.
- A window film (e.g., advertising, anti-vandalism) or double glazing may affect performance of the device.

A purpose-built device is acceptable if the following considerations are met:

- The requirements of *Regulation* sections 16.24(1)(a)–(f) are met.
- Manufacturer's instructions are followed (both the mobile equipment and the device manufacturer).
- It is not practicable to install an openable escape hatch, door, or window as the alternate means of escape.
- The window is of a type and condition that will break as necessary by use of the device according to the manufacturer's instructions. The window material and the thickness are important in this consideration.
- The window can be safely broken from the inside (by the equipment operator) and the outside (by rescuers).
- The window and attached device do not create an additional hazard. Tempered glass will break into fragments. Workers need to be made aware that the fragments could become embedded in the eye or skin and precautions need to be taken. If the window is of a type that will break into sharp shards that are likely to cause injury to a worker, then this method would not be acceptable.
- The installed device does not obscure the operator's view or otherwise hinder equipment operation.
- The device is installed in a location on the window so that it is likely to be readily accessible when necessary in case of mishap.
- The device is part of the pre-use inspection of the mobile equipment. The presence and condition of the device must be verified.
- Instructions on how to use the device are clearly visible inside and outside the window.
- The device is permanently affixed at the window.
- A qualified person has inspected the installed device and provided written confirmation to the employer that the device is installed in accordance with the considerations listed here. This information is provided to the joint health and safety committee or worker representative, as applicable, and is made available to a WorkSafeBC prevention officer upon request.

Mobile equipment manufactured prior to January 1, 2000

As per section 16.24(2) of the *Regulation*, mobile equipment manufactured prior to January 1, 2000 and having a single cab entrance door must be equipped with an alternate means of escape should the primary means be blocked.

The prescriptive requirements of sections 16.24(1)(a)–(f) do not apply to this mobile equipment. Employers should provide openable hatches or windows as an alternate means of escape wherever practicable — however, a purpose-built device such as described in this guideline is also acceptable as an alternate means of providing escape, provided that the manufacturer's instructions are followed.

G16.30 Load handling attachments – Forklifts (formerly G16.19)

Issued September 21, 2012; Editorial Revision consequential to February 1, 2013 Regulatory Amendment; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 16.30 of the *OHS Regulation* ("*Regulation*") states:

- (1) Buckets, forks, booms, hoists and other load-handling attachments must be installed on mobile equipment as specified by the manufacturer of the mobile equipment unless otherwise certified by a professional engineer for use on the mobile equipment.
- (2) The design of the attachments referred to in subsection (1) must provide for an evaluation of the stability of the mobile equipment, including the effect of load swing.
- (3) The instructions of the manufacturer or professional engineer, as applicable, for the safe use of the mobile equipment with the attachment must be available to the operator.

Section 4.3(2) of the *Regulation* states:

- (2) Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out
 - (a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or
 - (b) as specified by a professional engineer.

- (1) Unless provided elsewhere in this Regulation, the rated capacity or rated load of a machine or piece of equipment is that specified by the manufacturer of the machine or piece of equipment based on its design.
- (2) The rated capacity or rated load must be certified by a professional engineer if
 - (a) the manufacturer's specification or other acceptable warranty cannot be produced,
 - (b) the equipment or machine has been modified in a manner which will change its rated capacity or rated load,
 - (c) wear, corrosion, damage or signs of fatigue are found which may reduce the rated capacity or rated load,
 - (d) the equipment or machine is used in a manner or for a purpose other than that for which it was originally designed, if the use will change the safe working load, or
 - (e) in the opinion of the Board, the provision of such certification is deemed necessary.

Sections 16.43(1)(a) and (b) of the *Regulation* state:

- (1) The design, fabrication, use, inspection, maintenance and repair of a lift truck must meet
 - (a) [*CAN/CSA Standard B335-15-Safety standard for lift trucks*](#), or
 - (b) as applicable,
 - (i) *ANSI/ITSDF B56.1a-2018, Safety Standard for Low Lift and High Lift Trucks*,
 - (ii) *ANSI/ITSDF B56.6-2016, Safety Standard for Rough Terrain Forklift Trucks*, or
 - (iii) *ISO 10896 Rough-Terrain Trucks - Safety Requirements and Verification: Part 1 (2012): Variable-Reach Trucks; Part 2 (2016): Slewing Trucks; Part 4 (2015): Additional Requirements for Variable-Reach Trucks Handling Freely Suspended Loads*or the earlier version of the applicable standard that applied on the date of manufacture of the lift truck.

Purpose of guideline

This guideline provides information regarding the *Regulation* requirements pertaining to installation, written instructions regarding safe use and stability, and determination of rated capacity when a forklift (also known as a lift truck) is fitted with a load handling attachment.

Installation requirements

There are a number of load handling attachments available for low lift, high lift, and rough terrain forklifts; including fork extensions, telescoping booms, and attachable hoisting devices (hooks, clamps, side shifters, etc.). These load handling attachments are available both from the forklift manufacturer and from third-party manufacturers. Sections 4.3(2) and 16.30(1) of the *Regulation* require that installation of these attachments be carried out by either of the following:

- In accordance with instructions from the manufacturers of both the load handling attachment and the forklift, and the requirements of the relevant forklift standard
- By a professional engineer

Safe use and stability instructions

The potential for instability of the forklift when a load handling attachment is installed and when a load is applied to the attachment is a key hazard to be considered in the development of written safe use instructions required under sections 16.30(2) and (3) of the *Regulation*.

Instructions for safe use of the forklift with the load handling attachment should address the following factors:

- Changes to the stability of the forklift caused by the following:
 - Any extension of the load past the normal point for the load rating of the forklift
 - The swing of any suspended load
- Any altered load capacity caused by the use of the load handling attachment
- Any altered handling characteristics of the forklift or forklift capabilities, such as maximum fork elevation for a specific forklift
- Whether the specifications and instructions of either the forklift manufacturer or the load attachment manufacturer are affected when the forklift and attachment are combined
- The relevant specifications and instructions from the appropriate standard (refer to sections 16.43(1)(b); these standards include requirements for the use of load handling attachments

Nameplates

If a forklift is equipped with a load handling attachment, clause 4.2.3 of *ANSI/ITSDF B56.1-2009* requires the forklift be marked to identify the attachment, show the weight of the combination of the truck and attachment, and show the capacity of the truck with the attachment at maximum

elevation with the load laterally centred.

Rated capacity

Load handling attachments that do any of the following:

- Allow the load to swing
- Significantly elevate the normal centre of gravity of the load
- Reposition the allowable centre of gravity of the load past the normal load rating position (as specified by the forklift manufacturer)

can, in addition to affecting stability of the forklift, create significant changes in the load capacity of the forklift.

The forklift manufacturer may have anticipated the effects of the use of load handling attachments and specified the rated capacity for this use. Where the forklift manufacturer has not provided for this use in the design and specifications of the equipment and has not specified the appropriate rated capacity, or if the manufacturer's (or authorized agent's) specifications are not available, sections 4.8(2)(a) and (b) of the *Regulation* require that the modified rated capacity or rated load be certified by a professional engineer.

G16.33 Protective structures for hydraulic excavators pioneering on steep side hills (formerly G16.21)

Issued August 1999; Editorial Revision April 2005; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Sections 16.33(1) and (2) of the *OHS Regulation* ("*Regulation*") state:

- (1) In this section and section 16.38, "*tipover*", in respect of mobile equipment, means a roll about the longitudinal axis of up to 90°, or a rear or frontal pitchover about the transverse axis of up to 90°, which roll or pitchover results in the contact of the cab with a surface.
- (2) Operators of mobile equipment, and any other riders of mobile equipment authorized by section 16.8, must be protected against any reasonably foreseeable hazards from falling, flying or intruding objects or materials, or tipovers, by means of cabs, windows, screens, grills, shields, deflectors, guards or structures on the mobile equipment that
 - (a) are designed and installed to provide an adequate view for the operator to safely use the mobile equipment, and
 - (b) meet the requirements of
 - (i) at least one of the following standards, if the mobile equipment is in the scope of the standard:
 - (A) [*CSA Standard B352.0-16, Rollover protective structures \(ROPS\), falling object protective structures \(FOPS\), operator protective structures \(OPS\), and tip-over protective structures \(TOPS\) for mobile machinery - General Canadian requirements;*](#)
 - (B) *Society of Automotive Engineers (SAE) Recommended Practice J1356 MAR2013, Performance Criteria for Falling Object Guards for Excavators;*
 - (C) *SAE J2267 APR2007 Minimum Performance Criteria for Operator Front Protective Structures (OFPS) for Certain Equipment;*
 - (D) *ANSI/UL 752, Standard for Bullet-Resisting Equipment, 11th edition (with revisions up to and including December 11, 2015);*
 - (E) *WorkSafeBC G601 Standard - Heavy Duty Backstops for Logs and Rocks*, set out in Schedule 16-A of this Part;
 - (F) *WorkSafeBC G603 Standard - Heavy Duty Guards for Windows*, set out in Schedule 16-B of this Part;
 - (G) *WorkSafeBC G604 Standard - Light Duty Guards for Windows*, set out in Schedule 16-C of this Part, or
 - (ii) an earlier version of at least one of the standards set out in subparagraph (i)(A) to (D), if the earlier version applied to the cabs, windows, screens, grills, shields, deflectors, guards or structures on the mobile equipment on the date of manufacture of the mobile equipment.

Purpose of guideline

This guideline provides alternate standards to those listed in section 16.33(2)(b) of the *Regulation* when dealing with protective structures for hydraulic excavators pioneering on steep side hills.

Alternative standards

The standards referenced in section 16.33 deal with the minimum operator protection expected on a hydraulic excavator exposed to the hazard of intruding or flying objects, such as loose debris, snags, tree trunks, or limbs, which are conditions normally encountered in pioneering steep side hill logging grades and right-of-way construction.

[Section 4.4\(2\)\(b\)](#) of the *Regulation* permits the reliance on other practices, procedures, or rules which are acceptable to WorkSafeBC. The following applicable alternates to the standards listed in the *Regulation* are considered acceptable:

1. [WCB Standard: G602 Log Loader and Log Yarder Raised Cabs](#) - cab structure designed to resist a force of at least 11,500 pounds (simulating a 2000 pound blunt log impacting the cab at approximately 4 miles per hour), and an alternative exit meeting the requirements of section 16.17 of the *Regulation*.
2. [WCB Standard: G608 Mobile Equipment Roof Structures - Heavy Duty](#) (designed to absorb 8500 foot - pounds of energy). (*SAE J1043 - Minimum Performance Criteria for Falling Object Protective Structures for Industrial Equipment* or equivalent standard is an accepted option under add either WCB or WorkSafeBC G608.)
3. An adequate substitute for *WCB Standard G603* window guards is polycarbonate (sold under the trade names of Lexan or Tuffac) where it is at least 1/2 inch thick and adequately supported from behind along the perimeter with at least a one inch overlap and by members in one direction not more than 10 inches apart.

Where boom clearance does not permit a side window guard meeting *WCB Standard G603*, a window guard meeting *WCB Standard G604, Standard for Light-Duty Screen Guards for Off-Highway Equipment* may be used. Section 16.33(2)(b)(i)(A) of the *Regulation* requires each polycarbonate window on mobile equipment manufactured after February 1, 2002, or otherwise installed on mobile equipment after that date, to be marked to show the thickness and grade of the material.

Do not drill holes in polycarbonate windows to mount the window on the machine, or for the installation of accessories such as windshield wipers. Consult with WorkSafeBC's OHS Practice & Engineering Support at regpra@worksafebc.com for further assistance on window guards made using polycarbonate.

G16.33-2 Protective structures - Acceptable alternate standards (formerly G16.21(2)-2)

Issued October 26, 2011; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 16.33(2) of the *OHS Regulation* ("*Regulation*") states:

- (2) Operators of mobile equipment, and any other riders of mobile equipment authorized by section 16.8, must be protected against any reasonably foreseeable hazards from falling, flying or intruding objects or materials, or tipovers, by means of cabs, windows, screens, grills, shields, deflectors, guards or structures on the mobile equipment that

(a) are designed and installed to provide an adequate view for the operator to safely use the mobile equipment, and

(b) meet the requirements of

(i) at least one of the following standards, if the mobile equipment is in the scope of the standard:

(A) [CSA Standard B352.0-16, Rollover protective structures \(ROPS\), falling object protective structures \(FOPS\), operator protective structures \(OPS\), and tip-over protective structures \(TOPS\) for mobile machinery - General Canadian requirements;](#)

(B) *Society of Automotive Engineers (SAE) Recommended Practice J1356 MAR2013, Performance Criteria for Falling Object Guards for Excavators;*

(C) *SAE J2267 APR2007 Minimum Performance Criteria for Operator Front Protective Structures (OFPS) for Certain Equipment;*

(D) *ANSI/UL 752, Standard for Bullet-Resisting Equipment, 11th edition (with revisions up to and including December 11, 2015);*

(E) *WorkSafeBC G601 Standard - Heavy Duty Backstops for Logs and Rocks, set out in Schedule 16-A of this Part;*

(F) *WorkSafeBC G603 Standard - Heavy Duty Guards for Windows, set out in Schedule 16-B of this Part;*

(G) *WorkSafeBC G604 Standard - Light Duty Guards for Windows, set out in Schedule 16-C of this Part, or*

(ii) an earlier version of at least one of the standards set out in subparagraph (i)(A) to (D), if the earlier version applied to the cabs, windows, screens, grills, shields, deflectors, guards or structures on the mobile equipment on the date of manufacture of the mobile equipment.

Purpose of guideline

Section 4.4(2)(b) of the *Regulation* permits the reliance on other practices, procedures, or rules which are acceptable to WorkSafeBC. This guideline describes acceptable alternate WCB G600 series standards for protective structures on mobile equipment to standards referenced in section 16.33 of the *Regulation*.

Acceptable alternate standards

The following standards are acceptable alternate standards for the standards referenced in section 16.33 of the *Regulation*.

1. [WCB Standard G602 - Log Loader and Log Yarder Raised Cabs](#)
2. [WCB Standard G605 - Mobile Equipment Half-Doors](#)
3. [WCB Standard G606 - Boom Boat Cab Protection](#)
4. [WCB Standard G607 - Medium Duty Screen Guards - Front End Log Loader](#)
5. [WCB Standard G608 - Mobile Equipment Roof Structures - Heavy Duty](#)
6. [WCB Standard G609 - Mobile Equipment Roof Structures - Light Duty](#)

The WCB Standards G600 series listed above are alternate standards to the following standards referenced in section 16.33 of the Regulation.

1. *WCB Standard G602 - Log Loader and Log Yarder Raised Cabs.* Cab structure designed to resist a force of at least 11,500 pounds (simulating a 2000 pound blunt log impacting the cab at approximately 4 miles per hour), and an alternate exit meeting the requirements of section 16.24 of the *Regulation*.

G602 is an alternate standard to the following standards listed in section 16.33 of the Regulation. Note: *CSA Standard B352.0-16, Rollover protective structures (ROPS), falling object protective structures (FOPS), operator protective structures (OPS), and tip-over protective structures (TOPS) for mobile machinery - General Canadian requirements* references the standards below:

- A. *CAN/CSA-M12117-05(R2015) Earth-moving machinery - Tip-over protection structure (TIP) for compact excavators - Laboratory test and performance requirements*
- B. *Can/CSA M3471-05 (R2015) Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements*
- C. *CAN/CSA-M8082-1-09 Self-propelled machinery for forestry - Laboratory tests and performance requirements for roll-over protective structures - Part 1 General Machines*
- D. *CAN/CSA-M8082-2-11 Self-propelled machinery for forestry - Laboratory tests and performance requirements for roll-over protective structures - Part 2 Machines having rotating platform with a cab and boom on the platform*

2. *WCB G605 Standard - Mobile Equipment Half-Doors;* G605 covers half-doors on skidders. No new skidders are produced with half-doors. There are no identified accepted alternate standards for half-doors; however ISO 8084 covers full doors.

WCB Standard G605 is the alternate of *ISO 8084:2003 Machinery for forestry - Operator protective structures - Laboratory tests and performance requirements*. ISO 8084:2003 is a referenced standard in CSA Standard B352.0-16.

3. *WCB G606 Standard - Boom Boat Cab Protection.* No new boom boats are being produced and there is no identified acceptable alternate standard. G606 is referenced in section 26.86 of the *Regulation* and is included here for information purposes.

4. *WCB G607 Standard - Medium Duty Screen Guards - Front End Log Loader;* G607 covers log loaders operating in less hazardous situations than those anticipated by G603. Where a G607 guard is required a G603 guard can be substituted.

5. *WCB G608 Standard - Mobile Equipment Roof Structures - Heavy Duty;* G608 is an alternate to ISO 8083 (11,600 J level), ISO 3449 Level II, ISO 10262 Level II FOPS as a method of compliance. All require a 500 lb. object to be dropped with 8,500 ft-lbs energy. These standards are referenced in CSA Standard B352.0-16.

A. *ISO 3449:2005 Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements*

B. *ISO 8083:2006 Machinery for forestry - Falling-object protective structures (FOPS) - Laboratory tests and performance requirements*

C. *ISO 10262:1998 Earth-moving machinery - Hydraulic excavators - Laboratory tests and performance requirements for operator protective guards*

6. *WCB G609 Standard - Mobile Equipment Roof Structures -- Light Duty;* G609 is an alternate to ISO 3449 Level I and ISO 10262 Level I FOPS as a method of compliance. These standards are referenced in CSA Standard B352.0-16.

A. *ISO 3449:2005 Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements*

B. *ISO 10262:1998 Earth-moving machinery - Hydraulic excavators - Laboratory tests and performance requirements for operator protective guards*

G16.35 ROPS standards - Acceptable alternate standard (formerly G16.23)

Issued January 1, 2005; Revised March 9, 2012; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt
Section 16.35 of the *OHS Regulation* ("*Regulation*") states:

(1) A ROPS installed on mobile equipment other than

(a) an excavator between 6 tonnes (13 250 lbs) and 50 tonnes (110 231 lbs),

(b) powered ride-on turf care equipment heavier than 400 kg (882 lbs), or

(c) a UTV must meet the requirements of the [CSA Standard B352.0-16 - Roll-over protective structures \(ROPS\), falling object protective structures \(FOPS\), operator protective structures \(OPS\), and tip-over protective structures \(TOPS\) for mobile machinery - General Canadian requirements](#) or the earlier version of the standard that applied on the date of manufacture of the mobile equipment.

(2) A ROPS installed on an excavator between 6 tonnes (13 250 lbs) and 50 tonnes (110 231 lbs) must meet the requirements of the *ISO 12117-2: 2008 Earth-moving machinery - Laboratory tests and performance requirements for protective structures of excavators - Part 2: Roll-over protective structures (ROPS) for excavators of over 6 t.*

(3) A ROPS installed on powered ride-on turf care equipment heavier than 400 kg (882 lbs) must meet the requirements of *ISO 21299:2009 Powered ride-on turf care equipment- Roll-over protective structures (ROPS) - Test procedures and acceptance criteria.*

(4) A ROPS installed on a UTV must meet the requirements of section 16.41(1).

Section 4.4(2) of the *Regulation* states, in part:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

The purpose of this guideline is to cite an alternative standard acceptable to WorkSafeBC for section 16.35 of the *Regulation*.

Acceptable alternate standards for agricultural tractors

Section 16.35 of the *Regulation* requires rollover protective structures (ROPS) to meet one of the applicable standards listed for agricultural, construction, earth-moving, forestry, industrial, and mining machines. Section 4.4(2)(a) of the *Regulation* permits WorkSafeBC to accept alternative standards.

[WCB Standard G602 - Log Loader and Log Yarder Raised Cabs](#) is an alternate standard to *CAN/CSA-M12117-05(R2015) Earth-moving machinery - Tip-over protection structure (TIP) for compact excavators - Laboratory test and performance requirements* and the *CAN/CSA M3471-05 (R2015) Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements*, which are included in the *CSA Standard B352.0-16 - Roll-over protective structures (ROPS), falling object protective structures (FOPS), operator protective structures (OPS), and tip-over protective structures (TOPS) for mobile machinery - General Canadian requirements*.

Guidelines Part 16 - Division 3 - Additional Requirements for Specific Prime Movers

G16.40(8) All terrain vehicles - Modifications (formerly G16.50)

Issued August 1999; Editorial Revision January 31, 2013; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 16.40(8) of the *OHS Regulation* ("*Regulation*") states:

(8) A modification or attachment to an ATV that may affect its stability must be certified by the manufacturer or a professional engineer.

Purpose of guideline

The purpose of this guideline is to explain the intent of section 16.40(8) of the *Regulation* and to give examples of modifications to all-terrain vehicles (ATVs) that require certification by the manufacturer or a professional engineer.

Modifications to ATVs

Some modifications affecting structural integrity that fall within the intent of this section include the following:

- Modifications to the frame, suspension, or steering
- Critical components replaced with lower quality items
- Poor repair practices, for example, bad welding or welding non-weldable parts
- Increasing horsepower or torque

Some modifications affecting stability that fall within the intent of this section include the following:

- Changing the centre of gravity
- Changing the suspension

- Changing the load distribution and size
- Changing the wheelbase
- Changing the horsepower or gearing
- Installing tanks for carrying liquids without adequate internal baffles in the tanks

G16.43(2)-1 Lift truck operator training (formerly G16.7(j)-1)

Issued April 25, 2002; Editorial Revision June 2005; Editorial Revision August 13, 2008; Editorial Revision November 21, 2017; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Sections 16.43(1) and (2) of the *OHS Regulation* ("Regulation") state:

- (1) The design, fabrication, use, inspection, maintenance and repair of a lift truck must meet
- (a) [CAN/CSA Standard B335-15-Safety standard for lift trucks](#), or
 - (b) as applicable,
 - (i) *ANSI/ITSDF B56.1a-2018, Safety Standard for Low Lift and High Lift Trucks*,
 - (ii) *ANSI/ITSDF B56.6-2016, Safety Standard for Rough Terrain Forklift Trucks*, or
 - (iii) *ISO 10896 Rough-Terrain Trucks - Safety Requirements and Verification: Part 1 (2012): Variable-Reach Trucks; Part 2 (2016): Slewing Trucks; Part 4 (2015): Additional Requirements for Variable-Reach Trucks Handling Freely Suspended Loads*
- or the earlier version of the applicable standard that applied on the date of manufacture of the lift truck.
- (2) Operator training for lift trucks must meet the requirements of Part 6 of the standard referred to in subsection (1)(a).

Purpose of guideline

The purpose of this guideline is to explain the training requirements for lift truck operators.

Background

Section 16.43(2) requires lift truck operators be trained in accordance with *CSA Standard B335-15 Safety standards for lift trucks, Industrial Lift Truck Operator Training*. (Note: For a copy of *CSA Standard B335-15*, visit community.csagroup.org. Access is free but registration is required.)

For the purposes of this guideline and application of section 16.43(2) of the *Regulation*, WorkSafeBC considers a trainee to be a person who is taking training to become a lift truck operator. A lift truck operator is *not* considered a "trainee" when taking refresher or upgrading courses and related training.

A trainee must satisfy medical and fitness criteria before starting training. These requirements are outlined in the CSA standard and are summarized later in this guideline.

Completion of training and testing

The employer is responsible for ensuring a trainee completes training and testing that meets the performance criteria specified in section 16.43(2) before the person is assigned tasks as a lift truck operator. If an employee claims to have past training and/or experience as a lift truck operator, the employer is responsible for checking references and assessing the new employee's ability to meet the performance criteria specified in section 16.43(2) before assigning the person to be a lift truck operator.

Lift truck operators do not need a certificate to confirm satisfactory performance and completion of the training mandated by section 16.43(2). The employer has several options for achieving compliance. Completing an external training course that effectively covers the specified standard, including the testing requirements, is one option to satisfy the *Regulation*. Another option is for the employer to provide in-house training and testing, to confirm the operator's knowledge and abilities meet the specified standard. Regardless, the employer still has an obligation to provide sufficient supervision and control in the workplace to ensure lift truck operators meet the standard on an ongoing basis.

In CSA standard B335-15, section 6.21.1 "Retraining" stipulates a lift truck operator must take a refresher course within a period "not exceeding three years" or if there is an accident or incident attributable to operator error. The employer is responsible for assessing each lift truck operator's performance on an ongoing basis. Training courses shall be tailored to the individual's needs as demonstrated by an evaluation, and assessment refresher courses and retraining only need to cover the aspects of lift truck operation that the operator is considered to be deficient in relative to the performance criteria specified in section 16.43(2). If three years after the last refresher or upgrading course an operator is not considered by the employer to have any deficiencies relative to the performance criteria, the refresher course could simply be a general job safety review with the operator. Training is also required any time new equipment is to be used, performance issues become evident, or there are significant changes in the operator's job.

The employer should keep sufficient records of lift truck operator training, testing, and assessment to document compliance with 16.43(2).

Driver's licence requirements

A lift truck operator using a lift truck exclusively on the employer's private property does not need to have a valid driver's licence. However, if the lift truck is operated on a public roadway, the provisions of the *Motor Vehicle Act* apply, and the operator needs a valid driver's licence of the appropriate class, including any required endorsements such as for air brakes, if applicable.

Propane handler's certificate

A lift truck operator (or any other person) required to dispense (transfer) propane from one container to another during refuelling of a lift truck must have a "propane handler's certificate." *CSA Standard B149.2 Propane Storage and Handling Code* is adopted under the *Gas Safety Regulation* as a requirement in B.C. Clause 4.2.1 of the CSA standard states: "Propane shall only be transferred from one container to another by a person who is the holder of a certificate recognized by the authority having jurisdiction." The authority having jurisdiction in British Columbia is the Technical Safety BC Safety Manager. The Safety Manager recognizes programs that are qualified to issue certificates. Propane suppliers are usually connected to a propane industry program recognized to provide training and certification acceptable to the Safety Manager. A source for information on obtaining a certificate is the Propane Training Institute at 1-877-784-4636, or online at <http://www.propane.ca>. Workers dispensing propane should have their certificate available at the location where the activity is being done. This is normally achieved by having the certificate posted at or near the dispensing station. If there is a concern regarding the validity of a certificate, consult the local Gas Safety inspection office.

If the lift truck refuelling process only involves changing propane cylinders, a propane handler's certificate is not required, but the operator or other person doing the task should have appropriate training to perform this function. Also, if a lift truck operator is required to refuel the lift truck with a product other than propane, or to change batteries or connect to a battery charger, the operator's training should cover these tasks.

Detailed training program requirements

Medical and Physical Fitness

A trainee must meet the medical and physical fitness requirement specified in *CSA Standard B335-15* before starting training. This requirement does not apply to existing lift truck operators who are successfully doing this work without difficulty and are taking refresher or upgrading courses. If, however, a lift truck operator appears to have difficulty operating the lift truck in a satisfactory manner, the employer has the right and obligation to investigate. This investigation may include requiring evidence of compliance with the medical and physical fitness criteria.

The medical and physical fitness criteria is specified in the CSA standard and should include the following:

- Vision of not less than 20/40 in the better eye and good judgment of space including height and distance. If corrective eyewear is required to comply with the above, the operator must use it while operating a lift truck.
- Ability to distinguish colour, if colour differentiation is required on the assigned job.
- Ability to hear warning signals. If the operator requires a hearing aid to comply with the above, it must be worn while operating a lift truck.
- Full movement of trunk, neck, and upper and lower limbs, and the strength, endurance, agility, and coordination to meet the demands of the job.

Compliance with the above medical and physical fitness requirements may be determined by a doctor, a nurse, or another responsible party who by training has the ability to make such a determination. A trainee or operator cannot make his or her own determination on the above criteria.

Overview of Training Program Content

A training program will include classroom theory elements, practical (hands-on) training, and testing. The following summarizes the *CSA Standard B335-15* criteria.

Classroom theory portion

Background

- Relevant legislation and fundamental safety guidelines, rules, and safety codes applicable to the job
- Basic principles of lift truck operation, including a focus on lift types, reach, and stability
- Main components of lift trucks
- Manufacturer's operating manual for the equipment to be used

Basic principles of operation

- Start-of-shift checks
- Shutdown and parking procedures
- Safe practices for starting, stopping, and turning
- Lift truck stability factors including items such as speed, cornering, load security, centre of gravity, and grade
- Capacity plate and its location
- Safe procedures for operating on ramps and grades
- Forward and reverse driving
- Correct use of lift trucks
- Driving hazards such as slippery surfaces, restricted visibility, and exhaust emissions
- Lift truck safety including generic safety procedures in accordance with the manufacturer's operating manual
- Lifting, lowering, or supporting people

Load handling

- General safe methods and procedures for pickup, conveyance, and depositing
- Selection of loads and assessing mass distribution for capacity, security, and integrity
- Preparation for load pickup and placement
- Assessing the safety of load-supporting structures
- Loading trucks, trailers, and railway cars
- Inclines or ramps
- Safety equipment and devices
- Hazards in the operating environment

Refuelling and/or recharging

- Refuelling a permanently mounted propane fuel tank
- Changing a removable propane cylinder
- Propane cylinder inspection
- Charging batteries on electric trucks
- Refuelling with other fuels
- Reporting unsafe operating conditions of vehicles

Operational (hands-on) training

The classroom theory elements covered are to be followed with practical demonstration and supervised practice.

Testing

- A trainee or operator may demonstrate proficiency in classroom theory areas by way of a written or oral test.
- A trainee or operator must demonstrate proficiency through an operational test showing skill and understanding of the safe operation of the lift truck(s).

G16.43(2)-2 Lift truck operator training - Alternative standards (formerly G16.7(j)-2)

Issued November 21, 2006; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Sections 16.43(1) and (2) of the *OHS Regulation* ("*Regulation*") state:

(1) The design, fabrication, use, inspection, maintenance and repair of a lift truck must meet

(a) [CAN/CSA Standard B335-15-Safety standard for lift trucks](#), or

(b) as applicable,

(i) *ANSI/ITSDF B56.1a-2018, Safety Standard for Low Lift and High Lift Trucks*,

(ii) *ANSI/ITSDF B56.6-2016, Safety Standard for Rough Terrain Forklift Trucks*, or

(iii) *ISO 10896 Rough-Terrain Trucks - Safety Requirements and Verification: Part 1 (2012): Variable-Reach Trucks; Part 2 (2016): Slewing Trucks; Part 4 (2015): Additional Requirements for Variable-Reach Trucks Handling Freely Suspended Loads*

or the earlier version of the applicable standard that applied on the date of manufacture of the lift truck.

(2) Operator training for lift trucks must meet the requirements of Part 6 of the standard referred to in subsection (1)(a).

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

Section 16.43(2) of the *Regulation* requires that lift truck operators be trained in accordance with *CAN/CSA Standard B335-15 - Safety standard for lift trucks*

The purpose of this guideline is to specify an alternative to the CAN/CSA standard that is acceptable to WorkSafeBC, and to summarize the applicable requirements of the alternative standard.

ASME B56.1-2004 Safety Standard for Low Lift and High Lift Trucks

WorkSafeBC accepts the training part of this standard (but not the retraining or upgrading portions) - set out in paragraph 4.19 and the references therein - as an alternative to the training portions of the *Standard*.

For retraining and upgrading, the provisions in the above noted CSA Standards are to be used.

Note: In 2005 the copyright of this ASME standard was obtained by ITSDF (Industrial Truck Standards Development Foundation) in Washington, DC. The standard number was changed to ANSI/ITSDF B56.1-2005 (Reaffirmation of ASME B56.1-2004). This standard can be downloaded from the ITSDF website at: www.itsdf.org/pB56.asp.

G16.43(5) Pedestrian and equipment traffic (formerly G16.43(3))

Issued August 1999; Revised August 1, 2013; Revised consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 16.43(5) of the *OHS Regulation* ("*Regulation*") states:

(5) In areas where lift truck use is separated from pedestrian traffic, a lift truck may travel forward with an elevated load if such operation will improve the operator's view of the path of travel, provided that operating conditions are maintained to ensure vehicle stability and the specifications of the mobile equipment manufacturer are not compromised.

Purpose of guideline

The purpose of this guideline is to provide information on low lift and high lift truck stability.

Lift truck stability

A lift truck works on the principle of the truck and its load balanced over a fulcrum, where the weight of the lift truck counterbalances the load on its forks (similar to the seesaw principle). The fulcrum, located in the centreline of the front axle of the truck, is the pivot point of the seesaw. See

Figure 1.

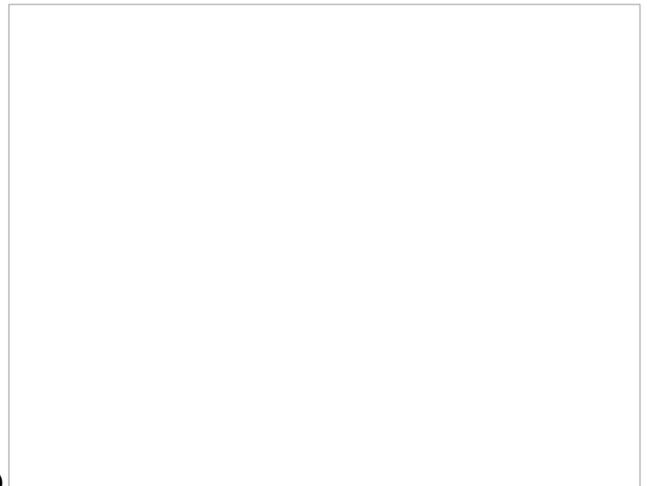


Figure 1: Counterbalance lift truck (for illustration purposes only)

When a lift truck's load exceeds its capacity rating (weight and/or load centre), unstable conditions are introduced that may cause the truck to tip over.

The capacity rating of a lift truck is identified on its data plate (affixed to the truck by the manufacturer) and displays the maximum load (expressed in pounds or kilograms) it can safely raise, lower, and move. The capacity rating consists of two components: weight and load centre. The weight is the weight of the load. The load centre is the horizontal distance between the face of the forks and the centre of gravity (CG) of the load (expressed in inches or millimetres), and the vertical distance of the travelling surface to the load centre. The CG is the point on an object where its weight is evenly dispersed and all its parts are in balance.

A front end attachment (e.g., fork extension, paper roll clamp) on a lift truck has its own rated capacity causing the truck's load capacity rating to change.

As a load centre distance increases the "load moment" increases. The load moment, or moment, is the product of the load's weight multiplied by the distance of the CG of the load to the fulcrum (pivot point). It is the moment that determines how much overturning force is being applied to the lift truck. For example, if a forklift's stated capacity rating is 3,000 pounds at a 24 inch load centre, the load moment cannot safely exceed 72,000 inch-pounds (24 inches x 3,000 lb = 72,000 inch-pounds). If the load centre distance for the actual load is greater than 24 inches, the only way to keep the load moment from exceeding 72,000 inch-pounds, which could result in the forklift tipping over laterally, is to reduce the load.

Stability triangle

A lift truck's steer axle is attached to the truck by a pivot pin in its rear axle's centre. When this point is connected to the centre of the two front wheels with imaginary lines it forms a triangle called the stability triangle. A lift truck and load each has its own CG. When a load is placed on a lift truck, the CG of the truck shifts, and a combined centre of gravity (CCG) is created. If the CCG is located outside the stability triangle, unstable conditions are introduced causing the truck to tip over either laterally on its side or tip longitudinally forward. Tip direction is determined by where the CCG is outside the stability triangle. See Figure 2.



Figure 2: Stability triangle

Measures to ensure stability

The following measures are not an exhaustive list and do not replace lift truck safety standards:

- Ensure the lift truck is in good operating condition (e.g., the tires are inflated in accordance with the truck's manufacturer standards, brakes are in optimal working condition).
- Ensure the load is positioned against the mast, centred across the forks, and its weight evenly distributed.
- Avoid tilting forks forward unless picking up or setting down a load.
- Exercise caution when handling loads that are close to the truck's stated capacity rating.
- When elevating a load, reduce the load capacity, and carry it at its lowest possible position.
- Maintain a clear path of travel and be aware of blind spots.
- Travel at a slow speed, and exercise extra caution when turning.
- Keep loads elevated only for as long as required to clear the obstruction. The higher the load is elevated, the less stable the lift truck becomes.
- Be aware of the impact of dynamic forces (e.g., braking suddenly, accelerating rapidly, turning sharply, operating on uneven surfaces) as the load moment created by these motions may cause the lift truck to tip over.

Stability references

Additional stability references can be found under the following standards:

- *CAN/CSA-B335-04 Safety standard for lift trucks*
- *ANSI/ITSDF B56.1 Safety Standard for Low Lift and High Lift Trucks*

Guidelines Part 16 - Retired Guidelines

The following guidelines were retired consequential to the September 1, 2021 Regulatory Amendments.

G16.3 (and 4.3(3)) Tag out procedure for identifying unsafe mobile equipment

Issued August 1, 1999; Editorial Revision April 2005; Retired consequential to September 1, 2021 Regulatory Amendment

The guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as this procedure is covered under section 4.3 of the *OHS Regulation*.

G16.3 (and 4.3(4)) Fuel tank filler and vent outlet locations

Issued August 1999; Editorial Revision April 12, 2005; Editorial Revision January 1, 2007; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired as the amended *OHS Regulation* now covers this requirement.

G16.4(1)(c) Operating equipment with air brakes

Issued August 16, 2000; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the amended section 16.14(1) of the *OHS Regulation* no longer allows alternatives to an air brake certificate or driver's licence with industrial air brake endorsement.

G16.13 Braking requirements - Mobile equipment - Alternate standard

Issued June 14, 2013; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the acceptable standards are now listed in the revised *OHS Regulation*.

G16.13(3) Braking requirements - Mobile equipment

Issued April 1, 2013; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the acceptable standards are now listed in the revised *OHS Regulation*.

G16.18 Acceptable standards for operating controls

Issued August 1999; Revised November 18, 2009; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the requirements for operating controls are covered by section 12.11(2) of the *OHS Regulation*.

G16.21(2)-1 Operator protective structure standards for agricultural tractors

Issued January 1, 2005; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the acceptable standards for operator protective structures are addressed by the amended section 16.33 of the *OHS Regulation*.

G16.22 Rollover protective structures (ROPS)

Issued February 27, 2001; Revised February 25, 2013; Editorial Revision April 6, 2020; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the amended section 16.34 of the *OHS Regulation* allows for a risk assessment to determine whether a ROPS is necessary.

G16.24 ROPS certification - Damaged sweep arms

Issued August 1999; Revised February 25, 2013; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as a new section (26.54.1) on damaged sweep arms has been added to the *OHS Regulation*.

G16.28 Guarding moving parts on mobile equipment

Issued August 1999; Revised December 21, 2009; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the amended section 16.32 of the *OHS Regulation* identifies the requirements for safeguarding moving parts.

G16.33 Use of seatbelts on forklifts

Issued June 18, 2008; Revised consequential to February 1, 2013 Regulatory Amendment; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as lift trucks are now consolidated under section 16.43 in the amended *OHS Regulation* with updated standards that refer to manufacturers' use and requirements of seat belts.

G16.44(2) Acceptable standard for load restraint

Issued February 11, 2009; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired consequential to the September 1, 2021 Regulatory Amendment as the amended section 16.12(2) of the *OHS Regulation* no longer requires "meets a standard acceptable to the Board."

The following guidelines were retired prior to September 1, 2021.

G16.3, 16.19, 16.20 (and 4.3(2)) Welding repair of forks on lift trucks

Issued August 1999; Editorial Revision April 2005; Retired April 30, 2015

Refer to guideline [G4.3\(2\) Welding repair of forks and fork extensions on lift trucks](#).

G16.22(2) Use of ROPS on agricultural tractors when operated on steep slopes or narrow roadways

Issued January 1, 2005; Retired consequential to February 1, 2012 Regulatory Amendment

Contents

GENERAL REQUIREMENTS

G17.1 [Application](#)

G17.2-1 [Employer's responsibility](#)

G17.2-2 [Operation and maintenance - Inspection before use on a shift](#)

G17.4 [Riding restrictions](#)

G17.5.1/17.13 [Gross Vehicle Weight Rating \(GVWR\)](#)

G17.6 [Hazardous materials](#)

G17.7 [Carrying animals](#)

G17.8 [Passenger compartments](#)

G17.9 [Boarding and leaving - Docking facilities](#)

WORKER TRANSPORTATION VEHICLES NOT DESIGNED FOR USE ON HIGHWAYS

G17.10 [Vehicle Design](#)

Guidelines Part 17 - General requirements

G17.1 Application

Issued September 1999; Editorial Revision April 15, 2021

Regulatory excerpt

Section 17.1 of the *OHS Regulation* ("*Regulation*") states:

This Part applies to all persons, including the operator, engaged in transporting workers by any type of conveyance operated on behalf of the employer.

Purpose of guideline

The purpose of this guideline is to clarify the application of section 17.1 of the *Regulation* to a private vehicle.

Application of private vehicle

A private vehicle is "operated on behalf of the employer" under this section if it is used for the employer's business during a shift on a public or a

G17.2-1 Employer's responsibility

Issued September 1999; Editorial Revision January 1, 2009; Editorial Revision April 15, 2021

Regulatory excerpt

Section 17.2(a) of the *OHS Regulation ("Regulation")* states:

If workers are to travel in a worker transportation vehicle, the employer must ensure that

(a) reasonable measures are taken to evaluate road, weather and traffic conditions to ensure the safe transit of the workers,

Purpose of guideline

The purpose of this guideline is to provide examples of "reasonable measures" as referenced in section 17.2(a) of the *Regulation*.

Reasonable measures

Reasonable measures would include, but not be limited to, the following:

- Road patrol prior to crew transit during or following:
 - Heavy rain storms (to look for washed out roads, bridges, culverts and slides)
 - Extreme winds (to look for falling, downed, or hung-up hazards)
 - Hazardous winter conditions such as extreme snow, avalanche danger, heavier than normal rain, or suspected icing conditions
- Inspection of ice bridges
- Contact with other road users to determine their findings on the condition of the road

G17.2-2 Operation and maintenance - Inspection before use on a shift

Issued September 1999; Editorial Revision January 1, 2009; Editorial Revision February 25, 2013

Regulatory excerpt

Section 17.2(b) of the *OHS Regulation ("Regulation")* states:

If workers are to travel in a worker transportation vehicle, the employer must first ensure that ...

(b) an inspection of the worker transportation vehicle has been conducted by a qualified person before first use on a work shift, and

Section 17.2.1(1) of the *Regulation* states:

The operator of a worker transportation vehicle must ensure that the worker transportation vehicle has been inspected by a qualified person before first use on a work shift.

Purpose of guideline

The purpose of this guideline is to list some items that should normally be checked on worker transportation vehicles.

Inspections

An inspection before first use on a shift should include at least a visual inspection and/or a function check of the following:

- Wheels, rims, lug nuts, and tires, including the spare tire
- Service brakes, including trailer brake connections and brake adjustment
- Parking brake
- Steering mechanism
- Lighting devices and reflectors, including back up lights and turn signals
- Windshield wipers
- Securing of material and tools, including any coupling devices
- Emergency equipment, including first aid equipment
- Glazing
- Rear vision mirrors
- Horn
- Engine oil, coolant levels, and fan belts

Many of the above inspection items are part of the mandatory pre-trip inspection for a commercial motor vehicle under [section 37.22](#) of the *Motor Vehicle Act Regulations*.

G17.4 Riding restrictions

Issued September 1999; Editorial Revision January 1, 2009; Editorial Revision April 15, 2021

Regulatory excerpt

Section 17.4 of the *OHS Regulation* ("*Regulation*") states:

A worker must not ride in a vehicle

- (a) in a standing position, unless protected from being thrown off balance, or
- (b) with any part of the body outside the vehicle unless essential to the work process, and then only if the worker is adequately restrained.

Section 17.2.3 of the *Regulation* states:

An exemption under Division 32, and an exception under Division 39, of the Motor Vehicle Act Regulations apply to the operation of a worker transportation vehicle both on and off a highway.

Purpose of guideline

The purpose of this guideline is to clarify riding restrictions as stated in section 17.4 of the *Regulation*.

Standing

Generally, standing will be allowed in large-capacity crew transportation vehicles not required by motor vehicle legislation to have seat belts. This applies, for example, to a city or transit type of bus, manufactured and equipped for this type of use. Even in such vehicles, standing should only be permitted in a controlled environment where speed, travel distance and transit time are low; for example, at a pulp mill construction site or on urban streets. Standing should not be permitted where highway speeds, long distances, or lengthy travel time are factors; for example, transport to a distant logging site on an industrial road.

This means the operator and/or any other worker riding in the vehicle may not put their head (or other body part) out through a window or any other opening while the vehicle is moving, unless it is essential to do so for a specific work process. This requirement is not intended to prevent a worker riding in a passenger vehicle with an open cab, such as a convertible-style automobile.

G17.5.1 / 17.13 Gross Vehicle Weight Rating (GVWR)

Issued August 1, 2013

Regulatory excerpt

Section 17.5.1 of the *OHS Regulation* ("*Regulation*") states:

The gross vehicle weight rating (GVWR) of the worker transportation vehicle must not be exceeded.

Section 17.13 of the *Regulation* states:

For vehicles that do not have seat belt assemblies in every seating position, the seating capacity must be determined by the number of 41 cm (16 in) seat widths available, provided the gross vehicle weight rating (GVWR) is not exceeded.

Section 17.01 of the *Regulation* states:

"*gross vehicle weight rating (GVWR)*" means the manufacturer's maximum recommended weight for a vehicle, including the weight of the vehicle itself, fuel and other fluids, passengers, and all cargo;

Purpose of guideline

The purpose of this guideline is to provide guidance on estimating whether the gross vehicle weight rating (GVWR) of a vehicle is exceeded.

Background

Every vehicle used on a public highway in British Columbia must comply with the laws, regulations, and standards administered by both the B.C. Ministry of Transportation and Infrastructure (MOTI) and Transport Canada (TC), as well as the *Regulation*.

Each vehicle has a GVWR designated by the manufacturer. This rating provides the maximum recommended weight for the vehicle including the weight of the vehicle plus its load; including passengers and cargo.

When estimating the gross vehicle weight to determine whether the GVWR has been exceeded for the purposes of sections 17.13 and 17.5.1 of the *Regulation*, each passenger is assumed to weigh at least 68 kg (150 lbs).

G17.6 Hazardous materials

Issued September 1999, Editorial Amendment August 2004; Editorial Revision April 15, 2021.

Regulatory excerpt

Section 17.6(b) of the *OHS Regulation* ("*Regulation*") states:

The transportation of hazardous materials in a vehicle transporting workers is restricted as follows:

(b) if it is necessary to carry volatile, flammable, or otherwise hazardous materials, the ventilation materials must be carried in isolated compartments which are

(i) accessible only from outside the vehicle, are securely fastened and are fitted with adequate and drainage facilities, and

(ii) if internal to the vehicle, separated from the crew compartment by an approved firewall.

Purpose of guideline

The purpose of this guideline is to address the carrying of "volatile, flammable, or otherwise hazardous materials" in a vehicle transporting workers as referred to in section 17.6(b) of the *Regulation*.

Explosives

Section 17.6(b) should not be used with respect to transporting explosives, as this practice is governed by section 21.22 of the *Regulation*.

G17.7 Carrying animals

Issued September 1999; Editorial Revision April 15, 2021

Regulatory excerpt

Section 17.7 of the *OHS Regulation* ("*Regulation*") states:

An animal must not be carried in the operator's cab or passenger compartment of a vehicle transporting workers unless appropriate facilities are provided for this purpose.

Purpose of guideline

The purpose of this guideline is to provide examples of "appropriate facilities" as referenced in section 17.7 of the *Regulation*.

Appropriate facilities

Examples of appropriate facilities are a secured cage, a seat belt designed for animal restraint, or a barrier screen.

G17.8 Passenger compartments

Issued September 1999; Editorial Revision April 15, 2021; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 17.8 of the *OHS Regulation* ("*Regulation*") states:

Any enclosed portion or compartment of a vehicle in which workers are transported must have

(a) effective ventilation, independent of doors, providing clean air,

(b) adequate lighting and means for heating and cooling,

(c) an effective means of communication between the operator and passengers, and

(d) more than one means of exit.

Purpose of guideline

The purpose of this guideline is to discuss the requirements for passenger compartments for vehicles transporting workers as referenced in section 17.8 of the *Regulation*.

Effective ventilation

This requirement, as stated in section 17.8(a) of the *Regulation*, is satisfied through provision of standard automotive ventilators and windows that can be opened. Air conditioning would not normally be required.

Adequate lighting and means for heating and cooling

Adequate lighting, as stated in section 17.8(b) of the *Regulation*, means the ability to illuminate to at least 22 lux (2 footcandles). Also refer to [section 4.65\(1\)\(a\)](#) of the *Regulation* on illumination levels. A standard automotive heater will normally meet the requirements for heating. For adequate cooling, an opening window will normally be sufficient, and air conditioning would not normally be required.

Effective means of communication

Some examples of an "effective means of communication," as stated in section 17.8(c) of the *Regulation*, are an opening window between the operator and passenger compartment, an electronic voice communication system, or an electric buzzer, bell, or similar device which may be used to pass prearranged signal codes between the passengers and the vehicle operator.

Exit

An emergency exit is considered an additional means of exit for the purpose of section 17.8(d) of the *Regulation*. The requirements of section 16.24 of the *Regulation* on alternative means of escape from cab must also be met.

Issued September 1999; Editorial Revision April 15, 2021

Regulatory excerpt

Section 17.9(2) of the *OHS Regulation* ("*Regulation*") states:

Adequate docking facilities must be provided if necessary to ensure safe worker access and egress to marine craft and float-equipped aircraft.

Purpose of guideline

The purpose of this guideline is to provide clarification of "adequate docking facilities" as referenced in section 17.9(2) of the *Regulation*.

Adequate docking facility

An adequate docking facility should have the following:

- A walkway meeting the requirements of [section 17.9\(3\)](#) of the *Regulation*
- A firm foundation or enough buoyancy to support the intended loads
- Lifesaving equipment as required by [section 24.3](#) of the *Regulation*

A boat may be used to load and unload passengers on a short-term basis.

Guidelines Part 17 - Worker transportation vehicles not designed for Use on highways

G17.10 Vehicle Design

Issued June 6, 2007; Editorial Revision January 1, 2009; Editorial Revision September 6, 2018

Regulatory excerpt

Section 17.10 of the *OHS Regulation* ("*Regulation*") states, in part:

(1) Vehicles operated by or on behalf of the employer primarily to transport workers must

(a) be of a design and construction acceptable to the Board,

....

(d) have rear or side doors with latches operable from inside and outside, with side doors on the right side of the vehicle,

(e) be fitted with at least one emergency exit, on the left side or rear of the vehicle, operable from both inside and outside, and unlocked while the vehicle is in use,

Section 17.14 of the *Regulation* states:

If a worker transportation vehicle will carry 12 or more passengers, it must have an aisle at least 25 cm (10 in) wide providing access from each seat to a regular entry/exit door, and also to an alternate or emergency exit.

Section 17.2.3 of the *Regulation* states:

An exemption under Division 32, and an exception under Division 39, of the Motor Vehicle Act Regulations apply to the operation of a worker transportation vehicle both on and off a highway.

Purpose of guideline

The purpose of this guideline is to describe requirements for seat belt assemblies and emergency exits for worker transport vehicles.

Background

Every vehicle used on a public highway in British Columbia must comply with the laws, regulations, and standards administered by both the BC Ministry of Transportation and Infrastructure and Transport Canada.

Vehicles that do not comply with the design and construction standards of these agencies will contravene section 17.10(1)(a) of the *Regulation*, as these standards will be standards acceptable to WorkSafeBC.

In order that a vehicle be considered appropriate for worker transport use, it must also comply with the additional requirements of the *Regulation*.

Seat belt assemblies

Standard 208 under the *Motor Vehicle Safety Regulation (Canada)* requires that every passenger car and every truck, bus, or multi-purpose passenger vehicle with a GVWR of 4 536 kg or less, other than a school bus or motor home, be equipped with a 3-point seat belt at every rear outboard seating position. This includes 15-seat passenger vans, which have a GVWR of less than 4 536 kg.

A non-outboard, or interior seat on a bench, may be fitted with a lap belt or a 3-point belt. Note that this requirement does not apply to school

buses.

Under the B.C. *Motor Vehicle Act*, a person must not drive or operate a motor vehicle on a highway in which a seat belt assembly required under this section or the *Motor Vehicle Safety Act* (Canada) at the time the motor vehicle was manufactured, assembled, or imported into Canada has been removed, rendered partly or wholly inoperative, or modified to reduce its effectiveness.

Emergency exits

Section 17.10(e) provides that a worker transportation vehicle must be fitted with at least one emergency exit on the left or rear of the vehicle. Typically, a rear or side door will serve as an emergency exit, provided that the door is operable from inside and outside of the vehicle while in use.

Where the worker transportation vehicle will carry 12 or more passengers, section 17.14 provides that there must be a 25 cm (10 in.) wide aisle providing access to the emergency exit. That width is determined by measuring the width from the furthest edge of each seat across an aisle, or from the furthest edge of a seat to the interior wall of the vehicle. The 25 cm (10 in.) aisle may include an obstruction, such as a wheel well, provided that a worker on foot can easily and quickly get past the obstruction.

Sections 17.10 and 17.14 do not set out dimensions of the emergency exit. Clearly, the exit must be of a sufficient size to permit workers to exit the vehicle in a timely way.

In many vehicles, a rear or side door used as an emergency exit may be partially obstructed by seats or seat backs. In such a situation, the rear or side door may serve as an emergency exit, provided the unobstructed portion of the exit permits workers to exit in a timely way.

Where a rear door will function as the emergency exit and the exit is partially obstructed by a seat or seat back, the overall area of the exit should be at least approximately 3226 cm² (500 in.²), provided the height is a minimum of 36 cm (14 in.). The exit may consist of either a single or double door, provided that, in accordance with section 17.10(d), both doors are operable from the interior and exterior of the vehicle.

Where door latches are rendered inoperable because of the presence of a seat back which prevents access to the latch, the exit will not meet the requirements for an emergency exit. The employer must ensure that passenger safety locks have been disabled to ensure workers are able to open the emergency exit from the interior.

Contents

GENERAL REQUIREMENTS

G18.3 [Interim Traffic Management Manual](#) [retired]

G18.4 [Traffic control supervisor](#)

G18.4(1) [Supervision - Traffic control person training in a manner acceptable to WorkSafeBC](#) [retired]

TRAFFIC CONTROL PERSONS (TCPs)

G18.6.2(1) [Traffic control person training](#)

G18.8 [Safe position for a traffic control person](#) [retired]

EQUIPMENT FOR TRAFFIC CONTROL PERSONS

G18.9 [Safety headgear for traffic control persons](#)

G18.9(a) [Illuminated traffic control paddles](#)

Guidelines Part 18 - General requirements

G18.3 [Interim Traffic Management Manual](#)

Issued March 18, 2016; Retired November 13, 2020

This guideline is no longer needed as the Ministry of Transportation implemented the new *Traffic Management Manual for Work on Roadways* in January of 2020.

G18.4 [Traffic control supervisor](#)

Issued February 27, 2001; Revised March 25, 2005, Editorial Revision January 1, 2007; Editorial Revision March 7, 2011; Editorial Revision April 6, 2020; Editorial Revision March 7, 2011; Editorial Revision August 13, 2021; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 18.4 of the *OHS Regulation* ("Regulation") states:

(1) An employer must ensure that a qualified supervisor is designated whenever traffic control is required.

(2) The employer must ensure that the supervisor designated under subsection (1) ensures that the following requirements are met:

- (a) traffic arrangements or layouts and procedures are implemented in accordance with the traffic control plan set out in section 18.3.2;
- (b) the required temporary traffic control devices are in place before the start of work and are removed or covered immediately when they are no longer required;
- (c) the work zone is inspected at intervals appropriate to the risks;
- (d) it has been verified that any person assigned to direct traffic can provide evidence of having completed the traffic control training program in accordance with section 18.6.2;
- (e) if traffic control persons are assigned, the traffic control persons are, before their first shift, provided orientation and training at the work zone that are
 - (i) documented or otherwise recorded, and
 - (ii) consistent with the risks identified in the risk assessment;
- (f) if 2 or more traffic control persons are expected to work as a team, responsibility is assigned to one traffic control person to coordinate any changes in traffic flow.

Purpose of guideline

This guideline addresses some common questions about traffic control supervisors such as:

- When is a traffic control supervisor required to be designated?
- What may be the employment relationship between the traffic control supervisor and the employer(s) at the workplace?
- What authority should the traffic control supervisor have in the workplace?
- What qualifications should a traffic control supervisor have?
- Is the designated supervisor responsible required to be at the workplace whenever traffic control is being used?

Supervisory designation

The *Regulation* requires a traffic control supervisor be designated whenever traffic control is being used. This includes situations where traffic control devices are being used without a traffic control person or persons. The purpose of section 18.4 is to ensure responsibility for supervision for traffic control operations is clearly established at the workplace.

The responsibility for designating the traffic control supervisor is with the employer if the workplace has workers from only one employer. If the workplace is a multi-employer workplace, the prime contractor has responsibilities under [section 24](#) of the *Workers Compensation Act* ("Act").

The prime contractor would normally be expected to arrange or check for the designation of the traffic control supervisor as part of the prime contractor's responsibility to coordinate health and safety at the workplace. The traffic control supervisor need not be a worker of an employer at the workplace. The person so designated could, for example, be a consultant or a qualified supervisor of the sub-contractor.

Authority

The person designated to be a supervisor of a traffic control operation will need sufficient authority, from the employer or prime contractor as applicable for the workplace, to effectively carry out the duties specified in section 18.4(2). The granting of authority would include ensuring all workers and other supervisory people in the workplace affected by the traffic control operation know the identity of the supervisor designated responsible for traffic control.

The person designated as traffic control supervisor must be able to effectively carry out the duties specified in section 18.4(2) of the *Regulation*, as well as those specified in section 23 of the *Act*. Under section 23, the supervisor must, among other things:

- Ensure the health and safety of all workers under the direct supervision of the supervisor.
- Be knowledgeable about the provisions of the *Act* and regulations applicable to the work being supervised.
- Comply with the *Act*, regulations and any applicable orders, and ensure workers also comply.
- Ensure that workers under their direct supervision are made aware of all known or reasonably foreseeable health or safety hazards in their work area.
- Consult and cooperate with the joint committee or worker health and safety representative for the workplace.

Knowledge and training

The traffic control supervisor needs to have knowledge of the applicable parts of the *Regulation* and the [Traffic Management Manual for Work on Roadways](#) (refer to [section 18.3](#) of the *Regulation*) and the traffic control plan for the workplace (refer to [section 18.3.2](#) of the *Regulation*). If the traffic management plan requires the use of traffic control persons (TCP), the designated supervisor should have a good knowledge of the operations of a TCP.

A supervisor who has taken a formal course of TCP instruction provided by a WorkSafeBC-approved training provider (see guideline [G18.6.2](#)) will have substantial knowledge of traffic control training and procedures, but such training, although recommended, is not a formal requirement.

One of the additional benefits is that the supervisor who has TCP training can assume TCP duties where needed in the circumstances.

Presence at the worksite

The supervisor designated responsible for traffic control need not be present at the workplace at all times when traffic control is being used. However, the supervisor must be present as necessary to effectively carry out the duties specified above. This includes being reasonably available to respond to questions or to address changing conditions at the site. In a circumstance where a supervisor is not on site, contact by phone or similar means is sufficient if supervisory responsibilities and site issues can be effectively addressed by such means.

G18.4(1) Supervision - Traffic control person training in a manner acceptable to WorkSafeBC

Issued January 1, 2007; Editorial Revision May 3, 2007; Revised September 30, 2009; Editorial Revision March 7, 2011; Editorial Revision August 13, 2021; Retired consequential to December 1, 2021 Regulatory Amendment

Under the December 1, 2021 regulatory amendments, the new section for traffic control person training is 18.6.2. A new guideline has been developed under this new section: refer to guideline [G18.6.2\(1\)](#).

Guidelines Part 18 - Equipment for traffic control persons

G18.9 Safety headgear for traffic control persons

Issued February 27, 2001; Editorial Revision January 1, 2007; Revised September 28, 2007; Editorial Revision July 15, 2019; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 18.9(d) of the *OHS Regulation* ("*Regulation*") states:

Each traffic control person must be provided and must use, when directing traffic, the following:

...

- (d) safety headgear of a high visibility colour with a strip of retroreflective tape across the top from front to back and a strip of retroreflective tape on each side;

Purpose of guideline

The requirement to provide and use a high visibility colour for safety headgear for traffic control persons under Part 18 allows for a choice of a high visibility colour. This guideline describes acceptable colours for safety headgear under Part 18 of the *Regulation*.

Description

The *CSA Standard Z96-02, High-Visibility Safety Apparel*, and [WCB Standard: PPE 2 High Visibility Garment - Personal Protective Equipment Standard 2](#), provide acceptable high visibility colours for safety garments; these include fluorescent yellow-green, fluorescent orange-red, and fluorescent red. These colours are acceptable for safety headgear provided to, and used by, traffic control persons under Part 18 of the *Regulation*. High visibility colours of equivalent luminance quality, as well as the orange colour specified in the [Traffic Management Manual for Work on Roadways](#) issued by the Ministry of Transportation, are also acceptable colours for traffic control persons' safety headgear.

The retroreflective tape strip on the safety headgear is to meet the specifications for VE Trim as set out in [WCB Standard: PPE 2 High Visibility Garment - Personal Protective Equipment Standard 2](#).

G18.9(a) - Illuminated traffic control paddles

Issued February 27, 2012; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 18.9 of the *OHS Regulation* ("*Regulation*") states, in part:

Each traffic control person must be provided and must use, when directing traffic, the following:

- (a) a traffic control paddle meeting the requirements set out in the *Traffic Management Manual* and, if determined by a risk assessment as required to control fatigue, an extension pole for the paddle;

Purpose of guideline

The purpose of this guideline is to clarify the acceptability of using illuminated traffic control paddles in traffic control operations.

Illuminated traffic control paddles

Recent developments in technology have allowed for the placement of lights (typically LEDs) along the outside edge of traffic control paddles, providing illumination to the sign in an effort to increase visibility of the sign, and consequently of the traffic control person and other workers.

One such design provides a ring of eight red LEDs around the perimeter of the red "Stop" side of the sign, and a similar configuration on the yellow "Slow" side of the sign. While LED lighting is not considered in the [Traffic Management Manual for Work on Roadways](#) (as defined in [section 18.3](#) of the *Regulation*), such a configuration is referenced as acceptable in the U.S. *Manual on Uniform Traffic Control Devices* (MUTCD). LEDs arranged on a sign in this fashion can enhance visibility and safety.

Paddles illuminated with LEDs may be used if all other requirements specified in the *Traffic Management Manual for Work on Roadways* are met and followed, providing that the visibility and effectiveness of the paddle is in no way reduced or compromised.

Contents

DEFINITIONS

G19.1-1 [Electrical Safety Act repealed](#) [Retired]

G19.1-2 [Electrical qualifications](#)

G19.1-3 [Certified utility arborist](#)

GENERAL ELECTRICAL REQUIREMENTS

G19.4 [Obstructions on poles](#)

G19.8(1) [Testing equipment - Standards acceptable to WorkSafeBC](#)

G19.9 [Insulated aerial device](#) [Retired]

G19.9(2) [Insulated elevating work platform](#)

WORKING ON LOW VOLTAGE ELECTRICAL EQUIPMENT

G19.10(2)(a) [Appropriate electrical protective equipment for working on low voltage electrical equipment](#)

G19.10(3) [Working on energized lighting circuits operating at more than 250 volts-to-ground](#)

G19.12 [Working close to energized equipment - Low voltage overhead lines](#)

G19.15(1) [Ground fault circuit interrupters and other acceptable means](#)

WORKING ON HIGH VOLTAGE ELECTRICAL EQUIPMENT

G19.16-1 [Isolation and lockout](#)

G19.16(2)(c) [Appropriate electrical protective equipment - standards acceptable to WorkSafeBC](#)

MINIMUM SEPARATION DISTANCE TO BE MAINTAINED FROM ENERGIZED HIGH VOLTAGE ELECTRICAL EQUIPMENT AND CONDUCTORS

G19.24.1 [Minimum approach distance](#)

G19.24.2 [Minimum clearance distance when passing under electrical equipment and conductors](#)

G19.25 [Assurance in writing](#)

G19.26 [Assurance not practicable - role of the safety watcher](#)

G19.27 [Specially trained](#)

G19.28 [Emergency work](#)

G19.29 [Authorization by owner](#)

TREE PRUNING AND FALLING NEAR ENERGIZED CONDUCTORS

G19.30 [Preliminary inspection](#)

G19.34(5) [Acceptable standard for insulated tools used by certified utility arborists](#)

G19.35 [Tree pruning and falling equipment](#)

CONTROL SYSTEMS

G19.36 [Control systems - general requirements](#)

G19.36(1) [Acceptable standard for control systems](#)

ELECTROFISHING

G19.41 [Electrofishing - Ensuring worker training and knowledge](#)

G19.41(a) [Electrofishing - Courses acceptable to WorkSafeBC](#)

G19.41(b) [Responsibilities and safe work procedures for electrofishers](#)

Guidelines Part 19 Electrical safety definitions

G19.1-1 [Electrical Safety Act repealed](#)

Retired on February 1, 2011

This guideline is not required after the OHS Regulation amendment of February 1, 2011 (refer to *OHS Regulation* [section 19.1](#)).

Issued June 29, 2005; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision November 21, 2017

Section 19.1 of the *OHS Regulation* ("*Regulation*") states:

"*electrical worker*" means a person who meets the requirements of the Electrical Safety Regulation for installing, altering or maintaining electrical equipment;

Purpose

This guideline defines a "qualified electrical worker" and a "qualified worker" under Part 19 of the *Regulation*.

Definitions

"Qualified electrical worker"

A "qualified electrical worker" must meet all the requirements of the *Safety Standards Act* and the *Electrical Safety Regulation*, including a certificate of qualifications.

For the purposes of Part 19 of the *Regulation*, based upon section 4 of the *Electrical Safety Regulation*, an individual must not perform regulated work in respect of electrical equipment unless the individual meets at least one of the following criteria:

- (a) holds appropriate industry training credentials in respect of electrical work
- (b) has successfully completed electrical training recognized by a provincial safety manager under *the Safety Standards Act*
- (c) is employed by an organization that utilizes electrical training programs that are approved by a provincial safety manager under the *Safety Standards Act* and the individual
 - (i) has successfully completed the relevant training, and
 - (ii) does not perform regulated work for any person other than the individual's employer who provided the training
- (d) is the manufacturer's technical representative, or
- (e) is supervised by an individual who
 - (i) is specifically authorized under the *Safety Standards Act* to perform that type of electrical work, and
 - (ii) supervises the individual on site and provides guidance and assistance to the individual as the electrical work is performed

For more information on qualifications for electrical workers, please contact the British Columbia Safety Authority, now operating as Technical Safety BC at Suite 200, 505 – 6th Street, New Westminster, BC V3L 0E1, telephone toll free: 1-866-566-SAFE (7233).

"Qualified workers" and "qualified persons"

Part 19 of the *Regulation* also refers to "qualified workers" and "qualified persons;" such a reference does not specifically relate to the worker's electrical qualifications. Section 1.1 of the *Regulation* states:

"*qualified*" means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof;

The determination of whether a worker is "qualified" depends upon the particular circumstances of the work to be performed and that worker's knowledge, skills, and abilities. An evaluation must be performed by the employer to determine whether the worker has sufficient knowledge, skills, and ability to safely perform that particular type of work. If the *Regulation* reference is to a "qualified worker" and not to "qualified electrical worker" then the worker does not necessarily need to be a "qualified electrical worker," as defined in the previous portions of this guideline.

A WorkSafeBC prevention officer, while performing an inspection, may assess whether an individual meets the requirements of a "qualified electrical worker," or a "qualified worker," as required by the *Regulation*.

G19.1-3 Certified utility arborist

Issued consequential to February 1, 2013 Regulatory Amendment

Regulatory excerpt

Section 19.1 of the *OHS Regulation* ("*Regulation*") defines "certified utility arborist" as follows:

"certified utility arborist" means a person who has completed a course of instruction, has a minimum of 1,200 hours of practical experience and is certified by an authority acceptable to the Board;

Purpose of this guideline

The purpose of this guideline is to describe the authority acceptable to WorkSafeBC for certification of certified utility arborists.

Background

Where tree pruning operations are conducted near energized conductors, certified utility arborists are permitted to work close to those conductors, up to the limits in [Table 19-3](#) of the *Regulation*. In addition, the certified utility arborist is permitted to be in an aerial device passing between energized conductors in accordance with [section 19.34.1](#) of the *Regulation*. Given the nature of the hazards encountered in these tasks, it is crucial that the certified utility arborist be provided with specific training that provides a comprehensive understanding of how to manage those hazards. For this reason, the *Regulation* defined a certified utility arborist as a person who has instruction, and experience, and who has been certified by an authority acceptable to WorkSafeBC.

Certification acceptable to WorkSafeBC

The definition of certified utility arborist states that the certified utility arborist has completed a course of instruction and has a minimum of 1,200 hours of practical experience. In addition, the certified utility arborist must be certified by an authority acceptable to WorkSafeBC.

A certified utility arborist must have completed the relevant Industry Training Authority ("ITA") approved training program. That program involves classroom training, delivered through public post-secondary institutions, private training institutions, and secondary schools that have been approved by the ITA. The program also involves a minimum number of hours of work experience.

Other certificates

WorkSafeBC recognizes that other training courses may be developed that may meet the requirements for acceptance under [section 19.1](#).

WorkSafeBC will review any proposed courses for acceptance to ensure they meet a standard acceptable to WorkSafeBC. Any new courses WorkSafeBC identifies as acceptable under section 19.1 will be added to this guideline for the information of workplace parties and WorkSafeBC prevention officers.

Persons wishing to have WorkSafeBC consider an alternative course for acceptance under section 19.1 may submit that course to WorkSafeBC for review and evaluation. Please contact the Certification Services Department at WorkSafeBC for further information.

Guidelines Part 19 - General electrical requirements

G19.4 Obstructions on poles

Issued September 21, 2012

Regulatory excerpt

Section 19.4 of the *OHS Regulation* ("*Regulation*") states:

- (1) Mailboxes, signs, clotheslines, or other obstructions are prohibited on or close to poles on which workers are required to work.
- (2) Tags authorized by the owner which are placed on a pole for identification purposes must be less than 1.7 m (5.5 ft) above grade, on the side of the pole which a climbing worker will face.

Purpose of guideline

The purpose of this guideline is to clarify the application of section 19.4 of the *Regulation* to utility poles.

Interpretation

This section of the *Regulation* is intended to keep wooden utility poles clear of obstructions to ensure a safe climbing area for workers. It does not apply to poles which are not climbed by workers. The owner of a pole may also have restrictions and requirements and should be contacted before placing any object on or close to a pole.

G19.8(1) Testing equipment - Standards acceptable to WorkSafeBC

Issued June 29, 2005; Revised April 19, 2013; Revised October 30, 2018

Regulatory excerpt

Section 19.8(1) of the *OHS Regulation* ("*Regulation*") states:

Electrical testing equipment may be used if it meets the requirements of

- (a) *CSA Standard C22.2 No. 160-M1985 (Reaffirmed 1992), Voltage and Polarity Testers*, or
- (b) *CSA Standard CAN/CSA-C22.2 No. 231 Series-M89, CSA Safety Requirements for Electrical and Electronic Measuring and Test Equipment*.
- (c) Repealed. [B.C. Reg. 312/2003, effective October, 29, 2003.]

Section 4.4(2) of the *Regulation* states:

When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another

publication, code or standard acceptable to the Board, or

- (b) practices, procedures or rules of the Board or another agency, the person may, as an alternative, comply with another practice, procedure or rule acceptable to the Board.

Purpose of guideline

This guideline lists acceptable alternative standards for electrical testing equipment.

Acceptable standards

In addition to the standards specified in section 19.8(1), electrical testing equipment may also be used if it meets one of the following standards that are acceptable to WorkSafeBC, where applicable:

Standard	Standard Title
CAN/ULC-D61243-1-2010	<i>Live Working - Voltage Detectors - Part 1: Capacitive Type to Be Used for Voltages Exceeding 1 kV a.c.</i>
CAN/ULC-D61243-2-2009	<i>Live Working - Voltage Detectors - Part 2: Resistive Type to Be Used for Voltages of 1 kV to 36 kV a.c. [Amended March 2000]</i>
CAN/ULC-D61243-3-2010	<i>Live Working - Voltage Detectors - Part 3: Two-Pole Low-Voltage Type</i>
CAN/CSA-C22.2 No. 61010-1 â€“ 2012 (Reaffirmed 2017)	<i>Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use</i>
CSA C22.2 No. 160-15	<i>Voltage and Polarity Testers</i>
CSA/CAN-C22.2 No.231.0-M89 (Reaffirmed 2001)	<i>Safety Requirements for Electrical and Electronic Measuring and Test Equipment</i>

G19.9 Insulated aerial device

Issued August 1999; Editorial Revision April 2005; Retired February 1, 2013

This guideline has been retired as it contained outdated or redundant material.

G19.9(2) Insulated elevating work platform

Issued December 19, 2013

Regulatory excerpt

Section 19.9(2) of the *OHS Regulation* ("*Regulation*") states:

- (2) The employer must ensure that, at least once every 12 months,
- (a) an insulated elevating work platform intended for use by a worker is dielectrically tested in accordance with section 5.3.4 of *CSA Standard CAN/CSA-C225-10 Vehicle-mounted aerial devices*, and
- (b) the insulating capability of the platform referred to in paragraph (a) is certified by the testing agency.

Purpose of guideline

The purpose of this guideline is to reference the additional requirements under [section 13.23](#) of the *Regulation* for elevating work platforms to be tested and certified according to the relevant standard for the specific type of work platform. This is in addition to the need for dielectric testing.

Inspection and certification of elevating work platforms

Section 13.23(1) of the *Regulation* requires that all vehicle-mounted elevating work platforms and self-propelled boom-supported elevating work platforms must be inspected and certified at least every 12 months. [Guideline G13.23\(1\)](#) outlines the factors to be considered and who is authorized to certify the equipment.

Guidelines Part 19 - Working on low voltage electrical equipment

G19.10(2)(a) Appropriate electrical protective equipment for working on low voltage electrical equipment

Issued April 13, 2011; Editorial Revision consequential to February 1, 2013 Regulatory Amendment

Regulatory excerpt

Section 19.10(2)(a) of the *OHS Regulation* ("*Regulation*") states:

- (2) Except as specified in subsection (3), if it is not practicable to completely disconnect low voltage electrical equipment, work must be performed by qualified and authorized workers and in accordance with written safe work procedures which
- (a) require the use of personal protective equipment and voltage-rated tools, appropriate to the hazards and risks associated with the voltage at which the electrical equipment is operating,

Purpose of guideline

The purpose of this guideline is to describe types of appropriate personal protective equipment for use with low voltage electrical equipment where it is impractical to completely de-energize the electrical equipment.

Background

While the first choice should always be to deactivate and lock out an energized system prior to working on it, it is sometimes impractical to do so.

When it is necessary to work on energized low voltage equipment, an important part of planning for safety is establishing written safe work procedures, selecting appropriate personal protective equipment and ensuring the work is performed by qualified and authorized workers. Care is to be taken to ensure worker safety where work is to be done on an energized electrical system. This includes provision and use of appropriate personal protective equipment (PPE), voltage-rated tools, and written safe work procedures. *Regulation* section 19.10(2)(a) specifies that work be done on low voltage electrical equipment in accordance with written safe work procedures which require "the use of personal protective equipment."

Personal protective equipment

"Personal protective equipment" for the purposes of this section of the *Regulation* is personal protective equipment that is appropriate for the hazard present while working on energized electrical equipment. This includes flame-resistant clothing, head protection, safety glasses, dielectric footwear, gloves, and face shields. It is the responsibility of the employer to ensure proper written safe work procedures are in place to deal with all aspects of low voltage live equipment work, including protection from electric shock and arc flash.

CSA Standard Z462 - Workplace electrical safety

CSA Standard Z462 - Workplace electrical safety, based in part on the *NFPA 70E Electrical Safety in the Workplace*, includes specific information on the type and level of PPE used when working on energized electrical equipment, appropriate to the level of risk involved. In addition, portions of *CSA Standard Z462* deal with work on energized low voltage electrical equipment.

In meeting the requirements under section 19.10(2)(a) of the *Regulation*, employers may find *CSA Standard Z462* to be valuable in assisting them in the development of appropriate written safe work procedures, and determining the hazards and necessary protection.

G19.10(3) Working on energized lighting circuits operating at more than 250 volts-to-ground

Issued December 14, 2012

Regulatory excerpt

Section 19.10(3) of the *OHS Regulation* ("*Regulation*") states:

Work must not be done on energized parts of electrical equipment associated with lighting circuits operating at more than 250 volts-to-ground without the prior written permission of the Board

Section 19.8 of the *Regulation* states:

(1) Electrical testing equipment may be used if it meets the requirements of

- (a) *CSA Standard C22.2 No. 160-M1985 (Reaffirmed 1992), Voltage and Polarity Testers*, or
- (b) *CSA Standard CAN/CSA-C22.2 No. 231 Series-M89, CSA Safety Requirements for Electrical and Electronic Measuring and Test Equipment*.

(2) Electrical testing equipment not meeting a standard specified in subsection (1) may be used if it has

- (a) fusing or circuitry designed to protect the operator in the event of a fault resulting from inadvertent misuse of the meter, or a fault on the circuit being tested,
- (b) clearly and unambiguously marked measurement ranges,
- (c) lead wire insulation rated to the maximum voltage reading of the meter,
- (d) lead wires that are not cracked or broken, and having a current carrying capacity (ampacity) that meets or exceeds the maximum current measurement of the meter, and
- (e) a minimum exposure of metal on lead wire probes.

(3) Appropriate safe work procedures must be established and followed for testing electrical equipment and circuits.

Section 1.1 of the *Regulation* states

"*qualified*" means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.

Purpose of guideline

This guideline gives permission for certain types of testing-related work on lighting circuits.

Permission

Pursuant to *Regulation* section 19.10(3), WorkSafeBC permits work on lighting circuits operating at more than 250 volts-to-ground to be done without further written permission where the work is limited to diagnostic testing, fault-finding, or routine safety checks, subject to the following:

- The lighting does not operate at more than 347 nominal volts-to-ground
- It is not feasible to perform the work while de-energized
- If test voltages are used the maximum output current available from the test instrument is less than 5 mA
- The work is performed by a qualified worker
- Safe work procedures developed under section 19.8(3) cover the requirements for a risk assessment that is carried out before testing begins and the means to identify the precautions that need to take place based on the risk assessment

Always consider parts to be live until proven otherwise. Note that *Regulation* sections 19.8 and 19.10(2) also apply and pertain to testing equipment and written safe work procedures.

Other work

For other work done on energized parts of electrical equipment associated with lighting circuits operating at more than 250 volts-to-ground, permission must be obtained from the OHS Practice and Engineering Support department of WorkSafeBC prior to the work being performed.

G19.12 Working close to energized equipment — Low-voltage overhead lines

Issued August 1999; Revised September 28, 2016

Regulatory excerpt

Section 19.12 of the *OHS Regulation* ("*Regulation*") states:

- (1) Uninsulated, energized parts of low voltage electrical equipment must be guarded by approved cabinets or enclosures unless the energized parts are in a suitable room or similar enclosed area that is only accessible to qualified and authorized persons.
- (2) Each entrance to a room and other guarded location containing uninsulated and exposed, energized parts must be marked with a conspicuous warning sign limiting entry to qualified and authorized persons.
- (3) If uninsulated energized parts are not guarded with approved cabinets or enclosures
 - (a) suitable barriers or covers must be provided if a worker unfamiliar with the hazards is working within 1 m (3.3 ft) of the uninsulated, energized parts, or
 - (b) the worker must be informed of the potential hazards, and provided with and follow appropriate written safe work procedures.

Purpose of guideline

The purpose of this guideline is to describe minimum considerations for appropriate safe work procedures for working around low voltage overhead lines.

Background

Section 19.12 of the *Regulation* is applicable when working close to energized low voltage electrical equipment. This includes work around overhead trolley lines, low voltage overhead lines including neutral wire, communications, and cablevision lines. Also included are multiplex service drops and communication service drops that take power from the distribution system to individual customers' point of attachment.

Low voltage lines and service drops carry enough energy to cause serious injury, and should be treated with the same respect as high voltage lines.

These types of energized lines are normally isolated from worker contact by position.

Safe work procedures should identify all constraints that are required to be applied to low voltage electrical equipment in order to maintain safe working conditions, and should include the following:

1. An assessment, or job safety analysis, to be performed before working near overhead lines, which considers proximity of the low voltage lines to high voltage electrical lines or equipment
2. A description of the type of work to be performed, the voltage threshold, and any specialized personal protective equipment (PPE) or tools required
3. Details of any specialized worker training or skills required to perform the work safely
4. Work permits or other approvals from the line owner
5. Any requirements for temporary protective grounds
6. A rescue plan

Overhead wires should be considered uninsulated, even though the wires generally have insulating cover. Weathering and possible contact from equipment or tree branches means the integrity of the wire's outer cover cannot be relied on to protect workers.

Worker and public safety is generally ensured by positioning energized lines up high, outside a person's normal reach. Where such wires come within a person's reach, they must be guarded from contact by enclosure in a conduit or other approved shielding or enclosure.

Where a work process results in a short term or temporary encroachment by a worker into the area of low voltage wires normally isolated by position, such as by a worker using a ladder to facilitate painting or window cleaning, the requirements of section 19.12 may be met by barriers, covers, or the use of written safe work procedures.

Where a change in the workplace, including changes in equipment, machinery, work process, or plant layout results in workers coming into proximity of overhead lines formerly isolated by position, suitable barriers or covers must be provided. For example, if a new work platform or stairway allows workers to move close to the wires, the wires must be repositioned to provide at least one meter of clearance, or the wires must be enclosed in conduit or other shielding to prevent worker contact with the wires.

G19.15(1) Ground fault circuit interrupters and other acceptable means

Issued December 4, 2007; Revised September 19, 2008; Editorial Amendment February 4, 2010; Editorial Revision September 1, 2010; Revised December 2, 2011; Editorial Revision November 21, 2017

Regulatory excerpt

Section 19.15(1) of the *OHS Regulation* ("*Regulation*") states:

When used outdoors or in a wet or damp location, portable electrical equipment, including temporary lighting, must be protected by an approved ground fault circuit interrupter of the class A type installed at the receptacle or on the circuit at the panel, unless another acceptable means of protection is provided.

Purpose of guideline

The purpose of this guideline is to discuss the use of a ground fault circuit interrupter (GFCI) as a safety device, describe good work practices for use of GFCIs, describe the application of this health and safety requirement in conjunction with The *B.C. Electrical Code* ("*Code*"), describe an Assured Grounding Program (AGP), and explain a restriction on the use of an AGP as another acceptable means of protection.

Background

The *B.C. Electrical Code* specifies that receptacles having CSA configuration 5-15R or 5-20R installed to provide power for buildings or projects under construction or demolition must be protected by GFCIs of the Class A type except by special permission. In the circumstance where special permission is required for the use of an AGP in lieu of GFCIs on construction and demolition sites, the permission is obtained from the electrical authority having jurisdiction.

The British Columbia Safety Authority (operating as Technical Safety BC — "TSBC") has published a [directive](#) describing the scope of the GFCI requirements with respect to temporary wiring and an [information bulletin](#) that describes its permission process for contractors that wish to use an AGP on construction and demolition sites.

Regulation section 19.15(1) specifies when a GFCI or another acceptable means of protection must be used. There are also *B.C. Electrical Code* requirements for GFCIs. In accordance with *Code* Rule 76-016, WorkSafeBC does not permit an AGP as another acceptable means of protection outdoors or in wet/damp conditions (e.g., many construction and demolition sites) when used with portable electrical equipment unless special permission (as required by the *B.C. Electrical Code*) is first obtained from the electrical authority.

This guideline describes the use of GFCIs and AGPs. Further, it specifies that WorkSafeBC will normally accept an AGP if a contractor has obtained the appropriate permission from the TSBC or other electrical authority (as required by the *B.C. Electrical Code*).

Ground Fault Circuit Interrupters (GFCIs)

A Class A GFCI is a device that detects any leakage current between neutral and ground conductors or an imbalance of the current in the hot and neutral conductors in an electrical circuit and trips (turns off) the circuit whenever the leakage current or imbalance reaches 4 - 6 mA. The prime function of a Class A GFCI is to provide protection against hazardous electrical shocks from defective circuits or equipment. It cannot ensure the safety of a worker. For example, it does not provide protection against shock should a person make contact with two of the circuit conductors on the load side of the GFCI.

A GFCI is designed to trip at a current level below the level hazardous to workers. To prevent nuisance tripping of GFCIs, the following good work practices are recommended:

- Connect only one power tool to each GFCI
- Cover power tools to protect them from the rain when they are not in use
- Store power tools and extension cords in a dry location
- Maintain extension cords and power tools in good condition
- Use extension cords that meet the requirements of the *Code* Rule 4-038
- Use the shortest extension cord practicable, usually no longer than 45 metres (150 feet)

GFCIs in the *B.C. Electrical Code*

Section 20 of the *Electrical Safety Regulation* adopts the current edition of the *Canadian Electrical Code, Part 1, (CSA Standard C22.1)* as the *B.C. Electrical Code* ("*Code*"). There are several requirements in the *Code* for use of a GFCI. For example, Section 26 of the *Code* requires that for residential occupancies, electrical receptacles installed outdoors and within 2.5 m of finished grade be protected with a Class A GFCI.

There are also requirements for GFCIs in marinas and wharves (Section 78), mobile homes (Section 70), and recreational vehicles (Section 72).

Rule 76-016 of the *Code* specifies that "Receptacles having CSA configuration 5-15R or 5-20R installed to provide power for buildings or projects under construction or demolition shall be protected by ground fault circuit interrupters of the Class A type except by special permission." An *Explanation of the Rules of the CE Code, Part 1 (CSA C22.1HB-09)* states, in part

Not all workers are informed about the potential shock hazards of long lengths of flexible cords or the increased potential for damage to cords and equipment caused by changing site and environmental conditions. In addition, unstable grounding conditions caused by site and environmental conditions can create areas where workers are using electrical equipment with a potential to ground lower than where the temporary service is connected to ground. Thus, Rule 76-016 requires that receptacles on the work site having CSA configurations 5-15R or 5-20R be protected by a Class A ground fault circuit interrupter (GFCI).

BC Safety Authority Information Bulletin

TSBC has issued [Information Bulletin IB-EL 2011-01](#). It outlines the scope of *Code* section 76, and describes the TSBC process for obtaining permission to use an AGP in lieu of GFCIs in prescribed circumstances.

Further information about *Code* requirements and their application can be obtained from the electrical authority having jurisdiction, as follows:

Technical Safety BC
City of Burnaby
Municipality of Maple Ridge
City of North Vancouver
District of North Vancouver
City of Surrey
City of Vancouver
City of Victoria
City of West Vancouver

General application of Regulation section 19.15

Regulation section 19.15(1) refers to "portable electrical equipment." This includes extension cords, temporary lighting, pig-tail receptacles, and power tools that are used on 120 volt systems and are not part of a permanent electrical system.

Section 19.15(1) requires that portable electrical equipment be protected by a GFCI when used outdoors or in a wet or damp location, unless another acceptable means of protection is provided. An AGP can be another acceptable means of protection when implemented and maintained in accordance with procedures and restrictions in this guideline.

Application of Regulation section 19.15 to construction and demolition sites

In circumstances where the *Code* requires the use of a GFCI (i.e., 5-15R and 5-20R receptacles on construction and demolition sites as described above), there are no other acceptable means of protection except by special permission of the electrical authority having jurisdiction. The TSBC has recognized that there may be situations where an AGP can provide an acceptable level of protection and outlines these situations in the information bulletin. Contractors seeking special permission to use an AGP should follow the guidance in the bulletin.

An owner or prime contractor, before starting construction or demolition, will be required to declare on the Notice of Project (NOP) that is submitted to WorkSafeBC under [section 20.2](#) of the *Regulation* that either

- A GFCI means of protection will be used for the project, or
- An application to the applicable electrical authority is to be made by the electrical contractor(s) to allow an AGP as an alternate means of protection on the project. On the NOP, this is referred to as a variance to the *Code*.

Where an intention to use an AGP is declared on the NOP, the prime contractor will need to inform the electrical contractor of this intention. The electrical contractor, in turn, will need to follow the instructions of the electrical authority having jurisdiction in seeking special permission.

Where special permission has been granted by the electrical authority and is posted at the construction site, WorkSafeBC will normally accept an AGP as an alternate means of protection on that site if the AGP meets the requirements set out herein. In some circumstances, an AGP can constitute another acceptable means of protection without special permission from the electrical authority having jurisdiction e.g., after lock-up on a residential construction site.

Although *Code* Rule 76-016 only applies to 5-15R and 5-20R receptacles, *Regulation* section 19.15 applies to all portable electrical equipment used outdoors or in a wet or damp location. The effect of this is that a GFCI or other acceptable means of protection (i.e., AGP) must be used for all portable electrical equipment in these circumstances, regardless of the receptacle type. In other words, all electrical receptacles that are part of portable electrical equipment used outdoors or in a wet or damp location, including locking receptacles, must be used with a GFCI or AGP. This applies regardless of whether the receptacle comes within the scope of *Code* Rule 76-016.

Assured Grounding Program (AGP)

The purpose of an AGP is to ensure that the hot wire, neutral wire, and in particular, ground wire of extension cords and power tool cords are connected to the proper terminals and are electrically continuous. This is done by performing a continuity test on every extension cord and power tool when it is first put into service, following repairs, and every three months. An AGP is described in the WorkSafeBC publication [Working](#)

An AGP contains the following four parts:

1. **Worker training**
All workers using extension cords and power tools under an AGP must be trained on the program.
2. **Daily visual inspection**
Extension cords and power tools must be checked daily for damage by the persons who will be using them. Any damage found must be repaired before the cord or tool is used. Damaged extension cords and power cords of tools must not be spliced. The cords can either be replaced or shortened to remove the damaged portion.
3. **Continuity and polarity testing every three months**
A qualified worker must test every extension cord and power tool for circuit continuity and correct polarity before they are used for the first time, following repairs, and during the months of January, April, July, and October. A qualified worker is a person who has been authorized by a supervisor to perform the task and who has received appropriate training.
4. **Colour-coding extension cords and power tools**
Extension cords and power tools that have been tested must be tagged with a coloured band about 10 centimetres (4 inches) from the male plug. Coloured electrical tape is suitable for this purpose. A different colour is required for each quarter of the year (see below). These colours are standard for all worksites using an AGP in British Columbia.

Red: January, February, March
White: April, May, June
Blue: July, August, September
Green: October, November, December

As an example, a new extension cord tested on February 8 will have a red tag at the male plug. The extension cord must be retested and marked with a white tag during April. The old coloured tag should be removed when the new coloured tag is affixed.

A worksite may have a combination of GFCIs and an AGP. An AGP can be a good inspectional tool when used in conjunction with GFCIs.

Guidelines Part 19 - Working on high voltage electrical equipment

G19.16-1 Isolation and lockout

Issued August 1999; Editorial Revision October 14, 2004; Editorial Revision June 29, 2005; Editorial Revision March 7, 2011; Revised December 2, 2011; Editorial Revision September 21, 2012; Editorial Revision June 14, 2013; Editorial Revision June 26, 2014; Editorial Revision October 28, 2015; Editorial Revision November 21, 2017; Editorial Revision September 18, 2020

Regulatory excerpt

Section 19.16 of the *OHS Regulation* ("*Regulation*") states, in part:

- (1) High voltage electrical equipment must, if practicable, be completely isolated, grounded, and locked out as required by this Regulation before starting work on it.
- (2) If it is not practicable to completely isolate high voltage electrical equipment,
 - (a) written safe work procedures acceptable to the Board must be followed,
 - (b) two or more qualified and authorized persons must be present while the work is being done, unless the procedures being followed under paragraph (a) specifically permit the work to be done by one person,
 - (c) appropriate electrical protective equipment, including rubber blankets, hoses, hoods, gloves and live line tools must be selected, used, stored, tested, and maintained in accordance with a standard acceptable to the Board, and

...

Purpose of guideline

Section 19.16(1) requires that high voltage electrical equipment must, where practicable, be isolated, grounded, and locked out before starting work on it. Where it is not practicable to completely isolate the equipment, certain work procedures must be followed. This guideline describes safe work procedures that are acceptable to WorkSafeBC under section 19.16(2)(a) of the *Regulation*, circumstances where work done by one person is acceptable under section 19.16(2)(b), and appropriate electrical protective equipment under section 19.16(2)(c).

Safe work procedures

Subject to any qualifications in this guideline, written safe work procedures for live line work compliant with the *Regulation* and the *Workers Compensation Act*, and developed using the rules of either of the following publications are acceptable to WorkSafeBC:

- The February 2020 edition of BC Hydro *Safety Practice Regulations* sections 300 and 400
- *National Electrical Safety Code*, ANSI/IEEE C2 - 2007

Note: If there is any conflict between the requirements of the *Regulation* and a provision of the above publications, the requirements of the *Regulation* prevail.

Written safe work procedures not developed following a standard listed above must be submitted to the OHS Practice and Engineering Support department at WorkSafeBC to determine their acceptability, prior to their use.

Some employers will have high voltage equipment that is not part of a power system. If the employer cannot meet the lockout requirements of section 19.16(1) for work on such equipment, the employer must have written safe work procedures under section 19.16(2)(a).

G19.16(2)(c) Appropriate electrical protective equipment - Standards acceptable to WorkSafeBC

Issued June 29, 2005; Editorial Revision January 1, 2007; Revised September 21, 2012

Regulatory excerpt

Section 19.16(2) of the *OHS Regulation* ("*Regulation*") states:

If it is not practicable to completely isolate high voltage electrical equipment,

- (a) written safe work procedures acceptable to the Board must be followed,
- (b) two or more qualified and authorized persons must be present while the work is being done, unless the procedures being followed under paragraph (a) specifically permit the work to be done by one person,
- (c) appropriate electrical protective equipment, including rubber blankets, hoses, hoods, gloves and live line tools must be selected, used, stored, tested, and maintained in accordance with a standard acceptable to the Board, and
- (d) the use of metal ladders, wire reinforced side rail wooden ladders, metal scaffolds or metal work platforms must be in accordance with the procedures established under paragraph (a).

Section 4.3 of the *Regulation* states:

- (1) The employer must ensure that each tool, machine and piece of equipment in the workplace is
 - (a) capable of safely performing the functions for which it is used, and
 - (b) selected, used and operated in accordance with
 - (i) the manufacturer's instructions, if available,
 - (ii) safe work practices, and
 - (iii) the requirements of this Regulation.
- (2) Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out
 - (a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or
 - (b) as specified by a professional engineer.
- (3) A tool, machine or piece of equipment determined to be unsafe for use must be identified in a manner which will ensure it is not inadvertently returned to service until it is made safe for use.
- (4) Unless otherwise specified by this Regulation, any modification of a tool, machine or piece of equipment must be carried out in accordance with
 - (a) the manufacturer's instructions, if available,
 - (b) safe work practices, and
 - (c) the requirements of this Regulation.

Purpose of guideline

This guideline lists standards acceptable to WorkSafeBC, under section 19.16(2)(c), where applicable.

Standards acceptable to WorkSafeBC

The following standards are acceptable to WorkSafeBC under section 19.16(2)(c) where applicable:

Standard Reference	Standard Title
ASTM	Standards in <i>ASTM Standards on Electrical Protective Equipment for Workers, 12th Edition, 2006</i>
CAN/ULC-60895-04	<i>Live Working - Conductive Clothing for use at Nominal Voltage up to 800 kV a.c. and ±600 kV d.c.</i>
CEI/IEC 60895 (2002)	<i>Live working - Conductive clothing for use at nominal voltage up to 800 kV a.c. and ±600 kV d.c.</i>

Where the aforementioned standards do not specify how the applicable electrical protective equipment must be selected, used, stored, tested, or maintained the equipment must be:

- Selected and used in accordance with [section 4.3\(1\)\(b\)](#) of the *Regulation*
- Tested and maintained in accordance with [section 4.3\(2\)](#) of the *Regulation*.

Guidelines Part 19 - Minimum separation distance to be maintained from energized high voltage electrical equipment and conductors

G19.24.1 Minimum approach distance

Issued June 29, 2005; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial Revision August 3, 2018

Regulatory excerpt

Section 19.24.1 of the *OHS Regulation* ("*Regulation*") states:

Subject to section 19.24.2, or unless otherwise permitted by this Part, if exposed electrical equipment or conductors at a workplace have a voltage within a range set out in Column 1 of Table 19-1A, the following must remain at least the distance from the exposed electrical equipment and conductors that is set out in Column 2 opposite that range of voltage:

(a) a person working at the workplace;

(b) a tool, a machine, material or equipment at the workplace.

Table 19-1A

Column 1 Voltage	Column 2 Minimum approach distance for working close to exposed electrical equipment or conductors	
	Metres	Feet
Phase to phase		
Over 750 V to 75 kV	3	10
Over 75 kV to 250 kV	4.5	15
Over 250 kV to 550 kV	6	20

Purpose of guideline

This guideline describes the application of Table 19-1A minimum approach distances.

Application of section

This section of the *Regulation* applies to all workers unless the exceptions specified in [sections 19.24.2 to 19.29](#) and [19.34](#) of the *Regulation* apply. The employer has a responsibility to provide workers with and instruct them in safe electrical work practices if the intended work may lead to an encroachment on the general limits of approach to energized high voltage equipment and conductors, as allowed by the exceptions to the general limits of approach under sections 19.25 to 19.29 and 19.34.

Therefore the employer must ensure either of the following:

- The limits of approach specified in Table 19-1A are maintained
- The additional requirements of the relevant sections of 19.24.2 to 19.34 are met

In determining whether the minimum clearance distance can be maintained by a piece of equipment, it must be determined whether the operation has been planned with due regard for environmental factors, the type of equipment, the capability of the operators, and movement on site so that no part of equipment, workers, or materials will come within the stipulated distance.

In cases where possible or theoretical movement of a piece of equipment into the minimum approach distance is prevented by a system such as a zone limiting device, section 19.25 does not apply and an assurance in writing is not required.

For instance, a tower crane may be positioned so that it is possible for the load line of the tower crane to travel within the limits of approach of a

high voltage distribution line. However, the owner of the tower crane may put systems in place that prevent the tower crane from operating in an area that is in violation of the required limits of approach. In that case, section 19.25 does not apply and an assurance in writing is not required.

For minimum clearance distances related to moving equipment under exposed electrical equipment or conductors, see *Regulation* section 19.24.2 and guideline [G19.24.2](#).

G19.24.2 Minimum clearance distance when passing under electrical equipment and conductors

Issued February 1, 2011

Regulatory excerpt

Section 19.24.2 of the *OHS Regulation* ("*Regulation*") states:

(1) This section applies in the circumstances where a person working at a workplace is moving or is involved in moving equipment under exposed electrical equipment or conductors and is not performing any work other than work related to moving the equipment.

(2) Unless otherwise permitted by this Part, in the circumstances set out in subsection (1), if exposed electrical equipment or conductors have a voltage within a range set out in Column 1 of Table 19-1B, the following must maintain at least the clearance distance from the exposed electrical equipment and conductors that is set out in Column 2 opposite that range of voltage:

- (a) a person moving or involved in moving the equipment under the exposed electrical equipment or conductor;
- (b) the equipment that a person referred to in paragraph (a) is moving;
- (c) the load carried by the equipment referred to in paragraph (b).

Table 19-1B

Column 1 Voltage	Column 2 Minimum clearance distance for passing under exposed electrical equipment or conductors	
	Metres	Feet
Phase to phase		
Over 750 V to 75 kV	2	6.5
Over 75 kV to 250 kV	3	10
Over 250 kV to 550 kV	4	13

Purpose of guideline

This guideline describes the application of this *Regulation* section and describes examples.

Application of the regulatory requirement

Regulation section 19.24.2 provides an exception to section 19.24.1 when a vehicle or mobile equipment is being driven, provided the worker driving the vehicle or mobile equipment is not doing any work other than driving the vehicle or mobile equipment. The exception provides that the minimum clearance between a worker, any part of the vehicle or mobile equipment, or its load, and the exposed energized high voltage electrical equipment and conductors may be reduced to the limits in column 2 of Table 19-1B, subject to considerations in other sections in Part 19. (These other considerations are the different limits of approach for qualified electrical workers or specially trained and/or qualified workers following appropriate safe work procedures acceptable to WorkSafeBC.)

The minimum clearance distances in column 2 in Table 19-1B are based on consideration of the applicable standards published by organizations such as the Institute of Electrical and Electronics Engineers, as well as advice from electrical utility companies.

Section 19.24.2 includes application to vehicles hauling oversize loads on industrial sites or along haul roads. For example, off-highway log hauling trucks generally have loads higher than trucks hauling on public roads, and the employer or prime contractor will need to know and control the maximum load height for such off-highway log trucks as necessary to ensure the clearance specified in column 2 of Table 19-1B is maintained.

Similarly, when equipment such as a log loader or feller-buncher is being driven from one work location to another, the employer will need to ensure the height of the equipment in the configuration being used when travelling or driving the equipment will allow it to pass under any overhead high voltage conductors by at least the clearance specified in column 2 of Table 19-1B.

The height of heaped loads on earth or rock hauling trucks also needs to be known and controlled to ensure the top of such loads can pass under any overhead conductors by at least the clearance specified in column 2 of Table 19-1B. When a truck box is raised to dump or spread material, the driver is doing more than just driving the vehicle and the clearance distances in column 2 of [Table 19-1A](#) apply. Refer to [OHS Guideline G19.24.1](#) for minimum approach distance for working close to electrical equipment and conductors.

It is expected that road maintenance vehicles, such as road graders and trucks rigged up for snow plowing, salting/sanding, or dust suppression operations will have overall heights that ensure clearance to the limits in column 2 of Table 19-1A during grading, plowing, or salting/sanding/spraying operations. A worker grading a surface, or plowing snow, salting/sanding, or spraying water or other road treatment on a surface is considered to be doing more than just driving the vehicle or equipment.

If a vehicle or mobile equipment stops under exposed energized high voltage electrical equipment or conductors, then the clearance distances in column 2 of Table 19-1A apply.

G19.25 Assurance in writing

Issued August 1999; Revised June 29, 2005; Editorial Revision to include February 1, 2011 Regulatory Amendment; Editorial Revision consequential to February 1, 2012 Regulatory Amendments; Editorial Revision November 21, 2017; Revised September 25, 2019

Regulatory excerpt

Section 19.25 of the *OHS Regulation* ("*Regulation*") states:

- (1) If the minimum distance in Table 19-1A cannot be maintained because of the circumstances of work or the inadvertent movement of persons or equipment, an assurance in writing on a form acceptable to the Board and signed by a representative of the owner of the power system, must be obtained.
- (2) The assurance must state that while the work is being done the electrical equipment and conductors will be displaced or rerouted from the work area, if practicable.
- (3) If compliance with subsection (2) is not practicable the assurance must state that the electrical equipment will be isolated and grounded, but if isolation and grounding is not practicable the assurance must state that the electrical equipment will be visually identified and guarded.
- (4) The safeguards specified in the assurance must be in place before work commences and effectively maintained while work is taking place.
- (5) If guarding is used,
 - (a) neither equipment nor unqualified persons may touch the guarding, and
 - (b) a safety watcher must be designated, or range limiting or field detection devices acceptable to the Board must be used.
- (6) The assurance must be available for inspection at the workplace, as close as practicable to the area of work, and must be known to all persons with access to the area.

Purpose of guideline

This guideline provides information regarding the assurance in writing form, and, the hierarchy of protective measures intended by section 19.25 of the *Regulation*.

Assurance in writing form

The "assurance in writing" form is generally referred to as a WorkSafeBC 30M33 form. 30M33 form is provided to and used by all power system owners in B.C. It is currently the only assurance in writing form that is acceptable to WorkSafeBC.

Generally, the 30M33 form is needed to obtain information about high voltage electrical equipment and used when the requirements of section 19.25 of the *Regulation* apply to the work being performed. Generally the 30M33 form does not need to be used when the work is being performed in compliance with the *Regulation* sections 19.26, 19.27, 19.28, or 19.29.

Section 19.25(1) of the *Regulation* requires that the 30M33 form be signed by the representative of the owner of the power system. The signature is an assurance that the safety precautions required by section 19.25 of the *Regulation* have been performed by the utility company. The signature of the representative of the utility owner is only an assurance that the work planned to be performed by the utility company has been performed by the utility company. The 30M33 form is not an assurance by the utility company that the safety procedures performed by the contractor are safe. A mechanically reproduced "approval," such as a rubber stamp, in lieu of a signature, is not acceptable. Contractors have sole responsibility for their systems and procedures that are intended to allow the work to be performed safely.

The 30M33 form may also be used as a record of decisions between the utility owner and the contractor indicating what work will, or will not, be performed by the utility owner in advance of the work to be performed by the contractor.

Section 19.25 of the *Regulation* applies to all workers who are not specially trained. Therefore, whenever the limits of approach contained in Table 19-1A cannot be maintained from the original or new location of the conductors, and any workers present do not meet the qualifications of sections 19.27, 19.28, or 19.29, then a 30M33 form must be completed according to the instructions contained on the form.

Section 19.25 of the *Regulation* does not apply merely when it is theoretically possible that a person or piece of equipment could enter within the limits of approach of Table 19-1A. Rather, it applies where the following situation exists:

- It is possible for a person or piece of equipment to enter within the limits of approach. This includes the potential for inadvertent movement of the machine, load, rigging, or any other factor(s) that could allow contact with high voltage electrical equipment and no systems are in place to ensure that this access does not happen.

Note that on construction sites, the electrical utility company in the area (for instance, BC Hydro), is generally responsible for overhead conductors to the electrical service; contractors are generally responsible for electrical wiring and equipment at the electrical service throughout the jobsite.

Electrical contractors are responsible to the electrical inspection authority having jurisdiction for the proper installation of the power distribution system on the jobsite as well as compliance with the *Regulation*. In all cases, however, the owner of the power system is the electrical utility company.

Section 19.25(6) of the *Regulation* does not specifically require that the 30M33 form be faxed to WorkSafeBC. However, any party may send a copy of the 30M33 form to WorkSafeBC.

Hierarchy of requirements defined in sections 19.25(2) and 19.25(3) of the *Regulation*

Option 1

Section 19.25(2) - Electrical equipment and conductors must be displaced or rerouted if practicable

Option 2 (only if option 1 is not practicable)

Section 19.25(3) - Electrical equipment must be isolated and grounded if practicable

Option 3 (only if option 1 or option 2 are not practicable)

Section 19.25(3) - Electrical equipment will be visually identified and guarded. Note for this option merely visually identifying the conductors is not sufficient: electrically insulating or physical barrier guards must also be installed.

For conductors that are visually identified and electrically guarded, section 19.25(5) also applies.

Note:

Under sections 19.25(4) and (5) of the *Regulation*, the electrical hazard must be controlled by one of the previously listed methods before any workers commence performing tasks that could place workers or their tools within the limits of approach specified in Table 19-1A. Work performed according to the requirements of section 19.29 is not subject to the requirements of section 19.25.

The selection above depends on what is practicable, the circumstances of each workplace, and is a matter of assessment and judgment. Employers are expected to identify the potential risk and do everything that is reasonably practicable to prevent contact with the high voltage electrical equipment. This includes making a risk-based decision that includes the location of the high voltage electrical equipment, duration of the job, number of workers exposed, type and amount of equipment being used, collision avoidance device(s) installed on equipment, and worker training.

Guarding Standards

Where conductors must be guarded, the following guarding practices are expected:

- (a) Up to 25 kV
 - Highly visible coloured, such as orange or yellow, polyethylene covers 1/8" thick or ABS non-conducting covers positioned such that contact with the conductor is restricted
 - Fluorescent-coloured flag line (the fluorescent-coloured flag line is usually added to the guard wire)
- (b) From 25 kV to 60 kV
 - Guard wire, marked by bright-coloured flag line, and suspended between a supplementary set of cross arms on the poles
- (c) Over 60 kV
 - No guarding option available

The above practices are intended to be "visible" guarding to create awareness of overhead lines. No contact with the guarding is permitted. The cover guarding is not to be considered electrically insulated. Wires with integral insulation but not otherwise protected are not considered as guarded.

The visual identification flag line should be sufficient to keep workers and equipment a minimum safe distance away from the hazardous contact point. The requirement to prevent workers or equipment from entering this safe distance from any area in which the worker is likely to pass or work, applies to general workers covered by the *Regulation* section 19.24 but not, for example, to qualified workers under the *Regulation* section 19.29.

Safety watcher

If the option of visual identification and electrical guarding is used, neither the limits of approach in [Table 19-1A](#) nor [Table 19-2](#) apply. The limit of approach is that neither the equipment nor unqualified persons may touch the guarding or flag line (visual identification). Section 19.25(5) requires that a safety watcher or acceptable device must be designated to ensure that the guarding is not touched. Electrical guarding may provide some protection from electric shock in the event of brush contact but, because of site conditions, absolute assurance that no injury will occur cannot be given.

The safety watcher must be given authority to stop the movement of the equipment when circumstances are warranted. An effective means of communication must be established between the safety watcher and the equipment operator prior to commencement of work such that the stop signal is unambiguous.

When equipment is operated or intended to be operated in proximity to energized conductors or equipment, the hazard due to contact is prevalent while the equipment is in motion. Therefore, the safety watcher should focus on that motion. The safety watcher may perform other duties while the equipment is not moving. It is essential that the safety watcher is somebody other than the person(s) controlling the movement of the equipment.

G19.26 Assurance not practicable – Role of the safety watcher

Issued June 29, 2005; Editorial Revision to include February 1, 2011 regulatory amendment; Editorial revision consequential to February 1, 2012
Regulatory Amendment

Regulatory excerpt

Section 19.26 of the *OHS Regulation ("Regulation")* states:

- (1) If exposed high voltage electrical equipment and conductors cannot be isolated, rerouted or guarded, work must not be done within the minimum distance in Table 19-1A until the following precautions are taken:
 - (a) the area within which equipment or materials are to be moved must be barricaded and supervised to restrict entry only to those workers necessarily engaged in the work;
 - (b) a safety watcher must be designated;
 - (c) a positive means must be provided for the safety watcher to give a clear, understandable stop signal to workers in the area, and the watcher must give the stop signal by no other means.
- (2) While equipment is in motion in an area in proximity to energized electrical equipment or conductors, no person other than the equipment operator may touch any part of the equipment or the material being moved by it.
- (3) No person may move a load or any rigging line from its position of natural suspension if it is in proximity to an energized electrical conductor or equipment.

Purpose of guideline

The purpose of this guideline is to outline the role of the safety watcher under this section of the *Regulation*.

Role of the safety watcher

It is a rare occurrence when exposed high voltage electrical equipment and conductors cannot be isolated, rerouted, or guarded. For those exceptional cases, a safety watcher is required, and his/her duties should include monitoring the following criteria:

- Only necessary personnel shall be provided access to the restricted area in recognition of the hazards involved.
- When equipment is operated in proximity to energized conductors or equipment, the hazard due to contact is prevalent while the equipment is in motion. Therefore, the safety watcher needs to focus on that motion.
- An effective means of communication must be established between the safety watcher and the equipment operator prior to commencement of work such that the stop signal is unambiguous.
- The safety watcher needs to be given authority to stop the movement of the equipment when circumstances are warranted.
- No worker, not even the crane operator, is permitted at any time to move the rigging, suspension line, or load from its position of natural suspension, while any part is within the limits of approach of [Table 19-1A](#). The crane operator may use the tag line to rotate the load about the suspension line. However, this must be done carefully so that the load is still suspended naturally. If it becomes necessary for an assisting worker to rotate the suspended load about the load line, then movement of the lifting equipment needs to be stopped. Once the suspended load has stopped, then an assisting worker may use a tag line to rotate the load about the load line. Once the load is rotated and the assisting worker has released the tag line and moved out of the danger area, then the equipment operator may resume moving the load with the crane.

G19.27 Specially trained

Issued June 29, 2005; Revised August 4, 2015

Regulatory excerpt

Section 19.27 of the *OHS Regulation ("Regulation")* states:

- (1) A worker who has taken a course of instruction approved by the Board may work up to the adjusted limits of approach in Table 19-2 when all the following conditions apply:
 - (a) the high voltage electrical equipment is energized to a potential of not more than 75kV;
 - (b) the Board has determined that rerouting, de-energizing or guarding of the equipment is not practicable for the type of work being performed;
 - (c) the work is not being done for the owner of the power system;
 - (d) the work is of a type that must be done regularly;

(e) the worker follows written safe work procedures acceptable to the Board.

(2) A qualified electrical worker may work closer than the limits specified in Table 19-2 provided the worker is authorized by the owner of the power system and uses procedures acceptable to the Board.

Voltage	Minimum distance	
	Metres	Feet
Over 750 V to 20kV	0.9	3
Over 20kV to 30kV	1.2	4
Over 30kV to 75kV	1.5	5

Purpose of guideline

The purpose of this guideline is to:

- List situations for which WorkSafeBC has determined that rerouting, de-energizing, or guarding of the equipment is not practicable for the work being performed, under section 19.27(1)(b).
- Explain the process for submitting requests to WorkSafeBC for
 - approval of written safe work procedures, under section 19.27(1)(e); and
 - a determination that rerouting, de-energizing or guarding of the equipment is not practicable under section 19.27(b).
- Highlight the distinctions between the requirements related to the adjusted limits of approach for workers, under section 19.27(1), and for qualified electrical workers, under section 19.27(2).

Summary

It may be possible for work to be performed under section 19.27 of the *Regulation* instead of sections [19.24](#), [19.25](#), or [19.26](#), if all of the conditions under section 19.27(1) are met:

- the worker follows written safe work procedures, and has taken a course of instruction, that have been approved in writing by the OHS Practice and Engineering Support department of WorkSafeBC (the prior approval letter must be available on site).
- the OHS Practice and Engineering Support department of WorkSafeBC has determined (in this guideline or through prior written approval) that rerouting, de-energizing or guarding of the equipment is not practicable for the type of work being performed;
- the high voltage electrical equipment is energized to a potential of not more than 75kV;
- the work is not being done for the owner of the power system;
- the work is of a type that must be done regularly;

Examples of specified conditions under section 19.27(1)(b)

Under section 19.27(1)(b), one of the conditions that must be met in order for a worker to be permitted to work up to the adjusted limits of approach in Table 19-2 is that WorkSafeBC has determined that rerouting, de-energizing, or guarding of the equipment is not practicable for the type of work being performed. WorkSafeBC has determined that for the following types of work, it is not practicable to reroute, de-energize, or guard the conductors:

- Changing light bulbs or electrical components of street lights or traffic signals
- Repairing or painting street light poles or poles primarily intended to support street lights or traffic signals
- Repairing or painting poles primarily intended to support electric trolley lines

If an employer would like WorkSafeBC to determine that rerouting, de-energizing or guarding of equipment is not practicable for additional types of work, then a request must be submitted to WorkSafeBC prior to work commencing.

Requests for a determination of whether written safe work procedures are acceptable to WorkSafeBC, under section 19.27(1)(e) of the *Regulation* must also be submitted to WorkSafeBC.

How to submit the requests for prior approval under section 19.27

A request for approval under section 19.27(1) or 19.27(2) of the *Regulation* is to be submitted in writing to the OHS Practice and Engineering Support department, Worker and Employer Services Division, and to allow for efficient processing, should include the following information:

- A list of the types of work intended to be performed under section 19.27 of the *Regulation*
- An explanation for why the work must be done within the general limits of approach for energized equipment, as specified in Table 19-2
- Support for why it is impractical to reroute, de-energize, or guard the conductors
- A copy of the written safe work procedures to be used by the workers
- A statement regarding whether the application is being made under section 19.27(1) or (2) of the *Regulation*
- A statement regarding the qualifications of the affected workers (note: the Electrician Program (Construction or Industrial) accredited by the Industry Training Authority may qualify as an acceptable course of instruction)
- A risk assessment showing how the proposed safe work procedures will provide effective protection to workers
- A description of how the matter has been discussed with representatives of the workers affected (those who will be doing the work), such as through their representatives on the health and safety committee. (Endorsement of the proposal by the health and safety committee and/or

- other worker representatives is a preferred means of showing this aspect has been effectively performed)
- The name, address, and telephone number of a contact person who is familiar with the submission package and can be contacted by WorkSafeBC personnel for clarification of items in the submission and who can provide additional information, if necessary

Requirements regarding the adjusted limits of approach for "workers" versus "qualified electrical workers"

The worker working up to the adjusted limits of approach under section 19.27(1) of the *Regulation* is not required to be authorized by the owner of the power system. However, the qualified electrical workers who enter the adjusted limits of approach, under section 19.27(2), are required to be authorized by the owner of the power system.

OHS Guideline [G19.1-2 Electrical Qualifications](#), highlights the criteria to be used to determine whether a worker is a "qualified electrical worker" under section 19.27(2).

G19.28 Emergency work

Issued June 29, 2005; Editorial Revision June 30, 2021

Section 19.28 of the *OHS Regulation* ("*Regulation*") states:

- (1) Sections 19.24 to 19.27 do not apply to emergency actions close to energized high voltage electrical equipment or conductors carried out by workers who have undergone a course of instruction approved by the Board.
 - (2) During emergency actions, all reasonable precautions must be taken to control the hazards including, where practicable,
 - (a) restricting entry into the area within which equipment or materials are to be moved to workers necessarily engaged in the work,
 - (b) designating a safety watcher,
 - (c) when equipment is in motion, preventing a person other than the equipment operator from touching any part of the equipment or the material being moved by it, and
 - (d) requiring the equipment operator to operate the controls from the seat provided on the equipment, or from a metal stand that is integral with the frame of the equipment and clear of the ground, or from a metallic mat bonded to the frame of the machine and located on the ground beside the machine.

Purpose of guideline

The purpose of this guideline is to clarify the expectations regarding the course of instruction required by workers under section 19.28(1) of the *Regulation* and highlight reasonable precautions that must be taken under section 19.28(2), where practicable.

Course of instruction approved by WorkSafeBC under section 19.28(1)

This section applies to first responders who have to rescue a person from an immediate threat. Workers who carry out emergency actions close to energized high voltage equipment or conductors are to have awareness of high voltage hazards and appropriate work procedures in proximity to such systems in order comply with section 19.28 of the *Regulation* and [section 21\(2\)\(e\)](#) of the *Workers Compensation Act*. Specifically, an approved course certificate must be available from the workers for inspection by WorkSafeBC prevention officers. The course may be provided by any agency acceptable to WorkSafeBC.

Reasonable precautions to control hazards under section 19.28(2)

In addition to those precautions listed in section 19.28(2), the following are considered to be reasonable precautions to be taken to control the hazards that should be taken where practicable:

- Only necessary personnel may be provided access to the restricted area in recognition of the hazards involved (refer to section 19.28(2)(a).
- When equipment is operated in proximity to energized conductors or equipment, the hazard due to contact is prevalent while the equipment is in motion. Therefore, the watcher must focus on that motion.
- The watcher must be given authority to stop the movement of the equipment.
- An effective means of communication must be established between the watcher and the operator prior to commencement of work such that the stop signal is unambiguous.
- Workers must be positioned so as not to become part of the current path to ground in the event of the equipment contacting energized components of the high voltage electrical system.

G19.29 Authorization by owner

Issued June 29, 2005; Editorial Revision June 6, 2006; Editorial Revision to include February 1, 2011 regulatory amendment

Regulatory excerpt

Section 19.29 of the *OHS Regulation* ("*Regulation*") states:

Qualified workers and workers under their direct supervision may work within the minimum distances to energized high voltage electrical equipment and conductors, as specified in Table 19-1A and Table 19-2, when authorized by the owner of the power system and using work procedures acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to outline the circumstances where working within the minimum distances specified in [Tables 19-1A](#) and [19-2](#) is acceptable, as well as providing information on how to submit requests for approval.

Authorization, qualified workers, and direct supervision

Section 19.29 of the *Regulation* applies to qualified workers (see [G19.1-2](#)) and workers under their direct supervision who are authorized by the owner of the power system. Even if these workers are not performing electrical work, they still need to be authorized by the owner of the power system and use work procedures acceptable to WorkSafeBC, in order for them to be permitted to work within the minimum distances to the energized high voltage electrical equipment and conductors, specified in [Table 19-1A](#) and [Table 19-2](#). There are no minimum limits of approach specified for these workers. Sections [19.24 to 19.28](#) do not apply to workers who qualify under section 19.29.

In order for workers to be under the direct supervision of the qualified workers, the qualified worker must have the authority to direct, limit, or eliminate the scope of work performed by these workers. This generally means that the "workers under their direct supervision" are also employed by or contracted to the same employer as the qualified workers. The qualified worker must be in a location that allows constant surveillance of the other workers.

Section 19.29 of the *Regulation* states that the work procedures must be acceptable to WorkSafeBC. WorkSafeBC must provide prior approval of these work procedures.

The decision on a request under the *Regulation* section 19.29 to determine whether work procedures are acceptable to WorkSafeBC, will be made by one of WorkSafeBC's persons authorized to grant "prior approvals."

How to submit these requests

A request under the *Regulation* section 19.29 is to be submitted in writing to the OHS Practice and Engineering Support department, Worker and Employer Services Division, and should include the following information to allow for efficient processing:

- The types of work intended to be performed under the *Regulation* section 19.29.
- An explanation of why the work must be done within the normal limits of approach for energized equipment.
- Evidential support for why it is impractical to reroute, de-energize or guard the conductors.
- A written copy of the work procedures to be used by the workers.
- A statement regarding the qualifications of the affected workers.
- A risk assessment showing how the proposed safe work procedures will provide effective protection to workers.
- A description on how the matter has been discussed with representatives of the workers affected (those who will be doing the work), such as through their representatives on the health and safety committee. (Endorsement of the proposal by the joint health and safety committee and/or other worker representatives is a preferred means of showing this aspect has been effectively done.)
- The name, address and telephone number of a contact person who is familiar with the submission package and can be contacted by WorkSafeBC personnel for clarification of items in the submission and can provide additional information, if necessary.

Guidelines Part 19 - Tree pruning and falling near energized conductors

G19.30 Preliminary inspection

Issued August 1999; Editorial Revision to include February 1, 2011 regulatory amendment

Regulatory excerpt

Section 19.30 of the *OHS Regulation* ("*Regulation*") states:

- (1) Before commencing tree pruning or falling close to energized high voltage overhead conductors, the worksite must be inspected by a qualified person, authorized by the owner of the power system, to identify any hazardous areas, including situations where any part of a tree to be pruned or felled is within the applicable minimum distance from an energized conductor as specified in [Table 19-1A](#), or may fall within that distance.
- (2) Immediately before commencing work, an inspection must be performed by a qualified person to verify the results of the initial inspection done under subsection (1) are still valid.

Purpose of guideline

The purpose of this guideline is to provide direction on inspections to take place prior to tree pruning and falling near energized conductors.

Inspections to take place

Someone authorized by the owner of the power system must do the inspections. The power system owner will decide whom to authorize for this role and is responsible for ensuring only people who are qualified for the task are authorized.

This section provides for two inspections because there is often a time lag between the initial inspection for planning of the work and the actual starting of the work. This lag may be several months. Growth of vegetation may cause areas not initially identified as "a hazardous area" to be hazardous when commencing the work. The purpose of the second inspection is to ensure all electrically hazardous areas are properly identified, so unqualified workers are not inadvertently dispatched or directed to work in electrically hazardous areas.

G19.34(5) Acceptable standard for insulated tools used by certified utility arborists

Regulatory excerpt

Section 19.34(5) of the *OHS Regulation ("Regulation")* states:

An insulated tool acceptable to the Board may be used by a certified utility arborist

- (a) up to the limit of approach in column A of [Table 19-3](#), and
- (b) from an insulated aerial device to remove vegetation closer than the limit of approach in column A of Table 19-3 up to but not touching an energized high voltage conductor of 75 kV or less.

Purpose of guideline

The purpose of this guideline is to specify criteria for acceptable insulated tools under section 19.34(5).

Acceptable insulated tools

Section 19.34(5) of the *Regulation* requires that insulated tools that are to be used up to the limits of approach or from an insulated aerial device be acceptable to WorkSafeBC. Insulated tools that meet the requirements of *ASTM Standards on Electrical Protective Equipment for Workers* are considered acceptable for the purposes of section 19.34(5). This compilation of standards includes specifications for a variety of electrical protective equipment, including but not limited to insulated and insulating hand tools, clampstick type live line tools, and measuring tools.

The standards provide information on acceptance testing for insulated tools that are to be used for working on or near energized electrical apparatus or conductors. These tools will be considered acceptable to WorkSafeBC for the purposes of this section.

If other tools are to be used, the OHS Practice and Engineering Support department of WorkSafeBC is to be contacted and the other tools may not be used until written acceptance is given by that Department.

G19.35 Tree pruning and falling equipment

Issued August 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 19.35(2) of the *OHS Regulation ("Regulation")* states:

An insulated hand tool and insulated aerial device must be maintained in a clean condition and be dielectrically tested to a standard acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to set an acceptable standard as stated in section 19.35(2) of the *Regulation*.

The BC Hydro standards for insulated equipment, and for dielectric testing of such equipment, are standards acceptable to WorkSafeBC.

Guidelines Part 19 - Control systems

G19.36 Control systems - General requirements

Issued August 1999; Revised February 4, 2010

Regulatory excerpts

Section 19.1 of the *OHS Regulation ("Regulation")* states, in part:

A control system is a manual, remote, automatic or partially automatic system for controlling the operation of equipment.

Section 19.36 of the *Regulation* states:

- (1) A control system must be designed, installed, operated and maintained in accordance with a standard acceptable to the Board.
- (2) Only qualified and authorized persons may design, install, operate and maintain a control system.
- (3) When designing a control system, the types of potential system failure and the effects of failures on the control system and the controlled equipment must be analysed.
- (4) Where practicable and required to minimize risk to workers, a control system must be designed so that
 - (a) the controlled equipment cannot be inadvertently activated,
 - (b) an effective basic diagnostic capability is incorporated,
 - (c) hardwired emergency stop devices are provided at operator stations, and

- (d) operator controls other than emergency stop devices can be activated at only one station at a time.
- (5) A control system must be used to prevent automatic startup after a power interruption or low voltage occurrence, if automatic startup in such circumstances is likely to create a hazard to workers.
- (6) A control system must, where practicable, be designed so that the controlled equipment does not create a hazard to workers if the system fails or is shut down.
- (7) Equipment operated by a new or altered control system must not be used until the control system has been thoroughly checked and tested to verify that it will function in the intended manner.
- (8) The employer must ensure there is up-to-date documentation which is readily available to affected workers describing the design, installation, operation and maintenance of a control system
- (9) Control system hardware must be protected from circumstances that could adversely affect the performance of the system including mechanical damage, vibration, extreme temperatures or humidity levels, high electromagnetic field levels, and power disturbances.
- (10) Written safe work procedures must be developed for the use of equipment operated by a control system, including lockout procedures as required by this Regulation.

Purpose of guideline

This guideline describes control systems commonly used in industrial applications.

Application of Regulation sections

Section 19.36 of the *Regulation* along with sections [19.37 to 19.40](#), applies to systems which respond to input signals (e.g. from parts of machine elements, sensors, operators, external equipment or any combination of these) and generate an output signal that causes a machine or piece of equipment to behave in an intended manner. The control system may utilize one or more of hydraulic, pneumatic, electrical/electronic, and mechanical technologies and may be programmable, automatic and/or remote control. Machinery and equipment with control systems require special consideration to ensure effective lockout procedures are implemented when required (See also OHS Guideline [G10.10\(2\)](#)).

G19.36(1) Acceptable standard for control systems

Issued March 11, 2009

Regulatory excerpt

Section 19.36(1) of the *OHS Regulation* ("*Regulation*") states:

A control system must be designed, installed, operated and maintained in accordance with a standard acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to specify an acceptable standard for control systems under section 19.36(1).

Acceptable standard for control systems

BS EN ISO 13849: 2006 Safety of machinery - Safety-related parts of control systems, as updated from time to time, is considered to be an acceptable standard under section 19.36(1) of the *Regulation*.

In some cases, control systems will meet a standard other than *BS EN ISO 13849: 2006*. In these cases, an application can be made to WorkSafeBC to have this alternate standard accepted.

Guidelines Part 19 - Electrofishing

G19.41 Electrofishing - Ensuring worker training and knowledge

Issued: September 28, 2005

Regulatory excerpt

Section 19.41 of the *OHS Regulation* ("*Regulation*") states:

The employer must ensure that

- (a) only certified workers trained in a course acceptable to the Board conduct electrofishing operations,
- (b) workers are provided with a statement of their responsibilities and written safe work procedures, and
- (c) workers are trained in and are knowledgeable of their responsibilities and work procedures.

Purpose of guideline

The purpose of this guideline is to provide recommendations for employers to use as means of ensuring that workers are trained in and

knowledgeable of their responsibilities and work procedures under section 19.41(c) of the *OHS Regulation*.

Responsibility of the employer

Section 19.41(c) places the responsibility directly on the employer to ensure that workers are trained in and knowledgeable of their responsibilities and work procedures. Although a worker may have valid electrofishing certification under section 19.41(a), employers and representatives of the employers (i.e. crew supervisors) need to ensure the ongoing competence of the electrofishing operators in their employ.

Changes in electrofishing operations

A wide range of changes related to electrofishing operations typically occurs over a given time period. Certified electrofishing operators need to keep up-to-date on such information as:

- changes in regulations governing electrofishing practitioners; for example, as set by fisheries regulatory agencies;
- changes in electrical safety requirements for certification of electrofishing units; and
- new safety features for electrofishing equipment.

For certified workers to remain knowledgeable of their responsibilities and work procedures, they may need to receive refresher training periodically.

Demonstrating worker training in and knowledge of responsibilities and safe work procedures

To demonstrate compliance with section 19.41(c), employers should document how workers have received training and demonstrated knowledge of applicable responsibilities and work procedures. Appropriate means for ensuring this include:

- holding regular safety review meetings (i.e., annual, monthly and trip-specific, including 'tailgates') to remind certified electrofishing operators of safe work procedures and equipment safety features. It is recommended that employers have workers sign a form indicating the sort of information that has been reviewed at these meetings;
- checking, on a regular basis, how workers conduct inspections of electrofishing equipment to ensure it is safe and in proper working order; and
- recertification of workers, where appropriate.

Records of these activities should be kept in a central and accessible location for future reference by safety personnel (internal or external) as a means to maintain an effective training program, and in the event of an inspection or accident investigation.

G19.41(a) Electrofishing - Courses acceptable to WorkSafeBC

Issued August 11, 2010; Revised December 19, 2013; Editorial Revision April 14, 2015; Editorial Revision November 21, 2017

Regulatory excerpt

Section 19.41(a) of the *OHS Regulation* ("*Regulation*") states:

The employer must ensure that

- (a) only certified workers trained in a course acceptable to the Board conduct electrofishing operations,

Purpose of guideline

The purpose of this guideline is to provide a reference to the training courses acceptable to WorkSafeBC for the purposes of section 19.41(a) of the *Regulation*.

Background

Electrofishing is inherently hazardous work. Direct electrical current at elevated voltage is used to temporarily stun fish for research and environmental management purposes.

It is important that workers are initially trained to an acceptable standard so that the risks to themselves and their co-workers are adequately controlled. In recognition of the significant hazards faced by electrofishers, section 19.41(a) of the *Regulation* requires that only certified workers conduct electrofishing operations.

Electrofishing courses acceptable to WorkSafeBC

Electrofishing certification courses are an introduction to electrofishing theory, safety, and practices. The courses are two days in duration and include a classroom lecture-based session and a field-based practicum. The first day addresses the theory, concepts, identification, electrical safety, and equipment settings for safe and efficient electrofishing sessions. The second day is a field-based practicum in which participants operate backpack electrofisher equipment and apply the skills and knowledge gained during the classroom time. Emphasis is on safety but the theory and practice of backpack electrofishing are also addressed.

A list of acceptable electrofishing courses as well as the certifying organizations can be found at worksafebc.com/en/health-safety-education-training-certification/electrofishing-operator.

Other courses

WorkSafeBC recognizes that other training courses may be developed that may meet the requirements for acceptance under section 19.41(a). WorkSafeBC will review any proposed courses for acceptance to ensure consistency and appropriateness with the accepted electrofishing training

requirement. Any new courses WorkSafeBC identifies as acceptable under section 19.41(a) will be added to the list found on the webpage identified above for the information of workplace parties and WorkSafeBC prevention officers.

Persons wishing to have WorkSafeBC consider an alternative course for acceptance under section 19.41(a) may submit that course for review and evaluation. Please contact WorkSafeBC [Certification Services](#) for further information.

G19.41(b) Responsibilities and safe work procedures for electrofishers

Issued August 11, 2010; Editorial Revision November 21, 2017

Regulatory excerpt

Subsection 19.41(b) of the *OHS Regulation* ("Regulation") states:

The employer must ensure that

(b) workers are provided with a statement of their responsibilities and written safe work procedures, and

Purpose of guideline

Subsection 19.41(b) of the *Regulation* requires that electrofishers be provided with a written statement of their responsibilities and with written safe work procedures. This guideline describes responsibilities (for employers, supervisors, and crew members) during electrofishing operations and describes areas of safety that should be addressed in written safe work procedures. Note that employers must also ensure under subsection 19.41(c) of the *Regulation* that workers are trained in and are knowledgeable of their responsibilities and work procedures.

Responsibilities

Electrofishing is an inherently dangerous work activity. Workers involved in electrofishing operations must be trained in the fundamentals of electricity, and follow written safe work procedures for operating electrofishing equipment.

Employers' responsibilities include the following:

- Ensuring only commercially available certified electrofishing equipment is used (Homemade equipment or in-house expertise equipment is not allowed. Electrofishing equipment is a regulated product and must be certified as required and enforced by British Columbia Safety Authority (operating as Technical Safety BC — "TSBC")
- Providing necessary supervision and ensuring workers are properly certified (see [G19.41\(a\)](#) for information on electrofishing certification)
- Providing appropriate safety equipment
- Ensuring workers are aware of their rights and responsibilities

Crew leader or supervisor's responsibilities include the following:

- Supervising daily operations and safety of the team
- Identifying and assessing site hazards, and ensuring adequate control measures are in place before initiating electrofishing work procedures
- Conducting bank-side crew talks regarding equipment checkout procedures and safe work procedures
- Inspecting equipment and ensuring maintenance and repair (Inspection should be daily and the testing/maintenance interval should not be greater than once a year)
- Preventing hazardous work procedures

Crew members' responsibilities include the following:

- Being knowledgeable of and following provided instruction, training, and written safe work procedures
- Ensuring a detailed instruction manual for electrofishing equipment is available and that they are thoroughly familiar with the manual
- Reporting identified and/or observed hazardous conditions to the supervisor or employer

Written safe work procedures

Written safe work procedures for electrofishing equipment should address the following areas of safety:

General factors

- Prior to commencing work, identify the crew leader and their responsibilities (e.g., safety, first aid, and equipment)
- The crew leader should ensure that all personal protective equipment is worn as required and that all personal clothing worn by crew members is appropriate for the task

Crew size

- An electrofishing team should typically be composed of either two or three people
- Written safe work procedures should clearly identify the crew size in each situation (e.g., backpacking, boat fishing, etc.) and the role of each crew member

Safe use of the equipment

- Prior to the equipment being taken into the field for use, a visual check of the equipment is to be done, paying particular attention to the

- generator, electrical control gear, and cable insulation
- Safe storage of the electrofishing equipment
- Procedures and circumstances in which electrofishing activity should cease (e.g., poor weather, faulty equipment, etc.)
- Refueling/recharging procedures
- Communication plan (among electrofishers) during use of the equipment
- Completion of an equipment log book to record use, inspections, troubles, and maintenance
- Setup and security of work area at site
- Site assessment and crew briefing prior to starting electrofishing
- A clear system of working signals to ensure proper communication between team members
- Inspection of the work area and equipment prior to operating equipment
- Safe and appropriate use of equipment (e.g., fishing electrodes are not to be energized unless immersed in water)
- Established means of keeping other personnel, spectators, and animals clear of the hazard area (e.g., signs warning spectators that electrofishing is in progress and procedures for stopping work should animals or spectators approach too closely)
- Procedures and circumstances in which wading vs. boat-based electrofishing should take place, as well as procedures specific to each method
- Maintenance of equipment
- Electrofishing equipment is to be properly maintained and checked regularly for mechanical and electrical faults
- The maintenance and checks are to be performed by qualified workers, and a record is to be kept
- Procedures for identifying and removing faulty equipment from service
- Use of protective equipment and clothing, including
 - Waders/Clothing (appropriate for conditions, non-conductive, leak-free, etc.)
 - Footwear (rubber boots, studs on boots not penetrating soles to cause a shock hazard, etc.)
 - Gloves that should be no less than 14" in length and have an electrical insulation rating of at least 5000 Volts
 - Lifejackets when working from a boat or using chest waders
- Emergency plan and written procedures addressing
 - First aid procedures
 - Action plans in case of accidents such as electric shock
 - Transport of injured workers
 - Emergency contact phone numbers
- Contents

DEFINITIONS

G20.1 [Construction project – routine maintenance](#)

GENERAL REQUIREMENTS

G20.2(1)/20.2.1(1) [Notice of project](#)

G20.2(1)(e) [Bell holes](#)

G20.2.1(1) and (2) [Notice of project for hazardous substances – Ongoing asbestos work](#)

G20.2.1(2)(c) [Notice of project – Significant disturbance of lead-containing material](#)

G20.2.1(2)(d) [Notice of project – Other similar exposure work activities](#)

G20.3-1 [Labour supply firms and construction employers – Responsibilities](#)

G20.3-2 [Qualified coordinators](#)

SAFE WORK AREAS AND SAFE ACCESS

G20.4(1) [Suitable ladders, work platforms, and scaffolds](#)

G20.4(2) [Suitable access for safe delivery of equipment and materials](#)

G20.5(5) [Responsibilities for employers to provide stairways to work levels during construction](#)

G20.9 [Protection from falling materials](#)

G20.13(3.1) [Ensuring loads do not exceed capacity of thrust-out platforms](#)

G20.14 [Temporary cribbing support in house lifting operations](#)

CONCRETE FALSEWORK AND FORMWORK

G20.26 [Inspections](#)

CONCRETE PUMPING

- G20.40 [Use of outriggers on concrete pumping equipment](#)
- G20.47(1) [Inspection and certification of masts](#)
- G20.47(2)-(4) [Inspection and certification of concrete pump and placing booms](#)

OPEN WEB JOISTS AND TRUSSES

- G20.72 [Open web joists and trusses](#)

ROOF WORK

- G20.75 [Roof work – Fall protection](#)
- G20.77 [Mechanical equipment](#)

EXCAVATIONS

- G20.78 [Qualified registered professional and engineering documents](#)
- G20.78(1)(c) [Vibration, hydrostatic pressure or hazardous ground movement](#)
- G20.78(1)(d) [Ground slope adjacent to excavation work](#)
- G20.79 [Underground utilities](#)
- G20.81 [Sloping and shoring requirements](#)
- G20.85 [Trench support structures](#)

MARINE CONSTRUCTION, PILE DRIVING AND DREDGING

- G20.102 [Suspended work platforms in marine construction and pile driving activities](#)

DEMOLITION

- G20.112 [Hazardous materials – Asbestos](#)

WORK IN COMPRESSED AIR

- G20.123 [Alternate acceptable standard](#)

Guidelines Part 20 - Definitions

G20.1 Construction project – Routine maintenance

Issued August 1999; Editorial Revision June 14, 2013

Regulatory excerpt

Section 20.1 of the *OHS Regulation* ("*Regulation*") states

"*construction project*" means any erection, alteration, repair, dismantling, demolition, structural or routine maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling, blasting, concreting, the installation of any machinery or any other work deemed to be construction by the Board;

Purpose of guideline

The purpose of this guideline is to explain what routine maintenance is with respect to a construction project.

Routine maintenance

The definition of a construction project includes reference to "routine maintenance." Routine maintenance includes activities such as painting or glass replacement that are required as part of owning and operating a building or facility. An NOP is not required unless a particular maintenance project triggers one of the criteria listed in section [20.2](#) of the *Regulation*, for example, if the total cost of a painting project will exceed \$100,000.

Guidelines Part 20 - General requirements

G20.2(1)/20.2.1(1) Notice of project

Issued August 1999; Editorial Revision October 2004; Editorial Revision February 25, 2013; Formerly issued as part of G20.2(1) – Re-issued as Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 20.2(1) of the *OHS Regulation* ("*Regulation*") states, in part:

Subject to subsection (4) either the owner or the person engaged by the owner to be the prime contractor on a construction project must ensure that the Board receives, in writing, a notice of project that contains the information required by subsection (2) at least 24 hours before work on the construction project begins at the worksite if any of the following apply

...

Section 20.2.1(1) of the *Regulation* states:

Subject to subsections (3) and (6), if a construction project involves a work activity set out in subsection (2), all employers responsible for the work activity and either the owner or the person engaged by the owner to be the prime contractor on a construction project must ensure that the Board receives, in writing, a notice of project that contains the information required by subsection (4) at least 48 hours before work activity begins at the worksite.

Purpose of guideline

The purpose of this guideline is to provide information on how to submit a notice of project (NOP) and to explain WorkSafeBC's discretion with respect to site inspections.

Submitting NOPs

NOP forms may be submitted online (preferred method) at <https://www.worksafebc.com/en/for-employers/just-for-you/submit-notice-project>.

A paper version of the NOP form may also be completed and submitted to WorkSafeBC. The forms can be ordered from WorkSafeBCStore.com

WorkSafeBC prevention officers and managers monitor the notices regarding activity in their area and select projects for follow-up in accordance with their objectives, the nature of the project or other circumstances. WorkSafeBC is not obliged to initiate a site inspection in every case when an NOP is received.

G20.2(1)(e) Bell holes

Issued August 1999; Editorial Revision January 1, 2009; Formerly issued as part of G20.2(1)(f) – Re-issued as Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 20.2(1)(e) of the *OHS Regulation* ("*Regulation*") states:

(1) Subject to subsection (4), either the owner or the person engaged by the owner to be the prime contractor on a construction project must ensure that the Board receives, in writing, a notice of project that contains the information required by subsection (2) at least 24 hours before work on the construction project begins at the worksite if any of the following apply:

...

(e) a worker may be required to enter

(i) A trench over 30 m (100 ft) long, or

(ii) An excavation, other than a trench, over 1.2 m (4 ft) deep.

Purpose of guideline

The purpose of this guideline is to specify when bell holes are considered to be a trench.

Bell holes

Work around underground pipe and conduits usually involves digging "bell holes" for maintenance such as fixing leaks or breaks, or servicing valves. A bell hole is considered to be a trench, as long as the criteria in the definition for a *trench* in [section 20.1](#) of the *Regulation* are met. This means its width at the bottom cannot exceed 3.7 metres (12 feet). If the work related to a bell hole excavation triggers one of the criteria listed in [section 20.78](#) requiring a qualified registered professional or engineer's instructions, or invokes one of the criteria listed in [section 20.2](#), an NOP is required.

G20.2.1(1) and (2) Notice of project for hazardous substances – Ongoing asbestos work

Issued November 19, 2008; Revised consequential to February 1, 2012 Regulatory Amendment; Formerly issued as part of G20.2(1)(c) – Re-issued as Editorial Revision consequential to May 1, 2017 Regulatory Amendment; Editorial Revision November 13, 2020

Regulatory excerpt

Sections 20.2.1(1) and (2) of the *OHS Regulation* ("*Regulation*") state:

(1) Subject to subsections (3) and (6), if a construction project involves a work activity set out in subsection (2), all employers responsible for the work activity and either the owner or the person engaged by the owner to be the prime contractor on the construction project must ensure that the Board receives, in writing, a notice of project that contains the information required by

subsection (4) at least 48 hours before the work activity begins at the worksite.

(2) The following are work activities for the purposes of subsection (1):

- (a) a work activity that involves working with or in proximity to asbestos-containing material, as defined in section 6.1, that is a moderate risk work activity or a high risk work activity as defined in that section;
- (b) the alteration, repair, dismantling or demolition of all or part of a building or structure in which asbestos-containing material has been processed, manufactured or stored;
- (c) a work activity that significantly disturbs lead-containing material in buildings or structures;
- (d) a work activity that is similar to those described in paragraphs (a) to (c) and that may expose workers to a significant risk of occupational disease from a biological or chemical agent or ionizing radiation.

Purpose of guideline

This guideline outlines the requirements for the submission of a notice of project (NOP-H) specifically in regards to asbestos for short-duration, intermittent repair, maintenance, or clean-up work. The guideline is for use by employers who conduct periodic repairs or other minor disturbances of friable asbestos-containing materials, as part of an ongoing operations and maintenance program, and for certain types of periodic emergency repair or debris cleanup.

Background information

There are situations where an employer may need to conduct a number of jobs that affect asbestos-containing material over an extended period.

This is typically routine work, following a set of prescribed procedures for a variety of tasks, performed by assigned staff who are trained and supervised in these procedures. The NOP-H (specific to asbestos) for ongoing work allows the employer to perform this work without submitting a separate NOP each time one of these routine tasks is performed.

When should an NOP-H be submitted?

The *Regulation* requires that an NOP-H be submitted at least 48 hours before beginning a moderate-risk work activity or a high-risk work activity, as defined in [section 6.1](#), involving asbestos-containing material, or the alteration, repair, dismantling, or demolition of all or part of a building or structure where asbestos-containing material has been processed, manufactured, or stored.

NOP-H (specific to asbestos) for ongoing intermittent repair or maintenance work

With the prior permission of WorkSafeBC, an employer may submit a single NOP-H for work with asbestos-containing material that may take place over an extended period of time. This will be of use to employers who conduct periodic minor repairs or other minor disturbances of asbestos-containing materials as part of an ongoing operations and maintenance program, and for certain types of periodic emergency work. An initial ongoing NOP-H will typically be accepted for a period of one year. A subsequent ongoing NOP-H may be accepted for periods of up to three years.

Permission for an ongoing NOP-H for intermittent repair or maintenance work will normally only be granted for the following:

- Moderate-risk work activity, as defined in *Regulation* [Part 6](#)
- Routine work of short duration, not more than one day or one shift at a time
- Work involving a minimal disturbance of asbestos-containing materials (e.g., replacing several loose asbestos floor tiles; drilling a few holes through asbestos-containing drywall mud or floor tile to mount brackets, frames, or to install floor sills; replacing several asbestos-containing ceiling tiles; removing or making minor modifications to asbestos cement products; boiler inspection and/or cleaning; repair of a small section - less than one standard 4 ft. x 8 ft. sheet - of gypsum board that contains asbestos filler compound)
- Periodic emergency cleanup of possible asbestos-containing debris or materials that have been left or dumped inappropriately

An ongoing NOP-H will not be granted for work that includes abatement or demolition of asbestos-containing materials that would normally be performed by an asbestos abatement or restoration contractor.

A request for ongoing NOP-H should include the following information:

- The information required in an NOP as specified in *Regulation* [section 20.2.1\(4\)](#)
- Confirmation that the employer's exposure control plan for asbestos complies with [section 5.54](#) of the *Regulation*
- Evidence of an up-to-date asbestos inventory for the site(s) if applicable
- The site-specific safe work procedures to be used, including maximum quantities
- Confirmation that the procedures will be performed by adequately trained, instructed, and supervised employees of the applicant employer

Application/decision process

For an ongoing NOP-H, the applicant should submit the request to the applicable manager, Prevention Field Services (the Manager) or to Prevention Support Services (PrevNOP@worksafebc.com or fax 604.276.3247). To apply for the ongoing NOP-H, the online NOP form should not be completed.

The Manager will issue a decision in a letter in consultation with a local occupational hygiene officer who may do a site visit and speak with a number of persons as part of the consideration process.

The decision letter may contain special requirements such as the following:

- A log record must be kept of each job performed. The record should include the project location, date, duration, hours of work, number of workers, nature/description of the work (including the amount of material that may be removed or dislodged), and confirmation of the risk level (e.g., moderate risk)
 - The log record must be readily available to WorkSafeBC
- The Manager will ensure an electronic copy of the decision letter is retained. The employer must ensure the decision letter and NOP-H are available at the worksite during the work activity.

If any of the procedures, terms, or conditions of the NOP-H and the decision letter are not met or followed, the permission may be cancelled and compliance activity undertaken.

G20.2.1(2)(c) Notice of project – Significant disturbance of lead-containing material

Issued consequential to May 1, 2017 Regulatory Amendment; Editorial Revision October 28, 2019

Regulatory excerpt

Sections 20.2.1(1) and (2) of the *OHS Regulation* ("Regulation") state:

(1) Subject to subsections (3) and (6), if a construction project involves a work activity set out in subsection (2), all employers responsible for the work activity and either the owner or the person engaged by the owner to be the prime contractor on the construction project must ensure that the Board receives, in writing, a notice of project that contains the information required by subsection (4) at least 48 hours before the work activity begins at the worksite.

(2) The following are work activities for the purposes of subsection (1):

- (a) a work activity that involves working with or in proximity to asbestos-containing material, as defined in section 6.1, that is a moderate risk work activity or a high risk work activity as defined in that section;
- (b) the alteration, repair, dismantling or demolition of all or part of a building or structure in which asbestos-containing material has been processed, manufactured or stored;
- (c) a work activity that significantly disturbs lead-containing material in buildings or structures;
- (d) a work activity that is similar to those described in paragraphs (a) to (c) and that may expose workers to a significant risk of occupational disease from a biological or chemical agent or ionizing radiation.

Purpose of guideline

The *Regulation* specifies a requirement to submit a notice of project (NOP) for certain construction activities if it is anticipated that a work activity will significantly disturb lead-containing material in buildings or structures.

This guideline provides further explanation of the work activities that significantly disturbs lead-containing materials in buildings or structures. Also, this guideline provides examples of work activities that normally would *not* require an NOP form to be submitted.

Significant disturbance of lead-containing materials

An NOP must be submitted for a work activity that significantly disturbs lead-containing materials in buildings or structures associated with a construction project. This lead work activity may expose workers to a significant risk of occupational disease where it generates lead dust, fumes, or mist in the air or on surfaces.

Workers are at significant risk of occupational disease if the following occurs:

- They breathe airborne lead dust, mist, or fumes at or above the action limit (half of the exposure limit for lead)
- There is likelihood of significant contamination of workers' hands and face with lead that there is a high risk the lead could be ingested
- They breathe or ingest enough lead to increase their blood lead body burden above background levels (0.1 micromoles per litre (µmol/L), or 2 micrograms per deciliter (µg/dL))

[Section 6.59.1](#) of the *Regulation* states that an employer must ensure that a risk assessment is completed by a qualified person for the planned lead activity. As part of the risk assessment, the scope, circumstances, and the nature of the work activity, as well as the potential routes of exposure are considered.

The following are some activities that are not expected to cause harm to a worker and would not normally require an NOP to be submitted:

- Conducting a site inspection to identify hazardous materials
 - Collecting samples and preparing a written report under section 20.112, hazardous materials
 - Determining the types of tasks required for the construction project
 - Estimating the cost of labour and materials for the project
 - Low risk and some low-moderate and moderate risk work activities that should not increase a worker's lead body burden
- Examples include the following:

- Light sanding or scraping a small area of lead-containing paint
- Applying lead-containing paint with a brush roller
- Installing or removing sheet metal containing lead
- Installing or removing bolts or screws covered with lead-containing paint
- Operating an excavator (within the cab) during building demolition
- Transporting sealed containers of lead waste
- Cleaning up small areas of lead-containing dust or debris

More information can be found in the WorkSafeBC Publication [Safe Work Practices for Handling Lead](#). Further explanation regarding low, low-moderate and moderate risk activities can be found in the WorkSafeBC Publication [Safe Work Practices for Handling Lead](#).

G20.2.1(2)(d) Notice of project – Other similar exposure work activities

Issued August 4, 2015; Formerly issued as part of G20.2(1)(c)(iv) – Re-issued as Editorial Revision consequential to May 1, 2017 Regulatory Amendment

Regulatory excerpt

Sections 20.2.1(1), (2) and (4) of the *OHS Regulation* ("*Regulation*") state:

(1) Subject to subsections (3) and (6), if a construction project involves a work activity set out in subsection (2), all employers responsible for the work activity and either the owner or the person engaged by the owner to be the prime contractor on the construction project must ensure that the Board receives, in writing, a notice of project that contains the information required by subsection (4) at least 48 hours before the work activity begins at the worksite.

(2) The following are work activities for the purposes of subsection (1):

- (a) a work activity that involves working with or in proximity to asbestos-containing material, as defined in section 6.1, that is a moderate risk work activity or a high risk work activity as defined in that section;
- (b) the alteration, repair, dismantling or demolition of all or part of a building or structure in which asbestos-containing material has been processed, manufactured or stored;
- (c) a work activity that significantly disturbs lead-containing material in buildings or structures;
- (d) a work activity that is similar to those described in paragraphs (a) to (c) and that may expose workers to a significant risk of occupational disease from a biological or chemical agent or ionizing radiation.

(4) The notice of project must contain the following information:

- (a) the name and contact information of all employers responsible for the work activity, of the owner and of the person engaged to be the prime contractor, if any;
- (b) the address of the construction project or its location in relation to the nearest highway;
- (c) the scope of the construction project and of the work activity;
- (d) the starting date and the estimated duration of the construction project and of the work activity;
- (e) the safe work procedures specific to the work activity, and the hazardous substance involved in the work activity, that will be used to minimize the risk of occupational disease to the workers;
- (f) if section 20.112 applies, a written report made under section 20.112(3)(e) and, if applicable, section 20.112(6)(e).

Purpose of guideline

The *Regulation* specifies a requirement to submit a notice of project (NOP) for certain construction activities related to asbestos and lead. The *Regulation* also specifies that an NOP must be submitted for similar construction work activities which may expose workers to a significant risk of occupational disease from a biological or chemical agent or ionizing radiation.

This guideline provides examples of other similar exposure work activities which may expose workers to a significant risk of occupational disease and for which an NOP needs to be submitted.

Construction activities and occupational disease

Section 20.2.1(2)(d) of the *Regulation* requires that an NOP be submitted when there are work activities associated with a construction project which may expose workers to a significant risk of occupational disease from a biological or chemical agent or ionizing radiation. Determination of which construction work activities may expose workers to a significant risk of occupational disease includes consideration of the following criteria:

- Workers may be exposed to hazardous substances during a work activity associated with a construction project (including demolition or renovation)
- Abatement or remediation activity is required before demolition or reconstruction can occur

- The activity may involve exposure to unknown, undetermined, or unexpected hazardous substances. For example, there may be unknown hazardous substances used in grow operations and methamphetamine labs, and workers may be exposed to them when demolition or reconstruction takes place
- Emerging knowledge about hazardous substances used during construction activities, e.g., as discovered by WorkSafeBC prevention officers or as published in the literature

The construction activities listed below may expose workers to a significant risk of occupational disease. For these activities, an NOP must be submitted at least 48 hours before starting the project and a copy of the NOP must be posted at the construction site before work commences.

Notices of project for these activities can be submitted online from the [WorkSafeBC NOP webpage](#) (preferred method). A paper version of the [Notice of Project \(NOP\) for Construction Projects](#) involving asbestos, lead, or other similar exposure work activity (Form# 52E49) can also be used. Guidance for submitting the NOP can be found in OHS Guideline G20.2(1) Notice of Project. Refer to the *Regulatory excerpt* section of this guideline for a list of the information that must be included in a submitted NOP, including safe work procedures specific to the work activity and, if applicable, the written report made under [section 20.112\(3\)\(e\)](#) or [20.112\(6\)\(e\)](#).

Other similar exposure construction work activities that require a notice of project to be submitted under this *Regulation* section

In addition to the requirements in section 20.2.1(2)(a), (b), and (c) of the *Regulation* for an NOP to be submitted for asbestos and lead-related construction activities, section 20.2.1(2)(d) of the *Regulation* requires that an NOP be submitted for at least the following construction activities:

1. Remediation of indoor marijuana-growing operations

Marijuana-growing operations use potentially hazardous chemicals, including fertilizers and pesticides. Significant mould growth can also be associated with these operations. Remediation of these operations will usually involve demolition and/or reconstruction and is considered to be construction activity.

When these facilities are investigated and eventually cleaned up, workers may be exposed to harmful levels of these substances.

An NOP must be submitted for any work involving the abatement, cleanup, or demolition of indoor marijuana-growing operations.

2. Remediation of clandestine chemical labs

During the production of illegal drugs, such as methamphetamines, a number of hazardous substances may be used, including phosphorous, iodine, ammonia, hydrochloric acid, lead, mercury, and other chemicals. These are in addition to the drugs themselves. When these facilities are investigated and eventually cleaned up, workers may be exposed to harmful levels of these chemicals.

An NOP must be submitted for work involving the abatement, cleanup, or demolition of clandestine chemical labs.

3. Mould remediation

Mould contamination may be obvious on walls, furnishings, and equipment or may be hidden behind walls, in conduits and chases, etc.

A worker's exposure to moulds is primarily through inhalation of airborne spores that cannot be seen without magnification. These spores can be released in very high concentrations if mouldy building material is disturbed, such as during remediation or demolition activities.

All moulds have the potential to cause health effects. Moulds produce allergens, irritants, and in some cases toxins that may cause reactions in humans. For a worker who has a compromised or sensitized immune system, health effects can be severe. For those individuals, exposure to pathogenic moulds or their toxic by-products may be associated with a variety of adverse health effects, including allergic reactions, asthma, pneumonitis with flu-like symptoms, infections of the upper airways, sinusitis, or other lung diseases.

An NOP must be submitted for work involving the remediation, cleanup, or demolition of mould-contaminated areas where the total surface area affected is greater than 10 contiguous square metres (100 contiguous square feet). Refer also to [OHS Guideline G4.79 Moulds and Indoor air quality](#). Also, Health Canada advises that professional assistance should be sought for remediation of these large mould problems.

4. Ionizing radiation

Ionizing radiation is a hazardous form of energy emitted by radioactive substances or generated by x-ray equipment. Ionizing radiation can be in the form of particles (e.g., neutrons, beta, alpha) or electromagnetic waves (e.g., gamma, X-rays).

Depending on the dose of radiation received, exposure to ionizing radiation can cause adverse health effects, such as radiation burns, acute radiation syndrome, and cancer to various tissues and organs.

Some construction-related work activities may expose workers to elevated levels of ionizing radiation that can lead to significant risk of occupational disease.

An NOP must be submitted for construction project work activities where workers may be exposed to ionizing radiation above the action level-effective dose of 1 milliSievert (mSv) per year, as defined in the *Regulation* section 7.17.

Some examples of construction work activities where workers' effective dose may exceed the action level of 1 mSv per year are as follows:

- Some types of non-destructive tests (e.g., industrial radiography using radioactive sources such as cobalt-60, iridium-192)
- Demolition or significant disturbance of building materials or structures that contain radioactive substances (e.g., uranium-containing glazed tiles emitting ionizing radiation, construction sites that require the removal or remediation of radioactive wastes from buildings or structures)
- Removal of significant quantities of industrial/commercial devices and equipment containing radioactive sources (e.g., some commercial

An employer is required to determine if a worker's exposure to ionizing radiation from the planned work activity will be over the action level of 1 mSv per year. Further information is available in the OHS Guideline G7.20(1)-1 Exposure control plan – General requirements to assist employers in determining whether a worker's annual exposure exceeds or may exceed 1 mSv.

To be consistent with section 7.18 of the Regulation, the NOP requirement does not apply to natural background radiation.

G20.3-1 Labour supply firms and construction employers – Responsibilities

Issued February 4, 2010; Revised April 13, 2011; Editorial Revision April 6, 2020

This guideline, dealing with the responsibilities of labour supply firms and their client construction firms toward temporary labour workers, has been expanded to apply generally to all industries. The new guideline is available here: [G-P2-21\(1\)-2 Labour supply firms and client employers – Responsibilities](#).

G20.3-2 Qualified coordinators

Issued April 27, 2010

Regulatory excerpt

Responsibilities for worker health and safety are established by the *Workers Compensation Act* ("Act") and the *OHS Regulation* ("Regulation"). Section 20.3 of the *Regulation* states:

20.3 Coordination of multiple employer workplaces

(2) If a work location has overlapping or adjoining work activities of 2 or more employers that create a hazard to workers, and the combined workforce at the workplace is more than 5,

(a) the owner, or if the owner engages another person to be the prime contractor, then that person must

(i) appoint a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the location, and

(ii) provide up-to-date information as specified in subsection (4), readily available on site, and

(b) each employer must give the coordinator appointed under paragraph (a)(i) the name of a qualified person designated to be responsible for that employer's site health and safety activities.

(3) The duties of the qualified coordinator appointed under paragraph (2)(a)(i) include

(a) informing employers and workers of the hazards created, and

(b) ensuring that the hazards are addressed throughout the duration of the work activities.

(4) The information required by subsection (2)(a)(ii) includes

(a) the name of the qualified coordinator appointed under subsection (2)(a)(i),

(b) a site drawing, which must be posted, showing project layout, first aid location, emergency transportation provisions, and the evacuation marshalling station, and

(c) a set of construction procedures designed to protect the health and safety of workers at the workplace, developed in accordance with the requirements of this Regulation.

1.1 Definitions

"qualified" means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof;

Purpose of guideline

The purpose of this guideline is to provide information regarding the qualifications of the qualified coordinator under subsection 20.3(2)(a)(i) of the *Regulation*.

Qualified Coordinator

Subsection 20.3(2)(a)(i) requires the owner or prime contractor of multiple employer construction workplaces that have more than five workers to appoint a qualified coordinator. At multiple employer construction workplaces, the role of the qualified coordinator is crucial to maintaining an environment that ensures worker health and safety. The qualified coordinator must ensure that there is communication to employers and workers of hazards present at the workplace, and that those hazards are continuously addressed as they arise.

"Qualified"

The coordinator must be "qualified". "Qualified" is a term defined in the *Regulation* as "being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof". What specific qualifications are required will depend on the nature of the work and the nature of the hazards created by that work. The qualified coordinator needs to possess experience in and an understanding of the work, including specific work processes and equipment used. Given that in order to fulfill the duties in subsection 20.3(3), the qualified coordinator is required to work with employers and workers at the workplace, the qualified coordinator should also have the ability to provide direction to others and to be able to effectively communicate with the employers and workers present at the workplace.

Ideally the qualified coordinator will possess some formal training or a trade certification that would suggest the person is capable of identifying and addressing hazards. However, a trade certification is not a specific requirement, provided that the qualified coordinator is knowledgeable of and experienced in the work being undertaken at the workplace.

Guidelines Part 20 - Safe work areas and safe access

G20.4(1) Suitable ladders, work platforms, and scaffolds

Issued August 13, 2008

Regulatory excerpt

Section 4.61 of the *OHS Regulation* ("*Regulation*") states:

Elevated walkways must be at least 50 cm (20 in) wide, and safe access to walkways must be provided by means of stairs, ramps or fixed ladders.

Section 13.1 of the *Regulation* states, in part:

"scaffold" means any temporary elevated work platform and its supporting structure used for supporting workers, materials or equipment;

"work platform" means an elevated or suspended temporary work surface used for supporting workers and includes a scaffold and boatswain's chair.

Section 13.6(1) of the *Regulation* states:

If work cannot be done from a ladder without hazard to a worker, a work platform must be provided.

Section 13.14(1) of the *Regulation* states:

The platform of each scaffold must

- (a) be a minimum nominal width of 50 cm (20 in), except that a nominal 30 cm (12 in) wide work platform may be used with ladder jacks, pump jack or similar systems,
- (b) not leave more than one opening in the work platform, which must be no greater than 25 cm (10 in) in width, and
- (c) if not level, be designed to ensure adequate footing for workers using the platform.

Section 20.4(1) of the *Regulation* states:

Where practicable, suitable ladders, work platforms and scaffolds meeting the requirements of [Part 13 \(Ladders, Scaffold and Temporary Work Platforms\)](#) must be provided for and used by a worker for activities requiring positioning at elevations above a floor or grade.

Purpose of guideline

The purpose of this guideline is to discuss suitable ladders, work platforms, and scaffoldings, and to specify that the top plate of interior or exterior walls, the top plate, or top walers used in concrete formwork, or other elevated surfaces narrower than a nominal width of 50 cm (20 in) are not considered suitable work platforms. Similarly, the guideline specifies that such surfaces are not acceptable elevated walkways. The guideline also discusses when a ladder is considered suitable.

Application

Section 20.4(1) of the *Regulation* requires, where practicable, suitable ladders, work platforms, and scaffolds must be provided to and used by workers when their work activities require positioning at elevations above a floor or grade. This includes heights above and below 3 m (10 ft). Work surfaces at elevations above 3 m, or where a fall from a height of less than 3 m involves a risk of injury greater than the risk of injury from the impact on a flat surface, must also comply with the requirements of [section 11.2](#) of the *Regulation* to use appropriate fall protection.

Suitable ladders, work platforms, and scaffolding

Whether or not a ladder, work platform, or scaffolding will be considered 'suitable' will depend on the intended use. For example, a ladder may be considered suitable when the intention is to only use it for short term, light duty work. However, if the nature of the use will require the maneuvering of heavy objects, such as guiding concrete pump hoses, a ladder would not be considered suitable, and a work platform or scaffolding should be

selected. In selecting suitable scaffolding or work platforms, employers have a number of options. Specifically, scaffoldings using manufactured scaffolding brackets, when installed and used in accordance with the manufacturer's instructions, are considered suitable. Single-pole wood scaffolds may also be suitable when properly installed and used. For more information on suitable ladders, work platforms, and scaffolding, see the following WorkSafeBC publications: [Safe Work Practices for House Construction](#) or [Construction Safety Series](#).

Top plate, top waler, or other surface less than 50 cm (20 in) wide is not a suitable work platform or scaffold

Section 20.4(1) of the *Regulation* requires, where practicable, suitable ladders, work platforms, and scaffolds must be provided to and used by workers when their work activities require positioning at elevations above a floor or grade. If a top plate or other elevated surface is to be used as a temporary work surface, such surfaces must satisfy the requirements for scaffolding and work platforms under [Part 13](#) of the *Regulation*. Under section 13.14(1)(a), the work platform of a scaffolding must be a minimum nominal width of 50 cm (20 in). The top plate of interior or exterior walls, the top plate or top waler of concrete formwork, the tops of floor or roof joists, the bottom cord of ceiling trusses, or other elevated surfaces narrower than a nominal width of 50 cm (20 in) do not meet this condition. Accordingly, failing to provide or use suitable alternatives to such surfaces where practicable is a violation of section [20.4](#) of the *Regulation*.

Elevated walkways

An elevated walkway includes any surface above a floor or grade used by workers or other persons at the workplace to move between two or more areas. Under section 4.61 of the *Regulation*, an elevated walkway must be at least 50 cm (20 in) wide. This includes top plates used to move from one section of a wall to another, or top walers or tops of concrete formwork used to move from one section of the formwork to another. For a worker to use any such surfaces as an elevated walkway, the surface must be at least 50 cm (20 in) wide. Providing and/or using the top plate of interior or exterior walls, the top plate or top waler of concrete formwork, the tops of floor or roof joists, the bottom cord of ceiling trusses, or other surface narrower than 50 cm (20 in) as an elevated walkway is a violation of section 4.61 of the *Regulation*.

Use of ladders only when there is no hazard to the worker

Under section 20.4 of the *Regulation*, a worker who requires positioning at an elevation above a floor or grade may be provided with and use a ladder when the ladder is considered 'suitable' and the requirements of Part 13 of the *Regulation* are met. Under section 13.6(1), if work cannot be done from a ladder without hazard to the worker, a work platform must be provided. To avoid exposing a worker to a hazard, work from a ladder should be limited to light duty work where the ladder will be at any one spot for sporadic, short-term work. This may include marking out where floor joists or trusses will be, or other activities where the worker can reasonably maintain three points of contact with the ladder. Work such as aligning floor joists or trusses, guiding concrete pump hoses, or other activities that require the worker to maneuver heavy objects, is not acceptable. These activities are considered to expose the worker to a hazard if conducted from a ladder. A failure to provide or use a work platform where work from a ladder exposes the worker to a hazard is a violation of section 13.6(1) of the *Regulation*.

G20.4(2) Suitable access for safe delivery of equipment and materials

Issued January 1, 2007; Editorial Revision April 6, 2020

Regulatory excerpt

Section 20.4(2) of the *OHS Regulation* ("*Regulation*") states:

There must be suitable access for the safe delivery of equipment and materials to locations in the workplace where they will be used.

Purpose of guideline

This guideline provides examples of "equipment and materials" under section 20.4(2) of the *Regulation*, discusses coordination among workplace parties, and provides examples of safe delivery, interior access, and material handling practices.

"Equipment and materials" under section 20.4(2)

Examples of equipment and materials delivered to building construction sites include but are not limited to drywall, appliances, cabinets, concrete, powered concrete finishing equipment, and trusses. Examples of equipment and materials delivered to road and municipal services construction sites include but are not limited to pipes, hydrants, valves, manhole sections, and portable powered compactors.

Coordination

Prime contractors, owners, employers, supervisors, sub-contractors, and delivery companies all have responsibilities, and must work together to plan and ensure that suitable access is maintained for safe delivery to locations where equipment and materials will be used. See general duty sections under the OHS provisions of the *Workers Compensation Act*.

Recommended planning activities include the following:

- Developing company and site policy and safe work practices for delivering materials and equipment
- Pre-planning the project to provide sufficient clear access points to the site to allow for the safe delivery of equipment and materials
- Coordinating delivery times with delivery companies

Safe delivery practices

The following practices, where applicable, can help ensure that materials and equipment are delivered safely:

- Clear ground access for telescoping boom forklifts or boom trucks, ensuring the area is
 - free of overhead hazards, such as power lines
 - graded and stabilized to provide a solid compacted soil surface or properly shored concrete slab.

- Maintain access routes to allow equipment to safely maneuver.
- Allow for several locations where materials can be delivered to a floor area.
- Make available access openings large enough to safely accommodate passing materials from the boom truck/forklift into the structure.
- Minimize manual handling by using boom trucks, lift trucks, or similar material handling equipment to deliver materials and equipment as close as possible to the location where they will be used. Provide sufficient clear access for the material handling equipment.
- Eliminate, where practicable, situations where workers manually handle large or heavy items on stairs.
Note: [Section 4.50](#) of the *Regulation* specifies the controls that are required to eliminate, if practicable, or minimize the risk of musculoskeletal injuries.
- Provide guardrail protection and/or anchor points on the structure at wall openings and balconies to enable workers to use appropriate fall protection when transferring materials from the boom truck/forklift into the structure (see also the requirements for fall protection under [Part 11](#) of the *Regulation* and guardrails under sections [4.58](#) and [4.58.1](#)).
- Install one or more windows temporarily on the inside of the wall to allow easy removal of the window. If windows are not large enough or accessible for the delivery of materials create a temporary access hatch at suitable locations in walls.

Safe interior access practices

Examples of safe interior access practices include the following:

- Distribute materials so that the floor in any area is not loaded beyond the permissible floor loadings
- Where appropriate, ensure there is sufficient access through framed walls inside the building; for example, ensure that plumbing and electrical wiring runs do not impede workers from carrying materials, such as wallboard, between wall studs to adjacent rooms
- Use guardrails to accommodate the safe movement of materials on stairways (see also the requirements for guards and guardrails under sections [4.58](#) and [4.58.1](#))
- Install stairs leading down to the basement before the delivery of materials to the basement, or if there is no access to the basement, designate areas on the floor where materials can be lowered
- Clear hallways and stairs of debris and equipment that may cause slipping and tripping hazards

Appropriate material handling equipment

Ensure material handling equipment, such as boom trucks, rough terrain cranes, forklifts, and telescoping boom lifts, are suitable for use on the site terrain and have sufficient reach and capacity to handle the equipment and materials to the location where workers can safely handle materials and equipment manually.

Note: [Section 4.3](#) of the *Regulation* provides that the employer must ensure that each piece of equipment in the workplace is capable of safely performing the functions for which it is used, and is selected, used, and operated in accordance with the manufacturer's instructions, safe work practices, and the requirements of the *Regulation*.

G20.5(5) Responsibilities for employers to provide stairways to work levels during construction

Issued March 7, 2011

Regulatory excerpt

Section 20.5(5) of the *OHS Regulation* ("*Regulation*") states:

A stairway comprised of at least framing, treads and a handrail must be provided to each floor level before construction of the next floor or deck surface is undertaken, and the treads on the stairway must not create a tripping or slipping hazard.

Purpose of guideline

Section 20.5(5) of the *Regulation* requires that a stairway must be provided to each floor level "before construction of the next floor or deck surface is undertaken." The purpose of this guideline is to specify when stairways must be installed during construction.

Next floor or deck surface

The purpose of the erection of a stairway during the building process is to provide a safe, easy method of access from one floor to the next during the construction process. A stairway must be in place as soon as practicable once the basic structure of the next level is in place, and before construction of the floor or deck surface on that next level begins. If work begins on the next floor or deck surface and no stairway to that level is in place, it will constitute a violation of section 20.5(5) of the *Regulation*.

For example, the construction of the first level of a new residential building has been completed. The joist and beam structure for the second level may be completed. As soon as possible and before beginning work on the floor or deck surface on the second level, a stairway must be erected from the first level to the second. The stairway may be temporary (consisting of at least framing, safe treads, and a handrail) or permanent. Stairs open on both sides (not against a wall or other structure) must have handrails compliant with [section 4.62](#) of the *Regulation* on both sides.

G20.9 Protection from falling materials

Issued August 1999; Editorial Revision June 14, 2013

Regulatory excerpt

Section 20.9(3) of the *OHS Regulation* ("*Regulation*") states:

Protective canopies must be designed and constructed to safely support all loads that may reasonably be expected to be applied to them, but in no case less than 2.4 kPa (50 psf).

Purpose of guideline

This guideline explains where more information may be found on the design of protective canopies and explains application of the regulatory requirement.

Protective canopies

Protective canopies are usually of wood frame design. Part 9 of the *BC Building Code* includes design tables for roof rafters and roof joists that are rated for 2.5 kPa. Minimum thickness for subflooring and roof sheathing are also specified. A qualified framer should be familiar with the Part 9 requirements and be able to interpret the tables correctly. Appendix A in the *BC Building Code* allows for the tabulated values to be extrapolated.

For example, in applications where a design loading of 5.0 kPa is more appropriate than 2.5 kPa, the spacing between rafters can be halved to achieve the rating.

A free-spanning canopy may not be required to achieve adequate protection. For example, since the roof of a typical mobile office trailer has probably not been designed for 2.4 kPa, additional protection could be achieved by laying sheets of plywood on the roof. Whether plywood alone is sufficient depends on the evaluated hazard. The impact of an object falling onto the plywood represents a dynamic load, and varies in magnitude with the falling object's mass and the fall distance. Other factors in this example include the stiffness of the falling object and of the plywood.

A heavy hard object falling from a great height onto a rigid surface will impose a high impact load. The minimum design value of 2.4 kPa may be inadequate if this is the potential exposure. Effective implementation will require the application of good judgment to properly identify the hazards.

G20.13(3.1) Ensuring loads do not exceed capacity of thrust-out platforms

Issued June 14, 2004; Revised May 17, 2006; Editorial Revision April 6, 2020

Regulatory excerpt

Section 20.13 of the *OHS Regulation* states:

- (1) A professional engineer must certify each thrust-out crane landing platform and certify that the building structure can adequately support loads to be imposed by use of the platform.
- (2) Thrust-out crane landing platform drawings and certification must be available on site when the platform is in place.
- (3) The rated capacity of a thrust-out crane landing platform must be clearly marked on the platform and not be exceeded.
- (3.1) Control measures acceptable to the Board must be implemented to ensure all loads placed on a thrust-out crane landing platform
 - (a) are safely supported, and
 - (b) can be safely attached to and detached from the rigging.
- (4) Thrust-out platform decking and supporting members must be designed to safely support any concentrated loads that may be landed.
- (5) Repealed (BC Reg. 420/2004).

Purpose of guideline

This guideline describes the measures WorkSafeBC considers acceptable under section 20.13(3.1), to ensure all loads placed on a thrust-out crane landing platform are safely supported and can be safely attached to and detached from the rigging. If a person wishes to use a control system not described in this guideline, an application would need to be made to WorkSafeBC, and the acceptability of that system affirmed in writing by WorkSafeBC before such a system is implemented.

To ensure safe operations on the platform, consideration must be given to more than individual loads placed on the platform by the crane. Other considerations include loads manually placed on the platform, multiple loads, load distribution and stability, as well as safe access for workers connecting and detaching the rigging from the load. The control measures outlined in this guideline involve work procedures or work procedures combined with engineering controls.

A system of nine control measures acceptable to WorkSafeBC is outlined below. The effective implementation of the system requires the fulfillment of the responsibilities by the prime contractor and the employer. The guideline provides three options for determining the weights of loads, and discusses two types of engineering controls that may be used as part of the system to ensure that platforms are not overloaded.

Responsibilities of the prime contractor and employers

The prime contractor, consistent with their responsibilities under section 24 of the *Workers Compensation Act* ("Act"), is responsible for ensuring that a control system, including appropriate supervision, is in place to prevent thrust-out platforms from being overloaded. That responsibility involves doing everything that is reasonably practicable to establish and maintain the system to ensure worker safety, and to ensure that the activities of employers, workers and other persons at the workplace are coordinated. It is reasonably practicable for the prime contractor to

ensure that a control system for thrust-out platforms as described in this guideline is established and maintained.

The employer who arranges for the thrust-out platform to be brought on-site and used must also ensure the safe use of the platform, consistent with their responsibilities under section 21(1) of the *Act* to protect their workers and any other workers present at the workplace where that employer's work is being carried out. This is typically the formwork contractor.

If another employer wishes to use the thrust-out platform, or if the formwork contractor leaves the site, the ongoing responsibilities of the prime contractor are the key to worker safety, both to ensure the activities of new employers are properly coordinated and that the necessary steps are taken to ensure the safe use of the platform.

Control system

The system for controlling the risks when using thrust-out crane landing platforms includes assigning responsibilities to affected workers, ensuring the rated capacities of platforms are marked and known, ensuring the weights of all loads to be placed on the platform are known, ensuring the platform size is compatible with the loads to be placed on the platform, and a system of supervision is in place. The control system will include the following:

1. **Responsibilities of crane operator:** The crane operator has responsibilities that include ensuring that the weight of any load to be landed on the thrust-out platform does not exceed the platform capacity.
2. **Responsibilities of riggers:** Riggers are responsible for determining weights of loads to be lifted and communicating the weights to the crane operator, as provided under options A, B or C below. Riggers are to be designated by a responsible authority on-site, and should be qualified to perform their duties by reason of training, education, experience or a combination. Riggers are responsible for ensuring only loads that can be safely attached or detached from the rigging are placed on the platform.
3. **Ensuring rated capacities of platforms are known:** Each thrust-out landing platform must be clearly marked with its rated capacity in accordance with section 20.13(3) of the *OHS Regulation*. The rated capacities of the thrust-out landing platforms are to be made known to the crane operator, to the rigger, and to any other affected person, such as the worker who is monitoring the accumulated loads on thrust-out platforms. An effective means should be in place to ensure these persons can access the information on the rated capacity without delay.
4. **Ensuring an effective means for determining the weights of loads to be lifted by a crane:** There are three acceptable options in this guideline for determining the weights of loads: A) an administrative option in which a list of expected weights of loads is used, B) a load cell on the crane, and C) use of a load weighing device on-site. These options are explained in more detail at the end of this list of control measures.
5. **Ensuring an effective means for determining the weights of loads to be placed manually on the platform:** The weights of materials or equipment manually placed on the platform will be determined before they are placed. The weights may be determined by calculation, by reference to appropriate documents, or by weighing the load.
6. **Monitoring the total load placed on the platform:** A person will be responsible to ensure cumulative loads placed on the platform do not exceed the rated capacity and that the loads are evenly distributed.
7. **Ensuring there is adequate space on the platform:** The platform area must be sufficient to allow all loads to be placed such that they will be stable. Generally this will require the loads to fit within the periphery of the platform. Riggers must have sufficient room to access rigging points on the load.
8. **Ensuring an effective system of supervision in place:** Supervision is to be provided to ensure the required work procedures are followed.
9. **Ensuring the procedures are made known to all affected workers:** This can be done by posting the written procedures on a bulletin board and advising affected workers of them, or by other effective means. Posted procedures need to be kept in legible condition.

Options for determining the weights of loads under element #4 of the control system

A. Administrative option: For this option to be acceptable to WorkSafeBC all the following measures will be in place:

- A list of the weights of items to be placed on the platform will be available.
- The list will include all the equipment, materials, and other items expected to be placed and will provide the weights for each.
- If a garbage box is to be used, the all-up weight of the garbage box will be included in the list. The all-up weight for a garbage box is its dead weight (that is, weight when empty) combined with its rated capacity. For example, if the dead weight of a garbage box is 600 lbs. and the garbage box is rated for 4,000 lbs, the list must show the all-up weight for the box, which is 4,600 lbs;
- The list is to be provided to the crane operator, to the rigger, and to any other necessary person, and posted at each platform.
- The rigger is responsible for ensuring the bundled loads are in accordance with the supplied list (number of pieces, size, length, etc.). In the case of loads manually placed on the platform, the person placing the load on the platform is responsible for ensuring bundled loads are in accordance with the supplied list.
- If an item to be lifted is not on the list, the weight must be determined before it is placed on the platform. In the case of lifted loads, the rigger is responsible to determine the weight of the item and to communicate the weight to the crane operator. If there are repeat lifts of such an item, the list will be updated to include it. If the rigger does not know the weight of a load or cannot with substantial certainty estimate it, then the load is not to be lifted.

B. Load cell on the crane: Under this option, the employer responsible for the crane is to ensure there is an electronic load cell that registers the weight of each load being lifted and displays it to the operator at the controls. Administratively, this is the least complex system, as the crane operator will know the weights directly. There is no need for the rigger to advise the operator of weight information, except when an operator requests an advance estimate before the lift.

C. Load weighing device on-site: This option involves the use of a weighing device separate from the crane. The device is to be used whenever

the rigger and crane operator do not have advance information on the weight of a load to be lifted. If the weight displayed by the device cannot be directly observed by the crane operator, it is the responsibility of the rigger to ensure that the weight is communicated to the crane operator.

Engineering controls for limiting the load placed on a platform by a crane

Either of the following two engineering controls may be used to help ensure that a single load placed by a crane does not exceed the rated capacity of a thrust-out platform

- Use of a crane for which the rated capacity at the radius for placing loads on the thrust-out platform does not exceed the rated capacity of the platform
- Adjustment of overload limit switches to effectively reduce the lifting capability of the crane so that it does not exceed the rated capacity of the thrust-out platform

If such controls are used, the overall control system must still ensure that the platform is not overloaded in circumstances such as multiple loads placed by a crane on the platform, and manual placement of loads on it. In addition, the platform must have adequate space for loads.

G20.14 Temporary cribbing support in house lifting operations

Issued December 16, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Section 20.14 of the *OHS Regulation* ("*Regulation*") states:

20.14 Temporary support

During the erection or dismantling of a structure or equipment the employer must ensure that all partially assembled structures or components are supported as necessary to safely withstand any loads likely to be imposed on them.

Section 4.34 of the *Regulation* states:

4.34 Restricted entry

Hazardous areas not intended to be accessible to workers must be secured by locked doors or equivalent means of security, and must not be entered unless safe work procedures are developed and followed.

Purpose of guideline

The purpose of this guideline is to provide information and best practices about providing temporary supports to structures during house lifting operations.

House lift design and planning

Lifting a house is a complex task that requires proper planning and a high level of expertise. Section 20.14 of the *Regulation* provides that the employer must ensure that all partially assembled structures or components are supported as necessary to safely withstand any loads likely to be imposed on them. In order to ensure that the temporary cribbing support system is capable of withstanding the loads, pre-planning for a house lifting operation should generally include a design drawing prepared by a professional engineer registered in B.C. The design drawing may be site-specific or standardized.

House lift drawing requirements

In order to demonstrate that the temporary cribbing supports can withstand any loads likely to be imposed on them, a house lift drawing (whether site-specific or standardized) should typically include the following information:

1. The intended purpose, authorized users, and application for the drawing.
2. The requirements and restrictions for those using the drawing (such as specific material or site conditions, design wind loading, specific aspects requiring higher level oversight or connection requirements).
3. Assumptions made, referenced codes and, where applicable, the factors of safety used in producing the drawing.
4. Limitations on the application of the drawing.
5. The maximum length of time that the house can be safely supported by temporary cribbing supports before the professional engineer responsible for the house lift drawing must be contacted.
6. Requirements, procedures, and frequency of inspection for the temporary cribbing supports while the house is supported.
7. Critical conditions and scenarios where the design engineer must be contacted immediately.
8. The material grades and specifications of all support beams, cribbing, and temporary bracings.
9. The type of bearing (soil, concrete, etc.), allowable bearing pressure, and site preparations required to adequately support the temporary cribbing supports and lifting/lowering operations.
10. Shimming requirements.
11. The name, signature and seal of the professional engineer responsible for the drawing.
12. The perimeter of the base of the house after it is raised to the temporary support level.
13. The location and direction of the existing horizontal framing elements, joists and beams that are to be supported at the temporary support level.
14. The location of the existing bearing walls and post/beams above the temporary support level.
15. The location, direction and size of temporary support beams.
16. The location, size and height of temporary support cribs (including dimensions between crib centerlines and from the building perimeter to

17. crib centerlines) and maximum loading on the support cribs.
 18. The size, orientation, and arrangement of individual timbers in the temporary support cribs.
 19. The site address.
- A north arrow to identify the orientation of the house.

Standardized house lift drawings

A standardized house lift drawing is designed to accommodate multiple job sites that meet certain predetermined design parameters and limitations.

It allows the user to extract the engineering information required for a house lift drawing based on the specific conditions of the job site. A standardized house lift drawing will generally include member selection tables, schematic diagrams, design limitations and engineering specifications.

It will also include the date the drawing was signed and the date after which the drawing is no longer valid or applicable.

When a standardized house lift drawing is used, the user should identify and document all site-specific details, such as the existing house plan and framing details, and the locations of the temporary support elements (items 12 to 19 listed above). Standardized house lift drawings are intended to be used by individuals who are knowledgeable and competent, and have adequate training and experience in house lifting.

When a standardized design drawing is used, the employer conducting the house lifting operation will normally:

1. Obtain documented authorization from the professional engineer responsible for the standardized house lift drawing that the drawing may be used by the employer. This may include, for example: a written agreement, an email, or a notation on the drawing stating the authorized employer's name.
2. Discuss the standardized house lift drawing with the professional engineer responsible to ensure that the limitations of the drawing are understood by the employer.
3. Seek assistance from a professional engineer when the applicability of a standardized house lift drawing is in question or unforeseen circumstances make the drawing not applicable.

Special considerations

There are cases where, in order to ensure that all partially assembled houses or components are supported as necessary to safely withstand any loads likely to be imposed on them (section 20.14), the employer may need to engage a professional engineer to provide site-specific direction and design on support beams, cribbing, other temporary support members, lifting and lowering procedures, or other measures. Some cases where site-specific engineering direction is typically needed include, but are not limited to, the following:

1. The house is not comprised of typical wood platform frame construction.
2. The house utilizes post-and-beam or balloon frame construction.
3. The house's wall sheathing, interior wall finishing, floor sheathing, or roof sheathing is either in poor condition or not intact.
4. The house contains additions or unconventional structural elements which produce unorthodox framing or unusual load paths.
5. The house is structurally unfinished or damaged.
6. The integrity of the house and any adjoining structures could be compromised by house lifting or lowering operations.
7. The house contains masonry chimneys, masonry cladding or other non-structural elements which require temporary support or bracing prior to house lifting operation.

Employer responsibilities

All employers involved in the house lifting operation have responsibilities to ensure worker safety at various stages of the project. Some of those responsibilities include:

Prior to the house lifting operation

1. Ensuring all hazards associated with utility connections to the house (water, sewer, gas, electrical, etc.) have been assessed and controlled prior to the lifting operation.

During house lifting and lowering operations

1. Ensuring site supervision responsibilities are clearly identified and assigned to a competent site supervisor, who will be on site to perform supervisory responsibilities during house lifting and lowering operations.
2. Ensuring adequate supervision is provided during site layout, installation of support beams and cribs, and house lifting and lowering operations.
3. Ensuring the house does not contain any unconventional structural additions, unorthodox framings, or unexpected load paths; if any such conditions exist, the employer will seek assistance from a professional engineer.
4. Ensuring no persons occupy the house at any time during house lifting and lowering operations.
5. Prohibiting access and securing the house in accordance with section 4.34, so it is inaccessible to workers at any time during house lifting and lowering operations.
6. Ensuring support beams and cribs are properly selected based on the house lift drawing.
7. Ensuring support beams and cribs are arranged to properly support the building and all floor joist spans in accordance with the house lift drawing.
8. Ensuring proper bracing for non-structural parts of the house, when required, is provided in accordance with the house lift drawing or the professional engineer's specification.
9. Ensuring all temporary support elements are made of properly graded materials in accordance with the house lift drawing.
10. Ensuring all crib timbers, timber support beams, and any other temporary timber support elements are in good condition and free of splits,

- decay, or any type of physical damage which could reduce the strength of the timber.
11. Ensuring all jacking timbers are of full dimension and free of splits, checks, notches, or knots directly below the jacking point.
 12. Ensuring all steel support beams are in good condition and free of any physical damage, fatigue damage, fabrication defect, deformation, or corrosion with noticeable section loss which could reduce the strength of the beam.
 13. Ensuring all support beams, jacks, jacking timbers, and cribs are maintained plumb at a maximum half-inch in 4 feet and level to a maximum half-inch in 4 feet at any time during house lifting and lowering operations.
 14. Ensuring an adequate contact area at the contact points between all crib timbers on every layer of cribbing; wedges and shims as prescribed on the house lift drawing may be installed to obtain the required contact area.
 15. Ensuring support beams are placed on temporary cribbing supports as specified on the house lift drawing.
 16. Ensuring an adequate number of load sharing blocks are provided at jacking blocks and the bearing points under support beams in accordance with the house lift drawing.
 17. Ensuring an adequate number of crib timbers are provided at the bottom layer of cribs to achieve sufficient bearing on the supporting soil in accordance with the house lift drawing.
 18. Ensuring any existing concrete slabs or pads, if present, that will be used to support cribs are adequate for this purpose.
 19. Ensuring no other work is conducted during the jacking operation.
 20. Ensuring the stability of the foundation walls is not jeopardized and adequate temporary supports to the walls are provided as needed.
 21. Conducting and documenting visual inspections to identify any shifting of supports or movement of the house during house lifting and lowering operations.

While a house is supported on temporary cribbing supports

1. Ensuring site supervision responsibilities are clearly identified and assigned to a competent site supervisor, who will be on site to perform supervisory responsibilities while the house is supported on temporary cribbing supports.
2. Prohibiting access and securing the house in accordance with section 4.34, so it is inaccessible to workers at any time the house is supported by any kind of temporary supports.
3. Ensuring the house is not left on temporary cribbing supports longer than the maximum time specified on the house lift drawings. The employer will consult with the professional engineer responsible for the house lift drawing if the house must remain on temporary cribbing supports beyond the maximum duration specified on the house lift drawing.
4. Ensuring regular visual inspections are conducted and documented to identify any shifting of supports or movement of the house (at a minimum, the frequency of inspections must meet the interval specified on the house lift drawing).
5. Ensuring all support beams and cribs are maintained plumb at a maximum half-inch in 4 feet and level to a maximum half-inch in 4 feet at any time the house is supported by any kind of temporary supports.
6. Ensuring all cribs and support beams remain undisturbed, are not exposed to any unintended loads, and are not used for any purpose other than supporting the house.
7. Ensuring no water collects in or around the base of the cribs.
8. Ensuring there is no settlement of the ground supporting the cribs.
9. Ensuring there is no excavation below the crib base level unless authorized by a professional engineer.

Other applicable regulations

In addition to section 20.14, all other applicable sections of the *Regulation* and the *Workers Compensation Act* must be complied with during a house lifting and lowering operation involving temporary cribbing supports. This includes, but is not limited to, the following sections:

1. Section 4.2 of the *Regulation* states that the employer must ensure that each building and temporary or permanent structure in a workplace is capable of withstanding any stresses likely to be imposed on it.
2. Section 20.2(1) of the *Regulation* requires that, in certain circumstances, a notice of project (NOP) be filed at least 24 hours before starting a construction project. This includes when the total cost of labour and materials for the work exceeds \$100,000, or when all or part of the permanent or temporary works (except pre-engineered or pre-manufactured building and structural components) are required to be designed by a professional engineer.
3. Section 20.79 of the *Regulation* provides that before excavating or drilling with powered tools and equipment, the location of all underground utility services in the area must be accurately determined, and any danger to workers from those utility services must be controlled.
4. Sections 20.111-20.121 of the *Regulation* apply when a structure is to be demolished in whole or in part (the term "demolition" is defined in Section 20.1).
5. Sections 21-30 of the *Act* set out the general duties of employers, workers and other workplace parties.

Guidelines Part 20 - Concrete falsework and formwork

G20.26 Inspections

Issued August 1999; Editorial Revision April 9, 2008; Revised consequential to December 1, 2013 Policy Deletion; Revised consequential to February 1, 2015 Regulatory Amendment; Revised consequential to June 3, 2019 Regulatory Amendment

Regulatory excerpt

Section 20.26 of the *OHS Regulation* ("*Regulation*") states, in part:

- (1) Subject to subsection (4), immediately before placement of concrete or other intended loading of specified formwork and any

associated falsework or reshoring, the employer must ensure that

(a) the formwork, falsework and reshoring are inspected by a professional engineer, and

(b) the professional engineer issues a certificate that

(i) indicates the specific areas inspected, and

(ii) certifies that the formwork, falsework and reshoring have been erected in accordance with up-to-date worksite-specific plans.

(2) The certificate required by subsection (1) (b) must be available at the worksite for inspection by an officer.

(3) If ganged forms are being reused on the same worksite with any modification to the design or method of erection of the ganged forms, subsection (1) applies in relation to the reuse of the ganged forms.

Purpose of guideline

This guideline discusses the following:

- Meaning of "other intended loading" and "immediately before"
- Engineering certification when reusing a gang form
- Acceptable means of conducting inspections and issuing a certificate

Meaning of "other intended loading" — section 20.26(1)

When considering this issue, there is a need to keep a broad perspective on the application of sections [20.17 to 20.26](#) of the *Regulation*. The broad perspective is that falsework is often used to support loads temporarily during construction which are completely unrelated to any concrete formwork. These sections of the *Regulation* refer to concrete formwork and falsework.

Falsework is often used during the erection of steel structures and bridges to temporarily support members until such time as the structural elements can be connected together and braced to be self-supporting and provide a complete structural system. Falsework may also be required and used during the dismantling or demolition of a structure.

Section 20.26(1) of the *Regulation* is not intended to cover the use of falsework during the erection or demolition phases of structures. The reason for this is that sections 20.17 to 20.26 of the *Regulation* only apply to specified formwork and any associated falsework or reshoring that are used to install cast-in-place concrete (as noted in section 20.16.2 of the *Regulation*).

The employer has responsibility under sections [4.2](#), [20.6\(2\)](#), [20.14](#), [20.15](#), and [20.23 \(2\), \(3\), and \(4\)](#) of the *Regulation* to ensure that any structures or equipment which are being erected, used or dismantled are properly managed to ensure the stability of the structure and that no overloading of any elements takes place. It is under these sections of the *Regulation* that loads such as bundles of reinforcing steel or sheeting material have to be managed. Such loads are not intended to be within the scope of "or other intended loading" in section 20.26(1). Hence no inspection and engineering certification under section 20.26(1) should be required prior to their placement.

Meaning of "immediately before"

The phrase "immediately before" generally means the inspection be done not more than 24 hours prior to the start of concrete placing, and after construction of the formwork for the particular concrete pour has been substantially completed. Inclement weather subsequent to the inspection, or other causes for delay of the concrete placing, will normally necessitate an additional inspection and a professional engineer to revalidate the inspection certificate.

Reuse of gang forms after modifications - section 20.26(3)

Section 20.26(3) of the *Regulation* requires that an inspection be conducted and a certificate issued by a professional engineer if ganged forms are being reused and there has been any modification to the ganged forms or method of erection.

The ganged forms include not only the form (mould) but also the braces and other supporting elements, ties, and associated hardware. Note that [section 20.20\(1\)\(b\)\(vii\)](#) states that worksite-specific plans must include details of supports, including dimensions and locations of external braces, ties, and other supporting devices.

For the purposes of section 20.26(3), modifications to the gang form design include, but are not limited to, any change to the following:

- Ganged forms' dimensions
- Number of ties
- Tie spacing
- Bracing of the ganged forms
- Connection details

Modifications to the method of erection include, but are not limited to, any change to the following:

- The support elements
- Design of the pick points
- The attachment of work platforms

Inspections and certificates

The professional engineer who signs, seals, and issues the written certificate prior to each concrete placing, or application of other intended loading, need not personally inspect the formwork. An inspection must be completed by a professional engineer or a directly supervised subordinate and an engineering certificate issued immediately prior to placement of concrete or other intended load. With respect to this certification, direct supervision of the subordinate means taking responsibility for the control and conduct of the engineering work.

Guidelines Part 20 - Concrete pumping

G20.40 Use of outriggers on concrete pumping equipment

Issued August 1999; Editorial Revisions August 2004 and January 1, 2007; Revised August 31, 2007; Revised consequential to February 1, 2012 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Section 20.40(1) of the *OHS Regulation* ("*Regulation*") states:

Outriggers must be used in accordance with the concrete placing boom manufacturer's specifications.

Section 4.3(1) of the *Regulation* states:

- (1) The employer must ensure that each tool, machine and piece of equipment in the workplace is
 - (a) capable of safely performing the functions for which it is used, and
 - (b) selected, used and operated in accordance with
 - (i) the manufacturer's instructions, if available,
 - (ii) safe work practices, and
 - (iii) the requirements of this Regulation.

Section 20.26.3 of the *Regulation* states:

(1) The operation, inspection, testing and maintenance of a concrete pump or placing boom manufactured before August 1, 2012 must meet the requirements of *CSA Standard Z151-09, Concrete pumps and placing booms*, as set out in clauses 1.1 to 3 [*definitions*], 4.1.9.2.3, 4.1.18.2, 4.1.19.1, 4.2.1.1, 4.2.2, 5.1.1 to 5.3.4, 5.3.7 to 6.3.4 and 6.5.1 to 6.7.3, including any table, figure or annex referred to in those clauses.

(2) The design, manufacture, installation, operation, inspection, testing and maintenance of a concrete pump or placing boom manufactured on or after August 1, 2012 must meet the requirements of *CSA Standard Z151-09, Concrete pumps and placing booms*, as set out in clauses 1.1 to 3 [*Definitions*], 4.1.1.2 to 5.3.4, 5.3.7 to 6.3.4 and 6.5.1 to 6.7.3, including any table, figure or annex referred to in those clauses.

Purpose of guideline

The purpose of this guideline is to set out some guiding principles for determining the safe work practices to be followed for deploying outriggers under sections 20.40(1), 4.3(1)(b)(ii), and 20.26.3 of the *Regulation*.

Introduction and background

Outriggers must be fully deployed and the machine leveled in accordance with the manufacturer's instructions. This guideline does not address a situation where the operator wishes to deploy outriggers in a manner contrary to the manufacturer's instructions. In that case, the concrete placing firm can contact the manufacturer to ask for a written confirmation of an altered procedure acceptable to the manufacturer. If that is not feasible, for example because the manufacturer is no longer in business, the firm could apply to WorkSafeBC for a variance. If shorttrigging is specifically prohibited by the manufacturer, the procedures described later in this guideline that are provided by a qualified person as an alternate cannot be employed unless there is an approved variance.

Regulation section 20.26.3 requires that a concrete pump or placing boom be operated in accordance with prescribed clauses of *CSA Z151-09, Concrete pumps and placing booms* ("*Standard*"). Clause 6.3.2 of the *Standard* states that shorttrigging may be used only if

- (a) it has been determined that shorttrigging is unavoidable
- (b) the boom is not operated beyond the area of fully extended outriggers (refer to Figure 10) unless the boom/outrigger control system is range limiting
- (c) any outriggers still retracted are jacked and the unit is leveled in accordance with the manufacturer's recommended procedures
- (d) the manufacturer's or qualified person's documented procedures are followed

Note: Shorttrigging is a condition in which one or more outriggers are not fully deployed on the side away from the boom operational area.

Guiding principles when shorttrigging is necessary

Clause 6.3.2(a) of the *Standard* requires that shorttrigging only be used if it is impracticable to fully deploy all outriggers. For example,

- The outriggers would put the machine within an unsafe distance to hazards such as excavations and power lines
- The outriggers would extend into traffic and the circumstances of the job render it impracticable to get permission to close traffic lanes (closing traffic lanes is generally subject to municipal approval)
- An adjacent structure or an excavated or natural bank restricts deployment

It is not considered impracticable to fully deploy all outriggers if the purpose is just to

- Increase convenience or save money
- Avoid repositioning the pump
- Avoid moving stored materials that might reasonably be moved

If the manufacturer's instructions are not available, or do not address the means of deployment where full deployment is not practicable, the following are guiding principles for determining the "safe work practices" under section 4.3(1)(b)(ii) of the *Regulation*:

1. As far as possible, the worksite should be organized so that concrete pumping equipment can be used with all outriggers fully deployed when the boom is raised. [Section 24](#) of the *Workers Compensation Act* establishes certain responsibilities on prime contractors at construction projects for complying with the *Regulation*.

Where this section applies, the prime contractor and the employer of the concrete pump operator share responsibility for selecting the appropriate pump to do the job and for planning the pump's location. If a smaller pump can do the job set-up with all outriggers fully deployed, then it should be used instead of a larger pump that cannot be set up with all outriggers fully deployed. Pump location and set-up should be addressed if a pre-job meeting is held.

2. The pump operator should be trained to recognize the circumstances that justify not fully deploying the outriggers.

Clause 6.3.2(d) of the *Standard* requires that any required shorttrigging follow the manufacturer's or a qualified person's (defined in the *Standard*) documented procedures.

Written instructions that address the following factors must be available to the operator:

- **Safe operating range:** This refers to the regions where the boom may be positioned to maintain truck stability. Typically the safe operating range is the area bounded by the lines extending from the centre of rotation of the boom through the centerline of the jacks of the fully deployed outriggers. The boom must never be unfolded or extended outside of the safe operating range.
- **Outrigger deployment on the pumping side:** Typically outriggers must be fully deployed on the side of the equipment over which the boom is extended.
- **Outrigger deployment on the side opposite to the pumping side:** Typically, when it is not practicable to fully deploy all outriggers, the outriggers opposite to the pumping side outriggers must be fully retracted and all jacks lowered to the ground to level the equipment. Structural damage or failure may occur to partially extended telescopic outriggers with the jacks lowered.
- **Outrigger bearing load:** Proper cribbing to distribute the load may be needed if the soil conditions require it.
- **Procedure for unfolding the boom:** Typically the boom will be raised from the cradle, rotated to a position within the safe operating range and then unfolded. If the boom cannot be unfolded within the safe operating range, the other outriggers may have to be fully deployed while the boom is unfolded or folded.
- **Precautions for over-centre booms (i.e., moving the centre of gravity toward the side that does not have fully extended outriggers):** There is the potential for backward instability with over-centre booms.

Note: The American Concrete Pumping Association Safety Bulletin "*Setting outriggers to prevent accidents - Shorttrigging*" provides useful guidance in preparing instructions that are specific to the site and equipment conditions. The Bulletin is intended to supplement but not replace the manufacturer's applicable instructions.

G20.47(1) Inspection and certification of masts

Issued April 4, 2007; Revised consequential to February 1, 2012 Regulatory Amendment

Regulatory excerpt

Section 20.47(1) of the *OHS Regulation* ("*Regulation*") states:

A mast must be inspected in accordance with good engineering practice at intervals not exceeding 12 months, repaired as necessary, and certified safe for use by a professional engineer, the manufacturer or the manufacturer's authorized agent.

Purpose of guideline

The purpose of this guideline is to outline some of the factors that should be considered when determining if an inspection has been conducted in accordance with "good engineering practice" under this section. It also provides information on who is authorized to certify the inspection has been done and a mast is safe for use.

The concept of good engineering practice

The annual inspection and certification of a mast is required by the *Regulation*. This inspection is to be done in accordance with good engineering practice. The concept of good engineering practice as it applies to this section means the inspection, assessment, repair (if necessary), and certification of the equipment is to be done in consideration of the following:

- Applicable regulations, safety codes, and standards (e.g., *CAN/CSA-Z151-09 Concrete pumps and placing booms* Clause 5 inspection requirements for structural support systems)
- Manufacturer's instructions for operation, inspection, maintenance, servicing, and repair
- Operating, maintenance, and service records

Who may do the certification

Certification will generally be done by a professional engineer. If the inspection, assessment, and any necessary repair work is done in B.C., the engineer, as required by the *Engineers and Geoscientists Act*, must be licensed to practice in B.C. If this work is being done outside B.C., for example in Alberta, the engineer must be licensed to practice in that jurisdiction.

If the certifying agent is a manufacturer's representative, the person signing the certification should be specifically authorized in writing by the manufacturer to make such a certification on behalf of the manufacturer.

For convenience, the professional engineer or equipment manufacturer's representative will be referred to as the "certifying professional" in the remainder of this guideline.

The inspection and certification process

The employer or owner of the equipment should consult the certifying professional in advance to arrange the location of the inspection, testing, and necessary repair work, and to ensure qualified people and adequate facilities are used. Generally the "hands on" part of the inspection, testing, and repair will be done by mechanics, service technicians, non-destructive testing (NDT) technicians, and other qualified workers as necessary (for example, welders), working under the direction of the certifying professional.

Inspection and certification requires the assessment of the "critical components," meaning the structural, mechanical, and control system components which affect the safe operation of the equipment. The specific identity of these components will vary from one type of equipment to another, depending on the design and configuration of the equipment. Only the applicable components must be inspected and certified e.g., a stationary lattice structure mast does not have mechanical and control system components whereas a self-climbing mast would have electrical and/or hydraulic control system components.

The frequency of inspections of individual components and the extent of the inspection, including dismantling, assessment, and NDT or other testing, will be determined by the certifying professional. The factors relevant in making these determinations include the following:

1. Requirements of the applicable regulations, safety codes, and standards
2. The equipment manufacturer's specifications and instructions
3. The certifying professional's familiarity with the particular design and model of equipment, including known reliability problems or component problems
4. Previous inspection history and results
5. Age of the equipment and number of hours of use
6. Circumstances of use of the equipment (for example, heavy duty vs. light use) and any known incidents since the last certification
7. The general condition of the equipment
8. The available use, service, inspection, and maintenance records
9. The certifying professional's knowledge of the overall effectiveness of the service and maintenance program

Based on the outcomes of the inspection, the certifying professional will determine any necessary repair work.

The certification document will include a statement that the equipment is "safe for use" at the completion of the inspection and any necessary repair work. This means that the equipment should then reasonably be expected to perform safely until the next inspection and certification is required if operated according to the manufacturer's instructions.

If the certifying professional deems it necessary to provide a restricted certification statement (for example, that some components are currently acceptable for safe use but will likely require replacement or renewal before the next annual inspection), the certifying professional will ensure the owner or employer is made aware of these concerns and will also note the condition on the equipment inspection and maintenance records. It is not acceptable for the certifying professional to provide a certification when there are outstanding deficiencies affecting the safe performance or compliance of the equipment with the *Regulation*.

G20.47(2)-(4) Inspection and certification of concrete pump and placing boom

Issued July 14, 2020

Regulatory excerpt

Sections 20.47(2)-(4) of the *OHS Regulation* ("*Regulation*") state:

(2) A concrete pump and placing boom must be inspected in accordance with good engineering practice at intervals not exceeding 12

months to ensure that they meet

- (a) the manufacturer's specifications,
 - (b) the requirements of the applicable standard referred to in section 20.26.3, and
 - (c) the requirements of this Regulation.
- (3) Without limiting subsection (2), an inspection under that subsection must include an inspection of the structural, mechanical and control system components of the concrete pump and placing boom.
- (4) On and after January 1, 2021, a concrete pump and placing boom must not be used after an inspection under subsection (2) unless a professional engineer certifies that, on the basis of that inspection, they are safe for use.

Purpose of guideline

The purpose of this guideline is to outline some of the factors that should be considered when determining if an inspection has been conducted in accordance with "good engineering practice" under sections 20.47(2)-(4) of the *Regulation*. It also provides information on who is authorized to certify that the inspection has been done and that the concrete pump and placing boom are safe for use.

Good engineering practice

The Engineers and Geoscientists of BC (EGBC), in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*, describes the standard of practice that engineering professionals should follow when carrying out equipment inspections and certifications. WorkSafeBC considers following this EGBC guideline as following good engineering practice for annual inspections and certifications of concrete pumps and placing booms.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

Certification

On and after January 1, 2021, certification must be done by a professional engineer. If the inspection, assessment, and any necessary repair work are done in B.C., the professional engineer, as required by the *Engineers and Geoscientists Act*, must be licensed to practice in B.C. If this work is being done outside B.C., for example in Alberta, the professional engineer must be licensed to practice in that jurisdiction.

Inspection and certification process

The EGBC has defined the annual inspection and certification process for the concrete pump and placing boom in its professional practice guideline - *Annual Equipment Inspection and Certification in British Columbia*.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

Guidelines Part 20 - Open web joists and trusses

G20.72 Open web joists and trusses

Issued August 1999; Revised August 29, 2016

Regulatory excerpt

Section 20.72 of the *OHS Regulation* ("Regulation") states:

- (1) Work must not be undertaken on the erection of premanufactured open web joists and trusses until clear and appropriate written instructions from a professional engineer or the manufacturer of the joists or trusses, detailing safe erection procedures, are available at the worksite.
- (2) Erection and temporary bracing of open web joists and trusses must be done in accordance with the written instructions required by subsection (1).

Purpose of guideline

The purpose of this guideline is to clarify the intent of section 20.72 of the *Regulation* and to provide a list of reference materials.

Erection of open web joists and trusses

The erection of open web joists and trusses is often performed without adequate (or any) written instructions. The erector receives, with the shipment of trusses, a set of truss design drawings that are appropriate for submission to the building inspector. Typically, these drawings indicate permanent bracing requirements but do not address any procedure or need for temporary bracing.

Work on truss erection should not continue if any of the following conditions exist:

- (a) Erection and bracing instructions are not available at the site or are obviously incomplete
- (b) Work is not being done in accordance with the erection and bracing instructions

(c) Walls or skeletal structural building frame is inadequately braced

(d) Damaged trusses (those with damage such as twisted webs, bent connector plates, cracked chords) are being or have been installed

(e) Heavy loads are being applied to trusses before all bracing, bridging, and decking have been installed

It should be noted that, under section 20.72 of the *Regulation*, erection includes the hoisting of a partial or entire roof, floor, or other component sections (for example, where a roof is prefabricated on the ground as a unit in one or more pieces and is then hoisted with a crane into position on the building). This operation requires written instructions from a professional engineer or the truss manufacturer detailing all bracing needed for the lift, and the location and construction of the lifting points, complete with rigging details as necessary for the safe lifting of the roof. This applies to open web joists and trusses of any composition, such as wood, metal, or other material.

Reference materials

The following reference materials may be helpful:

- The Western Wood Truss Association's instructional *Handling, Installation and Bracing of Wood Trusses* (each member of the Association provides a copy to each site with each truss shipment)
- Publications by the Structural Building Components Association, Truss Plate Institute, and Truss Plate Institute of Canada:
 - Building Component Safety Information BCSI Canada — Guide to Good Practice for Handling, Installing, Restraining and Bracing of Metal Plate Connected Wood Trusses
 - BCSI-B1C Summary Sheet — Guide for Handling, Installing, Restraining and Bracing of Trusses
 - BCSI-B2C Summary Sheet — Truss Installation and Temporary Restraint/Bracing
 - BCSI-B3C Summary Sheet — Permanent Restraint/Bracing of Chords & Web Members
 - BCSI-B7C Summary Sheet — Guide for Handling, Installing and Bracing of 3x2 and 4x2 Parallel Chord Trusses
 - BCSI-B11C Summary Sheet — Fall Protection & Trusses
- Publications by the Canadian Wood Council:
 - Wood Design Manual
 - Introduction to Wood Design
 - Engineering Guide for Wood Frame Construction
 - Canadian Span Book
- Publication by the Manufacturer's Health and Safety Association:
 - Structural Steel Erection Best Practices

Guidelines Part 20 - Roof work

G20.75 Roof work – Fall protection

Issued August 1999; Revised January 1, 2005; Revised February 19, 2016

Regulatory excerpt

Sections 11.2(2) to 11.2(5) of the *OHS Regulation* ("*Regulation*") state:

(2) The employer must ensure that guardrails meeting the requirements of [Part 4 \(General Conditions\)](#) or other similar means of fall restraint are used when practicable.

(3) If subsection (2) is not practicable, the employer must ensure that another fall restraint system is used.

(4) If subsection (3) is not practicable, the employer must ensure that a fall arrest system is used.

(5) If the use of a fall arrest system is not practicable, or will result in a hazard greater than if the system was not used, the employer must ensure that work procedures are followed that are acceptable to the Board and minimize the risk of injury to a worker from a fall.

Section 20.75 of the *Regulation* states:

If a worker is employed on a roof having a slope ratio of 8 vertical to 12 horizontal or greater, the worker must use a personal fall protection system or personnel safety nets must be used, and 38 mm x 140 mm (2 in x 6 in nominal) toe-holds must be used if the roofing material allows for it.

Purpose of guideline

This guideline describes different fall protection systems for work on roofs, according to the amount of slope, using the hierarchy in section 11.2 of the *Regulation*. Sections [20.74 to 20.77](#) also need to be considered for roof work.

Fall protection systems suitable for each type of roof

The general effect of sections [20.74 to 20.77](#) and [Part 11](#) of the *Regulation* is to create three categories of roofs as illustrated in Figure 1 and to provide for different fall protection systems available to be used for each category.

FIGURE 1: THREE CATEGORIES OF ROOFS

1. Fall protection available for flat roofs and roofs up to and including 4 vertical to 12 horizontal:

- guardrails,
- personal fall protection systems,
- safety nets,
- control zone,
- safety monitor system with control zone, or,
- other acceptable work procedures.

2. Fall protection available for roofs with a slope ratio greater than 4 vertical to 12 horizontal but less than 8 vertical to 12 horizontal:

- guardrails,
- personal fall protection systems,
- safety nets, or
- other acceptable work procedures.

The control zone and safety monitor systems are not to be employed on roofs steeper than 4 vertical to 12 horizontal. (See [OHS Guideline G11.2\(5\)-1.](#))

3. Fall protection available for roofs where the slope ratio is 8 vertical to 12 horizontal or greater

- if the roofing material allows for the nailing of toe-holds, they must be used, in conjunction with personal fall protection systems or personnel safety nets, as required by [section 20.75](#) of the *OHS Regulation*, and
- if the roofing material precludes the use of toe-holds, such as on metal panel, metal tile, or concrete tile, workers should use appropriate roof ladders or acceptable work platforms in conjunction with a personal fall protection system.

Toe-holds are properly oriented with the 6-inch side perpendicular to the roof. Attachment of toe-holds to the roof will typically be accomplished by using manufactured roof jacks according to the manufacturer's instructions. Another method may be to construct an "L" using a 2x4 and 2x6 and securely fastening this L to the roof, as illustrated in Figure 2. The attachment will need to be suitable for the roof and the application, provide safe footing, and be able to withstand any forces likely to be imposed on it. Toe-nailing a 2x6 to the roof is not an acceptable method of securing toe-holds.

FIGURE 2: CONSTRUCTING AN "L" ON A ROOF



It should be noted that toe-holds are intended for worker positioning, and are not to be used for the purpose of storing any material other than what is reasonably required to complete the work at hand.

Reference should be made to the particular sections of the *Regulation* governing the methods of fall protection listed above to determine when exactly they can be used and under what conditions.

G20.77 Mechanical equipment

Issued August 1999, Editorial Revision August 2004; Editorial Revision June 30, 2021

Regulatory excerpt

Section 20.77 of the *OHS Regulation* ("*Regulation*") states:

Mechanical or powered equipment which has the potential to push or pull a worker over an unguarded edge must not be used unless operated according to procedures acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to provide guidance to the application of section 20.77 of the *Regulation*.

Application

Section 20.77 of the *Regulation* is not intended to apply to small hand tools such as electric drills. It does apply to larger pieces of equipment such as power sweepers. Section 4.3 of the *Regulation* requires that equipment must be used and maintained in accordance with the manufacturer's instructions.

Proximity to unguarded edge

The equipment should not be used closer than 2 metres (6.5 feet) to the unguarded edge where a safety monitor or other type of work procedure is being used as a fall protection system. The manufacturers of roofing equipment covered by this section typically specify a limit of about this amount in their instructions. If the instructions specify a limit greater than 2 metres, section 20.77 requires that limit be maintained.

Issued August 1999; Editorial Revision February 7, 2006; Formerly Issued in G20.78(2) - Re-issued as G20.78 January 1, 2009

Regulatory excerpt

Section 20.78 of the *OHS Regulation* ("*Regulation*") states:

- (1) Subject to this section, excavation work must be done in accordance with the written instructions of a qualified registered professional if
 - (a) the excavation is more than 6 m (20 ft) deep,
 - (b) an improvement or structure is adjacent to the excavation,
 - (c) the excavation is subject to vibration or hydrostatic pressure likely to result in ground movement hazardous to workers, or
 - (d) the ground slopes away from the edge of the excavation at an angle steeper than a ratio of 3 horizontal to 1 vertical.
- (2) Despite subsection (1), excavation work described in that subsection must be done in accordance with the written instructions of a professional engineer if the excavation requires or uses support structures.
 - (3) The written instructions required by this section must
 - (a) be certified by the qualified registered professional concerned,
 - (b) be available at the site, and
 - (c) specify the support and sloping requirements, and the subsurface conditions expected to be encountered.

Purpose of guideline

The purpose of this guideline is to provide information about what is considered acceptable for written instructions required by section 20.78 of the *Regulation*.

Written instructions

Verbal instructions from a qualified registered professional with no supporting documents are insufficient.

The following should be included as a minimum for a qualified registered professional's certificate on a site under this section:

- Date of issue
- Site address/location
- Drawing/sketch, plan, and sections and/or clearly written instructions
- Geotechnical description of the expected soil conditions, or confirmation upon site review
- Limitations for machinery or equipment being adjacent to the excavation
- Time period for which certification applies
- Influence of changing weather conditions
- Name of the certifying qualified registered professional, signature, and seal

Subsequent certifications may refer back to the initial certification documents, in which case such documents shall be available at the site. If conditions and/or instructions change with respect to the conduct of the excavation work, supplementary instructions and documentation are required.

If the certification is incomplete or deemed inadequate, work should stop in the hazard area until acceptable certification is available, or until remedial work is done so that the excavation complies with the *Regulation*.

G20.78(1)(c) Vibration, hydrostatic pressure or hazardous ground movement

Issued August 1999; Editorial Revision June 6, 2007; Formerly Issued as G20.78(1) - Re-issued as G20.78(1)(c) January 1, 2009

Regulatory excerpt

Section 20.78(1)(c) of the *OHS Regulation* ("*Regulation*") states:

- (1) Subject to this section, excavation work must be done in accordance with the written instructions of a qualified registered professional if
 - (c) the excavation is subject to vibration or hydrostatic pressure likely to result in ground movement hazardous to workers,

Purpose of guideline

The purpose of this guideline is to provide some explanation of the terms "subject to vibration" and "hydrostatic pressure likely to result in ground

Explanation of "subject to vibration"

An excavation may be considered "subject to vibration" under section 20.78(1)(c) if there is activity such as heavy vehicle traffic, blasting, road compaction equipment, or compaction during backfill placement close to the excavation. The severity of the vibrations as well as the distance between the activity to the excavation shall be considered.

Hydrostatic pressure and hazardous ground movement

Hydrostatic pressure is a concern if water is coming out of the sides or base of an excavation. Engineering or other work done in accordance with the written instructions of a qualified registered professional is required unless an effective dewatering system can be implemented. If water ingress can be prevented by the use of a dewatering system, hydrostatic pressure should not be a problem. Using a water pump to remove nominal surface runoff (such as from rainfall) should be acceptable without engineering or other work done in accordance with the written instructions of a qualified registered professional. If the soil adjacent to an excavation has undergone significant changes in moisture content, the stability of the excavation sides may be in question. Soil that is frozen, or may freeze due to the ambient air temperature during the excavation work, may cause development of hydrostatic pressure and thus such excavation work should only be undertaken following a qualified registered professional's instructions.

G20.78(1)(d) Ground slope adjacent to excavation work

Issued February 22, 2005; Formerly Issued as G20.78(1)(e) - Re-Issued as G20.78(1)(d) January 1, 2009; Editorial Revision consequential to September 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 20.78(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) Subject to this section, excavation work must be done in accordance with the written instructions of a qualified registered professional if
 - (a) the excavation is more than 6 m (20 ft) deep,
 - (b) an improvement or structure is adjacent to the excavation,
 - (c) the excavation is subject to vibration or hydrostatic pressure likely to result in ground movement hazardous to workers, or
 - (d) the ground slopes away from the edge of the excavation at an angle steeper than a ratio of 3 horizontal to 1 vertical.

Purpose of guideline

The purpose of this guideline is to discuss section 20.78(1)(d) of the *Regulation* as it applies to excavation work that must be done in accordance with the written instructions of a qualified registered professional.

Specific circumstances of general sloping and shoring

The requirements under section 20.78 address certain circumstances where the general sloping and shoring requirements under [section 20.81](#) of the *Regulation* do not provide adequate protection for the safety of workers. In these special circumstances, a qualified registered professional is required to oversee assessment of the site and provide written instructions about performance of the work.

This guideline discusses the circumstance set out in 20.78(1)(d) – as it applies to construction or maintenance work performed along an established road or other similar right of way.

Ground slopes from edge of excavation

The intent of section 20.78(1)(d) of the *Regulation* is to address the hazards arising from situations where the ground slopes up or down from the top edge of an excavation. Where the ground slopes up, the concern is for the increase in lateral ground pressure that arises due to the weight of soil positioned above a 3 horizontal to 1 vertical slope. This weight is an extra load that has not been allowed for in the sloping and shoring requirements specified in section 20.81 of the *Regulation*. Where the ground slopes down and away, the concern is the lack of adequate lateral support on the downhill side for any bracing specified in section 20.81 positioned against the downhill excavation face.

The control of surface runoff and soil erosion may also be a concern. These concerns arise particularly when the excavation work will be a side hill cut, bulk excavation, or a trench other than in a direction in line with the natural ground slope. Stated another way, if the excavation will generally be "across" the slope in a manner that will change the cross section profile of the slope, section 20.78(1)(d) will apply.

The slopes along a right of way will generally have been designed to provide stable faces to the extent necessary to balance safe and economical functioning of the right of way. Where the right of way was not so designed, but has been in place for at least a year (one full season cycle of rain and/or freezing weather as applicable for the geographical area), the slopes should have reached a natural, stable state. Any excavation activity that will alter the design profile, or naturally stable profile, of a cross section of a slope is within the scope of section 20.78(1)(d).

Excavation work that does not change the cross section of the slope

Some maintenance or construction activities along a right of way may involve minor or localized excavation work that will not alter the "general" cross section profile of a slope in a manner that would affect the overall stability of the slope. Some examples of excavation activity of this type are

- Installing a utility pole, lamp standard, or signpost through use of an auger, drill, or similar device to dig a "post hole" or use of a back hoe or other equipment to dig a "bell hole"
- Cleaning out a drainage ditch or clearing a buffer zone to restore the original design profile and grade
- Installing or repairing a shallow culvert running generally in line with the natural ground slope (or perpendicular to the centre line of the right of way)
- Shouldering work, profiling a road surface, or similar minor excavation work within a compacted roadway
- Excavating a "bell hole" to repair a buried pipe or similar service

These excavations generally do not require any additional or special sloping or shoring considerations as the dimensions of the excavation are generally small enough that the natural "bridging action" of the soil provides enough support. Also, in most of these cases a worker does not enter into the actual excavation. These types of excavation activities generally do not require any written instructions from a qualified registered professional.

It must be remembered however, that the hazard of loose material (such as rocks, logs, or trees) coming down from a slope above always needs to be evaluated and considered whenever work is being done near the base of the slope. Also, hazards may develop from weather conditions, such as extreme rainfall, or the potential for an avalanche. A "tailboard" or "tool box" meeting should be held with the crew to discuss the conditions in the planned work area prior to starting work. Loose material and weather condition hazards need to be assessed by a qualified person at least daily and preferably, before each work shift. The condition of the slope above must be examined and any loose material that could be a hazard should be removed or stabilized before work starts. If the daily assessment raises any concern regarding the overall stability of the slope, a qualified registered professional's assessment and advice should be obtained.

Excavation work that will change the cross section of the slope

There are some excavation activities related to servicing and maintaining a right of way that involve work at or near the base of an unstable or potentially unstable slope and will alter the overall cross section of the slope. Two examples of such activity are slope stabilization and the removal of rock or mud slide material. Prior to starting such work, a qualified registered professional should oversee the assessment of the conditions in the area to determine if there is a significant risk of substantial material flow (either immediately or as the work proceeds) that could endanger workers.

If the qualified registered professional determines there is a significant risk, written instructions on how to proceed (covering aspects such as the sequence of work, selection of equipment, and work methods) need to be obtained from the qualified registered professional.

If the qualified registered professional determines there is only a minimal risk of a substantial material flow, the work plan can be developed without further input from the qualified registered professional. Work of this type generally involves powered excavating equipment that is substantial in size and affords protection for the operator in the event of any minor material flow. If there is a danger of logs, trees, or other debris coming down the slope, operators of mobile equipment must be protected by suitable cabs, screens, grills, shields, guards or structures (refer to [section 16.33](#) of the *Regulation*). It is necessary that such operations be carried out, as far as is practicable, so that the height of any unstable face being worked does not exceed the maximum safe reach of the excavating equipment being used (refer to [section 20.93](#) of the *Regulation*).

Pedestrian workers should stay clear of the working face, any other unstable faces, and operating equipment.

Rock scaling

Rock scaling is a form of excavation, but is not generally an activity that will change the cross section profile of a slope. Scaling of slopes is not an activity normally considered within the scope of [section 20.78](#), and is specifically addressed in [sections 20.96 to 20.101](#) of the *Regulation*. If there is a concern regarding the overall stability of a slope that is to be scaled, a qualified registered professional's assessment and instructions should be obtained and followed.

G20.79 Underground utilities

Issued August 1999; Editorial Revision August 2004; Revised February 13, 2006; Revised February 24, 2006; Revised August 11, 2010; Editorial Revision to include February 1, 2011 Regulatory Amendment; Revised July 27, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Section 20.79 of the *OHS Regulation* ("*Regulation*") states:

- (1) Before excavating or drilling with powered tools and equipment, the location of all underground utility services in the area must be accurately determined, and any danger to workers from those utility services must be controlled.
- (2) Excavation or drilling work in proximity to an underground utility service must be undertaken in conformity with the requirements of the owner of that utility service.
- (3) Pointed tools must not be used to probe for underground petroleum and electrical utility services.
- (4) Powered equipment used for excavating must be operated so as to avoid damage to underground utility services, or danger to workers.

Section 4.18 of the *Regulation* states:

If work activities conducted by or on behalf of an employer cause a utility service to be hit or damaged, the employer must notify the

owner of the utility service without delay.

Purpose of guideline

The purpose of this guideline is to highlight the following:

- Reference the practice document related to the requirements under section 20.79 of the *Regulation*
- Explain how to obtain locate information
- Describe the use of hydrovacating to expose underground utilities
- Highlight some jurisdictional considerations
- Explain the occupational health and safety obligations of employers when their work activities result in a hit or damage to a pipeline, buried electrical cable, or other such utility

WorkSafeBC's practice document

[Prevention of Damage to Buried Facilities in British Columbia](#) provides practices and procedures for excavating near buried facilities. The information in the document should be considered in conjunction with applicable legislation and regulations.

Obtaining locate information

An effective way to accurately determine the location of all underground utility services in the area is to contact BC One Call. BC One Call is the communication link between the ground disturbance community and the owner/operator of underground facilities who are registered members of BC One Call.

Not all utility companies are members of BC One Call. A complete list of members can be found on the [BC One Call website](#). The person proposing to undertake a ground disturbance will need to identify and contact directly the owners of buried facilities that are not members of BC One Call.

BC One Call contact information:

Toll-free: 1-800-474-6886

Cellular: *6886 (free call)

Vancouver area: 604-257-1940

www.bconecall.bc.ca

Use of hydrovacating equipment for locating buried utilities

Hydrovacating is the use of pressurized water to liquefy and loosen soil, which is then removed by the use of on-truck vacuum systems and hoses. It can be an effective, efficient, and safe means of accurately locating and exposing ("daylighting") underground utility lines.

When performed in conformity with the requirements, restrictions, and prohibitions of the utility owner, and following safe work procedures that adequately address hazards that workers may be exposed to, hydrovacating can be as safe as hand digging. It is important to have the locate information and any necessary permits prior to hydrovacating.

Note that the various utility owners and regulators (e.g., water, petroleum product, electrical, sanitary sewer, and steam) may have different requirements or prohibitions and employers performing hydrovacating need to be aware of and adhere to these rules.

Other legislation governing excavations near underground utilities

Jurisdictions other than WorkSafeBC also have statutes and regulations that apply to excavation or drilling in proximity to an underground utility service. For example, the [Gas Safety Regulation](#) specifies the means by which excavators who work near a gas installation must determine the existence of underground gas services and the methods that excavators must use to find the exact location of services.

Refer to [Prevention Manual Policy Item P1-2-1 Application of the OHS provisions of the Act - Where Jurisdictional Limits Exist](#) for guidance on how WorkSafeBC prevention officers will exercise their powers in situations where there are jurisdictional limits on those powers.

Regulation requirements if contact with any underground facility occurs

Notify the owner of the utility without delay

Section 4.18 of the *Regulation* requires that if work activities conducted by or on behalf of an employer cause a utility service to be hit or damaged, the employer must notify the owner of the utility service without delay.

Notify WorkSafeBC where required

Damage to underground facilities can cause death or serious injury to a worker. [Section 68](#) of the *Workers Compensation Act ("Act")* specifies the accidents that an employer must immediately report to WorkSafeBC, including any accident that results in serious injury or death of a worker, or involves the major release of a hazardous substance.

An important factor in determining whether there is a major release of a hazardous substance is the seriousness of risk to the health of workers that the release presents. Policy includes some factors that determine the seriousness of the risk. Situations involving natural gas that should be considered a "serious risk" include the following:

- It was necessary for people to be evacuated from buildings
- Gas seeped into sewers or drains
- Any person required medical treatment

- The gas leak ignited
- Repair workers entered the gas envelope when the atmosphere contained flammable gas or vapor concentrations in excess of 20% of the lower explosive limit (LEL)
- A non-gas company worker entered an excavation, after a strike, to attempt to stop or slow the flow of gas

[Policy Item P2-68-1 Accident Reporting and Investigation - Major Release of Hazardous Substance](#) discusses the meaning of the "major release of a hazardous substance" under section 68 of the *Act*.

Investigate the incident

Under [section 69](#) of the *Act* employers must immediately undertake an investigation into the cause of any accident or incident that had a potential for causing serious injury to a worker. Any gas line hit or high voltage contact is likely to fall into this category and an investigation is required.

Also, under section 69 of the *Act* the employer must investigate the occurrence of any accident that involved the major release of a hazardous substance. Refer to section 69 of the *Act* for additional incidents that employers must investigate.

G20.81 Sloping and shoring requirements

Issued August 1999; Editorial Revision August 31, 2007; Editorial Revision January 1, 2009

Regulatory excerpt

Section 20.81(1) of the *OHS Regulation* ("*Regulation*") states:

Subject to section 20.78, before a worker enters any excavation over 1.2 m (4 ft) in depth or, while in the excavation, approaches closer to the side or bank than a distance equal to the depth of the excavation, the employer must ensure that the sides of the excavation are

- (a) sloped as specified in writing by a qualified registered professional,
- (b) sloped at angles, dependent on soil conditions, which will ensure stable faces, but in no case may the slope or combination of vertical cut and slope exceed that shown in Figure 20 1,
- (c) benched as shown in Figure 20-2,
- (d) supported as specified in writing by a professional engineer,
- (e) supported in accordance with the minimum requirements of section 20.85, or
- (f) supported by manufactured or prefabricated trench boxes or shoring cages, or other effective means.

Purpose of guideline

The purpose of this guideline is to provide explanatory material for the *Regulation* requirements in sub-sections 20.81(a)–(f).

Explanatory information for subsections 20.81(a)–(f)

This section is subject to section [20.78](#), which requires written instructions from a qualified registered professional in certain situations.

"Excavation" is defined in section [20.1](#) as meaning any "cut, cavity, trench or depression in the earth's surface resulting from rock or soil removal." This includes, for example, a hole dug in the ground, as well as the cutting of material away from a slope, such as occurs on roadway construction.

Section 20.81 requires that one of clauses (a) to (f) be met in all cases where an excavation over 1.2 m (4 ft) deep has a width that is equal to or less than twice its depth. If the excavation is wider than twice its depth, this will only have to be done if the worker will approach "closer to the side or bank than a distance equal to the depth of the excavation." The latter includes situations where there is no measurable width because the excavation is, for example, a cut into a slope. In these situations, the worker must enter and exit the excavation by a safe route, for example, a properly sloped or shored portion of the excavation.

Section 20.81(1)(e) refers to section 20.85. Section [20.85](#), and by reference [Table 20-1](#), contain detailed specifications for "trench support structures." A "trench" is defined in section 20.1 as "an excavation less than 3.7 m (12 ft) wide at the bottom, over 1.2 m (4 ft) deep, and of any length." Section 20.81(1)(c) and section 20.85 do not apply to excavations over 12 feet wide, or excavations that have no measurable width.

Section 20.81(1)(f) permits the use of manufactured or prefabricated trench boxes or shoring cages. These may be used in accordance with the manufacturer's instructions or engineering certification for the device, unless the instructions for use do not adequately include the circumstances of use or questions arising at the site, or where the situation is covered in the scope of section 20.78. The instructions for use and/or certification of a trench box or cage should specify the types of soil conditions for which it is intended and the instructions relating to each. A copy of this information should be on site.

Section 20.81(1)(f) also permits the use of "other effective means." Means of shoring other than "manufactured or prefabricated trench boxes or shoring cages" referred to under section 20.81(f) should be done in accordance with the written instructions of a professional engineer under section 20.81(d).

Regulatory excerpt
Section 20.85 of the *OHS Regulation ("Regulation")* states:

(1) Trench support structures, other than those designed by a professional engineer, must comply with Table 20-1 for the following relevant soil conditions:

Soil type	Description of soil
A	hard and solid
B	likely to crack or crumble
C	soft, sandy, filled or loose

(2) If Table 20-1 is to be used for a combination of supporting and sloping, the selection of shoring elements must be based on the overall depth of the excavation, and the arrangement must conform to Figure 20-3.

(3) Cross braces and trench jacks must be installed in a horizontal position and must be secured against dislodgement.

(4) The minimum number of cross braces at each cross bracing location is determined by the trench depth as follows:

Depth at location	Number of braces
up to 2.4 m (8 ft)	2
2.4 m to 3.7 m (8 ft to 12 ft)	3
3.7 m to 4.6 m (12 ft to 15 ft)	4
4.6 m to 6 m (15 ft to 20 ft)	5

(5) At each cross bracing location the cross braces must be less than 1.2 m (4 ft) apart, and the uppermost cross brace must be within 60 cm (2 ft) of ground level.

(7) Hydraulic or pneumatic trench jacks must have a means of ensuring that they will not collapse in the event of loss of internal pressure.

(8) Uprights must not spread outwards more than 15 degrees from the vertical when viewed along the trench.

(9) Plywood may be substituted for two inch thick shoring elements provided that

(a) the plywood is not less than 19 mm (3/4 in) thick,

(b) the trench is not over 2.7 m (9 ft) in depth,

(c) uprights are installed at not over 60 cm (2 ft) centres,

(d) cross braces do not bear directly on plywood, and

(e) cross braces bearing on uprights or walers are located at all joints in plywood sheathing.

Purpose of guideline

The purpose of this guideline is to provide information about requirements for trench support structures and types of soil. The guideline also provides information about combining sloping and shoring.

Trench support structures and soil type

Section 20.85 of the *Regulation* and its accompanying tables and figures set out detailed requirements for trench support structures required under [section 20.81\(1\)\(e\)](#). Any trench support structures not covered by these requirements, other than "manufactured or prefabricated trench boxes or shoring cages" allowed by section 20.81(f), must be covered by a professional engineer's certificate under section 20.81(d).

The requirements of section 20.85 depend on the type of soil. Type A soil is described in the section as "hard and solid." No soil is type A if it:

- Is fissured
- Is subject to vibration from heavy traffic, pile driving, or similar effects
- Has been previously disturbed
- Is part of a sloped or layered system where the layers dip towards the excavation on a slope of 4H:1V or greater
- The material is subject to factors that would require it to be classified as a less stable material

Type C soil is described in section 20.85 as "soft, sandy, filled or loose." It typically has a low, unconfined compressive strength. It can be

- A granular soil, including gravel, sand, and loamy sand

- Submerged soil or soil from which water is freely seeping
- Submerged rock that is not stable
- Material in a sloped, layered system where the layers dip towards the excavation on a slope of 4H:1V or greater

A more detailed, technical classification of soil types is available in Occupational Safety and Health Administration (OSHA) Part 1926, Subpart P, Appendix A. Visual and testing parameters are provided for analysis.

Combination of sloping and shoring

Section 20.85(2) and [Figure 20-3](#) specify an option if a combination of sloping and shoring is to be used. The following additional information may help clarify the relationship between H, the 1:1 slope, and the 1.5H horizontal dimension in Figure 20-3. If the broken reference line extending on a 1:1 slope from the toe or base of the excavation meets the surface of undisturbed ground within a distance of 1.5 times the depth of the trench, the trench support structures specified by section 20.85 can be used. If not, the original ground slopes upward steeper than a 1 vertical in 3 horizontal slope, and a professional engineer's certificate must be obtained under section 20.81(d) and followed.

Guidelines Part 20 - Marine construction, pile driving and dredging

G20.102 Suspended work platforms in marine construction and pile driving activities

Issued May 17, 2006

Regulatory excerpt

Section 20.102 of the *OHS Regulation* states:

- (1) Suspended work platforms such as gilly boards, small boats and buckets used to support workers must meet the requirements for suspended work platforms in Part 13 (Ladders, Scaffolds and Temporary Work Platforms).
- (2) Despite section 13.27(5), a secondary hoisting line on a crane may be used to suspend workers on a work platform in a marine construction or pile driving operation if
 - (a) it is not practicable to provide another means for positioning workers to perform work tasks,
 - (b) all the crane's hoisting gear that is being used conforms to section 13.29(1), and
- (c) the total load attached to or suspended from all load lines of the crane does not exceed 50% of the rated capacity of the crane for the reach and configuration.

Purpose of guideline

This guideline provides information on the circumstances under section 20.102(2)(a) in which WorkSafeBC expects it will be practicable to use a second crane or other hoist as a means for positioning workers to perform work tasks, and when it will not be practicable. The term "practicable" is defined in the *OHS Regulation* to mean "that which is reasonably capable of being done." The guideline also provides information on the application of section 20.102(2)(b).

Practicability of using a second crane or other hoist

The issue of practicability varies somewhat depending on whether the operations are done using equipment based on the ground or a dock, or are performed using equipment based on a barge, scow, or similar floating support.

1. **Operations where equipment is used on the ground or a dock:** It is *generally considered practicable* to use a second crane, a boom-supported elevating work platform, or other safe means to position workers to do tasks at height unless the area does not provide sufficient space or there are conditions that do not permit safe positioning of additional equipment. Examples of such cases include operations done on ground where access is limited or soil conditions preclude the use of additional equipment, and those done from a narrow wharf, jetty, or dock area with substantial space restrictions.

If the space is adequate for the operation of a second crane or other hoisting device, it may still not be practicable to bring in the second piece of equipment if the work is extremely short in duration or involves only a few lifts and is incidental to the job. Two examples are noted below.

- The work is solely for the purpose of routine maintenance on the crane, pile driver, or leads. For example, if it is necessary to re-thread a pile line on the leads, or to access the upper sheaves of the crane for maintenance such as lubrication, the use of a work platform suspended on a second load line while the pile driver and/or leads remain supported by another load line of the crane is considered normal and acceptable practice.
- During marine construction and pile driving work there may be other short duration lifting tasks that need to be done, for example the top of a light standard may need to be installed or removed. For such tasks the pile driver and leads are disconnected from the crane, rendering the crane available for use in its usual or normal configuration, with one load line supporting workers in a platform and the other line used to position or support the part to be installed or removed.

However, if such crane tasks are more than incidental, for example the work will take more than a day, and equipment such as a second crane or a boom-supported elevating work platform is reasonably available to the site, WorkSafeBC expects the work to be planned and executed in a manner that complies with section [13.27\(5\)](#).

2. **Operations where equipment is used on a barge or scow:** It is *generally considered not to be practicable* to use a second crane to lift a work platform or use an elevating work platform when operations are done from a barge, scow or similar floating equipment.

For example, if the secondary equipment is placed on the same barge or scow there usually will not be sufficient space to safely position the equipment. Also, in the case of an elevating work platform, it may not be possible to assure that the elevating work platform carrier will remain level within the limits normally required for safe operation of such equipment, in circumstances where there is listing of the barge or scow resulting from loads being handled by the crane, or as a result of wind and wave action.

If the secondary equipment is placed on another barge or scow, or on a nearby dock or land area there may be hazards to workers created from the relative movement of the two pieces of lifting equipment, as a result of the listing of the barge or scow from loads being handled by the crane, or from wind and wave action.

Intention of section 20.102(2)(b)

This provision references [section 13.29\(1\)](#) of the *OHS Regulation*, and broadens the application of the requirements under that section to all hoisting gear, including the primary line, the line used to lift workers and, where applicable, the boom hoist. In other words, all hoisting lines must be operated as slowly as practicable when workers are being lifted on the platform and must be lowered under power, and no line may be used with a free running boom or hoisting winch controlled only by brakes. Section [13.29\(2\)](#) and [\(3\)](#) continue to apply, but only to the line used to lift workers.

Guidelines Part 20 - Demolition

G20.112 Hazardous materials – Asbestos

Issued June 18, 2008; Revised consequential to February 1, 2012 Regulatory Amendment; Revised consequential to February 1, 2015 Regulatory Amendment; Editorial Revision consequential to May 1, 2017 Regulatory Amendment; Revised May 29, 2018; Editorial Revision April 6, 2020

Regulatory excerpt

Section 20.112 of the *OHS Regulation* ("*Regulation*") states:

(1) In this section:

"*hazardous material*" means a hazardous substance, or material containing a hazardous substance, including

(a) asbestos-containing material,

(b) lead or any other heavy metal, or

(c) toxic, flammable or explosive material,

that may be handled, disturbed or removed in the course of the demolition or salvage of machinery, equipment, a building or a structure, or the renovation of a building or structure;

"*qualified person*", except in subsections (7) and (8), means a person who

(a) has, through education and training, knowledge of the management and control of the hazardous materials that the qualified person is made aware of by the employers, and the owner, or that are reasonably foreseeable by the qualified person, as being

(i) on or in the machinery, equipment, building or structure that is the subject of the demolition, salvage or renovation, or

(ii) at the worksite, and

(b) has experience in the management and control of those hazardous materials.

(2) Before work begins on the demolition or salvage of machinery, equipment, a building or a structure, or the renovation of a building or structure, all employers responsible for that work, and the owner, must ensure that a qualified person inspects the machinery, equipment, building or structure and the worksite to identify the hazardous materials, if any.

(3) In conducting an inspection and identifying the hazardous materials, if any, under subsection (2), a qualified person must do the following:

(a) collect representative samples of the material that may be hazardous material;

(b) identify each representative sample and determine whether it is hazardous material;

(c) if the actions under paragraphs (a) and (b) are not practicable, or not appropriate in the circumstances, use other sufficient means to identify the hazardous materials, if any;

(d) based on the actions taken under paragraphs (a) and (b) or (c), determine the location of each of the hazardous materials

identified;

(e) make a written report of the inspection, including

(i) if the actions under paragraphs (a) and (b) were taken,

(A) the location of each representative sample, and

(B) the identity of each representative sample and whether it is hazardous material,

(ii) if the actions under paragraph (c) were taken, the identity of each of the hazardous materials, if any,

(iii) a description of the methods used under paragraph (b) or (c),

(iv) the location, as determined under paragraph (d), of each of the hazardous materials identified, including by using drawings, plans or specifications, and

(v) the approximate quantity of each of the hazardous materials identified.

(4) All employers responsible for work being carried out on the worksite where the demolition or salvage of the machinery, equipment, building or structure, or the renovation of the building or structure is taking place, and the owner, must ensure that the following information is available at the worksite:

(a) a report made under subsection (3)(e);

(b) a report made under subsection (6)(e);

(c) a written confirmation under subsection (8).

(5) All employers responsible for containing or removing any of the hazardous materials identified under subsection (2) or (6) must safely contain or remove those hazardous materials.

(6) If, after written confirmation is provided under subsection (8), a person discovers material that may be hazardous material on or in the machinery, equipment, building or structure or at the worksite, not previously determined to be hazardous material under this section, all employers responsible for the demolition or salvage of the machinery, equipment, building or structure, or the renovation of the building or structure, and the owner, must ensure that a qualified person does the following:

(a) collects representative samples of the material;

(b) identifies each representative sample and determines whether it is hazardous material;

(c) if the actions under paragraphs (a) and (b) are not practicable, or not appropriate in the circumstances, uses other sufficient means to determine if the material is hazardous material;

(d) based on the actions taken under paragraphs (a) and (b) or (c), determines the location of the hazardous material, if any;

(e) makes a written report, including

(i) if the actions under paragraphs (a) and (b) were taken,

(A) the location of each representative sample, and

(B) the identity of each representative sample and whether it is hazardous material,

(ii) if the actions under paragraph (c) were taken, the identity of the hazardous material, if any, and

(iii) if hazardous material was identified, the location of the hazardous material, including by using drawings, plans or specifications.

(7) All employers responsible for the demolition or salvage of the machinery, equipment, building or structure, or the renovation of the building or structure, and the owner, must ensure that, with respect to the hazardous materials identified under subsection (2) or (6),

(a) no demolition, salvage or renovation work that may disturb the hazardous materials, other than work necessary to safely contain or remove the hazardous materials, is carried out until the hazardous materials are safely contained or removed, and

(b) a qualified person complies with subsection (8).

(8) A qualified person must ensure, and confirm in writing, that the hazardous materials identified under subsection (2) or (6) are safely contained or removed.

Purpose of guideline

Demolition, renovation, and salvage work involve the taking apart and destruction, in whole or in part, of buildings, structures, equipment, and

machinery. These processes have the potential to create harmful exposures to hazardous materials. Section 20.112(1) of the *Regulation* lists several types of hazardous materials which must be identified and either safely contained or safely removed prior to demolition, renovation, or salvage work. Asbestos is one of these materials.

The purpose of this guideline is to explain the hazards associated with the uncontrolled release of asbestos. It also provides information for owners, employers, consultants, workers, and other involved persons on what constitutes a compliant asbestos inspection, arranging for and confirming the safe abatement of asbestos, and what to do if additional materials suspected to contain asbestos are encountered during demolition, renovation, or salvage work.

Demolition work is often a necessary component of restoration work following a fire or flood, and the requirements of section 20.112 of the *Regulation* and the information in this guideline also apply when demolition work is part of restoration work.

Background information

Demolition, renovation, and salvage work, if performed incorrectly, can create harmful asbestos exposures to a variety of workers and other persons, including owners, developers, demolition, renovation, and salvage workers, inspectors, transportation workers, landfill workers, and the public. If demolition of a house/building proceeds without first ensuring the identification and safe removal of the asbestos hazards, asbestos fibres can be released, and remain airborne for a long period of time, potentially exposing workers. During the demolition of the interior walls and ceilings, the demolition, renovation, or salvage workers may be exposed to airborne asbestos fibres in the dust from the gypsum board filling compound (sometimes called drywall mud) and from textured ceilings and walls. Vermiculite attic insulation containing asbestos fibres can spill out of the attic when the ceiling material is removed. Asbestos-containing dusts from these activities can contaminate the site and disperse to neighbouring properties exposing other persons. As asbestos-containing debris is loaded into a disposal truck the excavator operator and the truck driver can be exposed to asbestos-containing dusts which can also drift into neighbouring properties. As the disposal truck travels to the landfill site, dust that contains asbestos can blow out of the truck, spreading asbestos dust along its travel route. When the truck discharges its asbestos contaminated load at the landfill, unprotected landfill site workers can be exposed to the airborne hazard. These work practices are unacceptable and non-compliant with the *Regulation*.

Asbestos hazards must be controlled through the identification and safe abatement of asbestos, by trained persons, before demolition, renovation, or salvage work. This guideline provides information for acceptable identification, assessment, reporting, and removal of asbestos hazards in buildings and structures (refer also to the ["Ten Steps to Compliance"](#) chart at the end of this guideline).

The requirements in section 20.112 of the *Regulation* are related to other requirements in both the *Regulation* and the *Workers Compensation Act* ("Act"). For example, when asbestos is removed, other requirements in [Part 6-Asbestos](#) of the *Regulation* are also applicable. The requirements in sections [21](#) (General duties of employers) and [25](#) (General duties of owner) in the *Act* also apply.

More information related to asbestos hazard assessment and control measures for building demolition, renovation, and salvage work can be found in the following:

- OHS Guideline [G6.8 "Procedures for abatement of asbestos materials during house and building demolition/renovation"](#)
- WorkSafeBC publication BK27 ["Safe Work Practices for Handling Asbestos"](#)
- WorkSafeBC hazard bulletin [WS03-03 "Asbestos Hazards in Demolition, Renovation and Salvage"](#)
- WorkSafeBC bulletin [WS2008-03 "The dangers of exposure to asbestos in vermiculite attic insulation"](#)

Responsibilities and qualifications

Sections 20.112(2), (4), (5), (6), and (7) of the *Regulation* specify explicit responsibilities for the owner and the employers. As per [section 30](#) of the *Act*, these parties need not duplicate the same compliance efforts providing they coordinate their actions to ensure that compliance with all provisions of section 20.112 is achieved. The following table summarizes which workplace parties, if any, are primarily responsible for the regulatory requirements, but not be limited to those on the list:

Obligations	Who's responsible (where applicable)
Ensure that a hazardous materials inspection is completed by a qualified person	Owner/owner representative Employers such as the following: Prime contractor Demolition contractor Salvage contractor Abatement contractor Renovation contractor Builder
Ensure that a written inspection report and other required documentation is available at the worksite	Owner/owner representative Employers such as the following: Prime contractor Demolition contractor Salvage contractor Abatement contractor Renovation contractor Builder Employers of other workers on site

Conduct the hazardous materials inspection in an appropriate manner	Qualified person (commonly a hazardous materials consultant)
Safely contain or remove hazardous materials	Abatement contractor Salvage contractor Demolition contractor Renovation contractor
Provide written confirmation that the hazardous materials have been safely contained or removed	Qualified person (may be a different person than the qualified person conducting the hazardous materials inspection)

Prior to asbestos removal occurring, all employers responsible for the work, as well as the owner or prime contractor must ensure that a notice of project (NOP) for asbestos, as required under [section 20.2.1](#) of the *Regulation*, is submitted to WorkSafeBC at least 48 hours in advance of the actual removal of asbestos, including any preparatory work. The NOP must include detailed written safe work procedures and a written hazardous materials inspection report as required under sections 20.112(3)(e) or 20.112(6)(e) of the *Regulation*. Only one NOP needs to be submitted.

Under sections 20.112(2), (3), and (6) a qualified person has responsibilities regarding inspection, sample collection, identification, and report-writing. The qualifications required by the person fulfilling these requirements are defined in section 20.112(1). These qualifications would typically be held by an asbestos consultant or specialist. A qualified person is also required to fulfill duties in sections 20.112(7) and (8). The qualifications required of this person are described in section 1.1 of the *Regulation* as being knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience, or a combination thereof. This person may be a different person than the qualified person described in sections 20.112(2), (3), and (6).

The following activities should also be conducted by a qualified person with education, training, and experience in the management and control of asbestos hazards:

- Collection and interpretation of air samples during asbestos abatement projects
- Preparation of inspection reports
- Conduction of workplace inspections

Inspection for and identification of any asbestos-containing materials

Section 20.112(2) of the *Regulation* requires that before work begins on the demolition or salvage of machinery, equipment, buildings, or structures, or the renovation of a building or structure, the employer or owner must ensure a qualified person inspects the site to identify any asbestos-containing materials. This inspection is separate from an inventory required by [section 6.4](#) of the *Regulation*. The inventory prepared under section 6.4(1) is required for the protection of workers who may occupy a building. Although it may not include asbestos that wasn't readily accessible (e.g., hidden behind concrete walls or under a number of layers of flooring), the inventory required by section 6.4(1) will be a useful aid in conducting the inspection and identification of hazardous materials as specified in section 20.112(2). The purpose of the inspection required by section 20.112(2) is to locate and identify all asbestos-containing material prior to renovation, demolition, and salvage activities.

The asbestos inspection process is referred to as a pre-renovation or pre-demolition *asbestos survey* and the person conducting the inspection is often referred to as the *surveyor*. The asbestos survey includes a walk-through inspection, sample collection, sample analysis, reporting, and communication of the results. Surveyors must be familiar with proper walk-through and sample collection practices. There are a number of recognized industry standards which provide guidance on conducting asbestos surveys, and include the following:

- [The Ontario Regulation 278/05 Designated Substance – "Asbestos on Construction Projects and in Buildings and Repair Operations"](#)
- [Asbestos: The Survey Guide \(HSE – HSG264\)](#)
- [EPA How to Manage Asbestos in School Buildings EPA 910-B-96-001](#)
- [Managing Asbestos in Buildings: A Guide for Owners and Managers](#) (Environmental Information Association, 2015)

The first step in the asbestos survey is to identify asbestos hazards by a thorough and systematic walk-through inspection of the site. The site may be a building (commercial, industrial, or residential), a structure, a machine, or a piece of equipment. Asbestos identification and recognition is a specialized skill and it is essential that the surveyor be adequately instructed, trained, and experienced in identifying materials known to, or likely to, contain asbestos.

Table 1 lists some of the materials that commonly contain asbestos in older commercial, industrial, and residential buildings.

Table 1: Asbestos Materials in Older Commercial, Industrial, and Residential Buildings

Exterior	Interior insulation

<ul style="list-style-type: none"> Asbestos cement pipes (e.g., drain pipes) Roof felting Asphalt shingles Soffit boards Stucco Asbestos cement siding Brick mortar Window putty Deck undersheathing Asbestos cement shingles 	<ul style="list-style-type: none"> Spray-applied insulation (acoustic and fireproofing) Vermiculite (blown-in) insulation (e.g., in attics) Paper backing on fibreglass insulation
Flooring	Heating (HVAC) and ducting
<ul style="list-style-type: none"> Vinyl sheet flooring and mastic Vinyl floor tile and mastic Poured flooring/levelling compound Asphalt flooring 	<ul style="list-style-type: none"> Furnace duct tape Furnace/boiler insulation Pipe (mechanical) insulation Hot water tank insulation Mastic Asbestos rope and gaskets Asbestos cement board Asbestos cardboard insulation
Walls & Ceilings	Other
<ul style="list-style-type: none"> Drywall mud Plaster Asbestos cement board Textured coatings Ceiling tiles 	<ul style="list-style-type: none"> Fireplace box and mantel Artificial fireplace logs and ashes Fire doors Insulation on electrical wiring Fire blankets Chalk boards Heat reflectors Penetration firestopping Candescent light fixture backing (pot lights)

Note: This list does not include every product that may contain asbestos. It is intended as a general guide (refer also to the online WorkSafeBC Bulletin [WS 03-03](#)).

During the initial walk-through inspection the surveyor systematically goes through each area and room in the building observing the wall, ceiling, floor, and other materials including any machinery or equipment (e.g., an old boiler or HVAC system) and hidden insulating materials to make a preliminary determination if asbestos could be present. During this walk-through, the surveyor will also consider where to collect representative bulk samples of suspected asbestos material. Once the walk-through is complete, the surveyor has the necessary information to begin the sampling process (refer to the next section).

The following Asbestos Inspection Results worksheet (and completed worksheet example) illustrates an acceptable method by which asbestos survey results can be summarized for an owner or contractor. Refer also to sections 20.112(3)(e)(iii)–(v) of the *Regulation*. It may be necessary to include drawings or plans.

Asbestos Inspection Results					
Project Name:		Date of Survey:			
Address:		Survey Company:			
Description:		Surveyor:			
Previous Renovations?		Age of Structure:			
Laboratory Name:		Analysis Method(s):			
Area or Room (directions when facing house)	Building Materials	Sampling Location	Material Collected (sample #)	Asbestos Type and Percentage	Approximate Quantity of Asbestos

Attic	Insulation is fibreglass batt with vermiculite beneath	Left Attic Right Attic	Vermiculite (11) Vermiculite (12) Vermiculite (13)	Actinolite 0.7% Actinolite 1% Actinolite 1%	Entire attic (approx. 1500 sq. ft. or 140 m ²)
Exterior	Exterior is wood; roof is composition shingles; aluminum frame windows	Roof	Shingle (14)	None	None
Furnace		Ducting	Tape (15)	Chrysotile 30%	All ducting (approx. 20 joints)
Crawl Space	Pipe Insulation	Below kitchen	Pipe wrapping (16)	Chrysotile 35%	All crawl space piping (approx. 100 linear ft.)

*These approximate quantities represent the surface area of asbestos material to be removed (e.g., drywall from walls and ceilings), and they do not represent room dimensions.

Bulk asbestos sample collection

During the walk-through inspection the surveyor identifies materials suspected to contain any asbestos. To confirm or discount the presence of asbestos, representative bulk samples must be collected. Multi-layered materials, like multiple layers of old tile and linoleum flooring or multiple layers in wall or ceiling materials, will commonly be encountered. Careful consideration must be given to which layers of multi-layered materials to sample. Ideally a sample should be collected from each suspected layer. The surveyor should identify the sample location in the building with a unique sample number.

The sampling technique and quantity of material sampled are two other important factors to consider. Sufficient quantities of material must be collected. Check the laboratory method for required sample quantities or check with the laboratory analyst. For materials like vermiculite, the surveyor ensures that samples contain the full depth of the material down to the bottom and that the quantity collected is as required by the EPA/600/R-04/004 vermiculite sampling and analytical method. Sample collection methods should minimize disturbance and exposure to the persons collecting the bulk samples. Use of protective clothing is recommended and wearing of a properly fitted approved respirator is required. Persons collecting the samples must have a written sample collection procedure as part of their asbestos Exposure Control Plan. (Refer to sections 6.3 and 5.54 of the *Regulation* for Exposure Control Plan requirements.) A Respiratory Protection Program is also required. (Refer to section 8.5 and sections 8.32 through 8.44 *Regulation* and the associated OHS Guidelines.)

The number of representative bulk samples collected should be consistent with recognized industry standards and principles of good occupational hygiene practice (four examples of recognized industry standards are referred to earlier in this OHS Guideline under "Inspection for and identification of any asbestos-containing materials"). For a two-storey 1960's–1970's house that has asbestos in both the drywall joint compound and the textured ceilings, vermiculite attic insulation, asbestos-containing linoleum and vinyl tile floorings, and furnace duct tape, collection of a total of 18 to 25 bulk samples would be considered as reasonable to ensure representative sampling and principles of good occupational hygiene practice have been met and that a thorough asbestos survey has been performed. The professional judgment of a qualified person can be used to reduce the number of bulk samples for homogeneous materials. For example, for the upper level of a home with visually similar plaster and where the history of the home is known (e.g., no significant renovations), 1–2 samples may be sufficient for representative sampling of the upper level walls.

Table 2 provides guidance on the minimum number of bulk samples that should be collected to identify any asbestos that might be present in a residential, industrial, or commercial building prior to demolition, renovation, or salvage.

Table 2: Bulk Material Sample Collection Guide

Type of material	Size of area of homogeneous material ¹	Minimum number of bulk material samples to be collected ²	Minimum recommended quantity per sample ²
Surfacing materials, including textured coatings, drywall mud, plasters, and stucco	Less than 90 m ² (approx. 1,000 ft. ²)	At least 3 samples of each type of surfacing material	50 cm ³ (3 cu. in.); for drywall mud, sample the mud only - do not include the drywall or tape
	Between 90 and 450 m ² (approx. 5,000 square feet)	At least 5 samples of each type of surfacing material	
	Greater than 450 m ²	At least 7 samples of each type of surfacing material	
Sprayed insulation and blown-in insulation, including sprayed fireproofing and vermiculite insulation (including vermiculite insulation within concrete masonry units — CMUs)	less than 90 m ² (approx. 1,000 ft. ²)	At least 3 samples	50 cm ³ (3 cu. in.)
	Between 90 and 450 m ² (approx. 5,000 ft. ²)	At least 5 samples	
	Greater than 450 m ²	At least 7 samples	

Loose vermiculite insulation (including vermiculite insulation within concrete masonry units, or CMUs)	Less than 90 m ² (approx. 1,000 ft. ²)	At least 3 samples	4 L (1 gal.); collect from the top to the bottom of the application to get a representative sample
	Between 90 and 450 m ² (approx. 5,000 ft. ²)	At least 5 samples	
	Greater than 450 m ²	At least 7 samples	
Ceiling tiles	Less than 90 m ² (approx. 1,000 ft. ²)	At least 3 samples	5 cm x 5 cm (2 in. x 2 in.)
	Between 90 and 450 m ² (approx. 5,000 ft. ²)	At least 5 samples	
	Greater than 450 m ²	At least 7 samples	
Flooring, including vinyl sheet flooring (and backing) and floor tiles	Any size	At least 1 sample per flooring type in each room (and 1 from each layer of flooring)	5 cm x 5 cm (2 in. x 2 in.)
Levelling compounds and mortars	Any size	At least 3 samples	50 cm ³ (3 cu. in.)
Asbestos ropes, gaskets, wires, etc.	Any size	At least 1 sample)	5 linear cm (2 linear in.) or 5 cm x 5 cm (2 in. x 2 in.)
Mechanical insulation, including duct taping, pipe insulation, elbows, boiler/tank, and vessel insulation	Any size	At least 3 samples	50 cm ³ (3 cu. in.); all layers must be collected down to the pipe, tank, or vessel
Mastics and putty, including duct mastic (around penetrations) and window putty	Any size	At least 3 samples	15 cm ³ (1 cu. in.)
Roofing materials, including felting and shingles	Less than 90 m ² (approx. 1,000 ft. ²)	At least 1 sample (each layer of material must be sampled)	5 cm x 5 cm (2 in. x 2 in.); collect all layers, down to the sheathing
	Between 90 and 450 m ² (approx. 5,000 ft. ²)	At least 2 samples (each layer of material must be sampled)	
	Greater than 450 m ²	At least 3 samples (each layer of material must be sampled)	
Asbestos cement (transite) board and pipe	Any size	At least 1 sample	1 full, small ziploc bag
Other materials	Any size	At least 1 sample per type of material	5 cm x 5 cm (2 in. x 2 in.)

Notes:

¹ Homogenous material is considered uniform in texture and appearance, was likely installed at onethe same time and is likely to be of only one type of material or formulation.

² If the material is assumed to contain asbestos then samples do not have to be collected. The professional judgment of a qualified person can be used to reduce the number of bulk samples of homogeneous materials. If fewer samples than the minimum recommended number are collected, the surveyor should document the rationale for his/her position in the survey report.

Sample analysis

Asbestos bulk samples should be analyzed by an accredited asbestos laboratory (if the laboratory is not accredited, it must be a participant in a quality control program). Methods accepted by WorkSafeBC for bulk sample analysis are specified in [section 6.1](#) of the *Regulation*. These methods include requirements for laboratory equipment, calibration, quality control, and result reporting. Refer also to the online WorkSafeBC publication [Safe Work Practices for Asbestos Laboratories](#).

WCB Method 0205 for asbestos bulk sample analysis is no longer an acceptable method since it does not provide sufficient specificity of quantitation at low levels of asbestos.

Risk assessment for the abatement of identified asbestos

When the presence of asbestos is either confirmed through bulk sample analysis or a material is assumed to contain asbestos (e.g., asbestos furnace duct tape, asbestos cement transite board, or asbestos exterior shingles, etc.), a risk assessment must be performed before demolition, renovation, or salvage work begins to determine the exposure risk to workers and other persons. The risk assessment, which must be conducted by a qualified person with education, training, and experience in the management and control of asbestos hazards, helps provide the scope of work for the abatement of asbestos. Refer to Responsibilities section earlier in this guideline and to [section 6.6](#) of the *Regulation* and OHS Guidelines [G6.6-1 Risk Assessment](#) to [G6.6-2 Classification of risk](#).

Inspection reports must be "available at the worksite"

The surveyor should meet on site with the asbestos abatement contractor prior to commencement of abatement activity in order to explain the inspection results from the survey. This will help ensure that the contractor's workers adequately understand the areas where asbestos is present and what has to be removed.

As per section 20.112(4) of the *Regulation*, a copy of the inspection reports must be available at the worksite. The site documentation must include the inspection reports from the survey and any drawings, plans, or specifications that show the locations of any asbestos. This requirement applies to all employers who have workers on the demolition, salvage, or renovation worksite; including contractors where workers may disturb asbestos-containing materials by their work activities. Workers must have the information about the asbestos hazards on hand to use as a reference in planning their work and to avoid exposure to asbestos.

As per section 20.112(8) of the *Regulation*, having the inspection reports available at the worksite includes a written confirmation by the qualified person that the asbestos-containing materials specified for removal were safely contained or removed. A document such as a post-asbestos abatement inspection report, that confirms that an inspection was conducted to verify the safe removal of identified asbestos, is acceptable for this purpose. Refer to the Written Confirmation section of this guideline outlining the information that should be contained in a written confirmation by the qualified person.

Safe removal of asbestos

All asbestos specified for removal must be removed using safe work practices and procedures before demolition occurs. The WorkSafeBC publication [Safe Work Practices for Handling Asbestos](#) and OHS Guideline [G6.8](#) describe acceptable practices. Workers and other persons must not be exposed to asbestos during the demolition, renovation, or salvage of a building or structure. The asbestos removal practices and procedures must minimize the release of airborne asbestos fibres and must be in compliance with all applicable asbestos requirements in [Part 6](#) of the *Regulation*.

Written confirmation

The employer must ensure that a qualified person has complied with the requirement to provide written confirmation that asbestos-containing materials have been safely contained or removed. The written confirmation is commonly referred to as the 'clearance' document or post-abatement inspection report. The qualified person, in this case, must be familiar with the work that was conducted and can be one of the following:

- Project consultant
- Prime contractor
- Asbestos abatement contractor
- Demolition contractor
- Renovation contractor
- Asbestos building surveyor

The written confirmation should include information such as the following:

- The date the clearance inspection was conducted
- The address of the abatement project
- The name of the abatement contractor
- A description of the scope of work that was performed
- The notice of project (NOP) number for the asbestos work, if applicable
- Waste manifest documentation
- Results of any air clearance sampling, and the name and signature of the surveyor, consultant, or contractor who collected the air samples
- Other relevant information, such as a reference to the hazardous materials inspection report, the name of the consultant, surveyor, or contractor who performed the final visual inspection
- A statement indicating that the abatement was conducted in accordance with regulatory requirements, and that the asbestos was safely removed

Asbestos encountered during demolition, renovation, or salvage

Sections 20.112(6) and (7) of the *Regulation* describe requirements when hazardous material not previously determined to be hazardous is discovered. If any suspect asbestos material is encountered during demolition, renovation, or salvage, such as in walls or some other concealed space or location that was missed during the pre-abatement inspection process, work must cease until the actions required by this section are completed i.e., sample collection and identification, determination of the locations of the materials, and subsequent implementation of the required control measures (usually removal of the asbestos). This means that the demolition, renovation, or salvage workers need some basic awareness and skill in recognition of materials likely to contain asbestos. Having the ability to recognize building materials and products that may contain asbestos is part of the training and instruction that demolition, renovation, and salvage employers need to provide to their workers who may be exposed to asbestos (refer to [section 6.11](#) of the *Regulation* for asbestos training requirements).

Other requirements

The *BC Building Code* and various municipal bylaws also have requirements regarding demolition procedures. The owner or employer should check with the appropriate local authority for further details.

Ten General Steps to Compliance with asbestos abatement requirements for a house (built pre-1990) or a building planned for demolition, renovation, or salvage work

(1) A house or building is to be demolished, renovated, or salvaged.



(2) The building owner (or owner's representative) or the employer (e.g., builder, demolition contractor) retains a qualified person (usually a consultant) to perform a risk assessment and asbestos survey before conducting work where asbestos may be disturbed.



(3) The qualified person inspects the house or building, collects representative bulk samples, and has the samples analyzed by a qualified laboratory.



(4) The qualified person prepares a report that identifies all inspection results (including drawings, plans, or specifications), the results of the risk assessment, and scope of work for the abatement of the asbestos.



(5) The report containing the inspection results is provided to the owner or employer. The inspection report must be available at the worksite.



(6) The owner or employer retains trained asbestos abatement workers. An NOP with written work procedures is submitted to WorkSafeBC 48 hours before asbestos removal work begins.



(7) Safe removal and disposal of identified asbestos occurs.



(8) After the asbestos removal, the owner or employer receives written confirmation that the asbestos specified for removal on the NOP has been safely removed. A copy of the inspection report is on site.



(9) The owner authorizes demolition, renovation, or salvage of the house or building to proceed. The contractor proceeds with the work following safe work procedures. Copy of inspection results and post-abatement reports are on site.



(10) If any material suspected as asbestos is found during demolition, renovation, or salvage activity, all work is to cease. Go back to step 2 to retain a qualified person.

Guidelines Part 20 - Work in Compressed Air

G20.123 Alternate acceptable standard

Issued February 11, 2021

Regulatory excerpt

Section 20.123 of the OHS Regulation ("*Regulation*") states:

The employer must ensure that equipment and work processes carried out at an air pressure greater than 7 kPa (1 psi) above atmospheric pressure meet the requirements of [CSA Standard CAN/CSA Z275.3-M86, Occupational Safety Code for Construction Work in Compressed Air](#).

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

Section 4.4(2)(a) of the *Regulation* provides WorkSafeBC the authority to accept alternative standards to those listed in the *Regulation*. The purpose of this guideline is to specify the 2009 version of CSA Z275.3 as an acceptable alternative standard under section 20.123.

Alternative standard

The [CSA Standard CAN/CSA Z275.3-09, Occupational safety code for work in compressed air environments](#) is accepted as an alternative standard.

Contents

DIVISION 1 – GENERAL REQUIREMENTS

G21.3 [Dangerous incident reports](#)

G21.4 [Blasting log](#)

G21.5(1)-1 [Scope of blasting certificates issued by the WorkSafeBC](#)

DIVISION 2 – CERTIFICATION OF BLASTERS

- G21.8 [Certification of blasters – Qualifications](#)
- G21.8.1 [Continuing professional development – Blasters](#)
- G21.10 [Examinations](#) [Withdrawn]
- G21.12 [Custody of certificates](#)
- G21.15 [Suspension of certificates](#)

DIVISION 3 – STORAGE

- G21.16 [Storage - Detonators](#)

DIVISION 4 – TRANSPORTATION

- G21.23 [Transportation - Flammable materials](#)
- G21.25(e) [Mobile drilling rigs](#)
- G21.27 [Contact with metal](#) [retired]
- G21.28 [Emergency procedures](#)

DIVISION 5 – HANDLING EXPLOSIVES

- G21.39 [Disposal of explosives – Abandoned](#)

DIVISION 6 – DRILLING

- G21.42 [Predrilling requirements](#) [Retired]

DIVISION 7 – LOADING

- G21.53 [Connecting detonating cord](#)

DIVISION 8 – SAFETY FUSE ASSEMBLY INITIATION

- G21.56 [Safety fuse assemblies](#)
- G21.57 [Lighting safety fuse](#) [Retired]

DIVISION 9 – ELECTRICAL INITIATION

- G21.62 [Mobile transmitters](#) [Retired]
- G21.64 [Initiating a blast in accordance with safe work practices](#) [Retired]
- G21.65 [Firing from power lines](#)

DIVISION 10 – FIRING

- G21.69 [Blasting signals](#)

DIVISION 11 – AFTER THE BLAST

- G21.73 [Misfires](#) [Retired]

DIVISION 12 – MISFIRE PROCEDURES

- G21.75 [Cutoffs and unexploded explosives](#)

DIVISION 13 – SPECIALIZED BLASTING OPERATIONS

- G21.82 [Underwater blasting](#)
- G21.83 [Special effects blasting](#)
- G21.85(1)-1 [WorkSafeBC acceptance of procedures for avalanche control](#)
- G21.85(1)-2 [Assessment of avalauncher device safety in proposed work procedures](#)
- G21.85(3) [Safety fuse ignition system](#)

G21.3 Dangerous incident reports

Issued August 1999; Editorial Revision July 2004; Revised May 9, 2014; Editorial Revision consequential to June 3, 2019 Regulatory Amendment; Editorial Revision April 6, 2020; Editorial Revision March 11, 2021

Regulatory excerpt

Section 21.3 of the *OHS Regulation* ("*Regulation*") states:

- (1) If a blasting accident occurs which causes personal injury, or if there is any other dangerous incident involving explosives, whether or not there is personal injury, the employer must
 - (a) report the incident immediately to the Board, and
 - (b) forward a written report of the incident to the Board without undue delay.
- (2) The written report of the incident must contain
 - (a) the date, time and location of the incident,
 - (b) the names and certificate numbers of all blasters involved,
 - (c) the names and occupations of any persons injured,
 - (d) the types of explosives, including detonators, and initiating device used,
 - (d.1) the instrument used to test the electric blasting circuit,
 - (e) a factual account of events including the blaster's log records,
 - (f) the names of all employers responsible for workers present at the worksite when the incident occurred, and
 - (g) the action taken by each employer referred to in paragraph (f).

Purpose of this guideline

The purpose of this guideline is to explain the requirement to report a blasting incident to WorkSafeBC.

Reporting

In addition to incidents causing personal injury or personal damage, a "dangerous incident" includes near misses or problems with particular products, such as repeated and/or suspicious misfires or premature detonations. This could include repeated misfires in short succession (see misfire definition in [section 21.1](#)).

"Immediately" means the same as in [G-P2-68-1](#). This reporting should occur as part of the employer's response at the time of the incident. For contact information refer to [Reporting serious injuries and fatalities](#).

The written report must be forwarded "without undue delay," meaning that the written report must be submitted within 48 hours of the incident unless the particular circumstances of the operation prevent this. The report must be submitted to the nearest WorkSafeBC office, which will forward a copy to Certification Services.

Information required

Section 21.3(2) of the *Regulation* lists the information that must be provided, including "a factual account of events including the blaster's log records." This information should include the lot numbers of the product, if there is a perceived problem with the product being used, and photos if available.

Special effects blasting

Refer to [OHS Guideline G21.83](#) for information on the procedure for investigating incidents, accidents, and dangerous or unusual occurrences involving blasters certified by the Explosives Regulatory Division of Natural Resources Canada.

G21.4 Blasting log

Issued August 1999; Revised May 9, 2014; Editorial Revision July 30, 2021; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.4 of the *OHS Regulation* ("*Regulation*") states:

- (1) The blaster of record must record in a blasting log

- (a) the following preblast loading details:
 - (i) the time, date and location of the blast;
 - (ii) the name of the blaster of record and all other persons handling explosives;
 - (iii) the type and weight of explosives used;
 - (iv) the number of detonators used;
 - (v) the type of initiating device used, and
 - (b) the results of the postblast site examination required under section 21.71, 21.74 or 21.82(5).
- (2) Blasting logs must be maintained at the worksite, available for inspection by an officer, workers and worker representatives.
- (3) The employer must ensure that blasting logs are kept for at least 5 years after completion of the blasting operation.
- (4) The blaster must maintain a personal log of all blasting work that the blaster has performed in the immediately preceding 5 years before the current date.

Purpose of guideline

The purpose of this guideline is to provide guidance on log book entries as required by section 21.4 of the *Regulation*.

Log book entries

Section 21.4(1) of the *Regulation* provides that "the blaster of record must record in a blasting log the preblast loading details outlined in section 21.4(1)(a)(i) to (v) and the results of the postblast site examination." The "blaster of record" is defined in section 21.1 as the "blaster who is designated to be in charge of a blasting operation." This person must complete the worksite blasting log in person; it cannot be assigned to another individual.

The blaster of record is required to record certain information in the blasting log. This information is outlined in the [Blaster's Handbook](#), which is issued to all blasters who have registered and paid for a blasting exam. Various formats for a blasting log may be used as long as they contain all the required information. Electronic records are also acceptable as long as copies are retained by both the employer and the blaster.

For PDF examples refer to the following, available on worksafebc.com

- [Urban and Construction \(First and Second Class\) Blasting Log](#) (form 50M19)
- [Forestry \(Third class\) Blasting Log](#) (form 50M20)
- [Avalanche Control Blasting Log](#) (form 50M21)

Maintain a personal log

In addition to the worksite blasting log, section 21.4(4) states that "the blaster must maintain a personal log of all blasting work that the blaster has performed in the immediately preceding 5 years from the current date." This personal log may be used or required to establish proof of experience when seeking certification under [section 21.8](#). The blaster's assistant should also have copies for future certification applications.

Only the personal log for the current operation, along with the worksite log, need to be available at the blast site.

G21.5(1)-1 Scope of blasting certificates issued by WorkSafeBC

Issued April 9, 2019; Editorial Revision April 6, 2020

Regulatory excerpt

Section 21.5(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) Only the holder of a valid blaster's certificate issued by the Board or acceptable to the Board is permitted to conduct or direct a blasting operation, and then only if the work involved is within the scope of that certificate.

Section 59 of the *Workers Compensation Act* ("*Act*") states, in part:

The Board may do the following:

...

- (c) issue, renew and amend certificates to blasters and instructors;

...

Purpose of guideline

The purpose of this guideline is to identify and describe the scope of work for the various qualification/types of blaster's certificates as issued by WorkSafeBC under section 59 of the *Act* for the purpose of compliance with section 21.5(1) of the *Regulation*.

Qualification

Blasting certificates issued in B.C. by WorkSafeBC are identified by blasting qualification/type along with endorsements. This information is found on the back of the blasting certificate and determines the scope of work allowed by the holder of the certificate.

Qualifications (may be more than one) will appear on the back of the certificate, and there may also be multiple endorsements. More information can be found at worksafebc.com. The following identifies the possible qualifications/type of certificates, and describes the scope. The scope may be restricted or enhanced by specific identified endorsements that will be included on the certificate.

Avalanche Control – Avalanche control blasting is the use of explosives to reduce the magnitude of spontaneous destructive avalanche occurrences. This is accomplished by triggering smaller, less hazardous avalanches or by directly influencing the structure of the snow pack.

Surface Blaster, First Class (formerly identified as Urban Blasting) – The scope includes blasting within a regional district, city, town, village limits, or within 300 metres of a potentially occupied structure.

Surface Blaster, Second Class (formerly identified as Construction blasting) – The scope includes blasting adjacent to transport corridors, near utilities, services, and within regional districts where occupied buildings or structures are greater than 300 metres away.

Surface Blaster, Third Class (formerly identified as Forestry blasting) – The scope includes blasting for resource roads, quarries, utilities, or construction in remote areas where occupied buildings and significant structures are greater than 750 metres away.

Danger Tree – The scope includes the use of explosives to remotely fall hazardous trees such as snags and limb-tied trees encountered in forestry operations as required by section 26.26(3) of the *Regulation*. The holder must also be a certified faller.

Seismic – The scope is blasting used in the exploration of subterranean resources such as mineral, oil, or gas. Most workers in the oil and gas industry generally hold a certificate from Energy Safety Canada – refer to *OHS Guideline 21.5(1)-2 Authority to blast – Certificates acceptable to WorkSafeBC*.

Explosive joining – The scope is specific to the use of high explosives to repair or join powerlines, pipelines, or to harden steel.

Explosive ordnance disposal – The scope is specific to removing and disposing of unexploded explosives, including artillery, IED (improvised explosive device), munitions, etc.

Underground – The scope is specific to non-resource related blasting in an underground setting (not for the purpose of mining) and includes tunneling for roadways or hydro-electric projects.

Law enforcement – The scope is specific to law enforcement agencies that utilize explosives to breach targets.

Demolition – The scope is specific to blasting for the purpose of demolition. Examples would include bridges, buildings, or structures such as radio or water towers. This qualification may be restricted to a prescribed distance from occupied buildings or transport corridors.

Propellants/Other – The qualification will include unique applications or operations not otherwise listed above. Includes the use of low explosives or propellants to blast in-situ rock.

For further description and requirements of blasting certification, refer to worksafebc.com.

G21.5(1)-2 Authority to blast - Certificates acceptable to WorkSafeBC

Issued August 1999; Revised September 21, 2011; Revised March 31, 2015; Editorial Revision November 21, 2017; Editorial Revision April 9, 2019

Regulatory excerpt

Section 21.5(1) of the *OHS Regulation* ("Regulation") states:

(1) Only the holder of a valid blaster's certificate issued by the Board or acceptable to the Board is permitted to conduct or direct a blasting operation, and then only if the work involved is within the scope of that certificate.

...

Purpose of guideline

The purpose of this guideline is to set out the blaster's certificates that are acceptable to WorkSafeBC under section 21.5(1) of the *Regulation*.

Seismic blasting and/or oil well perforating

A Memorandum of Understanding (MOU) has been signed by WorkSafeBC and regulatory agencies in Alberta, Saskatchewan, Manitoba, Yukon, the Northwest Territories, and Nunavut, which are members of the Interprovincial Blaster Harmonization Committee (IBHC). The certificates issued by Energy Safety Canada (formerly Enform) will be recognized as valid blaster's certificates by every jurisdiction signing the MOU.

Note: As of October 2017 Enform has merged with the Oil Sands Safety Association (OSSA) to form Energy Safety Canada. At this time Enform certificates are still recognized as valid. Moving forward certificates will be re-branded as they expire and are renewed.

A blaster's certificate endorsed for either seismic or oil well perforating issued by WorkSafeBC will still be valid for this type of blasting within British Columbia, but will not be recognized within the other jurisdictions. However, this type of certificate may be recognized as proof of experience pursuant to the *Agreement on Internal Trade* or the *Trade, Investment and Labour Mobility Agreement*.

Pyrotechnic blasting in the performing arts and film industry

An MOU has been reached between WorkSafeBC and the Explosives Regulatory Division, Natural Resources Canada ("Explosives Branch") to recognize one common certification program that will ease the administrative burden for the two agencies and allow worker relocation within the industry. The MOU states that WorkSafeBC will recognize the certification issued by the Explosives Branch. The Explosives Branch agrees to allocate time for selected WorkSafeBC prevention officers to present the requirements of the *Regulation* during training programs conducted in British Columbia for the subject industries.

The parties agree to notify each other immediately of the occurrence of any incidents, accidents, sanctions, suspensions, and revocations. The parties also agree that WorkSafeBC will have primary responsibility over the site of any workplace incident but the parties will jointly investigate any accident, incident, or dangerous or unusual occurrence.

Refer to [Guideline G21.83](#) for information contained in Addendum 1 of the MOU that outlines the procedures for prevention officers investigating a complaint or incident involving pyrotechnic blasting in the film or performing arts industry.

Underwater blasting

Refer to [Guideline G21.82](#) for underwater blasting operations and requirements of the blaster of record and the diver.

G21.7 Training

Issued August 1999; Editorial Revision May 9, 2014

Regulatory excerpt

Section 21.7 of the *OHS Regulation* ("*Regulation*") states:

A worker engaged in loading, unloading, or conveying explosives must be trained in the proper means for handling the explosives, the hazards of fire and mishandling and the procedures to follow in the event of a fire or explosion.

Purpose of guideline

The purpose of this guideline is to provide a reference to the *Transportation of Dangerous Goods Regulation* (TDG) which encompasses the training required.

TDG Training

[Section 21.5](#) outlines the requirements for workers who may conduct, supervise or assist during a blasting operation. Section 21.7 applies to workers transporting or handling explosives for the purpose of transporting explosives. The federal *TDG Regulation* (Part 6) requires that all workers engaged in these activities be adequately trained. Workers must have adequate training and a "Training Certificate" issued by the employer as referenced in Part 6 of the *TDG Regulation* and be able to provide that certificate, or a copy of it, immediately on request.

Note that a training certificate for transport by road vehicle, railway vehicle, and ship will expire after 36 months. Transport by aircraft after 24 months.

Guidelines Part 21 - Division 2 - Certification

G21.8 Certification of blasters – Qualifications

Issued August 1999; Revised October 2005; Revised September 30, 2009; Editorial Revision June 15, 2012; Revised December 16, 2016; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.8 of the *OHS Regulation* ("*Regulation*") states:

A candidate for a blaster's certificate must be at least 18 years of age and must forward written proof acceptable to the examining officer that

(a) the candidate has taken a minimum of 8 hours of training relating to the safe handling of explosives,

(b) the candidate has passed a background check, and

(c) the candidate has

(i) at least 6 months of experience in blasting operations as an assistant to a blaster, or

(ii) the knowledge, qualifications and experience to make the candidate competent to handle explosives.

Note: Blaster's certificates will normally be issued for a period of 5 years, and may be endorsed with any restriction that the Board

deems necessary.

Purpose of guideline

The purpose of this guideline is to outline background check and experience proofs acceptable under section 21.8 of the *Regulation*.

Proof of background check

Candidates must confirm that they possess an Explosives Regulatory Division approval letter (or equivalent) when registering for a blasting exam and present it to the blasting examiner prior to writing the exam. A NEXUS card, FAST card, Permis General, or Firearms Possession and Acquisition Licence (PAL) are considered equivalent.

Proof of knowledge, qualifications, and experience

Written proof as required by section 21.8(c) must include a description of the candidate's experience and must clearly indicate the following:

- Training provided to the candidate
- Type of blasting methods a candidate has observed and participated in
- Type of explosives used
- Locations of blasting experience
- Name(s) of certified blaster(s) overseeing the training, including certificate numbers
- Length of time (including dates) the candidate worked with the certified blaster(s)

The blaster(s) providing training to a candidate should:

- Have a minimum of 2 years' experience within the same class qualification
- Have no certificate suspensions within the past 2 years
- Be competent and knowledgeable in the endorsements held

The written proof must clearly indicate the candidate has at least six months practical experience in a blasting operation, or as an assistant to the blaster, and is competent and knowledgeable in the handling and use of explosive materials.

The sources of written proof that may be acceptable, in order of preference, are the following:

1. A signed letter or training records including a description of the information provided as proof as listed above attesting to the candidate's experience, knowledge, and qualifications from either of the following:

(i) The candidate's employer or former employer

(ii) A person holding a valid WorkSafeBC blaster's certificate with whom the candidate has worked

2. A statutory declaration signed in the presence of a person authorized to administer an oath, containing a description of the information provided as proof as listed above

If the blasting candidate does not have the required experience in the area where the candidate wishes to be certified, the WorkSafeBC blasting certification manager of interest may accept alternative training programs and experience. The candidate should give details of these alternatives in the application. The training should cover both the theoretical and practical aspects. No blasting examination or certification will be permitted without prior approval by the WorkSafeBC blasting certification manager of interest. For further information, please contact [Certification Services](#).

Out-of-province blasters

Blasters who possess a trade qualification or other valid certificate as required by a regulatory authority in another province or territory in Canada do not need to undergo further testing or assessment. However, in order to receive a WorkSafeBC blaster's certificate, out-of-province blasters are required to apply to Certification Services and complete a review of a "jurisprudence package," which outlines regulatory requirements and safe work practices applicable in B.C. Upon reviewing the package, the blaster will be interviewed by a blasting examiner to confirm the blaster's understanding of the information and outline previous experience. A WorkSafeBC blasting certificate with an out-of-jurisdiction notation on it will be issued for the appropriate qualification and type.

Certificate restrictions

A blaster's certificate will normally be issued for a period of five years, and may be endorsed with any restriction that WorkSafeBC deems necessary. Certificates may be issued for a period that is less than five years. This may happen, for example, where the applicant has only the minimum of required experience (new blaster), the applicant's experience is from several years ago (break in certification), or the experience is in a different type of blasting from the certificate being examined for.

G21.8.1 Continuing professional development – Blasters

Issued consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.8.1 of the *OHS Regulation* ("*Regulation*") states:

Every year during the term of a blaster's certificate, the blaster must receive at least 6 hours of continuing professional

development relating to blasting best practices.

Purpose of guideline

The purpose of this guideline is to outline training options for continuing professional development (CPD) that will ensure the blasting certificate holder is compliant with section 21.8.1 of the Regulation. Blasters with certificates expiring after December 1, 2022 will be required to provide documentation of yearly CPD prior to re-examination.

Providers

CPD can be provided by employers (internal training), blasting product manufacturers, external third-party agencies, or through attending conferences. The format of CPD can include various delivery methods: online, classroom based, workshops, etc.

Content

CPD should focus on general best practices for the type of blasting covered by the holder's active certificate, and may also include more general topics such as safety talks, explosives storage, and transport.

For more information about whether a particular training topic would be considered as CPD for the purpose of this section of the Regulation, please contact [Certification Services](#).

Documentation

Documentation should identify the provider of the CPD and include the name of the participant, date, number of hours, and primary learning outcomes of the CPD provided.

G21.10 Examinations

Issued August 1999; Revised October 2005; Withdrawn October 26, 2011

G21.12 Custody of certificates

Issued August 1999; Revised October 2005; Editorial Revision June 15, 2012; Revised May 9, 2014

Regulatory excerpt

Section 21.12 of the *OHS Regulation* ("*Regulation*") states:

- (1) A blaster must retain his or her certificate and must keep it in a safe place at the worksite while carrying out the duties of a blaster.
- (2) The blaster's certificate must be produced for inspection on the request of an officer.
- (3) A copy of a blaster's certificate is not acceptable as proof of certification.

Purpose of guideline

The purpose of this guideline is to describe WorkSafeBC's procedures for issuing replacement certificates and extended certificates for blasters. It also provides guidance in the situation where the certificate is lost or damaged and the blaster has not yet replaced it.

Issue of replacement certificates

A certified blaster who has lost or damaged his or her blasting certificate may request a replacement certificate for a fee prescribed by the Blasting Examiners Protocols and the [WorkSafeBC Blaster Certification](#) website.

The replacement certificate will expire on the same date the original certificate would have expired. A provisional certificate may be issued by a certification officer to bridge the time required for the replacement certificate to be issued and forwarded to the blaster.

Issue of extended certificates

A blasting certificate is only eligible for an extension if it has not yet expired. In order to grant an extension a certification officer will ensure the following:

- An examination is impracticable prior to the certificate's expiry date
- A check made of the blaster's permanent file to ensure there are no outstanding issues with the certificate as issued
- The blaster is registered for an examination within 60 days of the expiration date of the original certificate

A certification officer may issue a provisional certificate for a period not to exceed 60 days from the expiry date of the original certificate.

A provisional certificate will not be issued in the following circumstances:

- If the original certificate has expired
- If there is reason to believe that the holder would be incapable of safely performing the duties of a blaster

Unable to produce certificate upon request

Where the person who conducts or directs a blasting operation upon inspection does not possess a blaster's certificate because it is claimed to be damaged or lost, a WorkSafeBC prevention officer will verify the certification of that person (including certificate #, type and expiry date) with

If the person is certified, the prevention officer will issue an Inspection Report containing words to the following effect:

"(Blaster's Name), who is certified (Certificate # _____) to conduct (type of) blasting until (expiry date) was not in possession of a blaster's certificate as required by section 21.12 of the *Regulation*. Within five days, submit a written request for a replacement certificate to Certification Services in the Richmond office of WorkSafeBC."

G21.15 Suspension of certificates

Issued August 1999; Revised October 2005; Revised October 22, 2010; Revised September 21, 2011; Revised March 24, 2014; Revised September 15, 2015; Editorial Revision November 21, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

Section 21.15 of the *OHS Regulation* ("*Regulation*") states:

An officer may seize and forward to the Board a blaster's certificate if there is reason to believe that the safety of any person may be or has been endangered by the blaster.

Section 96 of the OHS provisions of the *Workers Compensation Act* ("*Act*") states:

(1) If the Board has reasonable grounds for believing that a person who holds a certificate issued under the OHS provisions or the regulations has breached a term or condition of the certificate or has otherwise contravened an OHS provision or a provision of the regulations, the Board may, by order,

(a) cancel or suspend the certificate, or

(b) place a condition on the use of that certificate that the Board considers necessary in the circumstances.

(2) An order under this section suspending a certificate must specify the length of time that the suspension is in effect or the condition that must be met before the suspension is no longer in effect.

Purpose of guideline

The purpose of this guideline is to outline some blasting practices that may endanger the safety of a person and are therefore grounds for seizing a blaster's certificate under section 96(1) of the *Act*. It also describes the process of seizing a certificate and the recourse of the blaster if the certificate is amended, restricted, suspended, or cancelled.

Blasting practices that may endanger the safety of a person The following are examples of practices that may endanger the safety of a person:

- Smoking while handling explosives. This includes a blaster smoking while handling explosives, or permitting others to do so
- Using less than three feet (900 millimetres) of safety fuse to fire any shot
- Introducing a drill steel, or any other metal object, into a loaded hole
- Withdrawing explosives (other than ammonium nitrate/fuel oil (AN/FO) or slurries which may be washed out) from a loaded hole
- Using anything other than an approved blasting machine or safety switch
- Failing to adequately guard a blast or to ensure the danger area was clear of workers and other persons
- Carrying blasting caps or explosives in clothing pockets, or permitting helpers or other workers to carry explosives in a similar manner
- Storing blasting caps in an explosives magazine - or with explosives at any time
- Transporting explosives with personnel, other than those assigned to assist in handling the explosives
- Firing multiple electrical blasts without testing the circuit or circuits by use of an instrument acceptable to WorkSafeBC
- Abandoning explosives
- Failing to check a blast site adequately after the blast to ensure that no misfired or unfired charges remain and that workers are protected from loose rock or other materials that pose a hazard
- Failure to use adequate cover or other effective means to control the blast and protect persons and/or property from flying material (refer to [section 21.66](#) of the *Regulation*)
- The blaster conducting himself/herself in such a way that poses an unreasonable threat to the safety and well-being of other workers or the public
- Carrying out unsafe practices in contravention to manufacturer's recommendations and instructions (refer to [section 4.3](#) and [section 21.36](#) of the *Regulation* e.g., electrical blasting caps must be initiated in a manner recommended by the manufacturer)

Procedures for seizing certificates

WorkSafeBC prevention officers seizing a certificate under section 96(1) of the *Act* must issue an Order to Worker ("OtW") report citing section 96(1) of the *Act* and outlining the non-compliant action(s) of the blaster to support the seizure of the certificate. Further information is provided in [OHS Guideline G-P2-22](#) (Appendix - Procedural Directions When Issuing an OtW).

When a prevention officer takes possession of a blaster's certificate for cause, the prevention officer should contact [Certification Services](#) and forward the following information, items, or materials to the manager of Certification Services within seven days:

- The certificate
- The detailed statement of the circumstances and the nature of the infraction (including witness statements, photos, and incident reports if available)
- The document number of the applicable OtW and any related inspection reports

Both the blaster and/or employer may also provide a written statement to the prevention officer, which the prevention officer will forward with the certificate.

Enform certificates, which are issued for seismic blasting and/or oil well perforating, are specific to the oil and gas industry (refer to [OHS Guideline G21.5](#)). The Enform certificate and the Enform attendance certificate must be seized together and forwarded to the manager of Certification Services within seven days according to the above procedure.

Note: As of October 2017 Enform has merged with the Oil Sands Safety Association (OSSA) to form Energy Safety Canada. At this time Enform certificates are still recognized as valid. Moving forward certificates will be re-branded as they expire and are renewed.

Amending, restricting, suspending, or cancelling a blasting certificate

The manager of Certification Services may become aware of additional reasons for amending, restricting, suspending, or cancelling a blasting certificate as a result of a seizure under section 96(1) of the *Act* or from other sources. The manager of Certification Services will ensure that an investigation of the circumstances is carried out. Based on the outcome of the investigation, the manager of Certification Services will determine whether to amend, restrict, suspend, or cancel the certificate. When WorkSafeBC is considering or has taken action in accordance with section 96 of the *Act*, the person affected will be provided with an opportunity to make representation to WorkSafeBC.

The manager of Certification Services will advise the blaster or affected person of the reason for any decision in writing. A person aggrieved has a right to a review of the decision within 45 days. A final decision made by a review officer regarding section 96 of the *Act* (orders to amend, restrict, suspend, or cancel a certificate) may be appealed to the [Workers' Compensation Appeal Tribunal \("WCAT"\)](#).

WorkSafeBC will not be responsible for costs or expenses incurred by the employer or blaster as a result of a suspension or investigation.

Note: Prevention officers must not seize certificates issued by the Explosives Regulatory Division of Natural Resources Canada. Refer to [OHS Guideline 21.83](#) for information on the procedure for investigating incidents, accidents, and dangerous or unusual occurrences involving blasters certified by Explosives Regulatory Division of Natural Resources Canada.

Guidelines Part 21 - Division 3 - Storage

G21.16 Storage - Detonators

Issued August 1999; Revised June 26, 2014; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.16 of the *OHS Regulation ("Regulation")* states:

- (1) Detonators must be stored separately from
 - (a) other explosives, including detonating cord and electric igniters, and
 - (b) blasting accessories.
- (2) Subsection (1) does not apply in relation to a manufacturer-armed perforating gun.

Purpose of guideline

The purpose of this guideline is to describe explosive assemblies that contain detonators and require safe separation from other explosives.

Detonator products

Safety fuse assemblies are products that have a detonator attached to a length of safety fuse that is crimped at the factory. They come in various lengths that are specific to a burn time, but are typically 1 to 3 metres in length. Shock tube assemblies have a detonator attached to the non-detonating plastic tube (which is the pathway of the energy to the detonator). These assemblies must be treated as "detonator products."

Combination products

Electrical igniters that are used to initiate an explosive product or propellant (such as in wireline setting tools) are considered a detonator product for the purpose of safe separation, unless they are part of the packaged product shipped from the factory. In this case the product must be stored separately from all other explosives, detonator assemblies, and accessories.

Guidelines Part 21 - Division 4 - Transportation

G21.23 Transportation – Flammable materials

Issued August 1999; Editorial Revision June 26, 2014; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.23 of the *OHS Regulation* ("*Regulation*") states:

Reasonable quantities of flammable or combustible materials may be carried by a vehicle transporting explosives at the workplace provided such materials are contained in a manner which will not cause or transmit a fire or explosion, and are adequately separated from any explosives containers in the vehicle.

Purpose of guideline

The purpose of this guideline is to describe reasonable quantities of flammable or combustible materials that may be carried by a vehicle transporting explosives as stated in section 21.23 of the *Regulation*.

Reasonable quantities

Smaller operators frequently have a fuel tank mounted on the back of their trucks, as well as small amounts of oils for normal daily maintenance. The fuels or oils should be carried within approved containers. They should also be secured against movement and leakage. These criteria also apply to propane cylinders.

"Reasonable quantities" means an amount required for immediate use during a normal shift.

G21.25(e) Mobile drilling rigs (formerly G21.25(b)(v))

Issued August 1999; Revised consequential to February 1, 2012 Regulatory Amendment; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.25(e) of the *OHS Regulation* ("*Regulation*") states:

The transportation of explosives on a mobile drilling rig is permitted only if detonators and other explosives are stored in separate day boxes or magazines that are

...

(e) attended by a qualified person at all times when the day boxes or magazines contain explosives.

Purpose of guideline

The purpose of this guideline is to provide guidance in determining a qualified person.

Attendant for explosives and detonator containers

Section 21.25 of the *Regulation* allows explosives to be carried on mobile drillings rigs if certain listed conditions are met. One of these conditions, set out in section 21.25(e), is that the explosives and detonators are "attended by a qualified person at all times when the day boxes or magazines contain explosives." This requirement is intended to ensure that the containers are secure at all times during transport.

If the person attending is not a certified blaster, that person must meet any applicable federal qualification requirements and should be at least 18 years of age. Furthermore, as set out in [section 21.2](#) of the *Regulation*, the employer must ensure that the person has been provided with adequate direction and instruction, and is competent to perform the assigned work.

G21.27 Contact with metal

Issued August 1999; Editorial Revision June 26, 2014; Retired consequential to December 1, 2021 Regulatory Amendment

This guideline is no longer required.

G21.28 Emergency procedures

Issued August 1999; Revised June 26, 2014

Regulatory excerpt

Section 21.28 of the *OHS Regulation* ("*Regulation*") states:

Before explosives are transported, the employer must establish suitable written emergency procedures, and must ensure that all workers who may be affected are adequately instructed in the procedures.

Purpose of guideline

The purpose of this guideline is to outline the requirements for suitable written emergency procedures, and to identify when Transport Canada (TC) regulations are also applicable.

Emergency procedures (75kg or greater)

The *Transportation of Dangerous Goods (TDG) Act* ("*Act*") and *Regulations* (Part 7 of the *Act* and sections 7.1 to 7.9 of the *Regulations*) require that vehicles carrying explosives of a net explosive quantity (NEQ) of 75kg or greater, or as required by schedule 1 to have an emergency

response assistance plan approved by TC. The *Regulations* require the plan to have certain elements, including emergency contact numbers, a description of the emergency response capability, and how the plan can be activated. The plan must be referred to in the documents accompanying the load along with the telephone number to activate it and the TC reference number (refer to sections 4.4, 4.8 and 4.13 of the *TDG Regulations*). Details of the plan can be obtained from TC, Remedial Measures Specialist, at (604) 666-7955.

Transportation of Dangerous Goods Act: <http://laws-lois.justice.gc.ca/eng/acts/T-19.01/>
Transportation of Dangerous Goods Regulations: <http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm>

Emergency procedures (less than 75 kg)

For vehicles or conveyances transporting explosives less than 75kg NEQ the employer must have written emergency procedures that the workers must be familiar with and trained to implement. These procedures do not need to be registered with TC TDG section. However the procedures must contain the following:

- Means and details such as contact numbers or frequencies to activate the emergency procedure
- Description of the emergency procedures and response plan
- Details on the responsibilities and actions of the workers to contain or mitigate the incident
- Responsibility of reporting as required by [section 21.3](#) of the *Regulation* and if applicable, the *TDG Act*.

Guidelines Part 21 - Division 5 - Handling explosives

G21.39 Disposal of explosives – Abandoned

Issued August 1999; Editorial Revision June 15, 2012; Editorial Revision May 9, 2014; Editorial Revision April 6, 2020; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.39 of the *OHS Regulation* ("*Regulation*") states:

Explosives must not be abandoned and must be placed in suitable storage or disposed of in accordance with the manufacturer's recommendations.

Purpose of guideline

The purpose of this guideline is to describe the overlapping legislation between WorkSafeBC (*Regulation*) and Natural Resources Canada (*Explosives Act*) regarding abandoned explosives

Explosives Act

If explosive products have been abandoned, the *Explosives Act* is the applicable legislation. Section 20 of the *Explosives Act* states that "every person who abandons any explosive ... is guilty of an offence"

Section 27 of the *Explosives Act* states:

Any explosive that appears to the Minister to be abandoned, to have deteriorated, or to be a danger to persons or property, may be seized and destroyed or otherwise disposed of by such person, in such manner and at such time and place as the Minister may direct.

The Explosives Disposal Unit (EDU) of the Royal Canadian Mounted Police (RCMP) is authorized to seize and dispose of any abandoned explosives.

When a WorkSafeBC prevention officer or other WorkSafeBC employee receives information regarding abandoned explosives, the information will be immediately forwarded to the nearest RCMP detachment. This information, as well as the name of the RCMP officer notified and the location of the detachment, is to be forwarded to [Certification Services](#). If the responsible party can be identified, the prevention officer will also consider issuing orders (under [section 96\(1\)](#) of the *Workers Compensation Act*) and, where applicable, seizing the blasting certificate of the responsible person.

Guidelines Part 21 - Division 6 - Drilling

G21.42 Drilling - Pre-drilling requirements

Issued August 1999; Retired June 26, 2014

Guidelines Part 21 - Division 7 - Loading

G21.53 Connecting detonating cord

Issued August 1999; Editorial Revision July 23, 2014

Regulatory excerpt

Section 21.53 of the *OHS Regulation* ("*Regulation*") states:

- (1) When detonating cords are used, the cords must only be interconnected or attached to trunk cords at the last most practicable moment after all holes are loaded.
- (2) When detonating cords are used to prime a charge, the cord must be cut from the supply reel before, or as soon as possible after the charge is placed.
- (3) Detonators or detonator connectors must not be attached to a detonating line until everything is in readiness for the blast.

Purpose of guideline

The purpose of this guideline is to describe a detonator connector.

Detonator connector

A "detonator connector" is a device used to connect one explosive and another to provide a path for continuation of the explosion. It is also called a "detonating relay." Usually these devices have a timing or pyrotechnic delay device that will allow explosive charges to be detonated at certain timed intervals to allow for control of rock breakage, movement, and fly rock.

[Back to Top](#)

Guidelines Part 21 - Division 8 - Safety Fuse Assembly Initiation

G21.56 Safety fuse assemblies

Issued August 1999; Editorial Revision July 23, 2014

Regulatory excerpt

Section 21.56 of the *OHS Regulation* ("*Regulation*") states in part:

- (1) Only safety fuse assemblies with antistatic protection may be used for safety fuse blasting.
- (2) Safety fuse assemblies less than 1 m (3.3 ft) in length must not be used.

Section 21.57(2) of the *Regulation* states:

- (2) When multiple safety fuses are to be lit, a suitable safety fuse lighting device must be used to ensure that a minimum 90 cm (3 ft) fuse length safety factor is maintained.

Purpose of guideline

The purpose of this guideline is to clarify anti-static protection and safety fuse length.

Anti-static protection

Anti-static protection means that only safety fuse assemblies with a static shunt can be used. Bulk fuse and hand crimping of assemblies do not allow for anti-static protection and are prohibited.

Safety fuse assembly length

The *Regulation* states that "safety fuse assemblies less than 1 m (3.3 ft) in length must not be used." A safety fuse from a manufacturer is 1 metre or 3 feet 3 inches long. As provided by section 21.57(2) of the *Regulation*, this fuse length may be trimmed to expose fresh powder or to remove the igniter cord connector. The minimum trimmed length cannot be less than 90 cm or 3 feet.

G21.57 Lighting safety fuse

Issued August 1999; Retired July 23, 2014

[Back to Top](#)

Guidelines Part 21 - Division 9 - Electrical Initiation

G21.62 Mobile transmitters

Issued August 1999; Editorial Revision June 15, 2012; Editorial Revision July 23, 2014; Retired consequential to June 3, 2019 Regulatory Amendment

G21.64 Initiating a blast in accordance with safe work practices

Issued August 1999; Editorial Revision April 2005; Retired July 23, 2014

G21.65 Firing from power lines

Issued August 1999; Editorial Revision July 23, 2014

Regulatory excerpt

Section 21.65 of the *OHS Regulation* ("*Regulation*") states:

When firing is done from a power line, an approved blasting safety switch must be used, and the switch kept locked and inaccessible to anyone except the blaster."

Purpose of guideline

The purpose of this guideline is to identify the position of the switch when locked and criteria for an "approved blasting safety switch."

Switch

The switch is to be locked in the open position.

System

An "approved blasting safety switch" system should be designed by an electrical engineer for each work site location.

Power line blasting may only be conducted by a person experienced in and holding a valid blaster's certificate endorsed for this type of blasting.

Guidelines Part 21 - Division 10 - Firing

G21.69 Blasting signals

Issued August 1999; Editorial Revision June 15, 2012; Editorial Revision September 19, 2014; Revised consequential to June 3, 2019 Regulatory Amendment; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.69(1) of the *OHS Regulation* ("*Regulation*") states:

(1) The blaster must ensure that an audible signalling device, distinct from other signalling devices in the area, is used to give the following warning signals:

(a) preceding the blast, 12 short whistle signals must be sounded at one second intervals;

(b) two minutes must elapse after the last warning signal before initiating the blast;

(c) following the blast and after the area has been examined and found safe, one prolonged whistle signal of at least 5 seconds duration must be sounded, to signify that permission is granted to return to the blast site.

(2) Subsection (1) does not apply to oil and gas downhole explosives operations, avalanche control, single underground headings, buried seismic work in isolated locations or other circumstances deemed appropriate by the Board, in which case the blaster must ensure that alternative warning procedures acceptable to the Board are used.

(3) Subsection (1)(b) does not apply with respect to the 2 minute warning in congested areas if alternative warning procedures acceptable to the Board are developed and implemented.

Purpose of guideline

The purpose of this guideline is to clarify how to request acceptance of alternate warning procedures under sections 21.69(2) and (3) of the *Regulation*. It also provides alternate warning procedures that are considered acceptable to WorkSafeBC for oil and gas downhole explosives operations.

Requesting acceptance

Section 21.69(1) of the *Regulation* contains requirements for warning signals. Section 21.69(2) and (3) allow exceptions in certain situations as long as alternative warning procedures acceptable to WorkSafeBC are used. With the exception of alternate procedures for oil and gas downhole explosives operations, requests for approval of procedures must be in writing and submitted to [Certification Services](#). The request must include full details of the proposed procedures, including site security, guarding, and procedures for warning workers and the public. Acceptance may be granted for continuous operations within the scope of the request.

Acceptable alternate procedures for oil and gas downhole explosives operations

Section 21.69(2) of the *Regulation* allows alternate procedures for oil and gas downhole explosives operations. In these operations, a formal request is not required if the following procedures are documented and available on site:

- Written procedures including site security, guarding, and procedures for warning workers and the public.
- There must be appropriate signage on the location where explosives are being used for downhole explosives operations. The signs must be placed immediately outside the arming area and at the entrance to the oil or gas lease to communicate to everyone entering the wellsite that downhole explosives operations are being conducted on the site.
- There must be a process for all workers on the site to be advised when downhole explosives operations are being conducted on the site.
- There must be a clear, reliable, and documented communication procedure between the wireline company's and the oil company's on-site representative.

Guidelines Part 21 - Division 11 - After the Blast

Issued August 1999; Retired consequential to June 3, 2019 Regulatory Amendment

Guidelines Part 21 - Division 12 - Misfire Procedures

G21.75 Cutoffs and unexploded explosives

Issued August 1999; Editorial Revision September 19, 2014; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.75 of the *OHS Regulation* ("*Regulation*") states:

- (1) If there is evidence or suspicion of cutoffs or unexploded explosives in the muckpile or debris,
 - (a) all loose unexploded explosives that do not contain a detonator must be collected and destroyed in a safe manner and in accordance with the manufacturer's recommendations, and
 - (b) the blaster must direct the hand removal of as much broken material as possible before metallic tools or equipment is used.
- (2) Metallic equipment must not be used during misfire procedures unless
 - (a) the blaster directs the use of the equipment,
 - (b) the area is adequately illuminated, and
 - (c) everyone, except the blaster and the equipment operator, is removed from the danger area.

Purpose of guideline

The purpose of this guideline is to describe procedures for cutoffs or unexploded explosives depending on specific circumstances.

Explosives with no detonator

Explosives that do not contain a detonator can be gathered in a suitable container and destroyed in a manner recommended by the manufacturer.

Explosives that are damaged, deteriorated, or misfired, which need to be transported to a disposal site by a vehicle, require a prior authorization from the Chief Inspector of the Natural Resources Canada/Explosive Regulatory Division (NRC/ERD).

Primer or explosives with a detonator

If a "primer" or explosive with a detonator inserted is found, it should not be disturbed. It should be detonated where it is using a new primer that is placed in contact with the unexploded material. Refer to [section 21.77\(2\)](#) of the *Regulation*.

Guidelines Part 21 - Division 13 - Specialized Blasting Operations

G21.82 Underwater blasting

Issued March 31, 2015; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.5(3) of the *OHS Regulation* ("*Regulation*") states:

- (3) A blaster may be assisted by persons who do not hold blaster's certificates, but the blaster must have authority over the assistants and must exercise visual supervision over them and be responsible for their work during explosive loading, priming, fixing or firing.

Section 21.82 of the *Regulation* states:

- (1) Only explosives and blasting accessories recommended by the manufacturer for underwater blasting may be used for underwater blasting.
- (2) Whenever explosives are being used in underwater blasting operations, a blasting flag (international code "Bravo", a solid red flag) must be displayed.
- (3) Precautions must be taken to prevent damage to structures in the danger area.
 - (3.1) Underwater blasts must be initiated by the blaster of record.
- (4) The blaster of record must not initiate an underwater blast
 - (a) if a diving operation or water craft is within the danger area, and
 - (b) without the diving supervisor's permission.

(5) After an underwater blast is initiated, the blast site must be examined for misfires and other hazards by

(a) the blaster of record, or

(b) a competent diver who

(i) has been trained in the recognition of misfires and other blasting related hazards, and

(ii) is under the direction of the blaster of record.

(6) A blaster must ensure that misfires are handled properly and that other blasting related hazards are removed.

Purpose of guideline

The purpose of this guideline is to provide clarification of the duties of the certified blaster of record and the diver working under the direct supervision of that blaster, when the diver is not a certified blaster.

Underwater blasting

If the diver is not a certified blaster, the diver may be visually supervised by a certified blaster on the surface per [section 21.5\(3\)](#) of the *Regulation*.

This may be accomplished by the use of the diver's helmet camera or with a camera from a remotely operated underwater vehicle (ROV) positioned to observe the diver. If an ROV is used, the explosives and initiation train must not come into contact with the ROV propellers.

The blaster may direct an unrestricted surface supply diver in placement, post blast examination, and in dealing with misfires for an underwater blast site. Refer to [section 24.1](#) of the *Regulation* for definitions of "*construction diving*." The diver must be trained in the use of explosives.

Refer to [section 24.13\(1\)\(a\)](#) of the *Regulation*, "Evidence of competency."

G21.83 Special effects blasting

Issued August 1999; Editorial Revision June 15, 2012; Editorial Revision September 19, 2014; Editorial Revision February 14, 2020

Regulatory excerpt

Section 21.83 of the *OHS Regulation* ("*Regulation*") states:

Special effects blasting must be carried out under the direction of a blaster certified in this specialty to a standard acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to identify a standard acceptable to WorkSafeBC for special effects blasting and to outline the procedures for WorkSafeBC prevention officers investigating a complaint or incident involving pyrotechnic blasting in the film or performing arts industry.

Acceptable certification

For the purpose of this section, WorkSafeBC accepts the Pyrotechnic Blaster's certificate issued by the Natural Resources Canada/Explosive Regulatory Division (NRC/ERD).

Refer to Guideline [G21.5\(1\)-2 Authority to blast - Certificates acceptable to WorkSafeBC](#) for more information regarding a Memorandum of Understanding between the NRC/ERD and WorkSafeBC.

Investigation procedures

Addendum 1 of the Memorandum of Understanding between the NRC/ERD and WorkSafeBC outlines the procedures for prevention officers investigating incidents, accidents, and dangerous or unusual occurrences involving pyrotechnic blasting in the film and performing arts industries.

The Addendum reads as follows:

ADDENDUM 1

WorkSafeBC Officers' Procedures for Incidents, Accidents, and Dangerous or Unusual Occurrences Involving Pyrotechnics in Film and Performing Arts

If you observe or respond to a complaint of an injury, incident, or dangerous or unusual occurrence:

1. Have the blaster/pyrotechnician in charge temporarily stop all explosive pyrotechnic work at the work site.
2. Conduct an onsite preliminary investigation into the cause of the injury, incident or occurrence. Assess any unsafe act that may have contributed to the problem. Assess all hazards presented to workers, the public, and property. Consider issuing a closure under current policies, if deemed necessary.
3. Contact the NRC/ERD and liaise with the Explosives Inspector regarding preliminary investigation details. The blaster may not conduct any further explosive/pyrotechnic work until a decision has been made jointly by WorkSafeBC and the NRC/ERD. The decision will be reached within seven days.

WorkSafeBC cannot revoke or suspend the certificate. Pending a complete investigation, the Explosives Inspector may suspend or revoke a certificate, if warranted. The WorkSafeBC officer will make recommendations on the suspension or revocation of a certificate when serious unsafe acts or infractions are evident or suspected.

4. Produce an investigation report and forward copies to WorkSafeBC Certification Services and the Explosives Inspector.

NRC/ERD contact number within B.C. is 604-666-0366

G21.85(1)-1 WorkSafeBC acceptance of procedures for avalanche control

Issued August 1999; Revised November 18, 2009; Revised June 10, 2010; Editorial Revision March 7, 2011; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Sections 21.85(1) and (4) of the *OHS Regulation* ("*Regulation*") state:

- (1) Charges must not be placed manually on site by workers or projected by any means for the purpose of avalanche control, until the proposed work procedures have been submitted to and accepted by the Board.
- (4) The employer must ensure that procedures are reviewed annually and that proposed changes to the procedures are submitted to the Board for approval before implementation.

Purpose of guideline

The purpose of this guideline is to describe the process for submitting proposed avalanche control work procedures to WorkSafeBC for acceptance.

Process for submitting proposed work procedures

Prior to any avalanche blasting, a comprehensive set of procedures must be submitted to [Certification Services](#) for acceptance.

The procedures should require, among other things, annual refresher training and a minimum level of experience for workers employed in avalanche control. No blasting activity is permitted until WorkSafeBC grants written acceptance of the work procedures.

As required by section 21.85(4) of the *Regulation*, the employer must review the procedures annually and any proposed changes must be submitted to WorkSafeBC for approval before implementation. Once the initial plan has been approved by WorkSafeBC, it only needs to be resubmitted for acceptance if there is a change.

Please consult WorkSafeBC's [Guide for Writing Avalanche Control Blasting Procedures](#).

For further information, please contact [Certification Services](#).

G21.85(1)-2 Assessment of avalauncher device safety in proposed work procedures

Issued September 24, 2008; Editorial Revision November 21, 2017; Editorial Revision April 6, 2020; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.85(1) of the *OHS Regulation* ("*Regulation*") states:

Charges must not be placed manually on site by workers or projected by any means for the purpose of avalanche control, until the proposed work procedures have been submitted to and accepted by the Board.

Section 4.3 of the *Regulation* states:

- (1) The employer must ensure that each tool, machine and piece of equipment in the workplace is
 - (a) capable of safely performing the functions for which it is used, and
 - (b) selected, used and operated in accordance with
 - (i) the manufacturer's instructions, if available,
 - (ii) safe work practices, and
 - (iii) the requirements of this Regulation.
- (2) Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out
 - (a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet,

(b) as specified by a professional engineer.

(3) A tool, machine or piece of equipment determined to be unsafe for use must be identified in a manner which will ensure it is not inadvertently returned to service until it is made safe for use.

(4) Unless otherwise specified by this Regulation, any modification of a tool, machine or piece of equipment must be carried out in accordance with

(a) the manufacturer's instructions, if available,

(b) safe work practices, and

(c) the requirements of this Regulation.

Section 26 of Part 2 (Occupational Health and Safety) of the *Workers Compensation Act (Act)* provides:

Every supplier must

(a) ensure that any tool, equipment, machine or device, or any biological, chemical or physical agent, supplied by the supplier is safe when used in accordance with the directions provided by the supplier and complies with the OHS provisions and the regulations,

(b) provide directions respecting the safe use of any tool, equipment, machine or device, or any biological, chemical or physical agent, that is obtained from the supplier to be used at a workplace by workers,

(c) ensure that any biological, chemical or physical agent supplied by the supplier is labelled in accordance with the applicable federal and provincial enactments,

(d) if the supplier has responsibility under a leasing agreement to maintain any tool, equipment, machine, device or other thing, maintain it in safe condition and in compliance with the OHS provisions, the regulations and any applicable orders, and

(e) comply with the OHS provisions, the regulations and any applicable orders.

Purpose of guideline

The purpose of this guideline is to provide information on some of the criteria that are considered when assessing the adequacy of avalanche control work procedures, particularly as they relate to the safety of avalaunchers and similar devices ("avalauncher devices").

Background

Avalauncher devices use compressed gas to launch purpose-built explosive projectiles into areas where potential avalanches exist, as a planned measure to mitigate the avalanche hazard. Section 21.85(1) of the *Regulation* provides that before explosive charges are placed manually on site by workers or projected by any means for the purpose of avalanche control, the proposed work procedures must be submitted to and accepted by WorkSafeBC.

Device design and fabrication

The proposed work procedures should include assurances that the avalauncher device has been designed and manufactured in accordance with good engineering practice, with due consideration to its purpose, mechanism of operation, operating conditions, and the environment for which it is intended.

The design and fabrication of the avalauncher device should be certified by a professional engineer to provide assurance that the device will function safely when operated and maintained as specified by the manufacturer. Where the safety of the device may only be guaranteed within limited operating conditions, such as within specific temperature and/or pressure ranges, those operating conditions should be clearly indicated on the design documents by the professional engineer.

All welded connections that are not a part of a pressure vessel or fitting should meet the requirements of *Canadian Standards Association ("CSA") [Standard W59-03 Welded Steel Construction \(Metal Arc Welding\)](#) or [CSA Standard W59.2-M1991 \(R1998\) Welded Aluminum Construction](#)*, as applicable.

The avalauncher device's compressed gas piping system should include the following features:

- One or more pressure relief valves set at or below the maximum allowable system pressure
- A regulator at the supply tank that reduces the pressure at the tank to the system operating pressure
- Gauges to display the pressure at all points for which the operator must be aware of the pressure
- A safety valve located so as to require that both the safety and fire valves be open before firing is allowed
- Fire and safety valves that require opposing rotation motions to open
- Equipped to allow remote firing

The avalauncher device's elevation mechanism should have a means of positively locking it in a fixed position for firing.

Each control valve on the avalauncher device should be labelled to identify its function.

Technical Safety BC — "TSBC" requirements

Avalauncher devices are subject to the requirements of the *Safety Standards Act* and its regulations, including the *Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation* ("*Pressure Vessel Regulation*"). The *Pressure Vessel Regulation* adopts *CSA Standard B51-03 Boiler, Pressure Vessel, and Pressure Piping Code* ("*CSA B51-03*"), which prescribes requirements that must be met by avalauncher devices, including the registration of its components with the TSBC.

The *Safety Standards Act* and its regulations, including the *Pressure Vessel Regulation*, also govern pressure welding. A pressure welder's certificate of qualification issued by TSBC is required before conducting any work regulated under the *Pressure Vessel Regulation*. Any welded connections affecting the registration of the pressure vessel or fitting must meet the requirements of *CSA B51-03* and must be approved by TSBC.

CSA B51-03 requires fittings to be stamped with the Canadian Registration Number ("CRN") or Canadian Central Registration Number ("CCRN") and identification traceable to the manufacturer. Each avalauncher device should be fitted with a nameplate that permanently and legibly displays the following:

- Make or model
- Manufacturer name and address
- Serial number
- Date of manufacture
- Maximum allowable operating pressure

CSA B51-03 also requires pressure vessels to be marked with the CRN or CCRN, and as required by the applicable American Society of Mechanical Engineers code.

Manufacturer's manuals

The following instruction and information manuals should be provided for each avalauncher device:

- Operations manual including
 - Specifications
 - Pre-use inspections
 - Operating procedures
 - Preventive maintenance
 - Storing the avalauncher device when not in use
- Parts manual including
 - Assembly and/or exploded view drawings identifying all parts
 - Listing of all parts and part numbers or identification of off-the-shelf parts to allow purchase of proper replacement parts
- Service manual including
 - System specifications
 - Inspection and maintenance instructions
 - Pneumatic circuit diagram
 - Troubleshooting information

Inspection and maintenance records

It is good practice to maintain proper records of all inspection and maintenance conducted on the avalauncher devices. In particular, records should be kept of the following:

- Pre-use inspections
- Periodic inspections, maintenance, and tests
- Special inspections, maintenance, and tests

For further information, please contact [Certification Services](#).

G21.85(3) Safety fuse ignition system

Issued August 1999; Revised November 18, 2009; Revised consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 21.85(3) of the *OHS Regulation* ("*Regulation*") states

The pull-wire lighter must not be placed on the safety fuse assembly until immediately before placing the charge.

Purpose of guideline

The purpose of this guideline is to clarify the sequence of events for deploying a charge utilizing a safety fuse assembly as a timing device for the purpose of avalanche control.

Procedure for charge deployment

A "pull-wire lighter" is a device that fits over the open end of the safety fuse assembly. The igniter cord connector, if fitted, will have to be cut off in

order to have an open, clean end in the fuse assembly. In the case of a protective cap, a half-inch of the fuse end will have to be cut off. If the manufacturer has provided different instructions on how to use the safety fuse assembly, these must be followed as required by section [21.36](#) of the *Regulation*.

Only fuse cutters recommended by the safety fuse manufacturer (for example, guillotine delrin base) should be used for cutting. The cut should be clean and square prior to placing the fuse into the pull-wire lighter. The minimum required fuse length is 90 cm (3 ft.), after cutting (section [21.57\(2\)](#) of the *Regulation*).

The pull-wire lighter works by pulling on a "handle," which causes a "waved" wire to be pulled through a sensitive ignition compound, such as a chlorate match head mix. The resulting friction ignites the compound, and the fire lights the exposed end of the black powder core of the safety fuse assembly. Signs of ignition may include visible smoke, smell of smoke, fuse droop, or a discolored fuse. The blaster should determine if the fuse is lit or mislit prior to placing or deploying the charge.

Typically, one or more charges are lit and deployed one at a time into an avalanche path prior to personnel reaching a point of safety. The blaster will need to ensure that there is sufficient fuse length (burn time) to enable personnel to reach a point of safety before detonation of the first deployed charge occurs.

If the blaster is not able to verify that the fuse is lit, the fuse will be assumed to be lit and the blaster will continue with charge deployment per the manufacturer's instructions.

If the pull wire fails to light, the fuse must not be cut and relit. Section [21.79](#) of the *Regulation* prohibits the relighting of a safety fuse assembly.

Contents

GENERAL REQUIREMENTS

G22.2(2) [Application of Part 22 \(Underground Workings\)](#)

SUPERVISION OF WORKERS

G22.12 [Underground supervisor's certificate](#) [Retired]

Guidelines Part 22 - General requirements

G22.2(2) [Application of Part 22 \(Underground workings\)](#)

Issued June 18, 2008

Regulatory excerpt

Section 22.2 (Application) of the *OHS Regulation* ("*Regulation*") states:

- (1) This Part applies to any underground working which is not a mine within the meaning of the *Mines Act*, or the *Health, Safety and Reclamation Code for Mines in British Columbia*, and which a worker will be required or permitted to enter.
- (2) Generally, this Part does not apply to horizontal underground workings that are less than 5 m (16 ft) in length or to permanent facilities in their final structural condition as certified by a professional engineer.

In turn, "underground working" is defined in section 22.1 as including:

any adit, tunnel, underground excavation, chamber, caisson, raise, shaft, winze or natural entry

Purpose of guideline

This guideline discusses the circumstances, under section 22.2 of the *Regulation*, in which an underground working can be considered to be a permanent facility in its final structural condition as certified by a professional engineer.

The guideline also provides information on the application of the *Regulation* to underground projects that have been completed.

Permanent facilities in their final structural condition

Section 22.2(2) exempts the application of Part 22 to a permanent facility in its final structural condition as certified by a professional engineer. In order for an underground working to be in its final structural condition, it needs to be structurally capable of being used safely for its intended purpose(s). There are several aspects to this exception that need to be considered.

An underground working will not be in its "final condition" until the drilling, blasting, boring, or digging sequence is finished, along with the associated walls, roof, and invert. This will include all structural rock bolts, mesh, straps, steel supports, and shotcrete necessary to support a structure. However, the reference to "permanent facility in its final structural condition" has a somewhat broader meaning than the more limited reference to "final condition."

Hazards to workers in underground workings include aspects such as atmosphere, lighting, and potential for fire. If the project involves the

replacement of temporary ventilation and lighting systems by permanent systems, the project will not be considered to be in final structural condition or structurally complete until that is done. The potential for fire is related in part to the use of heavy equipment involved in excavation, but which may also be used in other project work such as completion of an underground road or rail bed. Completion of such work, where applicable as part of the project, will typically be necessary before the facility is considered to be structurally complete. An underground project may also include other elements such as transitions, underground control gates, and control stations.

In some cases, an underground working may involve a series of tunnels or other excavations. Steps to complete the project may include sealing one or more of these areas by means such as walls, plugs, or backfill, and installation of drainage systems within the underground working. These steps will need to be completed before an underground working can be considered to be in its final structural condition.

As required by section 22.2(2), a professional engineer must certify that the facility is in its final structural condition. A certificate that addresses only part of the facility is not a sufficient basis for applying the exception.

Application of the *Regulation* to an underground project that has been completed

If an underground working has been completed under the terms of section 22.2(2), Part 22 no longer applies, but the other requirements of the *Regulation* remain in effect to address any subsequent work that may be done at the site.

Examples of such work include operation of underground control devices, use of worker transport systems, and equipment or facility inspections, maintenance, and repair.

Applicable requirements will include those of [Part 9 \(Confined Spaces\)](#) for work in any space that meets the definition of a confined space in section [9.1](#) of the *Regulation*.

Guidelines Part 22 - Supervision of workers

G22.12 Underground supervisor's certificate

Issued April 27, 2010; Retired consequential to May 1, 2017 regulatory amendment

Contents

GENERAL REQUIREMENTS

G23.4 [Coordination of multiple-employer workplaces - Owner](#)

G23.5 [Safe work procedures](#)

G23.8 [Control of ignition sources](#)

G23.9(5) [Flare pits and flare lines - Ignition sources](#)

G23.10 [Fire extinguishers - Fracturing](#)

G23.14(5) [Pressure control measures at pumping wellheads](#)

G23.15(1)(a) [Power Engineers and Boiler and Pressure Vessel Safety Act repealed](#) [Retired]

G23.22 [Driver training](#)

G23.26 [Gauging - Safe access](#)

DRILLING AND SERVICING RIGS

G23.39.1 [Emergency escape systems for snubbing units](#)

G23.39.2 [Auxiliary escape](#)

G23.43 [Ventilation openings](#)

G23.60 [Rotary tongs](#)

G23.61 23.5, and 12.3 [Safeguarding at the rotary table area of drilling and service rigs](#)

DRILL STEM TESTING, SWABBING, CEMENTING, WELL SERVICING AND STIMULATION

G23.64.1 [Snubbing operations](#)

G23.69 [Flow piping systems - Integrity assurance program](#)

G23.69(3) [Restraint of piping systems](#) [Retired]

G23.69.2(3) [Engineered restraint systems - Engineering documentation](#)

PRODUCTION AND PLANT OPERATIONS

G23.80 [Venting of trucks](#)

GAS SAMPLE CONTAINERS

G23.88 [Alternate acceptable standard](#)

G23.4 Coordination of multiple-employer workplaces – Owner

Issued August 1999; Editorial Revision June 14, 2013; Editorial Revision April 6, 2020

Regulatory excerpt

Section 23.4 of the *OHS Regulation* ("*Regulation*") states, in part:

- (1) If an activity involves the work of 2 or more employers or their workers, each employer must notify the owner, or the person engaged by the owner to be the prime contractor, in advance of any undertaking likely to create a hazard for a worker of another employer.
- (2) If a work location has overlapping or adjoining work activities of 2 or more employers that create a hazard to workers,
 - (a) the owner, or if the owner engages another person to be the prime contractor, then that person, must

...

Section 13 of the *Workers Compensation Act* ("*Act*") defines "owner" as including

- (a) a trustee, receiver, mortgagee in possession, tenant, lessee, licensee or occupier of any lands or premises used or to be used as a workplace, and
- (b) a person who acts for or on behalf of an owner as an agent or delegate;

Purpose of guideline

This guideline explains who is typically the owner of an oil and gas plant.

Owner

The "owner" for the purpose of Part 23 is commonly termed the "operator," meaning the owner of the plant and of the license under which the operation runs. The fact that this person subcontracts the operation of the facility and has no workers at the site does not affect their status as "owner."

Additional obligations are placed on the owner by sections [23.31](#), [23.63](#), and [23.72](#) of the *Regulation* as well as owner obligations under the *Act*.

G23.5 Safe work procedures

Issued August 1999; Editorial Revision September 6, 2018

Regulatory excerpt

Section 23.5 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must identify the work activities or circumstances, including releases of gases, that have caused or may cause significant risk of injury or occupational disease to workers.
- (2) The employer must analyze the risks arising out of the work activities or circumstances identified under subsection (1) and implement safe work procedures if the activities or circumstances create a hazard.
- (3) The procedures implemented under subsection (2) must state the number of workers involved, the steps to be followed and the safety equipment required.

Purpose of guidelines

The purpose of this guideline is to outline that measures taken by the employer under this section must be consistent with the other sections of the *Regulation*.

Industry recommended practices

Consideration should be given under section 23.5 to recommended practices for safe work developed by recognized industry associations. These include the Industry Recommended Practices (IRPs) of the Drilling and Completions Committee (DACC) of Energy Safety Canada.

G23.8 Control of ignition sources

Issued August 1999; Editorial Revision June 14, 2013

Regulatory excerpt

Section 23.8 of the *OHS Regulation* ("*Regulation*") states, in part:

- (1) If regular monitoring and hotwork permits are not in use to control ignition sources

- (b) diesel engines required to operate within the zone defined by the BC Electrical Code and the Drilling and Production Regulation as a Class 1 Division 2 or higher classification must have a positive air shutoff or other effective method for engine shut down.
- (2) Mobile equipment powered by a diesel engine and used for maintenance or repair work on pressurized gathering, distribution and transmission equipment must have a positive air shutoff or other effective method of engine shut down.

Purpose of guideline

This guideline gives examples of other effective methods for engine shut down.

Other effective methods for engine shut down

Some effective methods for engine shut down, other than a positive air shutoff include the following:

- A system for injecting inert gas into the engine's cylinders, equipped with a readily accessible remote control
- A suitable duct so that air for the engine is obtained at least 25 metres from a well (this allows shutting off the fuel to effectively stop the engine)

G23.9(5) Flare pits and flare lines – Ignition sources

Issued August 1999; Editorial Revision June 14, 2013

Regulatory excerpt

Section 23.9(5) of the *OHS Regulation ("Regulation")* states:

If feasible, there must be a continuous ignition source before flow to a flare pit or stack occurs.

Purpose of guideline

This guideline gives examples of additional ignition sources that are acceptable during drill stem testing.

Ignition sources

During drill stem testing, it is acceptable to use a lit tiger torch, diesel soaked bag of sawdust, or a burning pail of fuel, as a continuous ignition source, prior to flowing to the flare.

G23.10 Fire extinguishers – Fracturing

Issued August 1999; Editorial Revision June 14, 2013; Editorial Revision November 21, 2017

Regulatory excerpt

Section 23.10(1) of the *OHS Regulation ("Regulation")* states:

Non-freezing fire extinguishers, other firefighting equipment and firefighting personnel must be provided as required by subsections (2), (3) and (4) and Table 23-1.

Table 23-1 of the *Regulation* states, in part, that:

Work activity	Number of extinguishers required	Type of extinguisher
...		
1 fracturing tank	1	Twin agent unit
2, 3 or 4 fracturing tanks	1	Continuous foam unit with 100 barrel water truck
5 or more fracturing tanks or greater than 40% methanol water fracturing	The fire hazard must be evaluated in accordance with current industry standards, and firefighting equipment and personnel must be provided as determined necessary by the evaluation.	

Purpose of guideline

This guideline explains the firefighting equipment requirements for fracturing using hydrocarbon-based fluids.

Fracturing using hydrocarbon-based fluids

The firefighting equipment specified for fracturing jobs in Table 23-1 is required when fracturing using hydrocarbon-based fluids is done. The current industry standards for fire protection equipment can be found in Energy Safety Canada's DACC (Drilling and Completions Committee) Industry Recommended Best Practice (IRP) Volume #08 — Pumping of Flammable Fluids (2016) available at

Issued January 1, 2007

Regulatory excerpt

Section 23.14(5) of the *OHS Regulation* ("Regulation") states:

For a wellhead utilizing a down-hole positive displacement pump, the employer must implement measures to prevent the pump from causing pressures exceeding the pressure rating of the system.

Purpose of guideline

This guideline describes what is meant by the "measures" referenced in section 23.14(5) and outlines an example of an acceptable set of measures. The measures deal with the parts of the system that can be over-pressurized as a direct result of a down-hole positive displacement pump not being shut down when necessary, and with the associated pressure sensors.

Control measures

Appropriate control measures will ensure that a down-hole positive displacement pump does not cause pressure exceeding the design pressure of the system. They will typically include a combination of equipment, procedures and training.

The measures are to be effective. That is, they will provide at least the same level of safety and reliability as the applicable design codes for pressure safety valves if such valves were used to ensure that the design pressure was not exceeded.

An appropriate set of measures will address the following four matters:

1. Keyed locks or seals to physically prevent tampering with the settings of the pressure sensor switch that is part of the well shut-in safety system and any valve that may interfere with the correct operation of the sensor.
2. Procedures to ensure that locks or seals that restrict access to the pressure sensing and emergency shutdown system may only be removed with the prior permission of a supervisor.
3. Procedures to ensure that access to the emergency shutdown overpressure system is only permitted for purposes of maintenance or testing of that system, while using accurate gauges to monitor pressures.
4. Procedures and training to ensure the safety of field service workers and to prevent unauthorized changes to the pressure sensor and overpressure emergency shutdown system.

To be effective, the measures must be fully implemented and maintained, and workers must receive appropriate training on the control measures.

G23.15(1)(a) *Power Engineers and Boiler and Pressure Vessel Safety Act* repealed

Issued August 13, 2008; Retired consequential to February 1, 2012 Regulatory Amendment

G23.22 Driver training

Issued August 1999; Reissued on January 1, 2009; Revised March 31, 2015; Editorial Revision November 21, 2017; Revised March 11, 2021

Regulatory excerpt

Section 23.22 of the *OHS Regulation* ("Regulation") states:

A vehicle driver in the oil and gas industry must, before operating a vehicle with a gross vehicle weight rating greater than 5 500 kg (12 000 lbs.),

- (a) be certified in the applicable Energy Safety Canada driver training course acceptable to the Board, or
- (b) have completed driver training providing skills and knowledge for safe driving equivalent to or better than those required by paragraph (a).

Purpose of guideline

The purpose of this guideline is to identify the Energy Safety Canada driver training course that has been evaluated and is acceptable to WorkSafeBC, and to provide information on driver training providing equivalent or better skills and knowledge.

Acceptable Energy Safety Canada course

The Oilfield Driver Awareness (ODA) course from Energy Safety Canada is currently the only course acceptable to WorkSafeBC for oilfield drivers operating vehicles with a gross vehicle weight rating greater than 5,500 kilograms.

Course description and information about enrollment is available on the Energy Safety Canada [website](#).

Equivalent driver training

Section 23.22(b) of the *Regulation* allows for alternative driver training providing skills and knowledge for safe driving are equivalent to or better than those required by Energy Safety Canada's training course. Further information is available on the [WorkSafeBC Oilfield driver training webpage](#).

[Certification Services](#) can also provide assistance to employers in evaluating whether another driver training course provides skills and knowledge equivalent to or better than the acceptable Energy Safety Canada course.

G23.26 Gauging – Safe access

Issued August 1999; Editorial Revision June 14, 2013

Regulatory excerpt

Section 23.26 of the *OHS Regulation* ("*Regulation*") states:

A tank which contains or may contain a fluid with hydrogen sulfide as a component must have an external means of gauging its contents, or if manual gauging or sampling is required, the worker doing the gauging or sampling must use a supplied air respirator meeting the requirements of Part 8 (Personal Protective Clothing and Equipment) for use in an IDLH atmosphere, and must be visually monitored by another worker equipped with an equivalent respirator and capable of effecting a rescue of the worker doing the gauging or sampling.

Section 4.32 of the *Regulation* states:

There must be a safe way of entering and leaving each place where work is performed and a worker must not use another way, if the other way is hazardous.

Purpose of guideline

This guideline explains the need for a safe way to access the top of the tank if manual gauging is used.

Manual gauging

Some external gauges do not provide the accuracy of manual gauging. When manual gauging is used, access to the top of the tank and stability of the worker may be a problem. In order to provide a safe means of gauging, an effective external gauge should be provided. If manual gauging is used, in addition to the requirements of section 23.26 the employer must provide a safe way of accessing the top of the tank. This should either be a stairway with a platform or a ladder safety device that provides work positioning and effective rescue capacity.

Guidelines Part 23 - Drilling and servicing rigs

G23.39.1 Emergency escape systems for snubbing units

Issued April 9, 2009; Editorial Revision November 21, 2017

Regulatory excerpt

Section 23.39.1 of the *OHS Regulation* ("*Regulation*") states:

A drilling or service derrick must have an emergency means of escape from the racking board that complies with section 23.39.2 or 23.39.3.

Purpose of guideline

The purpose of this guideline is to provide guidance with respect to emergency escape systems on snubbing units.

Section 23.39 does not apply to snubbing units

Regulation sections 23.39.1, 23.39.2, and 23.39.3 do not apply specifically to snubbing units in the oil and gas industry. A snubbing unit is not considered to be a drilling or service derrick for the purposes of this section.

Safe means of egress from a snubbing unit

Although *Regulation* section 23.39 does not apply to snubbing units, there are other requirements for emergency egress, including the following two sections.

Regulation [section 4.13](#) specifies that employers need to conduct a risk assessment in any workplace in which a need to rescue or evacuate workers may arise, and then develop and implement appropriate written procedures as necessary.

Regulation [section 4.14\(1\)](#) specifies that an emergency means of escape be provided from any work area in which the malfunctioning of equipment or a work process could create an immediate danger to workers and the regular means of exit could become dangerous or unusable.

Energy Safety Canada's DACC (Drilling and Completions Committee) Industry recommended Best Practice (*IRP*) [Volume #15—Snubbing Operations \(2015\)](#) section 15.3.1.6 references slide poles on either side of the working platform for emergency escape. The *IRP* also calls for implementation of safer means of escape where the pole is not a viable egress option (e.g. high wellhead configurations). A Petroleum Services

Association of Canada snubbing committee is researching emergency egress systems that provide quick deployment, are mobile, and are adaptable for rig in/out in the variety of environments in which rig assist snubbing units are used. Employers need to keep current with these developments and with the technological advancements for emergency egress from snubbing baskets, and employ more advanced and safer means of escape as they become available.

G23.39.2 Auxiliary escape

Regulatory excerpt

Section 23.39.2(1)(d) of the *OHS Regulation ("Regulation")* states:

- (1) A drilling or service derrick must have a specially rigged and securely anchored line as an emergency means of escape that
- (d) is effectively anchored and able to withstand a load of 13.3 kN (3,000 lbs)

Purpose of guideline

The purpose of this guideline is to clarify what is meant by effectively anchored under section 23.39.2(1)(d) of the *Regulation*.

Effectively anchored

An anchor is effective if it will prevent the line from failing unless the load applied exceeds the anchor capacity. The employer must take measures to ensure the anchor is effective (see [section 4.2](#)). Measures to ensure the effectiveness of an anchor include:

- Pull testing the anchor and documenting the test results
- Using an auger/screw anchor set to a given depth and torque
- Using a manufactured or engineer designed anchor system

In the case of the latter two items, standard drawings from the manufacturer or an engineer should be available.

G23.43 Ventilation openings

Issued August 1999; Revised February 11, 2004; Revised April 15, 2021

Regulatory excerpt

Section 23.43(1) of the *OHS Regulation ("Regulation")* states:

- (1) Before commencing drill stem tests, swabbing, bailing, or displacement with gas or oil
- (a) derrick enclosures must be altered to provide openings at least 1.8 m (6 ft) high and 2.4 m (8 ft) wide on opposite sides above, and on 2 sides below, the derrick floor, or
- (b) adequate mechanical ventilation or monitoring must be provided.

Purpose of guideline

The purpose of this guideline is to clarify the phrases "displacement with gas or oil" and "monitoring" in section 23.43(1) of the *Regulation*.

Displacement with gas or oil

For the purpose of this section, "displacement with gas or oil" includes underbalanced drilling when temperatures are within 10 degrees of the flash point.

Monitoring

Section 23.43(1)(b) of the *Regulation* allows the option of "monitoring. If this option is used, safe work procedures (section 23.5) must be in place before commencing drill stem tests, swabbing, bailing, or displacement with gas or oil. WorkSafeBC accepts the following procedures as complying with section 23.43(1)(b):

A. In addition to routine monitoring, instantaneous stationary monitors will normally be installed:

- At the flow nipple in the substructure for lower explosive limit (LEL) detection
- At floor level in the substructure for hydrogen sulfide (H₂S) detection
- At the designated entrance to the substructure for LEL and H₂S detection

All alarms are clearly audible exterior to the substructure.

B. Procedures for gas alarm response as follows:

1. The employer, prime contractor, or owner if there is no prime contractor, must ensure appropriate personnel are able to:
 - Install, inspect, maintain and operate personal protective equipment and air monitoring systems
 - Provide safety orientation
 - Conduct safety briefings
 - Conduct emergency drills
 - Maintain rig location personnel count
2. Personal protective equipment and air monitoring systems are installed and function tested prior to doing drill stem tests, swabbing, bailing, or displacement with oil or gas.
3. Fire resistant clothing (coveralls, wet suits) are worn throughout the course of testing, from tool opening through initial circulation following testing, and during swabbing, bailing or displacement with oil or gas. Appropriate underclothing (for example, 100% tight weave cotton) is

worn and hard hat liners are fire resistant.

4. Continuous gas monitoring is in effect prior to commencing drill stem tests, swabbing, bailing, or displacement with oil or gas. An initial warning alarm will activate when H₂S exceeds the action limit of 5 ppm (50% of the ceiling limit of 10 ppm) and a full alarm at 9 ppm for workers to evacuate and explosive gas exceeds 10% of LEL. As a minimum, portable 3-gas monitors, which measure oxygen, H₂S, and LEL, are acceptable. Alarms will be perceptible throughout the rig and clearly audible by personnel in the vicinity.

Workers will not enter or remain in areas of the rig where harmful substances exceed limits listed in the Table of Exposure Limits for Chemical and Biological Substances (refer to OHS Guideline [G5.48-2](#)). In particular, sections 5.31 and 5.56 must be considered.

5. Emergency procedures will be developed and followed in the event of an alarm situation (H₂S gas concentration exceeds 10 ppm and LEL concentration exceeds 20%.) The following is an example of a minimum acceptable procedure:
- All personnel will don breathing apparatus and evacuate immediately upwind to the designated safe briefing area. All personnel on location will be notified and accounted for. A head count will be completed and rescue teams dispatched as warranted.
 - The site supervisor in consultation with the rig manager will determine to what extent rig power can safely be de-energized in the areas of the cellar, substructure, rig floor, derrick and doghouse.
 - Trained personnel (equipped with a portable and/or personal multi-gas monitor complete with probe) will proceed to remotely de-energize and lockout electrical components for areas where prefabs are to be removed. Electrical cords or switches will not be de-energized at source; rather, main breakers and locks will be used.
 - When non-essential rig power has been de-energized, trained personnel will remove prefabs in the affected areas if safe to do so.
 - Trained personnel equipped with a portable and/or personal multi-gas monitor, complete with hose and probe, will provide emergency and/or rescue support.
 - Workers will not enter into or remain in an area containing 20% of LEL or greater except as permitted under section 5.31(d) of the *Regulation*.
6. Following drill stem testing, the pipe contents will be reverse circulated to flare in accordance with CAPP Drill Stem Testing Safety Guidelines (1984). Continuous monitoring will be in place until the drill string is circulated bottoms up at least twice.
7. If tests indicate that the substructure or derrick enclosures have to be removed for adequate ventilation all crewmembers will wear:
- Fire resistant clothing
 - Pressure demand SCBA
 - Portable monitors to ensure the LEL remains below 20%
8. Workers will be trained in the following:
- Use of air monitoring equipment and testing procedures
 - Use of personal protective equipment
 - Safe removal of the substructure or derrick enclosure for adequate ventilation

G23.60 Rotary tongs

Issued August 1999; Editorial Revision March 11, 2021

Regulatory excerpt
Section 23.60 of the *OHS Regulation ("Regulation")* states:

Rotary tongs must have

- (a) a primary safety device to prevent uncontrolled movement of the tongs, and
- (b) a secondary safety device that will activate if the primary device fails.

Purpose of guideline

The purpose of this guideline is to describe the wire rope safety lines used as a safety device for rotary tongs.

Description

Single stand rigs should use two wire rope safety lines, not less than 1/2 inch (13 mm) in diameter. Larger rigs should use two wire rope safety lines, not less than 5/8 inch (16 mm) in diameter.

G23.61 23.5, and 12.3 Safeguarding at the rotary table area of drilling and service rigs

Issued October 26, 2005

Regulatory excerpt
Section 23.61 (Rotary table) of the *OHS Regulation ("Regulation")* states:

- (1) If visibility on the rig floor is obscured, workers must not work there while the rotary table is in motion.
- (2) Hoses, lines or chains must not be operated or handled near a rotary table while it is in motion.
- (3) The rotary table must not be engaged until all workers are clear of the rotary table.

[Section 23.5](#) (Safe work procedures) of the *Regulation* outlines the employer's obligations to identify and analyze risks at operations in the oil and gas sector, and to develop appropriate safe work procedures to address hazards.

Section 12.3 (Standards) of the *Regulation* states:

The application, design, construction and use of safeguards, including an opening in a guard and the reach distance to a hazardous part, must meet the requirements of *CSA Standard Z432-94, Safeguarding of Machinery*.

Purpose of guideline

The provisions of section 23.61 are straightforward. However, there are difficulties with installing physical guards in the rotary table area of drilling and service rigs under some of the guarding provisions of the CSA Standard referenced in section 12.3. This guideline provides information on other measures to consider for safeguarding in the rotary table area, pursuant to the CSA Standard and the employer's obligation to conduct a risk analysis and adopt safe work procedures as required under [section 23.5](#) of the *Regulation*.

The CSA Standard and safeguards at the rotary table area

Machines, including drilling rigs, are required to comply with the safeguarding requirements of section 12.3 of the *Regulation*. Generally, the first choice for safeguarding a hazard is a physical barrier, but it is recognized that it is not usually possible to completely guard rotary tables in that manner.

The definition of a safeguard in the *Regulation* includes awareness barriers, warning signs and other appropriate means. In addition, the CSA Standard recognizes that physical barriers are not practicable in all situations. For example, section 4.2.2.7 of *CSA Standard Z432-94* states:

It is necessary to inform and warn the users about residual hazards against which risk reduction by design and safeguarding techniques are not, or not totally, effective. The instructions and warnings shall describe the procedures and operating modes intended to overcome those hazards; indicate if a particular type of training is required; and, if it is necessary, specify personal protective equipment.

The following measures are provided as procedures and methods to overcome and safeguard against hazards in the area of the rotary table. They are in addition to the requirements of section 23.61 and other applicable provisions of the *Regulation*. For convenience, the mandatory requirements of section 23.61 are noted at locations where related issues are addressed in the list of measures for safeguarding.

Measures for safeguarding in the rotary table area

1. All drilling and service rigs will clearly establish the rotary table area as a *Danger Zone*, which will include as much of the area around the rotary table as is practicable, according to the style and layout of each individual rig.
2. The *Danger Zone* will be clearly identified to personnel by signs, visible markings or other similar means in a manner that reinforces the location of the *Danger Zone*.
3. Personnel are permitted in the *Danger Zone* only during non-drilling operations and only after a hazard assessment has been conducted and communicated to all personnel.
4. Entry into the *Danger Zone* will be limited only to workers and other personnel essential to the operations.
5. All personnel will be clear of the *Danger Zone* while the rotary table is engaged and the driller's controls are unattended. In addition, during drilling operations, personnel will not enter the elevated section of the rotary table *Danger Zone* (area covered by safety matting) while the table is in motion.

Also note that sections 23.61 (1) & (3) of the *Regulation* state: (1) If visibility on the rig floor is obscured, workers must not work there while the rotary table is in motion. (3) The rotary table must not be engaged until all workers are clear of the rotary table.

6. When there are personnel within the *Danger Zone*, the rotary table will be restricted to a slow rate of speed and will be under the continuous direction of a designated driller positioned at the control console.
7. There will be no equipment, hoses, tools, cables or other items that could potentially become entangled within the *Danger Zone* while the rotary table is engaged and the driller's controls are unattended. This may include steam hoses, water hoses, wash guns, air hoses and other such equipment.

Also note that section 23.61(2) of the *Regulation* states: Hoses, lines or chains must not be operated or handled near a rotary table while it is in motion.

8. Proper procedures will be followed for the donning, wearing, removing and storing of fall protection and related equipment. Procedures will include:
 - All harnesses and fall protection/arrest equipment will be donned and removed in a safe area away from the drilling floor. The Doghouse is recommended as such an area.
 - All lanyards, slings, carabineers and any other fall protection/arrest equipment used for work in the derrick will be stored in the Doghouse or another safe location. This equipment will not be carried or worn around the rig when no longer required for work operations.
 - No personnel may enter any designated *Danger Zone* while wearing a derrick harness or any additional fall protection or fall arrest equipment.
 - Workers' clothing or personal protective equipment (PPE) will be maintained in good working condition and worn so that it does not increase the risk of entanglement on or around any rotating equipment. Any loose, torn, damaged or otherwise hazardous PPE is

prohibited in the *Danger Zone* and will be replaced.

9. Prior to working in the area of the rotary table, personnel will be instructed in and understand the *Danger Zone* hazards and safe work procedures at the particular site.

Guidelines Part 23 - Drill stem testing, swabbing, cementing, well servicing and stimulation

G23.64.1 Snubbing operations

Issued January 1, 2009; Editorial Revision November 21, 2017

Regulatory excerpt

Section 23.64.1 of the *OHS Regulation* ("*Regulation*") states:

A snubbing operation must be carried out in accordance with recognized industry safe work practices.

Purpose of guideline

This guideline describes snubbing operations, and describes one source of recognized industry safe work practices.

What is snubbing?

During the operating life of an oil or gas well, it is occasionally necessary to "rework" the well to enhance, maintain, or continue the production of hydrocarbons. This process frequently requires the removal and cleaning, or replacement, of tubing (piping) or other apparatus in the well bore.

Where practicable, the well will be "temporarily killed" by filling the well bore with high density fluids, doing the necessary reworking, and then removing the high density fluids and bringing the well back into production. However, sometimes the conditions in the well and reservoir do not allow the temporary killing of the well as the high density fluids may damage the hydrocarbon-bearing formation and render the well no longer productive. Snubbing is the petroleum industry operation to control well pressure and the movement of jointed tubulars (pipes) and tools in or out of a well bore using snubbing equipment. Snubbing allows the reworking of a "live well," and may even involve the continued production of hydrocarbon from the well during the reworking process.

Snubbing is being done more frequently in B.C.'s oil and gas production sector. It is a specialized operation due to the potential for the release of hydrocarbons, which means a potential for a fire or explosion, or exposure to an atmosphere which is oxygen deficient or contains toxic gases (such as hydrogen sulfide) making the atmosphere immediately dangerous to life and health.

Recognized industry safe work practices

The intent of *Regulation* section 23.64.1 is to ensure that proper guidance is available and practiced for snubbing operations, in the form of recognized safe work practices.

One source of recognized industry safe work practices is Energy Safety Canada's DACC (Drilling and Completions Committee) Industry Recommended Best Practice ([*IRP* Volume #15 — *Snubbing Operations* \(2015\)](#)). It has been developed by the oil and gas industry in western Canada for snubbing operations.

G23.69 Flow piping systems - Integrity assurance program

Issued 1999; Revised December 19, 2013; Editorial Revision August 28, 2015; Formerly issued as G23.69 Flow piping - Revised consequential to August 1, 2017 Regulatory Amendment

Regulatory excerpt

Section 23.69 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must develop and implement a program for the purpose of ensuring the integrity of the flow piping systems at the worksite.
- (2) In fulfilling the requirements of subsection (1), the employer must consider the conditions under which each flow piping system may operate, including corrosion factors and fluctuating temperatures and pressures, and the program must include provision for the following elements:
 - (a) routine inspections, non-destructive testing and pressure testing of piping and other component parts of each flow piping system, including setting out in writing, for each type of part to be inspected and tested,
 - (i) the inspection and testing procedures,
 - (ii) the frequency of inspection and testing and how the frequency is to be determined,
 - (iii) the criteria for rejection of a type of part and its removal from service, and
 - (iv) the method of determining how frequently a type of part is to be replaced, including the basis for replacement;
 - (b) preparing, updating and making readily available at the worksite an up-to-date document, relating to the inspections and testing

referred to in paragraph (a), that identifies each part that has been inspected and tested, and sets out, for that part,

- (i) the inspection and testing procedures followed,
- (ii) the results of the inspection and testing, and
- (iii) if a part has been rejected, the rejection criteria applied;
- (c) periodic reviews and updates of the program;
- (d) a system of preparing and retaining records in relation to each element of the program.

(3) The employer must assign to a qualified person responsibility for administration of the program referred to in subsection (1).

Purpose of guideline

The purpose of this guideline is to provide information on the integrity assurance program for flow piping systems and to provide guidance on routine inspections and testing of flow piping and component parts.

Integrity assurance program

Section 23.69 states that the employer must develop and implement an integrity assurance program for its flow piping systems - commonly known in the oil and gas industry as an Operations and Maintenance Program ("O&M Program").

The purpose of the integrity assurance program is to ensure that flow piping systems remain safe for workers during their anticipated operation. In developing the program, the employer must consider the conditions under which the flow piping systems are operated, such as corrosive conditions and fluctuating temperatures and pressures that may deteriorate the piping and associated component parts with use.

Employers' flow piping systems could encounter a wide range of operational conditions depending on the well operation and services performed.

The integrity assurance program needs to reflect the specific operations of the employer and the level of complexity of the program would reflect this (i.e., operations that are complex and diverse in scope would have an integrity assurance program that is more detailed and sophisticated than a more straightforward operation, like a well control activity).

Qualified person

Section 23.69(3) states that the employer must assign a qualified person responsibility for the administration of the integrity assurance program. The qualified person is a person who has oversight of the program to ensure the elements of the program are being carried out in accordance with regulatory requirement. This person understands the elements of the program and would be capable of monitoring the effectiveness of the program. For some employers, it may be an engineer who would be overseeing the inspection and tests being conducted on the piping and other component parts.

Inspection and testing frequency

One of the key requirements in section 23.69 is to routinely inspect and test piping and component parts of each flow piping system to ensure its integrity throughout its service life.

The integrity assurance program would include a list of component parts to be inspected and tested by non-destructive testing and pressure testing methods. Examples of non-destructive testing methods include, but are not limited to, magnetic particle inspection, ultrasonic thickness inspection, and internal visual inspections of piping and component parts. It is the employer's responsibility to determine the method of non-destructive testing to use and to perform these tests in accordance with industry accepted procedures, such as the *ASME Standard B31.3-1993*, as referred to in [section 23.12](#). Employers are also responsible for determining the frequency of these tests, the criteria for rejection, and the basis of replacement, as per section 23.69(2). Pressure testing requirements are outlined in [section 23.72](#) of the Regulation.

The inspection and testing process must define, for each item, what needs to be inspected and tested, the frequency of inspection and testing, how this frequency was determined, the inspection and testing procedures, rejection criteria, and how the frequency of replacement of component parts is determined; including the basis for determining replacement. The results of the inspection and testing must be documented. All of these elements are documented and updated as necessary. It is acceptable for the employer to have the inspection and testing documents in an electronic format that is readily accessible at the worksite in fulfilling the requirements of section 23.69(2)(b) to have up-to-date documents at the worksite.

Well testing and stimulation work can expose piping and parts to harsh conditions that are corrosive and abrasive. The frequency of inspections and testing required in an integrity assurance program will depend on the nature and frequency of the work. The employer needs to base the frequency of the testing and inspection on ongoing monitoring of the conditions in which the piping and its component parts are exposed, rather than relying upon set intervals of inspection and testing.

Determination of the necessary inspection and testing frequency must include consideration of the severity of service and fluctuating pressures and temperatures. For example, severe service would include flowback of acids; solvents; substances with large amounts of chloride, CO₂, or H₂S; fracturing sand; or other well debris. As the service severity increases, the frequency of testing and inspection needs to increase. The integrity assurance program needs to respond to these types of changes in the dynamic nature of well stimulation operations to ensure that these flow piping systems do not fail in a catastrophic manner.

G23.69.2(3) Engineered restraint systems "Engineering documentation"

Issued consequential to August 1, 2017 regulatory amendment

Regulatory excerpt

Sections 23.69.2(1), (2), and (3) of the OHS Regulation ("Regulation") state:

- (1) The employer must ensure that each flow piping system at the worksite is restrained by an engineered restraint system that is designed and manufactured
 - (a) to be used for the purpose of safely restraining the flow piping system, and
 - (b) to withstand the forces that may be encountered if the flow piping system fails.
- (2) If a restraint system has been manufactured by a commercial manufacturer, the employer must ensure that the restraint system is installed and anchored in accordance with the instructions and specifications of that manufacturer.
- (3) If a restraint system has been manufactured by the employer or another person who is not a commercial manufacturer, the employer must ensure that
 - (a) engineering documentation, including technical specifications and instructions for use, has been prepared and signed by the person responsible for demonstrating that the restraint system has been designed and manufactured as described in subsection (1),
 - (b) the restraint system is installed and anchored in accordance with that engineering documentation, and
 - (c) a copy of that engineering documentation is readily available at the worksite.

Purpose of guideline

The purpose of this guideline is to provide information on the engineering documentation referred to in section 23.69.2(3) for a restraint system that has been manufactured by the employer or another person who is not a commercial manufacturer.

Engineering documentation

Employers must ensure that each flow piping system is restrained by an engineered restraint system. Section 23.69.2(3) permits employers to use a restraint system that was not commercially manufactured; however, engineering documentation must be prepared for that restraint system.

Restraint systems that use components that are not specifically designed by the manufacturer for the purpose of flow piping restraint can be used for the purpose of restraining flow piping with detailed engineering documentation, including technical specifications and instructions for use.

Examples of technical specifications and instructions in the engineering documentation include the following:

- Instructions on installation and use of the restraint system
- Engineering specifications and drawings of the restraint system, including the attachment points and anchor requirements, and details about specific anchor points that are designed and adequate for the purpose of restraining the flow piping system
- Precautionary information and limitations, such as the maximum pressure in the system and worker exclusion zones
- Testing certification of components (e.g., of the slings and anchors)
- Other instructions for component use, maintenance, inspection, and removal from service

The engineering documentation must be prepared and signed by the person responsible for demonstrating that the restraint system has been designed and manufactured to be used for the purpose of safely restraining the flow piping system and it is able to withstand the forces that may be encountered if the flow piping system fails. Certification by a professional engineer that the restraint system has met the conditions outlined in section 23.69.2(1) would meet the intent of this regulatory requirement.

Similarly, employers using restraint systems made by a commercial manufacturer would typically have the manufacturer's instructions and specification on-site for reference, including instructions for what workers need to know for proper installation and anchoring.

Guidelines Part 23 - Production and plant operations

G23.80 Venting of trucks

Issued 1999; Editorial Revision February 25, 2013

Regulatory excerpt

Section 23.80 of the OHS Regulation ("Regulation") states:

Tank trucks or loading facilities must have a system for protecting workers from hydrogen sulfide if it is present.

Purpose of guideline

This guideline gives examples of acceptable systems for protecting workers from hydrogen sulfide.

Systems for protecting workers

The following systems may be used for protecting workers from hydrogen sulfide at tank trucks or loading facilities:

- Pressurized tank trucks
- Atmospheric tanks with a suitable vapour gathering system
- Scrubber system, truck-mounted or fixed
- An enclosed system

[Back to Top](#)

Guidelines Part 23 - Gas sample containers

G23.88 Alternate acceptable standard

Issued October 20, 2020

Regulatory excerpt

Section 23.88(1) of the *OHS Regulation* ("Regulation") states:

- (1) Gas sample containers must meet the requirements of *CSA Standard CAN/CSA-B339-88 Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*.

Section 4.4(2) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

Section 4.4(2)(a) of the *Regulation* provides WorkSafeBC the authority to accept alternative standards to those listed in the *Regulation*. The purpose of this guideline is to specify the 2018 version of the CSA Standard *CAN/CSA-B339-88* as an acceptable alternative standard under section 23.88(1).

Alternative standard

The CSA Standard [CAN/CSA-B339-18 Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods](#) is accepted as an alternate standard.

Contents

DEFINITIONS

G24.1-1 [Fishing vessel – Definition](#)

G24.1-2 [Owner or master definition – Determining who is the employer](#)

G24.1-3 [Crewmember – Definition](#)

G24.1-4 [Dive site – Definition](#)

DIVING OPERATIONS

GENERAL REQUIREMENTS

G24.9 [Diving operations – Notice of project](#)

G24.10 [Medical certification](#)

G24.10/G24.11 [Medical certification and fitness of recreational diving instructors](#)

G24.12 [Training](#)

G24.13 [Principal performers using underwater diving equipment](#)

G24.13-1 [Evidence of competency for scientific divers](#)

G24.13-2 [Diving competency standards](#)

G24.17 [Safe diving procedures](#)

G24.18 [Diving supervisor qualifications](#)

G24.21 [Diving tables](#)

G24.25 [Acceptable standards for hyperbaric chambers](#)

G24.26 [Breathing mediums](#)

G24.29 [Gauges and meters](#)

G24.36 [Minimum dive crew for scuba diving](#)G24.37 [Restrictions on scuba](#)

SURFACE SUPPLY DIVING

G24.40 [Minimum crew requirements](#)G24.43 [Surface supply diving – Compressors](#)

FISHING OPERATIONS

GENERAL REQUIREMENTS

G24.70 [Compliance with Standards](#)G24.71 [Owner and master responsibilities – Major modifications](#)G24.72 [Documentation](#)G24.76 [Vessel preparation](#) [Retired]G24.77 [Reporting injuries](#)G24.84 [Protection from falling](#)G24.85 [Deck openings](#)G24.86 [De-energization](#)G24.90 [Ventilation](#)G24.97(1) [Acceptable standards for immersion suits](#)G24.100 [Ozone safe work practices](#)

Guidelines Part 24 - Definitions

G24.1-1 Fishing vessel – Definition

Issued March 1, 2019; Editorial Revision consequential to June 3, 2019 Regulatory Amendment

Regulatory excerptSection 24.1 of the *OHS Regulation* ("*Regulation*") states, in part:*"fishing vessel"* means any commercial vessel used in catching fish or collecting or transporting fish for landing;**Purpose of guideline**The purpose of this guideline is to provide clarity regarding the application of sections 24.69 to 24.143 of the *Regulation* to "*fishing vessels*."**Application**

Sections 24.69 to 24.143 cover all commercial fishing activities conducted from commercial fishing vessels, including geoduck divers. Among the activities not covered are the following:

- Fishing activities conducted entirely on shore, such as clam diggers
- Operations that fall within the category of fish farms, such as oyster farms
- Fishing done for the purpose of obtaining the fisher's own food

Sections 24.69 to 24.143 do apply to activities incidental to fishing operations that are carried out on land, such as on the dock where the vessel is moored or in a locker where the vessel's gear is stored. The regular maintenance or minor repair of a fishing vessel conducted by the owner, master, or crew is also covered.

Sections 24.69 to 24.143 do not apply to constructing a fishing vessel or doing major repairs.

G24.1-2 Owner or master definition – Determining who is the employer

Issued September 1999; Editorial Revision May 2005; Revised November 21, 2006; Editorial Revision March 1, 2019; Editorial Revision consequential to June 3, 2019 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerptSection 24.1 of the *OHS Regulation* ("*Regulation*") states, in part:*"crewmember"* for the purposes of sections 24.69 to 24.143, means any person who is working on a fishing vessel;*"master"* for the purposes of sections 24.69 to 24.143, means the person in overall command of a fishing vessel;*"owner"* for the purposes of sections 24.69 to 24.143, means the person who holds legal title to a fishing vessel and also includes a

charterer of a fishing vessel;

Section 13 of the *Workers Compensation Act* ("Act") states in part:

"employer" means

...

(c) the owner and the master of a fishing vessel for which there is crew to whom the compensation provisions apply as if the crew were workers,

but does not include a person exempted from the application of the OHS provisions by order of the Board;

Section 21 of the *Act* states:

(1) Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), an employer must

(a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,

(b) ensure that the employer's workers

(i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,

(ii) comply with the OHS provisions, the regulations and any applicable orders, and

(iii) are made aware of their rights and duties under the OHS provisions and the regulations,

(c) establish occupational health and safety policies and programs in accordance with the regulations,

(d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,

(f) make a copy of this *Act* and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,

(g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and

(h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

Purpose of guideline

The purpose of this guideline is to provide principles to consider in determining to what extent the owner or master of a fishing vessel carries the responsibilities of the employer under the OHS provisions of the *Act* and the *Regulation*.

Employer responsibilities of masters and owners under OHS legislation

Background - both owners and masters are employers of the crew

The workplace party with primary responsibility over health and safety is the employer. Section 21 of the *Act* contains specific obligations with respect to an employer. In addition, the *Regulation* places many requirements on the employer.

In the fishing industry, both owners and masters may be considered to be the employer of the crew. Section 13 of the *Act* defines "employer" for the purposes of the OHS provisions of the *Act* and the *Regulation*. That definition includes the owner and master of a fishing vessel for which there are crewmembers to whom the compensation provisions of the *Act* applies as if the crew were workers. Therefore both owners and masters of fishing vessels are required to meet the responsibilities of an "employer" specified by the *Regulation* and the OHS provisions of the *Act*. The level of compliance of owners and masters with their obligations as "employer" may vary according to the situation. The following guideline sets out basic principles for determining the "employer" obligations of owners and masters.

"Employer" obligations

Masters and owners each play different roles in a commercial fishing operation. Each "employer" will be responsible for workplace conditions to the extent they have influence over them. Determining the degree of control over and ability to influence a particular workplace condition may involve assessing the following:

- The type of operation carried on by the owner and master
- The contract between the master and vessel owner
- The reality of the relationship between the owner, master, and crew
- Whether the owner or master hired the crewmembers

Note that section 30 of the *Act* contemplates obligations being imposed on one or more persons and supports the notion of joint responsibility over workplace health and safety:

- (1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.
- (2) If one of the persons subject to the obligation complies with the applicable provision, the other person subject to the obligation are relieved of that obligation only during the time when
 - (a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and
 - (b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

The following sets out the responsibility for owners and masters over the two primary aspects of the fishing vessel workplace, vessel operation and infrastructure. However, as noted above, the obligation of the owner or master will have obligations based on the reality of the relationship and the ability to influence workplace safety.

1. Crew and operation of the vessel

The master generally hires the crew and obviously is the "employer" who will be present at the workplace during fishing operations. The master will have more control over the crew than the owner, and will normally be the employer primarily responsible for crew safety while the vessel is being operated.

This primary responsibility will extend to a number of elements listed in section 21(2) of the *Act*, such as providing instruction as to workplace hazards, ensuring the crew use protective equipment and devices, ensuring a safety program is in place, and making a copy of the *Act* and *Regulation* available to crewmembers.

The master's responsibility related to certain items in section 21(2) may be more limited, if there are limitations to the manner in which the master is capable of fulfilling those obligations.

For example, section 21(2)(a) of the *Act* provides that the employer must remedy workplace conditions that are hazardous to the health and safety of workers. A master may be able to directly remedy some workplace conditions, but not all. Where the workplace condition relates to the integrity or maintenance of the vessel or equipment, the master will be expected to provide information about the hazardous condition to the owner. The owner will then have the obligation, also under section 21(2)(a) of the *Act*, to remedy the relevant hazards.

Similarly, the manner in which each of the master or owner will comply with the obligation to train crewmembers, establish safety policies and programs, and consult with health and safety representatives (where required), will depend on the circumstances and the relationship between the owner, master, and crewmembers. For example, where owners are more involved in the selection of the crew and the terms of employment, those owners will bear primary responsibility for training the crew, while the master's role will relate more to direct instruction. Where the master is primarily involved in hiring, the master will bear more responsibility for training and the owner's responsibility may be limited to directing the master and ensuring the master complies with his or her obligations.

Even where vessel owners have little or no direct control over the crew and operation of the vessel, and where the master hired the crewmembers, owners will retain the obligation to ensure the health and safety of crewmembers of the vessel under section 21(1)(a)(ii) of the *Act*. Vessel owners may control deadlines, quotas, or any other operating requirements that could affect the health and safety of workers.

Further reference should be made to specific obligations placed on masters and owners in [sections 24.69 through 24.143](#) of the *Regulation*. In general, sections 24.69 to 24.143 place responsibility for operating the vessel safely with the master, and place responsibility for the infrastructure, maintenance, and overall integrity of the vessel and equipment with the owner.

Where a vessel constitutes a "multiple employer workplace" under [section 24](#) of the *Act*, the master will be the owner who will act as a prime contractor unless a prime contractor is appointed.

2. Infrastructure, maintenance, and overall integrity of the vessel and equipment

In general, the vessel owner has control over the infrastructure, maintenance, and overall integrity of the vessel and equipment. Therefore, the owner will typically be responsible for employer duties that relate to the infrastructure, maintenance, and overall integrity of the vessel and equipment.

For example, requirements in the *Regulation* that relate to general conditions of the workplace will primarily be the owner's responsibility.

[Section 4.2](#) of the *Regulation* requires the employer to ensure that each building and temporary or permanent structure in a workplace is capable of withstanding any stresses likely to be imposed on it. The vessel owner would typically be responsible for meeting this requirement because the vessel owner typically has control over the integrity of the structures on the vessel.

However, certain requirements with respect to the workplace may fall to both owners and masters. For example, under [section 3.5](#) of the *Regulation*, every employer must ensure that regular inspections are made of all workplaces, including tools, equipment, machinery, and work methods and practices, at intervals that will prevent the development of unsafe working conditions. Both the owner and master have responsibility for fulfilling this duty.

Sections 24.69 to 24.143 of the *Regulation* specify particular responsibilities of owners and masters. In general, sections 24.69 to 24.143 place responsibility for the infrastructure, maintenance, and overall integrity of the vessel and equipment with the owner. For example, under [section 24.71](#) of the *Regulation*, the owner of the vessel must ensure that all machinery and equipment on board a fishing vessel is capable of safely performing the functions for which it is used. Under [section 24.82](#) of the *Regulation*, the master must ensure that all rigging is inspected regularly to ensure that it is able to safely carry out the work for which it was designed.

Masters will also have obligations to protect crewmembers with respect to vessel and equipment maintenance and integrity. Masters would be expected to understand the operating characteristics and limitations of the vessel, and communicate issues relating to the maintenance and integrity of the vessel and equipment to the owner.

Note also that vessel owners must comply with the general duties of owners under [section 25](#) of the *Act*.

G24.1-3 Crew member – Definition

Issued March 1, 2019; Editorial Revision consequential to June 3, 2019 Regulatory Amendment

Regulatory excerpt

Section 24.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"*crewmember*" for the purposes of sections 24.69 to 24.143, means any person who is working on a fishing vessel;

"*master*" for the purposes of sections 24.69 to 24.143, means the person in overall command of a fishing vessel;

"*owner*" for the purposes of sections 24.69 to 24.143, means the person who holds legal title to a fishing vessel and also includes a charterer of a fishing vessel;

Purpose of guideline

The purpose of this guideline is to further define "*crewmember*" for the purpose of this regulation.

Crewmember

The definition of "*crewmember*" includes all persons employed in the harvesting or transporting of fish on a fishing vessel. It includes the "*master*" and the "*owner*" when he or she is working on the vessel.

Sections 24.69 to 24.143 do not apply to passengers or other persons who do no work on the vessels or employees of contractors who come on board to repair the vessel where it is moored or in a locker. The latter are, however, subject to other sections of the *Regulation*.

G24.1-4 Dive site – Definition

Issued November 26, 2019; Revised November 13, 2020; Editorial Revision December 18, 2020

Regulatory excerpt

Section 24.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"*dive site*" means any location where a diving operation takes place including a boat, scow, float, raft or platform which is seaworthy, secure, and of sufficient size to safely accommodate all workers and equipment without overcrowding;

Purpose of guideline

The purpose of this guideline is to provide further description of what constitutes a dive site, and clarifies when two vessels can be considered a single site.

What constitutes a dive site

A dive site can be a location in open water, on a shoreline, in a river, or within a structure such as a pump house or water reservoir.

The minimum crew requirements prescribed by the *Regulation* apply to each individual dive site but is never less than three.

Single site with two vessels

It is not uncommon to see two seafood harvest vessels, each with two crew, working in the same vicinity. Alone they do not meet the minimum crew requirements; however, if done correctly the vessel crews can work together to satisfy the regulatory requirements. Here is an example of how this can be done correctly:

Two vessels employed by either the same firm or two different firms may constitute a single dive site if they have written dive procedures (as per section 24.17 of the *Regulation*), dive plan (as per section 24.18 of the *Regulation*), and there is only one dive supervisor. A written agreement is recommended if both vessels are not from the same firm (reference sections [21 and 24](#) of the *Workers Compensation Act* and associated policies [P2-21-1](#) and [P2-24-1](#)).

To constitute a single dive site, the vessels will be working together in close proximity, and able to render emergency assistance as required. The dive operation must also ensure they adhere to section 24.33 of the *Regulation* for standby diver requirements. It is important that the boat operators be sufficiently competent to respond to diving emergencies.

Guidelines Part 24 - Diving operations: General requirements

G24.9 Diving operations – Notice of project

Issued September 1999; Editorial Revision February 25, 2013

Regulatory excerpt

Section 24.9(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must submit a notice of project for diving activity, or notify the Board by telephone, at least 24 hours before commencing a diving operation which involves
 - (a) construction diving,
 - (b) engineering inspection diving,
 - (c) diving in a contaminated environment,
 - (d) diving under ice, under or between nets, or into other areas of potential entrapment,
 - (e) exceeding the no-decompression limit, or
 - (f) the use of mixed gas other than nitrox as a breathing medium.

Section 24.9(3) of the *Regulation* states:

- (3) Before diving commences, a copy of the notice of project must be posted at the worksite, or if notification is provided by telephone, a written summary of that notification that contains the information required by subsection (2) must be posted at the worksite.

Purpose of guideline

This guideline explains the requirements for posting information when a notice of project (NOP) has been submitted by telephone.

Notice over telephone

Section 24.9(3) of the *Regulation* means that if notice is given over the telephone then the employer must legibly write down all the required information and post it at the worksite. If posting is not practicable, the notice must be available at the workplace and its location made known to the workers at the worksite.

Submitting an NOP

NOP may be submitted online at [WorkSafeBC Submit a Notice of Project form](#). WorkSafeBC also provides a standard form that can be used for sending written notice to WorkSafeBC or recording telephone notices. This form defines the detailed information that must be given, whether notice is given by telephone or in writing. The forms can be ordered from [WorkSafeBCStore.com](#).

G24.10 Medical certification

Issued September 1999; Editorial Revision October 2004; Editorial Revision February 25, 2013

Regulatory excerpt

Section 24.10 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that each diver has current medical certification, from a physician knowledgeable and competent in diving medicine, before commencing diving operations.
 - (2) A diver's medical certification must be
 - (a) established prior to entry into any commercial diving activity,
 - (b) renewed every 2 years up to age 39 and annually from age 40 onwards,
 - (c) renewed more frequently than required by paragraph (b) if clinically indicated, and

(d) re-evaluated by a physician knowledgeable and competent in diving medicine if the diver is subjected to an event or has a physical condition which may affect the diver's medical status.

(3) A copy of each diver's medical certification must be kept at the dive site.

Purpose of guideline

This guideline provides information on physicians recognized as knowledgeable and competent in diving medicine.

Dive Physicians

WorkSafeBC keeps a list of physicians that it recognizes as being "knowledgeable and competent in diving medicine." This list is available online at [WorkSafeBC Dive Physicians](#).

Section 24.10 of the *Regulation* is violated if a person works as a diver or a standby diver without being certified by a physician knowledgeable and competent in diving medicine.

A request to have a physician added to the list should be sent to [Certification Services](#).

G24.10/24.11 Medical certification and fitness of recreational diving instructors

Issued June 26, 2014

Regulatory excerpt

Section 24.10(1) of the *OHS Regulation* ("*Regulation*") states:

(1) The employer must ensure that each diver has current medical certification, from a physician knowledgeable and competent in diving medicine, before commencing diving operations.

Section 24.11 of the *Regulation* states:

(1) A diver must not dive if, in the opinion of the diving supervisor, the diver is incapable of functioning safely underwater.

(2) A diver must be medically re-examined, as required by the diving supervisor, to ensure that the diver is fit to dive.

(3) Divers, standby divers, and divers' tenders must not participate in any diving operation if they are physically or emotionally fatigued or if they have consumed drugs or alcohol which would impair their ability to work safely.

Purpose of guideline

This guideline explains why Part 24 of the *Regulation* does not apply to recreational diving instruction, and refers to relevant information in another guideline.

Part 24 does not apply but other requirements do apply

Part 24 of the *Regulation* contains requirements for diving operations ([sections 24.7 to 24.68](#)). According to section 24.7, the diving operations regulations "apply to all persons involved in any occupational diving operation." Recreational diving operations are not considered occupational diving operations. As a result, recreational diving instructors are not required to comply with the regulatory requirements relating to diving operations.

As section 24.10 is part of the diving operations regulations, employers of recreational diving instructors are not required to meet this requirement, and recreational diving instructors are not required to comply with the requirement to undergo medical certification. Similarly, the restrictions and obligations in section 24.11 regarding diving fitness, do not apply to recreational diving instructors or their employers.

Although not covered by sections 24.10 and 24.11, general regulatory requirements relating to the fitness of workers apply to recreational diving instructors and their employers. [Section 4.19](#) of the *Regulation* contains requirements around physical or mental impairment. Guideline [G4.19 Physical or mental impairment – recreational diving instructors](#) provides guidance for recreational diving instructors and employers regarding fitness for work.

G24.12 Training

Issued September 1999; Editorial Revision October 2004; Editorial Revision November 23, 2005; Revised December 16, 2016

Regulatory excerpt

Section 24.12 of the *OHS Regulation* ("*Regulation*") states:

(1) A diver must not dive unless the diver has been thoroughly trained in the theory and use of the diving apparatus that the diver will be using.

(2) The training required by subsection (1) must be provided by a person or agency acceptable to the Board.

(3) All divers, diving supervisors and divers' tenders must be trained in CPR, oxygen (O₂) therapy, and diving accident management.

Section 24.13 of the *Regulation* states:

- (1) The employer and diving supervisor must ensure that all divers
 - (a) meet the minimum requirements of [CSA Standard Z275.4-97 Competency Standard for Diving Operations](#), and
 - (b) are competent to use the diving equipment that will be used in the diving operation.
- (2) A certified copy of competency documents for each diver must be available for inspection on site by an officer.

Purpose of guideline

Section 24.12(2) of the *Regulation* requires that divers be trained by a person or agency acceptable to WorkSafeBC and as required by section 24.13(1)(a); commercial (occupational) divers must be trained in accordance with the standards of [CSA Standard Z275.4-97 Competency Standard for Diving Operations](#) ("Standard").

This guideline provides a link to the training providers in B.C. that train to the *Standard*. The guideline also lists the accepted certificates that meet the requirement of section 24.13(2) of the *Regulation*.

Accepted training providers

Information on accepted training providers can be found at [Diver Certification Board of Canada Diving Training Providers](#).

Competency documents

Certificates that meet the requirement under section 24.13(2) for occupation diving include the following:

- A current certificate issued by the Diver Certification Board of Canada (DCBC). This certificate must be renewed by or on expiry date
- WorkSafeBC diving certificates (refer to Note below)
 - restricted or unrestricted Scuba Certificate
 - restricted or unrestricted Surface Supply Certificate
 - Seafood Harvesting Certificate
- A National Energy Board of Canada ("NEBC") Certificate (refer to Note below)

Note: The WorkSafeBC and NEBC certificates are no longer being issued; however, if a diver holds one of these certificates and it does not have an expiry date, it is currently considered valid for the purpose of meeting section 24.13(2) of the *Regulation*. If a diver holding one of these certificates has not been actively diving in the last five years and intends to return to occupational diving in the future, it is recommended that the diver's be updated through an accepted training provider.

Other certificates or documented training may be acceptable. Contact [Certification Services](#) (Diving) for review and comparison to CSA Standard Z275.4.

G24.13 Principal performers using underwater diving equipment

Issued April 27, 2000; Editorial Revision April 2005; Revised December 16, 2016; Editorial Revision June 30, 2021

Regulatory excerpt

Section 24.10 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that each diver has current medical certification, from a physician knowledgeable and competent in diving medicine, before commencing diving operations.
 - (2) A diver's medical certification must be
 - (a) established prior to entry into any commercial diving activity,
 - (b) renewed every 2 years up to age 39 and annually from age 40 onwards,
 - (c) renewed more frequently than required by paragraph (b) if clinically indicated, and
 - (d) re-evaluated by a physician knowledgeable and competent in diving medicine if the diver is subjected to an event or has a physical condition which may affect the diver's medical status.
- (3) A copy of each diver's medical certification must be kept at the dive site.

Section 24.12 of the *Regulation* states:

- (1) A diver must not dive unless the diver has been thoroughly trained in the theory and use of the diving apparatus that the diver will be using.
- (2) The training required by subsection (1) must be provided by a person or agency acceptable to the Board.

(3) All divers, diving supervisors and divers' tenders must be trained in CPR, oxygen (O₂) therapy, and diving accident management.

Section 24.13 of the *Regulation* states, in part:

(1) The employer and diving supervisor must ensure that all divers

(a) meet the minimum requirements of [CSA Standard Z275.4-97 Competency Standard for Diving Operations](#)

Section 4.4 of the *Regulation* states in part:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board

Purpose of guideline

Section 24.13(1)(a) of the *Regulation* requires that all divers in an occupational diving operation meet the requirements of *CSA Standard 275.4-97 Competency Standard for Diving Operations*. Each diver is also required to be competent to use the equipment that will be used during the diving operation. The purpose of this guideline is to outline the conditions under which principal performers (actors and stunt performers) may perform underwater holding only a sport diving (open water) certification.

Principal performers

A principal performer for the purposes of this interpretation refers to actors and stunt performers contracted for artistic purposes. Occasionally an underwater scene will require principal performers to go underwater using a self-contained underwater breathing apparatus (SCUBA) or surface supply equipment to achieve the required film sequence.

Under certain situations, a principal performer going underwater for selected shots in shallow depths may be considered not to be a diver under the *Regulation*. Each principal performer is, however, considered to be a worker and is subject to the requirements of other sections of the *Workers Compensation Act* and the *Regulation*, including section 2.2 of the *Regulation*, which states "all work must be carried out without undue risk of injury or occupational disease."

Section 4.4(2)(a) permits the reliance on other standards which are acceptable to WorkSafeBC. WorkSafeBC will accept that a principal performer is not a diver required to meet the requirements of sections 24.10, 24.12, and 24.13 of the *Regulation* and that there is compliance with [section 2.2](#) where the following conditions are met:

1. An occupational diver who meets the requirements of *CSA Standard 275.4-97 Competency Standard for Diving Operations* assesses the ability of the principal performer to perform the required underwater shots, and considers the performer is competent to perform such underwater shots.
2. A dedicated occupational diver who meets the requirements of *CSA Standard 275.4-97* accompanies each principal performer at all times while the principal performer is underwater.
3. All performers involved in diving will be required to have a medical exam by a physician for sport diving. One of the Recreational Scuba Training Council forms such as PADI's Product No. 10063 (Rev. 06/15) Version 2.01 must be used. Medical exams are required every two years up to age 39 and annually from age 40 onwards. This signed form must be on site. No self-declared medical will be accepted.
4. All breathing mediums must meet the requirements of *CSA 7275.2 Occupational Safety Code for Diving*.
5. All sport diving (open water) certification for principal performers must be on site.
6. All dive logs for principal performers must be on site.
7. All support apparatus, accessories, and applicable service records must be available to workers on the dive site.
8. Only occupational dive tables are to be used.
9. A principal performer with only a valid recreational diver's (open water) certificate must not exceed 15 feet in depth.
10. A principal performer without a valid recreational diver's (open water) certificate must take an introduction to diving session (for example, PADI "Discover Scuba"), must not exceed 7 feet in depth, and must be under direct supervision of an occupational diver who meets the requirements of *CSA Standard 275.4-97*.
11. The water time for a principal performer who is not certified and qualified as an occupational diver to the full requirements of the *Regulation* is limited to the time required to perform the underwater shot.

No variance is needed where the above conditions are met. If in other situations a variance is needed, a request should be submitted to WorkSafeBC at least 30 working days prior to the scheduled shooting days.

G24.13-1 Evidence of competency for scientific divers

Issued November 29, 2002; Editorial Revision April 2005; Editorial Revision February 25, 2013

Regulatory excerpt

Section 24.13 of the *OHS Regulation* ("*Regulation*") states:

(1) The employer and diving supervisor must ensure that all divers

(a) meet the minimum requirements of [CSA Standard Z275.4-97 Competency Standard for Diving Operations](#), and

(b) are competent to use the diving equipment that will be used in the diving operation.

(2) A certified copy of competency documents for each diver must be available for inspection on site by an officer.

Purpose of guideline

This guideline explains what scientific diving is and the requirements for training for divers engaged in scientific diving.

Scientific diving

Clause 1.6 of *CSA Standard Z275.4-97* states:

This standard does not apply to scientific diving as defined in Clause 2.1.

Clause 2.1 of *CSA Standard Z275.4-97* defines scientific diving as:

Diving performed to collect specimens or data for scientific use, under the auspices of an educational or research institute operating in accordance with the Canadian Association of Underwater Science *Standard of Practice for Scientific Diving*.

Note: Scientific diving does not include diving conducted for construction, including excavation, salvage, demolition, destruction, maintenance, repair, or inspection of underwater structures, nor collection of organisms for consumption or commercial use.

A diver engaged in scientific diving (as defined above) under the auspices of an educational or research institute does not need to meet the minimum requirements of *CSA Standard Z275.4-97*. However, in order to qualify for and maintain this exemption, the diver and the diving operation must operate in accordance with the Canadian Association of Underwater Science (CAUS) *Standard of Practice for Scientific Diving* ("*CAUS Standard*"). This means the educational or research institute must be a member organization in good standing with CAUS and have in place the organizational requirements specified in the *CAUS Standard*.

On the date of publication of this guideline, WorkSafeBC is aware of the following member organizations belonging to CAUS that may have scientific diving operations within WorkSafeBC's jurisdiction:

University of British Columbia
Vancouver Aquarium Marine Science Centre
Barnfield Marine Station
University of Victoria
Simon Fraser University
Royal BC Museum

Required documents

A diver engaged in scientific diving under the auspices of an educational or research institute must be able to produce for inspection by a WorkSafeBC prevention officer documentation of competency and authorization to dive from the institute. Such authorization must indicate the scientific diver's category, or diving competency level, as specified in the *CAUS Standard*. The authorization may be in the form of a letter or certificate issued by the institute's diving officer or an entry by the diving officer in the diver's personal logbook. The diver may only undertake scientific diving activities that are within the scope of his or her current diving authorization as established by the institute.

An employer contracting with a member organization of CAUS to do scientific diving will only be considered to be working "under the auspices of an educational or research institute" if the employer's divers have authorization to dive from the institute and if the diving operation is undertaken in accordance with and under the control of the institute's scientific diving program. Otherwise, the divers working for such a contract employer must meet the minimum requirements of *CSA Standard Z275.4-97 Competency Standard for Diving Operations* or other standard acceptable to WorkSafeBC, and be so certified.

There are reciprocity agreements between CAUS member organizations, so a scientific diver from one institute can go to another institute as a visiting diver and his/her scientific diving credentials may be recognized and accepted by the host institute, with minimal "inconvenience." Similar reciprocity agreements exist between CAUS and other associations, such as the U.S. equivalent of CAUS, the American Academy of Underwater Sciences. The visiting diver must supply appropriate documentation (such as personal logbook, medical clearance, and proof of equipment maintenance) to the host institute's diving officer. The host institute's diving officer must provide specific authorization for the visitor to dive under the institute's program.

A scientific diving operation under the auspices of an educational or research institute may involve personnel who are not workers covered by the *Workers Compensation Act* ("*Act*"), such as students, volunteers, or visitors. If one or more of the personnel involved in a scientific diving operation is a worker under the *Act*, the *Act* and the *Regulation* apply. Section 24.13 of the *Regulation* applies to all divers involved in a scientific diving operation — i.e., all of the divers must meet the requirements of the *CAUS Standard*. All other requirements of the *Act* and the *Regulation* must also be met in the diving operation.

If there is any conflict between a requirement in the *CAUS Standard* and the *Regulation*, the requirement of the *Regulation* prevails.

Recreational certification

A recreational diver certification only, such as PADI (Professional Association of Diving Instructors) or NAUI (National Association of Underwater Instructors), is not a sufficient certification to meet the criteria of any of the scientific diver categories in the *CAUS Standard*.

Issued November 23, 2005; Revised June 6, 2006; Editorial Revision July 9, 2009; Editorial Revision November 21, 2017

Regulatory excerpts

Section 24.13 of the *OHS Regulation* states:

- (1) The employer and the diving supervisor must ensure that all divers
- (a) meet the minimum requirements of *CSA Standard Z275.4-97 Competency Standard for Diving Operations* and
 - (b) are competent to use the diving equipment that will be used in the diving operation.
- (2) A certified copy of competency documents for each diver must be available for inspection on site by an officer of the Board.

Section 4.4(2) of the *OHS Regulation* states:

- (2) When this Regulation requires a person to comply with
- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or
 - (b) practices, procedures or rules of the Board or another agency, the person may, as an alternative, comply with another practice, procedure or rule acceptable to the Board.

Purpose of guideline

This guideline

- identifies an alternative standard to the *CSA Standard Z275.4-97*, under section 24.13(1)(a) that is acceptable to WorkSafeBC
- lists agencies that certify divers to a competency standard that is acceptable to WorkSafeBC and
- discusses evidence of competency under section 24.13(2).

Background

Prior to the amendments to the *OHS Regulation* by B.C. Reg 312/2003, section 24.13(1)(a) also included the statement "or other standards acceptable to the Board." Since the regulatory amendments in 2003, the WorkSafeBC's authority to accept alternative standards falls under section 4.4(2) of the *OHS Regulation*.

Alternative competency standard for diving

CSA-Z275.4-02 Competency Standard for Diving Operations is a standard acceptable to WorkSafeBC that may be complied with as an alternative to *CSA Standard Z275.4-97 Competency Standard for Diving Operations* under section 24.13(1)(a).

Agencies that certify to a standard acceptable to WorkSafeBC

The following agencies certify divers to a standard acceptable to the WorkSafeBC under section 24.13(1)(a):

1. **WorkSafeBC.** Divers who received a *WCB Seafood Harvesting Diver's Certificate* issued before January 1, 1998 are considered to be trained in the theory and use of the diving apparatus that the divers use in the fishing industry. These certificates are restricted to diving in the fishing industry for the sole purpose of harvesting seafood product. They are not acceptable for any other form of commercial diving or for workers who have not been employed as divers in the seafood harvesting industry on a continuous annual basis. Certificates showing an expiry date are not valid.
2. **Diver Certification Board of Canada (DCBC) or a school accredited by DCBC.** A list of these accredited training schools and other information related to diver certification can be found at <http://www.divercertification.com>

The Department of National Defense also certifies divers to a standard acceptable to WorkSafeBC provided that the divers have work experience and bottom time comparable to that required by *CSA Standard Z275.4-97 Competency Standard for Diving Operations*.

The Health and Safety Executive (HSE) of the United Kingdom does not certify to a standard acceptable to WorkSafeBC under 24.13(1)(a). Occupational divers holding HSE diver training certificates who want to dive in British Columbia must contact [Certification Services](#) department of WorkSafeBC to have their diver qualifications evaluated.

For questions about whether a diver has been certified to a standard acceptable to WorkSafeBC, please contact WorkSafeBC's diving coordinator at (604) 276-3100.

Evidence of competency

Competency documents that are required under section 24.13(2) include a certified copy of a valid diving certificate from one of the agencies listed above or other person or training agency found to be acceptable to WorkSafeBC. Employers may certify a copy of competency documents by making copies personally or comparing the copies with the originals, and then signing or initialing the copies to show this has been done. Copies may also be certified by a legal professional for presentation to an officer.

Regulatory excerpt

Section 24.17 of the *OHS Regulation* ("*Regulation*") states:

- (1) Every employer engaged in diving operations must prepare and publish a set of safe diving procedures which include
 - (a) safe procedures and health requirements for each type of diving in which workers may be involved,
 - (b) all the procedures to meet the applicable requirements of this Regulation, and
 - (c) emergency, evacuation, and rescue procedures.
- (2) The safe diving procedures must be kept at the dive site, readily available to all workers, and available for inspection by an officer.

Purpose of guideline

The purpose of this guideline is to clarify how first aid requirements must be considered as part of the emergency, evacuation, and rescue procedures.

First aid requirements

In order to ensure safe diving procedures, first aid is a critical aspect. When considering occupational first aid requirements for worksites, the employer is responsible for conducting an assessment of the workplace in accordance with section 3.16(2) of the *Regulation*. In conducting this assessment, the employer should consider the high risk of injury involved in diving operations. It should be noted that section 3.3 of *CSA Standard Z275.4-97*, adopted under section 24.13(1)(a) of the *Regulation*, requires all divers to have up-to-date knowledge of, and be proficient in, CPR and basic first aid. This is in addition to the requirements for an occupational first aid attendant determined by an assessment.

Rescue

Section 24.31 of the *Regulation* requires that a power rescue boat be available for immediate use in dive sites where divers are on floats. This allows the supervisor and the standby diver to respond to diving emergencies and to recover divers from the water when required.

Questions relating to diving operations may be directed to [Certification Services](#).

G24.18 Diving supervisor qualifications

Issued March 11, 2009

Regulatory excerpt

Section 24.1 of the *OHS Regulation* ("*Regulation*") defines a "diving supervisor" as:

A person having complete and direct responsibility for the diving operation who is knowledgeable and competent with the diving equipment, the diving operations in progress, emergency diving procedures, diving physics and physiology and medical aspects of diving.

Section 24.18 of the *Regulation* (Diving supervisor's worksite duties) states:

- (1) Each diving operation must be directed by a diving supervisor whose duties include
 - (a) evaluating the hazards,
 - (b) planning the dive,
 - (c) briefing the crew,
 - (d) ensuring that all needed equipment is available and in good working condition, and
 - (e) controlling the entire diving operation.
 - (f) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]
- (2) The diving supervisor must prepare a detailed plan of the diving operations which must be given to the worksite employer before diving commences.
- (3) The diving supervisor must
 - (a) remain in the dive area during diving operations,
 - (b) delegate the supervisory responsibilities to another diving supervisor, if required to enter the water, and
 - (c) suspend diving operations if conditions become unsafe.

Purpose of guideline

The purpose of this guideline is to clarify the minimum qualifications that diving supervisors will need to meet in order to be able to fulfill their responsibilities under [Part 24](#) of the *Regulation*.

Duties of diving supervisors

Section 24.18 of the *Regulation* sets out the core duties of diving supervisors. These include: evaluating the hazards, planning the dive, briefing the crew about a prescribed list of matters, ensuring that all needed equipment is available and in good working condition, controlling the entire diving operation, preparing a detailed plan of the diving operations, remaining in the dive area, delegating supervisory responsibilities to another diving supervisor if required to enter the water, and suspending diving operations if conditions become unsafe. Additional responsibilities of diving supervisors are set out in the remainder of Part 24 of the *Regulation*. For example, diving supervisors are required to:

- Be trained in cardio-pulmonary resuscitation ("CPR"), oxygen ("O₂") therapy, and diving accident management (s. [24.12\(3\)](#))
- Ensure that all divers meet the minimum requirements of CSA *Standard Z275.4-97* (note: section 3.3 of the standard requires all personnel to have up-to-date knowledge of, and be proficient in, CPR and basic first aid) (s. [24.13\(1\)\(a\)](#))
- Be able to specify the equipment that divers are required to use (under various sections in Part 24 of the *Regulation*)
- Ensure that all divers are competent to use the diving equipment that will be used in the diving operation (s. [24.13\(1\)\(b\)](#))
- Keep and file a log of the diving operation, and verify and initial divers' personal logs (s. [24.14\(2\)](#), [\(4\)](#), and [\(5\)](#))
- Be satisfied that each diver understands the signals and procedures in use (s. [24.20\(1\)](#))
- Ensure that, if mixed gases in other than the normal proportions of respirable air are used for breathing by divers, the diving procedures, and schedules of work and decompression are in accordance with the recommendations of a competent authority, and prior written authorization has been received from WorkSafeBC (s. [24.26\(3\)](#))
- Ensure that the required rest periods following decompression are met (s. [24.51](#))
- Ensure that the required diving system procedures are followed (s. [24.57](#))
- Ensure that altitude diving operations are conducted in accordance with acceptable altitude diving tables (s. [24.62\(1\)](#))
- Ensure that all requirements relating to diving in contaminated environments are met (s. [24.66](#))

Minimum required knowledge and competencies for diving supervisors

In order to discharge the duties assigned to them under Part 24 of the *Regulation*, diving supervisors are required by section [24.1](#) to be knowledgeable and competent with the diving equipment, the diving operations in progress, emergency diving procedures, diving physics and physiology and medical aspects of diving.

- The diving equipment: a diving supervisor has a responsibility, under section 24.18(1) of the *Regulation*, to ensure that all needed equipment is available and in good working condition. This includes having competence in: all breathing apparatus, compressors, air or gas banks, gas transfer pumps, recompression chambers or pressure vessels for human occupancy, carbon dioxide ("CO₂") scrubbing systems, submersible compression chambers, lock-out submersibles, as well as any decontamination system used for diving operations conducted in contaminated environments.
- The diving operations in progress: a diving supervisor is responsible, under section 24.18(1) of the *Regulation*, for evaluating the hazards, planning the dive and controlling the entire diving operation. In order to fulfill these responsibilities, a diving supervisor will need to be knowledgeable in matters such as: pressure differential conditions found in intakes or outlets, lockout, diving in contaminated environments, bottom conditions, penetration diving to gain access to the worksite, currents, entrapment hazards, treatment tables when utilizing a chamber, and accepted occupational dive tables. (Note: certain diving operations may be subject to the requirements of [Part 9](#) of the *Regulation* relating to confined spaces. See OHS Guideline [G9.1-1](#) for further information). A supervisor also has a responsibility, under section [24.14](#) of the *Regulation*, to confirm and initial the entries in the divers' logs and to ensure that the details and events of the dive are recorded in the supervisor's log. Finally, in order to plan the dive, the diving supervisor will need to be able to determine and assign the correct decompression schedule taking into account repetitive dives, surface intervals, the altitude of the dive site, the breathing medium, and whether the workers will be flying after diving.
- Emergency diving procedures: this includes knowledge in, among other things: arterial gas embolisms, decompression illness or sickness, diving-related barotraumas, action on rapid ascent, loss of communications, lost diver situations, carbon monoxide and CO₂ poisoning, O₂ toxicity, omitted decompression, delays, emergency ascents, and flying after diving. Generally accepted emergency diving procedures are detailed in standard references such as the Defence and Civil Institute of Environmental Medicine Diving Manual and the U.S. Navy Diving Manual.
- Diving physics: a diving supervisor will need to have a proper understanding of the gas laws (Boyle's law, Charles' law, Dalton's law, Henry's law and Archimedes' Principle) and how they apply to or could affect the diving operation.
- Diving physiology and medical aspects of diving: this includes knowledge in human anatomy and physiological systems, as they relate to the medical aspects of diving and the evaluation of and response to diving emergencies.

In many cases, the qualifications needed for diving supervisors to properly discharge their duties under [Part 24](#) of the *Regulation* will only be attained by a combination of training, diving experience, and supervisory skills. For this reason, it is good practice for diving supervisors to meet CSA *Standard Z275.4-97 Competency Standard for Diving Operations*, which is adopted by section [24.13\(1\)\(a\)](#) of the *Regulation* in respect of divers, or the 2002 edition of that standard (referred to in OHS Guideline [G24.13-2](#)). The 2002 edition incorporates enhanced competency requirements for diving supervisors, including a mentoring and assessment process.

Questions?

Questions about diving supervisor qualifications, and other questions relating to diving operations, may be directed to the [Certification Services](#).

Issued September 1999; Editorial Revision April 2005; Editorial Revision February 25, 2013; Editorial Revision December 19, 2014

Regulatory excerpt

Section 24.21(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) Diving operations, repetitive dives, and treatment of divers, must be carried out in strict accordance with tables and procedures published or approved by the Defense and Civil Institute of Environmental Medicine (Canada).

Section 4.4 of the *Regulation* states, in part:

- (2) When this Regulation requires a person to comply with
...

- (b) practices, procedures or rules of the Board or another agency, the person may, as an alternative, comply with another practice, procedure or rule acceptable to the Board.

Purpose of guideline

This guideline specifies an acceptable alternate table and procedure for diving operations, repetitive dives, and treatment of divers.

Alternate diving table

WorkSafeBC has determined that the following table and procedure is an acceptable alternative to the Defense and Civil Institute of Environmental Medicine (Canada) tables and procedures referenced in section 24.21(1) of the *Regulation*:

1. Current United States Navy Decompression Tables and Procedures

Mixed gas diving operations other than nitrox

The manager of Certification Services has the delegated authority to accept proprietary diving tables in mixed gas diving operations other than nitrox.

Section 24.26(3)(b) requires prior written authorization from WorkSafeBC before mixed gases other than nitrox are used. This written authorization is also obtained from [Certification Services](#). Refer to *OHS Guideline G24.26 Breathing mediums* for more information on submitting requests for prior authorization.

G24.25 Acceptable standards for hyperbaric chambers

Issued March 11, 2009

Regulatory excerpt

Section 24.25 of the *OHS Regulation* ("*Regulation*") states:

Hyperbaric chambers must conform to standards acceptable to the Board and must be provided with

- (a) a means of extinguishing a fire,
- (b) an oxygen monitoring device,
- (c) an oxygen delivery system with a built-in breathing system (BIBS), and
- (d) an adequate supply of air, including an emergency reserve supply to complete any decompression and treatment procedures.

Purpose of guideline

The purpose of this guideline is to specify the standards that are considered acceptable for hyperbaric chambers under section 24.25 of the *Regulation*.

Acceptable standards for hyperbaric chambers

When encountering a hyperbaric chamber, WorkSafeBC officers may inspect the hyperbaric chambers for compliance with standards under section 24.25 of the *Regulation*. Acceptable standards, as they relate to hyperbaric chambers, for the purpose of section 24.25 include

- *CSA-Z275.1-2005 Hyperbaric Facilities*
- *CSA-Z180.1-M85-2000 Compressed Breathing Air and Systems*
- *CSA B51-2003 Boiler, Pressure Vessel, and Pressure Piping Code and B51S1-05 (Supplement #1)*
- *ASME/ANSI PVHO-1 Safety Standard for Pressure Vessels for Human Occupancy 2002 Edition*

G24.26 Breathing mediums

Issued September 1999; Revised October 23, 2009; Revised August 11, 2010; Editorial Revision June 30, 2021

Regulatory excerpt

Sections 24.26(3) and 24.26(4) of the *OHS Regulation* ("*Regulation*") state:

- (3) If mixed gases in other than the normal proportions of respirable air are used for breathing by divers, the diving supervisor must ensure that
- (a) the diving procedures and schedules of work, and decompression are in accordance with the recommendations of a competent authority, and
 - (b) prior written authorization has been received from the Board to use mixed gases other than nitrox and that the authorization is kept on the dive site, available for inspection by an officer.
- (4) The following requirements apply to operations using nitrox mixes:
- (a) procedures and mixes must be acceptable to the Board;
 - (b) all workers involved with nitrox diving must be trained in the procedures to a standard acceptable to the Board;
 - (c) proof of training and a copy of the operating procedures must be readily available at each dive site.

Purpose of guideline

The purpose of this guideline is to clarify what is required for obtaining prior authorization under section 24.26(3)(b) of the *Regulation*. The guideline also provides information about acceptable training for nitrox diving under section 24.26(4).

Prior authorization

The requirement for prior authorization from WorkSafeBC under section 24.26(3)(b) of the *Regulation* is additional to the requirement to submit a notice of project under [section 24.9](#).

Requests for prior authorization to use mixed gases other than nitrox must be submitted to [Certification Services](#). A complete submission will include the following information:

1. Gas mixtures to be used
2. Mixed gas qualifications for all divers and diving supervisors
3. Diving equipment to be used and reserve gas supplies
4. Identification of which diving tables and decompression procedures will be used
5. Description of support equipment including hyperbaric chamber facilities
6. Diver transportation
7. Emergency, evacuation and communication procedures
8. Copy of safe diving procedures

Mixed gas operations covered by section 24.26(3)(b) that have not been authorized by WorkSafeBC will be terminated immediately and appropriate orders written. However, the WorkSafeBC prevention officer must ensure that this will not jeopardize decompression requirements or the safety of any diver.

Acceptable procedures and training for nitrox mixes

Section 24.26(4) requires that operations using nitrox mixes use procedures acceptable to WorkSafeBC. It also requires that workers involved in nitrox diving be trained in the procedures to a standard acceptable to WorkSafeBC. A list of agencies that offer courses on nitrox for SCUBA, surface supply diving, and gas blending acceptable to WorkSafeBC can be found at [Diver Certification Board of Canada Diving Training Providers](#).

Questions regarding other courses that WorkSafeBC may deem acceptable under section 24.26(4) should be directed to [Certification Services](#).

G24.29 Gauges and meters

Issued September 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 24.29(1) of the *OHS Regulation* ("*Regulation*") states:

Gauges and meter equipment must be tested every 6 months or whenever a malfunction is detected, and errors found must be corrected without delay.

Purpose of guideline

The purpose of this guideline is to provide guidance on testing of gauges and meter equipment as required by section 24.29(1) of the *Regulation*.

Testing

Gauges used in diving operations must be checked against a master gauge every 6 months. The master gauge should be calibrated every 12 months by test, and the testing documented.

Gauge accuracy will be evaluated as follows

1. Measuring depths to 100 feet should have an accuracy within 1% of the maximum scale reading
2. Measuring depths from 100 feet to 600 feet should have an accuracy within 0.5% of the maximum scale reading
3. Measuring other conditions, for example pressure, should have an accuracy within 2.5% of the actual condition being measured

Periods of storage are not included in determining the time at which calibration should occur.

Guidelines Part 24 - Scuba diving

G24.36 Minimum dive crew for scuba diving

Issued April 9, 2009; Revised November 26, 2019

Regulatory excerpt

Section 24.36 of the *OHS Regulation* ("*Regulation*") states:

- (1) A minimum crew of 3 workers must be present on each dive site if the dive will
 - (a) not exceed 18 m (60 ft) in depth, and
 - (b) remain within the no-decompression limit, and
 - (c) be made where it is known there is no hazard of entrapment.
- (2) When using the buddy system, a minimum of 2 divers must be present, and a third person must stay on the surface as a supervisor/tender.
 - (3) When using lifelines, floats or audio communication with the surface,
 - (a) a standby diver and a supervisor/tender must be on the surface, and
- (b) a tender must tend only one scuba diver unless the divers are on floats, or have lifelines and effective 3-way voice communication, in which case the tender may tend 2 divers.
 - (4) When a dive does not meet the requirements of subsection (1), then
 - (a) a standby diver and a supervisor/tender must stay on the surface, and
 - (b) if not using the buddy system, a single diver must be tethered and carry a bailout bottle.

Purpose of guideline

The purpose of this guideline is to clarify the minimum crew requirements that apply to each dive site for scuba diving operations.

Minimum crew requirements

The minimum crew requirements for each dive site for scuba diving operations are set out in detail in section 24.36 of the *Regulation*. All of the following factors affect the minimum number of workers required in a dive site, as well as the specific roles and responsibilities of each member of the crew (refer to OHS Guideline G24.18):

- The depth of the dive
- The type of breathing apparatus used
- The environmental conditions present (e.g., severe weather, contaminated environment)
- The type of work conducted
- Whether the duration of the dive will remain within the no-decompression limit
- Whether there are any hazards present
- Whether equipment such as lifelines, floats, or audio communication will be used

For scuba diving operations, section 24.36(1) of the *Regulation* requires a minimum crew of three workers if the dive will not exceed 18 m (60 ft.) in depth, will remain within the no-decompression limit, and is made where it is known there is no hazard of entrapment. Additional obligations apply if the dive does not meet those requirements (section 24.36(4)). Further requirements apply when the buddy system or lifelines, floats, or audio communication with the surface are used (sections 24.36(2) and (3)). It should be noted that the use of scuba is prohibited for some diving operations ([section 24.37](#) restrictions on scuba).

What constitutes a dive site

The minimum crew requirements prescribed by the *Regulation* apply to each dive site. A "dive site" is defined, in section 24.1 of the *Regulation*, as follows:

Any location where a diving operation takes place including a boat, scow, float, raft or platform which is seaworthy, secure, and of sufficient size to safely accommodate all workers and equipment without overcrowding.

Two vessels employed by either the same firm or two different firms may constitute a single dive site if they are either tied alongside each other or working together in close proximity. Two vessels will generally be considered to be sufficiently close to each other if an effective rescue can be conducted. To allow for an effective rescue, unless the two vessels are tied alongside each other, the standby diver will need to be located on the same vessel as the diving supervisor, and be free to maneuver and render emergency assistance when required. It is important that the boat operator be sufficiently competent to respond to diving emergencies.

A dive site can also be a location on a shoreline, in a river, in open water, or within a structure such as a pump house or water reservoir.

Questions?

Questions relating to diving operations may be directed to [Certification Services](#).

G24.37 Restrictions on scuba

Issued September 1999; Editorial Revision June 30, 2021

Regulatory excerpt

Section 24.37(1) of the *OHS Regulation* ("*Regulation*") states:

Scuba must not be used in underwater construction, burning, welding, salvage operations, demolition, jetting and suction dredging or other diving operations in which the diver

(a) may be entrapped,

(b) does not have free access to the surface,

(c) may be exposed to a contaminated environment, or

(d) could be adversely affected by hazardous underwater or surface work activities or conditions which could be alleviated if the diver were using surface supplied air.

Purpose of guideline

The purpose of this guideline is to clarify section 24.37(1) of the *Regulation*.

Application

Section 24.37(1) does not prevent the use of scuba in all operations involving underwater construction, burning, welding, salvage, demolition, jetting and suction dredging. It is only restricted to those operations where one of section 24.37(1)(a) to (d) applies.

Guidelines Part 24 - Surface supply diving

G24.40 Minimum crew requirements

Issued October 28, 2019

Regulatory excerpt

Section 24.40 of the *OHS Regulation* ("*Regulation*") states:

(1) For each diving operation where planned dives do not exceed 40 m (130 ft) or the no-decompression limits, and where there are no hazards present, a minimum dive crew of 3 workers must be present, one of whom must be a diver's supervisor/tender, one a diver and one a standby diver on the surface unless the standby is permitted by section 24.33(3) to serve as a standby in the water.

(2) If the planned dive exceeds 40 m (130 ft), or the no-decompression limits, or there are hazards present, the dive crew must consist of a minimum of 4 workers: a diving supervisor, a diver's tender and 2 divers, one of whom must be a standby diver on the surface.

Purpose of guideline

The purpose of this guideline is provide some examples of the types of hazards that should be evaluated before a planned dive to determine the minimum crew requirements. The examples are non-exhaustive; hazards may exist that are not listed below.

Discussion

Due to the nature and circumstances of most planned dives, the minimum number of workers required on a dive crew is usually four. As described in section 24.40(1), the only time a dive crew may consist of three workers is when the dive does not exceed either 40 m (130 ft.) or the no-decompression limits, and where there are no hazards present.

When hazards are present during a dive the potential for an emergency situation increases. If the standby diver must enter the water, having two crewmembers on the surface will be needed to implement emergency procedures, including communication needs and to ensure the safe retrieval of both divers from the water.

Hazards

Section 24.18(1)(a) of the *Regulation* states that each diving operation must be directed by a diving supervisor whose duties include evaluating the hazards.

Environmental hazards that should be evaluated include, but are not limited to, the following:

- The strength of the current at the dive site
- The degree of underwater visibility
- The level of difficulty in access and egress from the dive site
- Likelihood of entanglement with underwater objects

Work process hazards that should be evaluated include, but are not limited to, the following:

- Underwater construction activities
- Use of power tools
- Use of a crane
- Underwater welding/cutting
- Underwater blasting

Examples

- Company A is planning a dive to retrieve several tools dropped in the river, which is anticipated to be a quick and simple task. The diving supervisor performs an evaluation of the hazards prior to the dive and determines the current is strong and there is low visibility. Despite the simplicity of the work being performed, the dive crew must include a minimum of four workers due to the environmental hazards present.
- Company B is planning underwater construction on a bridge. The diving supervisor confirms there are no environmental hazards, but notes that the work involves underwater cutting, including the use of various power tools. Despite the good environmental conditions, the crew must be a minimum of four workers due to the work process hazards present.
- Company C is replacing an anchor chain for a mooring system. The worksite location is less than 40m, has good visibility with minimal current, and is within no-decompression limits. The task does not require the use of a crane or power tools, and does not involve welding. In these conditions where no hazards are present, Company C could safely have a dive crew of three.

As these examples demonstrate, hazards are often identified in pre-dive evaluations and a four person crew will be necessary. Having a minimum crew requirement ensures that the required number of workers per the *Regulation* are present in case of an emergency.

G24.43 Surface supply diving – Compressors

Issued September 1999; Editorial Revision December 15, 2017

Regulatory excerpt

Section 24.43 (Compressors) of the *OHS Regulation* ("*Regulation*") states:

Compressors used to supply air to divers must be

- (a) capable of maintaining a supply of air equal to at least double the volume of air required,
- (b) capable of developing pressure at least 25% greater than the anticipated pressure requirement, and
- (c) automatic in operation.

Purpose of guideline

The purpose of this guideline is to reference the helmet manufacturer's instructions for the compressor in use to meet the required air supply for both diver(s) and standby diver(s). Compressors must be capable of maintaining the helmet manufacturer's recommended volume of air and air pressure. They must operate automatically to maintain a constant pressure in the volume tank or air receiver at twice the volume required and be capable of developing pressure at least 25% greater than the anticipated pressure requirement.

There are two basic types of surface supply equipment used by divers: free-flow and demand regulators. Each type will require a different volume of breathing gas supply.

The volume of surface supplied air required for a diver will increase with increases in the diver's depth (called the diver's ambient pressure) and is expressed in atmospheres absolute. (Depth + 33 divided by 33 = diver's depth in atmospheres absolute.)

Free-flow equipment volumes

Diving operations that employ free-flow helmets and masks should have flow volumes according to the manufacturer's specifications if not specified than of at least 6 actual cubic feet per minute (acfm) per diver. This volume is needed to ventilate the diver's helmet/mask of any carbon dioxide (CO₂) as a result of the diver's expired air. (The diver's inspired air should not exceed 2% CO₂). To calculate the volume of air for a free-flow mask/helmet at any depth, the following equation should be used:

$$R = 6 \times Pa \times N$$

R = required ventilation rate in acfm (actual cubic feet per minute)

6 = the 6 cubic feet per minute per diver

Pa = The absolute pressure at working depth (expressed in atmospheres absolute)

N = The number of divers to be supplied at the working depth

Example:

What is the acfm required for two divers using lightweight free flow diving helmets in 66 feet seawater? (66 feet of depth equals 3 atmospheres absolute)

$$R = 6 \times Pa \times N$$

$$R = 6 \text{ acfm} \times 3 \text{ atmospheres absolute (divers' depth)} \times 2 \text{ divers} = 36 \text{ acfm}$$

$$R = 36 \text{ acfm (doubled as required by section 24.43 (a) of the Regulation)} = 72 \text{ acfm}$$

Demand type equipment volumes

Diving operations that use demand type equipment will require less volume than the free-flow type; follow the manufacturer's specifications – if not specified then use a minimum of 3.2 acfm. A diver's air requirement will vary with the demands of the work level. The rate at which air is consumed in a system may be significantly lower than the peak inhalation flow rate. However, the air supply must be able to meet the greatest demand and the manufacturer's requirements.

Example:

The acfm required for two divers using Hooka gear diving in 66 feet of seawater (fsw). (The second diver may be the standby diver on the surface).

$$R = 3.2 \times Pa \times N$$

$$R = 3.2 \text{ acfm} \times 3 \text{ atmospheres absolute} \times 2 \text{ divers} = 19.2 \text{ acfm}$$

$$R = 19.2 \text{ acfm} \times 2 \text{ (doubled as required by section 24.43 (a) of the Regulation)} = 38 \text{ acfm}$$

Where a manufacturer specifies greater volumes than 3.2 acfm, that number should be used in the equation in place of 3.2.

- All calculations for volume should be based on the deepest depth of dive
- Compressor pressure requirements of section 24.43(b) of the *Regulation* must be met
- System volume tank should be large enough to maintain a steady supply as specified in section 24.44 of the *Regulation*.

Reference materials:

US Navy Diving Manual (1993 edition)

NOAA Diving Manual (1993)

J.B. Morrison (1993), Evaluation of Underwater breathing Apparatus used in British Columbia, Simon Fraser University

Pressure

Section 24.43(b) of the *Regulation* states "Compressors used to supply air to divers must be...capable of developing pressure at least 25% greater than the anticipated pressure requirement."

The diver's air supply system must be capable of delivering sufficient breathing air to the diver at a pressure that overcomes the water pressure at the diver's working depth plus a 25% safety factor in the event of a sudden descent below the planned working depth.

An additional factor is pressure loss inherent in any surface supplied diving system; for example, resistance through valves, regulators, and hose lengths. Usually an additional 10 pounds per square inch (psi) should be added to any total. Where more than 400 feet of hose is used, then another 10 psi should be added.

Calculations for pressure requirements are completed in absolute pressures, so 14.7 psi is added to any pressure requirements, to give pounds per square inch absolute (psia).

There are two types of surface supplied diving equipment: free-flow and demand. Each has different pressure requirements.

Free-flow equipment pressure requirements

Divers using "free flow type" air masks or diving helmets to depths of 120 feet should have a minimum pressure of 64.7 psia over the diver's ambient pressure. When diving over 120 feet, the pressure should be increased to 114.7 psia over the diver's ambient pressure.

To calculate the pressures required to supply breathing air to a diver using free-flow equipment in less than 120 fsw, use this formula:

$$P_s = ((0.445 \times D) + 64.7 + P_i) \times 1.25$$

P_s = Air pressures required to support a diver at a given depth using free-flow equipment

D = diver's depth in fsw

64.7 = 50 psi + 14.7 psi = the absolute pressure (64.7 psia)

P_i = add 10 psi for pressure losses in the system (20 psi if hose is over 400 feet)

25% = safety factor required by section 24.43(b) of the *Regulation*

Example 1: A dive to 100 fsw.

$$P_s = ((.445 \times 100) + 64.7 + 10) \times 1.25 = 149 \text{ psi required.}$$

Example 2: A dive to 130 fsw

$$P_s = ((.445 \times 130)) + 114.7 + 10) \times 1.25 = 228 \text{ psi required}$$

(114.7 psi is the absolute hose pressure (100 psi + 14.7 psi) when diving over 120 fsw)

Demand type equipment pressure requirements

For helmets and masks using demand regulators with oral nasal fittings or scuba regulators, the pressures required are much higher. The minimum pressures should be not less than 135 psi over bottom pressure. (Add 14.7 to 135 = 149.7 psia.) The formula to calculate compressor pressures required to supply over bottom pressures for demand type helmets and Hooka is as follows:

$$P_s = ((.445 \times D) + 149.7 \text{ psia} + P_i) \times 1.25$$

Example 1:

A diver working to a depth of 60 fsw

$$P_s = ((.445 \times 60) + 149.7 + 10) \times 1.25 = 233 \text{ psi required}$$

Example 2.

A diver working to a depth of 130 fsw

$$P_s = ((.445 \times 130) + 149.7 + 10) \times 1.25 = 272 \text{ psi is required}$$

Some dive equipment manufacturers recommend even higher over bottom pressures to reduce breathing resistance at the second stage regulator.

In this case follow manufacturer's recommendations.

Consideration of the operating parameters are not restricted to the air compressor and the helmet. The employer and divers should be familiar with the entire life support system from air compressor to the helmeted diver to ensure adequate flow and pressure is provided to the diver, in addition to the regulatory requirement of twice the required volume calculated with a 25% greater anticipated pressure.

Guidelines Part 24 - Fishing operations: General requirements

G24.69 Fishing operations - Application

This guideline has been moved, see [G24.1-1: Fishing vessel - Definition](#).

G24.70 Compliance with Standards

Issued February 3, 2005; Revised March 1, 2019; Revised July 15, 2019; Editorial Revision consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 24.70 of the *OHS Regulation* ("*Regulation*") states:

All fishing vessels must

(a) be maintained in seaworthy condition, and

(b) be built in accordance with the applicable regulations under the *Canada Shipping Act, 2001*.

Purpose of guideline

Transport Canada is responsible for the regulations that govern the construction and seaworthiness (stability) of large and small fishing vessels. The applicable regulations are the *Large Fishing Vessel Inspection Regulations* (LFVIR) and the *Fishing Vessel Safety Regulations* (FVSR).

The purpose of this guideline is to outline the definition of seaworthy and to provide information on assessing vessel stability.

Seaworthy

For the purposes of section 24.70(a) of the *Regulation*, the following definition of "seaworthy" from Kerchov's International Maritime Dictionary (2nd Edition) applies:

The sufficiency of a vessel in materials, construction, equipment, crew and outfit for trade or service in which it is employed...

Determining seaworthiness involves consideration of a number of factors, including the following:

- Construction, structure, and stability of the vessel
- Machinery and equipment on the vessel
- Load being carried and its distribution on the vessel
- Place or places to which the vessel will be voyaging
- Weather and sea conditions that the vessel is likely to encounter

Standards for the construction of fishing vessels fall under the jurisdiction of Transport Canada.

Vessel stability – owner and master responsibilities

The responsibility for ensuring the vessel continues to possess stability characteristics that render it seaworthy under all anticipated sailing conditions rests with the vessel owner. The vessel owner should limit vessel operations so that the vessel is not operated in conditions that would render it unstable. In addition, the owner should undertake any necessary vessel modifications to ensure no workers are put at risk by the possibility of the vessel becoming unstable during anticipated or reasonably foreseeable operating conditions. A vessel owner is also responsible for ensuring that documentation describing vessel stability characteristics is readily available to crewmembers on board the vessel (refer to [section 24.72\(b\)](#) of the *Regulation*).

The vessel master is responsible for ensuring that the fishing vessel is capable of safely making the voyage planned, with due consideration being given to the seaworthiness and stability of the vessel (refer to section 24.76 of the *Regulation*). The master should refer to the vessel stability documentation provided by the owner.

Assessing vessel stability

Standards and requirements for vessel stability are under the jurisdiction of Transport Canada. Two sets of regulations that apply depending on the size of the vessel include the following:

1. [Large Fishing Vessel Inspection Regulations](#) – apply to vessels larger than 24.4 metres and 150 gross tons, and those vessels up to 24.4 metres and 150 gross tons engaged in the herring and capelin fisheries.
2. [Fishing Vessel Safety Regulations](#) – apply to vessels not more than 24.4 metres in length and not more than 150 gross tonnage.

According to these regulations vessel stability characteristics must be evaluated and understood prior to the vessel's first voyage. In addition, re-evaluation of a vessel's stability characteristics may be necessary where major modifications are made to the vessel (refer to OHS Guideline G24.71).

It is also important to note that vessel stability characteristics will also change over the life of the vessel. The accumulation of weight over the life of the vessel, such as the cumulative addition of equipment, will likely cause a vessel to get heavier and its centre of gravity to rise, decreasing its stability. Even the gradual accumulation of dirt and paint may, over time, create a negative impact on stability.

There are two primary methods for assessing vessel stability: roll period tests and inclining experiments.

It is recommended that Transport Canada be consulted in order to obtain complete information on conducting vessel stability tests.

a) Roll period tests

A roll period test determines the length of time it takes a heeled vessel to right itself. The vessel is heeled and its progress to complete one full roll cycle is timed. Changes to a vessel's roll period are a rough way of evaluating whether the vessel's stability is degrading. Providing the vessel has not undergone any appreciable modifications or alterations, roll period tests should be undertaken at least every four years as a means to monitor changes to the vessel through its lifetime. If roll period times are increasing over the life of the vessel, it is an indication of the vessel becoming increasingly unstable and that further assessment of the vessel's stability should be undertaken.

It should be stressed that whether roll period tests are effective as a rough method of evaluating the stability of a given vessel will depend on the hull design and other characteristics of the vessel. Roll period tests are likely to be of limited use for vessels with hard chines or flat bottom hulls, for example.

b) Inclining experiments

Inclining experiments are far more rigorous and informative than roll period tests and are used to accurately measure the vertical height of the

vessel's center of gravity above the keel. Due to their complexity, inclining experiments, and their associated calculations, must be performed in accordance with appropriate vessel stability criteria as established by Transport Canada.

An inclining experiment consists of moving one or more large weights across the vessel and measuring the resulting angle of heel. Once the experiment has been completed, a detailed set of calculations is performed to determine the vessel's lightship (i.e., unloaded) weight and centre of gravity. These calculations, in turn, can be used to determine the vessel's operational limitations and will be used to determine the vessel's stability characteristics under a range of operating and environmental conditions.

c) Vessels of open construction

The stability of a vessel of open construction (currently defined by Transport Canada as a vessel that has less than 50 percent of its length covered, full width, by decks or permanent enclosures or as defined in the *Canada Shipping Act, 2001* or associated regulations) relies primarily on the maintenance of adequate freeboard (being the distance between the water and the gunwale of the vessel). In addition, inclining experiments are not designed to assess stability characteristics of a vessel of open construction. As a result, such vessels should be provided with a means of quickly assessing during the vessel's operation whether the vessel is capable of maintaining adequate freeboard. The purpose is to provide a guide to the vessel master and crew with respect to loading limits under various operating and environmental conditions. The means of evaluating freeboard should be created in accordance with a formal stability assessment of the vessel.

A common method of evaluating freeboard is the use of a load mark. Where a load mark is used as the method of evaluating freeboard, the load mark should be permanently affixed to the vessel so that it is visible through any paint or hull finish treatment, and it should be affixed to the vessel in sufficient locations so that the maximum load can be determined at any trim angle.

G24.71 Owner and master responsibilities – Major modifications

Issued February 3, 2005; Revised March 1, 2019; Revised July 15, 2019

Regulatory excerpt

Section 24.71(2) of the *OHS Regulation* ("Regulation") states:

- (2) The owner must ensure that major modifications to a fishing vessel do not adversely affect the stability of the vessel.

Purpose of guideline

The purpose of this guideline is to set out the definition of a major modification as provided in the [Fishing Vessel Safety Regulations](#) (FVSR) and refer the owner of a fishing vessel to Transport Canada to ensure major modifications do not adversely affect vessel stability.

Major modification

According to the FVSR, a major modification "means a modification or repair, or a series of modifications or repairs, that substantially changes the capacity or size of a fishing vessel or the nature of a system on board a fishing vessel, that affects its watertight integrity or its stability."

Stability assessment

Owners should refer to the FVSR and information provided by Transport Canada for guidance on the requirements for reassessing vessel stability following major modifications.

G24.72 Documentation

Issued February 3, 2005; Revised March 1, 2019

Regulatory excerpt

Section 24.72 of the *OHS Regulation* ("Regulation") states:

The owner of every fishing vessel must provide documentation on board, readily available to crewmembers, which describes

- (a) engine room instructions,
- (b) vessel characteristics, including stability,
- (c) the location and use of firefighting equipment, and
- (d) the location and use of emergency equipment, including radio equipment.

Purpose of guideline

The purpose of this guideline is to provide further explanation of the documentation referred to in section 24.72(b) of the *Regulation*.

Vessel characteristics

Under section 24.72(b), the owner must give notice of unique features of the vessel which might not otherwise be known to a new master and crew and which might cause hazards in certain situations if the boat is not properly handled. This includes instructions on how to perform operations on the vessel without impairing its stability and seaworthiness.

This guideline sets out what information should be set out in the on-board documentation, required under section 24.72(b) of the *Regulation*, with respect to description of vessel stability characteristics.

Content of on-board documentation

It is imperative that on-board documentation provides meaningful and detailed information with respect to vessel characteristics, and in particular vessel stability.

On-board documentation should accurately reflect the vessel's typical loading condition and modes of operation, and the effect on the vessel's stability of such factors as the following:

- Stowage and placement of equipment and cargo
- Use of on-board cranes or other hoisting equipment
- The effect of and limits to side loading operations
- Towing of nets, skiffs or other vessels
- Gear deployment and retrieval practices
- Weather and sea conditions

With respect to trap vessels, which have specific risks because they often carry large weights up high which can adversely affect the vessel's stability, on-board documentation should specify the maximum number and size of traps carried; as well as their stowage location and configuration during transport, while fishing under the various anticipated loading and operating conditions.

The documentation should clearly state that it is unsafe for the vessel to sail if it is loaded outside of its stability limitations.

The documentation describing the stability characteristics of the vessel must be presented in a format that is readily understandable by the vessel's master and crew.

It is recommended that Transport Canada Marine be consulted in order to obtain complete information on creating on-board stability documentation.

G24.76 Vessel preparation

Issued February 3, 2005; Retired March 1, 2019

This guideline is retired as the information is covered in other areas of the *Regulation* and guidelines.

G24.77 Reporting injuries

Issued March 1, 2019

Regulatory excerpt

Section 24.77 of the *OHS Regulation* ("*Regulation*") states:

- (1) Crewmembers must report all injuries to the master, without delay.
- (2) The master must report to the owner of the fishing vessel all injuries that required medical aid and record all injuries in the vessel log book.

Section 3.19 of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must maintain at the workplace, in a form acceptable to the Board, a record of all injuries and exposures to contaminants covered by this Regulation that are reported or treated.
- (2) First aid records must be kept for at least 3 years.
- (3) First aid records are to be kept confidential and may not be disclosed except as permitted by this Regulation or otherwise permitted by law.
- (4) First aid records must be available for inspection by an officer of the Board.
- (5) Workers may request or authorize access to their first aid records for any treatment or report about themselves.

Purpose of guideline

This guideline is to clarify that keeping a dual set of first aid records is not required.

Record keeping

Section 3.19 provides for keeping first aid records. This section must be complied with to the extent it is consistent with section 24.77, which requires the master to report injuries requiring medical aid to the owner and record all injuries in the vessel log book. Provided that all the information required by section 3.19 (refer to OHS Guideline [G3.19](#)) is recorded and accessible, the vessel log book can be considered the first aid record. Therefore, it is not necessary to keep a separate set of first aid records.

Issued March 1, 2019

Regulatory excerpt

Section 24.84 of the *OHS Regulation* ("*Regulation*") states:

- (1) Crewmembers must be protected from falling overboard by means of grabrails, siderails, handrails, guardrails or personal fall protection equipment.
- (2) Crewmembers working aloft or on deck during adverse weather conditions must tie off to a lifeline to prevent falling.

Purpose of guideline

The purpose of this guideline is to clarify fall protection requirements as applied to fishing vessels.

Falling overboard

Section 24.84(1) is intended to stop workers from falling overboard. In applying this section, consideration is given to the particular needs of fishing operations. Guardrails need not be installed in places where they will interfere with the work process. However, if another method of preventing workers from falling overboard is practicable in this situation, it must be used.

Falling from a height

Section 24.84(2) is intended to prevent workers from falling from a height onto a deck. Crewmembers are "aloft" for the purposes of this section when they are more than 3 metres (10 feet) above the lowest deck to which a fall may occur. The rails and fall protection equipment required by section 24.84 need not conform with the requirements contained in Part 11 of the *Regulation*. They must, however, effectively restrain workers from falling or arrest a fall that has occurred. In the case of fall protection equipment, it is not sufficient to tie a rope around the body. A suitable harness or belt must be used.

G24.85 Deck openings

Issued March 1, 2019

Regulatory excerpt

Section 24.85 of the *OHS Regulation* ("*Regulation*") states:

- (1) Deck openings and hatches on a fishing vessel must be
 - (a) equipped with an effective means of securing them, and
 - (b) closed and secured when it is not essential to the fishing operation that they be open.
- (2) When deck openings and hatches are required to be open for ventilation or other purposes, they must be marked and guarded.

Purpose of guideline

The purpose of this guideline is to provide clarification regarding the requirements for marking and guarding deck openings on fishing vessels.

Marked and guarded

Deck openings and hatches are considered "guarded" if a system exists that will warn crewmembers or places a physical barrier to entry. This could include lines in the right places with red flags tied to them. The "guard" does not have to be capable of physically preventing the crewmember from access.

Deck openings need not be marked and guarded when opened for short periods to gain access and egress. It is only required where the hatch will remain open for a prolonged period or may result in a hazard.

G24.86 De-energization

Issued March 1, 2019

Regulatory excerpt

Section 24.86 of the *OHS Regulation* ("*Regulation*") states:

- (1) The maintenance and repair of machinery or equipment on board a fishing vessel must only be carried out when the power source has been de-energized and effectively secured to prevent inadvertent startup.
- (2) If it is essential that equipment remain operational during the maintenance process, the master must establish a procedure to prevent injury from contact with moving or energized parts.
- (3) The main engine must be shut off whenever a diver is conducting work underwater in proximity to the vessel.

Purpose of guideline

The purpose of this guideline is to provide clarification regarding maintenance and de-energization on board a fishing vessel.

Maintenance

"Maintenance" under section 24.86 has the same meaning as in Part 10 of the *Regulation*, which requires that machinery be "locked out" for maintenance. Maintenance is defined in section 10.1 of the *Regulation* as follows:

work performed to keep machinery or equipment in a safe operating condition, including installing, repairing, cleaning, lubricating and the clearing of obstructions to the normal flow of material

Section 24.86 requires that de-energization be "effectively secured." Part 10 of the *Regulation* outlines the various options available to effectively de-energize machinery and describes how to ensure safe procedures if equipment must remain operational during the maintenance process.

G24.90 Ventilation

Issued March 1, 2019

Regulatory excerpt

Section 24.90 of the *OHS Regulation* ("*Regulation*") states:

All crew spaces on fishing vessels must be provided with an adequate supply of fresh air either by passive or mechanical means.

Purpose of guideline

The purpose of this guideline is to identify possible ventilation issues as applied to fishing vessels.

Ventilation

It is important to prevent oxygen deficiency or a buildup of carbon monoxide inside the vessel when windows and doors are closed and any devices such as heaters and engines are running.

G24.97(1) Acceptable standards for immersion suits

Issued February 11, 2009; Revised December 14, 2012; Editorial Revision July 23, 2014; Editorial Revision November 21, 2017; Editorial Revision March 1, 2019

Regulatory excerpt

Section 24.97(1) of the *OHS Regulation* ("*Regulation*") states:

Every fishing vessel must carry, for each crewmember, one immersion suit meeting standards acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to specify acceptable standards for immersion suits under section 24.97(1) of the *Regulation*.

Acceptable standards for immersion suits

Under section 24.97(1) of the *Regulation*, every fishing vessel must carry one immersion suit for each crewmember. These immersion suits are required to meet a standard acceptable to WorkSafeBC, and be of a suitable size and fit for each crewmember. The following are acceptable standards:

1. [The International Maritime Organization's *International Life-Saving Appliances Code \(LSA Code\) \(2010 edition\)*](#)
2. [Underwriters Laboratories' *UL 1197 Immersion Suits, 3rd edition \(2007\)*](#)
3. [The International Standards Organization's *ISO 15027-2002 - Immersion Suits*](#)
4. [Transport Canada's *TC 14475E Canadian Life Saving Appliance Standard, First Edition, March 2010*](#)

In cases where immersion suits do not meet any of the above standards, an application needs to be made to WorkSafeBC OHS Practice and Engineering Support department to determine if the immersion suits meet an acceptable alternate standard.

Proper maintenance

Immersion suits should be regularly maintained and inspected to ensure they are in proper working order. This includes the inspection of seals to check their integrity, and the inspection for leaks. An immersion suit which has not been properly maintained or is no longer able to meet the requirements of any of the standards listed above is not considered to meet a standard acceptable to WorkSafeBC. This is the case even where the immersion suit was marked as meeting one of the above standards when manufactured.

G24.100 Ozone safe work practices

Issued March 1, 2019

Regulatory excerpt

Section 24.100 of the *OHS Regulation* ("*Regulation*") states:

The owner of a fishing vessel must ensure that ozone generating equipment is installed and operated in accordance with standards

acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to outline the standard acceptable to WorkSafeBC for the use of ozone on fishing vessels.

Safe work practices

Ozone is considered a toxic process gas and as such Part 6, [sections 6.117 to 6.132](#) will apply. For further information regarding acceptable safe work practices refer to the WorkSafeBC publication [Ozone Safe Work Practices](#) (BK47).

Contents

DEFINITIONS

G26.1 [Definition of resource roads](#)

G26.1-1 [Forestry operations and similar activities](#)

GENERAL REQUIREMENTS

G26.1-2 [Owners' obligations](#)

G26.1.1-2 [Prime contractor obligations](#)

G26.2-1 [Planning and conducting a forestry operation](#)

G26.2-2 [Planning log hauling operations for varying road grades](#)

G26.2-3 [Multiple cuts - Mechanical falling](#)

G26.3.1(1)(a) [Acceptable standard for training](#)

G26.11 [Wildlife dangerous tree assessment](#)

EQUIPMENT OPERATION

G26.16 [Slope limitations – Safe work procedures](#)

G26.18 [Acceptable standards for landslide risk assessments](#)

MANUAL FALLING AND BUCKING

G26.21/26.22 [Faller training – Application](#)

G26.21-1 [Arborist qualifications](#)

G26.21-2 [Faller qualifications – Performance upgrade](#)

G26.22(7) [Forestry operation faller training – Challenge process](#)

G26.28 [Summoning qualified assistance](#)

TRAFFIC CONTROL FOR FALLING OPERATIONS

G26.30 [Traffic control when falling a tree](#)

YARDING

G26.41 [Guylines](#)

HAULING

G26.65 [Determining cab guard compliance](#)

G26.65(1) [Certified welding inspector – Alternate standards](#)

G26.65(2)(e) [Installing the cab guard on the log transporter in a manner acceptable to WorkSafeBC](#)

G26.65(4) [Log transporters pulling multiple trailers](#)

G26.65(4)(b) [Installing the barrier on the logging truck in a manner acceptable to WorkSafeBC](#) [Withdrawn]

G26.68 [Binder cinches](#) [retired]

G26.69(2)(c) [Safe work procedures for the use of a removal station](#)

Guidelines Part 26 - Definitions

G26.1 [Definition of resource roads](#)

Section 1.1 of the *Regulation* exempts resource roads from being considered a workplace. For further discussion please refer to OHS Guideline [G1.1\(1\)](#).

G26.1-1 [Forestry operations and similar activities](#)

Regulatory excerpt

Section 26.1 of the *OHS Regulation* ("*Regulation*") states:

"forestry operation" means a workplace where work is done in relation to silviculture or harvesting trees, including constructing the means of access and transporting the harvested trees to a facility where they are processed or from which they are exported.

Purpose of guideline

The purpose of this guideline is to describe the scope and application of the requirements of Part 26.

"Forestry Operations and Similar Activities" and the application of Part 26

The title of Part 26 of the *Regulation* is "Forestry Operations and Similar Activities." This title reflects the intent to capture in the scope of Part 26 not only those workplaces that are involved in forestry operations as defined in s. 26.1, but operations that have similar characteristics, hazards and work processes.

The application of a specific provision in Part 26 will depend on the wording of the particular section. Certain provisions in Part 26 will state that they relate only to "forestry operations," while others will not be limited by the use of this term.

For example, [section 26.2](#) requires all aspects of a forestry operation to be planned and conducted in a manner consistent with this *Regulation*. "

This section would only apply to owners of workplaces that fall within the definition of a forestry operation by being workplaces "where work is done in relation to silviculture and harvesting trees. . . "

In contrast, [section 26.21](#) states that "a worker must not fall trees or be permitted to fall trees. . ." unless the worker is qualified and only performs work within his or her documented capabilities, and does not restrict itself to workers in a "forestry operation." As this section does not refer specifically to forestry operations, it can be applied more broadly to both forestry operations and similar activities.

What is work relating to "harvesting trees"?

The definition of "forestry operation" includes "work done in relation to . . . harvesting trees." WorkSafeBC considers work relating to "harvesting trees" to be any operations that are undertaken pursuant to a permit, license or other tenure or permission from the Ministry of Forests or other government agency. In particular, this includes any falling activity on land designated as provincial forest, which includes Crown forest land, range land, or private land that is subject to a tree farm license, community forest agreement or a woodlot license. "Forestry operations" may also include any falling that is done on private land that is not subject to a timber tenure, provided that the harvesting is undertaken as part of an enterprise that has as a purpose falling trees for the purposes of selling or processing them to be made into merchantable wood products.

For greater certainty, WorkSafeBC considers the following to involve "harvesting trees" and to therefore be "forestry operations":

- Harvesting timber for processing or sale either pursuant to a license or permit from the Provincial Government, or on a private woodlot
- Falling trees in connection with forest fire fighting or fire prevention activities
- Falling trees in connection with oil and gas exploration and site preparation, including seismic line falling

Workers who exclusively fall trees that measure less than 15cm (6") diameter at 30cm (12") height are not considered to be engaged in harvesting trees.

"Similar activities"

Certain types of operations that do not fit the definition of "forestry operations" in s. 26.1 may present similar types of working conditions and hazards as forestry operations. Despite not being "forestry operations," it is appropriate that certain elements of Part 26 apply to these operations, given the similarities. For example, an arborist crew that falls trees in order to maintain rights of way for electrical conductors in remote locations will perform work very similar to a typical forestry operation, though, depending on the type of work they are doing, they may not fall within the definition of a "forestry operation." In such a case, there must be compliance with the procedures for falling and bucking in sections [26.23 through 26.29](#), as those sections are not specific to "forestry operations," though a Notice of Project under [s. 26.4](#) need not be filed, as that requirement is limited to certain forestry operations.

Guidelines Part 26 - General requirements

G26.1-2 Owners' obligations

Issued May 1, 2008; Revised November 29, 2012; Editorial Revision April 6, 2020

Regulatory excerpt

Section 25 of the *Workers Compensation Act* ("*Act*") states:

Every owner of a workplace must

- (a) provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace,
- (b) give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and

eliminate or control hazards to the health or safety of persons at the workplace, and

(c) comply with the OHS provisions, the regulations and any applicable orders

Section 26.1.1 of the *OHS Regulation* ("*Regulation*") states:

If the owner of a forestry operation enters into an agreement referred to in section 13 of the Act designating a person to be the prime contractor for a workplace, the owner must ensure that

(a) the person designated

(i) is qualified to be the prime contractor in respect of that workplace, and

(ii) has the authority necessary to fulfill the responsibilities of prime contractor under the Act, including, without limitation, authority over any employer, worker or other person who may be carrying out the work of the owner at the workplace, and

(b) not more than one person holds the designation of prime contractor for that workplace at any given time.

Section 26.2(1) of the *Regulation* states:

The owner of a forestry operation must ensure that all activities of the forestry operation are both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.

Purpose of guideline

The purpose of this guideline is to provide information regarding obligations on owners of forestry workplaces.

"Owners" - Who is an owner?

A number of requirements in Part 26 relate specifically to the "owner" of a forestry workplace or forestry operation. Section 25 of the *Act* also sets out general responsibilities of owners, and section 24 of the *Act* will create prime contractor obligations on owners of multiple employer workplaces that do not designate a prime contractor.

The definition of *owner* in section 13 of the *Act* expands the commonly understood meaning to include a "licensee or occupier of any lands or premises used or to be used as a workplace" or "a person who acts for or on behalf of an owner as an agent or delegate." Accordingly, a number of parties may be owners of a forestry workplace.

Both the Ministry of Forests, Lands, and Natural Resource Operations (MFLNRO) and those that hold forest tenures are considered to be owners of workplaces where forestry operations are undertaken.

Most forestry in British Columbia takes place on publicly owned Crown lands managed by the province through the MFLNRO. The MFLNRO grants rights to harvest and market timber to licensees through a variety of types of licenses, or tenures. The MFLNRO is an administrative department of the Crown and does not have a separate legal identity from the Crown. As the workplace for almost all forestry operations will be located on Crown lands, the MFLNRO should be considered an owner of workplaces in which forestry operations are taking place.

In addition, licensees and holders of forestry tenures administered by MFLNRO will also be considered to be owners. The definition of owner, which includes licensees and occupiers of lands, clearly includes these workplace parties.

Which owner is responsible for which obligations?

Where there are multiple owners of forestry workplaces, it is necessary to determine which owner is responsible for which obligation. Policy Item [P2-25-1](#) sets out the factors to consider in determining each owner's responsibility in a multiple-owner situation. These factors relate to the knowledge of workplace hazards, control over the workplace, and the reasonableness of imposing the particular obligation on that owner.

In accordance with Policy Item P2-25-1, WorkSafeBC prevention officers should consider issuing orders to owners where the owner has knowledge and control over the workplace hazards in question. Among the factors to be considered in issuing orders to owners are:

- *Knowledge*: whether the owner knew or should have known that the health and safety of the persons at or near the workplace would likely be harmed by the condition or use of the workplace and the extent of the harm, if it occurred, would be more than minor or trivial.
- *Control*: whether the owner had some control or influence over the safety of the workplace in that the owner could practicably have taken measures necessary to eliminate or reduce the risk or extent of the potential harm.

For example, determining responsibilities of MFLNRO and licensees will necessarily reflect the control over forestry workplaces administered by the tenuring system. MFLNRO's control over safety would be relatively indirect, as licensees are positioned to have the predominant control over the high level planning of work in most forestry workplaces. MFLNRO has control over the allocation of the tenure as well as monitoring the performance of its licensee; and its obligations as owner will centre on how tenures are allocated and will provide appropriate information around hazards encountered in monitoring these tenures.

- *Communication*: whether the owner possessed material information and failed to communicate all the material information in the owner's

possession to the persons at or near the workplace, thus preventing them from taking measures to protect themselves.

These factors assist in determining which obligations each owner will have under section 25 of the *Act* as well as under section 26.2 of the *Regulation*. For example, a licensee that prepares a harvesting plan that includes areas that present hazards from steep slopes must provide information to harvesting contractors that identifies these areas so that harvesting can be planned and undertaken in a way that deals appropriately with that hazard.

Which "owner" may designate the prime contractor?

With respect to multiple-employer workplaces, the obligations of the prime contractor under section 24 of the *Act* must be fulfilled by "the owner" of the workplace, if the owner does not designate a prime contractor. In addition, section 26.1.1 of the *Regulation* imposes certain requirements on the owner who designates a prime contractor for a forestry workplace. As a practical matter, it is only possible to have one owner who may designate a prime contractor, or who must fulfill that role if none is designated.

In accordance with Policy P2-25-1, it will be the owner with the most control over and knowledge of a particular workplace who must fulfill the obligations of section 24 of the *Act*, or who may designate a prime contractor. In making this determination, the elements of knowledge and control should relate to the ability to plan and manage the workplace as a whole. That is, the owner that may designate a prime contractor or who must act in that capacity if none is designated, will be the owner that has the most ability to control how work is done by others at the workplace, and who has the most knowledge of how work is to be done in general.

Licensees will normally have the most knowledge of and control over forestry workplaces, and therefore it will be reasonable in most situations to view licensees as the owners with the most responsibility over forestry workplaces. For most forestry operations, the licensee will be the owner for the purposes of section 26.1.1 and section 24.

That said, where the MFLNRO retains primary control over certain multiple-employer workplaces, it will be the primary owner and prime contractor where none is designated. This may include multiple-employer workplaces such as small business sales through the BC Timber Sales program.

Though licensees are the primary owners of forestry workplaces, MFLNRO retains some owner obligations. MFLNRO compliance with obligations in section 25(a) of the *Act* to "provide and maintain... land and premises that are being used as a workplace in a manner that ensures health and safety" will to a great extent be shaped by the legislation governing the disposition of forest licenses and the terms of the license granted by MFLNRO to the licensee.

With respect to the obligation in section 25(b) of the *Act* to give "information... necessary to identify and eliminate or control hazards...", the MFLNRO should typically be expected to communicate to licensees, prime contractors, or any relevant employer in a license area, information about any safety hazard it becomes aware of, or should have become aware of, particularly with respect to hazards encountered during the course of inspecting forestry operations to ensure that the terms of the forest license and forestry legislation are being adhered to.

G26.1.1-2 Prime contractor obligations

Issued May 1, 2008; Revised November 29, 2012; Editorial Revision April 6, 2020

Regulatory excerpt

Section 26.1.1 of the *OHS Regulation* ("*Regulation*") states:

If the owner of a forestry operation enters into an agreement referred to in section 13 of the *Act* designating a person to be the prime contractor for a workplace, the owner must ensure that

(a) the person designated

(i) is qualified to be the prime contractor in respect of that workplace, and

(ii) has the authority necessary to fulfill the responsibilities of prime contractor under the *Act*, including, without limitation, authority over any employer, worker or other person who may be carrying out the work of the owner at the workplace, and

(b) not more than one person holds the designation of prime contractor for that workplace at any given time.

Section 13 of the *Workers Compensation Act* ("*Act*") states:

"multiple-employer workplace" means a workplace where workers of 2 or more employers are working at the same time;

"prime contractor", in relation to a multiple-employer workplace, means

(a) the directing contractor, employer or other person who enters into a written agreement with the owner of the workplace to be the prime contractor for the purposes of the OHS provisions, or

(b) if there is no written agreement referred to in paragraph (a), the owner of the workplace;

Section 24 of the *Act* states:

(1) the prime contractor of a multiple-employer workplace must

- (a) ensure that the activities of employers, workers and other persons at the workplace relating to occupational health and safety are coordinated, and
- (b) do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the OHS provisions and the regulations in respect of the workplace.

(2) Each employer of workers at a multiple-employer workplace must give to the prime contractor the name of the person the employer has designated to supervise the employer's workers at that workplace.

Purpose of guideline

The purpose of this guideline is to provide information on prime contractor obligations, including how to determine the scope of a workplace to evaluate whether prime contractor obligations must be fulfilled, and what qualifications a prime contractor must have.

The prime contractor designation - What is "the workplace"?

Forestry workplaces will often be multiple-employer workplaces. This means that the obligations under section 24 of the *Act* relating to coordinating and maintaining a system of compliance must be fulfilled, either by a prime contractor, or if none is designated, the owner.

Section 13 of the *Act* defines "workplace" broadly. It states:

"workplace" means any place where a worker is or is likely to be engaged in any work and includes any vessel, vehicle or mobile equipment used by a worker in work.

In typical commercial or industrial operations, what constitutes the workplace is often self-evident, as the location is well defined. With respect to forestry operations, which involve a variety of activities undertaken by a range of contractors over a broad geographical area, identifying the workplace is less certain. Work locations may be undefined until the work is actually performed, and may be located anywhere within the licensed area.

Policy Item [P2-24-1](#) ("Policy") provides that a multiple-employer workplace may exist even if workers of different employers are present at the same time working on *different projects*. In addition, the Policy provides that the phrase "at the same time" will be given a "fair large and liberal construction" in order to "best attain the objectives of section 24." According to the Policy, "at the same time" means that workers of two or more employers are merely present in the workplace over "an appropriate interval" rather than at any precise point in time, and that the duration of the interval of time to be considered will depend upon the circumstances of the individual workplace. In addition, the Policy provides that it does not matter whether the workers of the different employers actually come into contact, as long as one employer's workers and their activities could well affect the health and safety of another employer's workers who come into the workplace at some other time.

Assessing what the workplace is for the purposes of establishing prime contractor obligations in the forestry industry will, in addition to the factors outlined in the Policy, depend on the following:

- The degree to which the activities of one employer will impact the health and safety of workers of another employer in a given area
- The degree to which a given area constitutes a single contiguous administrative unit
- Exclusivity of control over the given area

The multiple-employer workplace may, depending on the circumstances, be a single block, a cutting permit area, or, in certain situations where the above factors are present, an entire licensed area.

Section 1.1 of the *Regulation* exempts resource roads from being considered a workplace. For further discussion please refer to [OHS Guideline G1.1\(1\)](#).

Section 13 of the *Act* provides that the prime contractor will be the owner, unless there is a specific agreement designating another person as the prime contractor. As the owner with the greatest control over the workplace, it is appropriate that the licensee act as the "default" prime contractor. Even though there may be a "stump to dump" contractor who may be a directing contractor over a broad portion of forestry operations, that contractor will not be the prime contractor unless there is a specific designation in a written agreement that the contractor will act as prime contractor for the purposes of coordinating occupational health and safety matters.

Also, in accordance with Policy Item P2-24-1, there can be only one "prime contractor" at a workplace at any point in time. If an owner enters into more than one agreement purporting to create a "prime contractor" for the same period of time, the owner will be considered to be the prime contractor.

For information on which owner may designate the prime contractor, please refer to OHS Guideline [G26.1-2](#).

"Qualified"

Section 26.1.1 states that the owner must ensure the prime contractor at a multiple-employer forestry workplace is qualified. "Qualified" is defined in section 1.1 of the *Regulation* as "being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof." Multiple-employer forestry workplaces will involve a complex mix of work activities and hazards. Owners are therefore expected to ensure that prime contractors they designate have a significant level of experience and training specific to the types of operations that they will be coordinating. Being "qualified" also involves possessing knowledge of how to control hazards; a qualified

prime contractor must not only have knowledge of work processes, but knowledge of hazard recognition and managing health and safety risks.

Note that under section 24 of the *Act*, the owner must agree in writing with the prime contractor that the prime contractor will act in that capacity. The prime contractor must be aware that it has agreed in writing to act in that capacity, and the language of the agreement must be adequately clear that the parties intended that the prime contractor act in that capacity. Failure to have an adequate written agreement will result in the owner being required to fulfill the prime contractor obligations.

What are the obligations?

Under section 24(1) of the *Act*, the prime contractor is responsible for coordinating activities relating to health and safety at the workplace. Coordination will extend to logistical matters relating to the work carried out by the employers at the workplace. The prime contractor of a forestry workplace must, as a function of this coordination role, perform a risk assessment to determine appropriate measures to eliminate or reduce hazards faced by workers in the area in question.

The prime contractor is also responsible for establishing a system or process to ensure health and safety compliance. This may involve establishing a safety program as described in the OHS provisions, Division 4 of the *Act* and [section 3.3](#) of the *Regulation* with respect to the entire workplace, as well as making regular inspections of the workplace as contemplated by [section 3.5](#) of the *Regulation*. It may also involve the creation of a joint health and safety committee for the entire workplace. At a minimum, prime contractors should ensure that things like the initial safety meeting under [section 26.5](#) and the orientation of young or new workers under [section 3.23](#) take place. In addition, a necessary feature of any system or process is the ability to monitor and maintain that system. A prime contractor must take steps to ensure the employers it is coordinating are complying with and participating in its system.

In addition to the duties on prime contractors contained in the *Act*, [section 26.4](#) of the *Regulation* requires the prime contractor to submit a notice of project of a forestry operation.

G26.2-1 Planning and conducting a forestry operation

Issued May 1, 2008; Revised November 29, 2012; Editorial Revision April 6, 2020

Regulatory excerpt

Section 26.2 of the *OHS Regulation* ("*Regulation*") states:

- (1) The owner of a forestry operation must ensure that all activities of the forestry operation are both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.
- (2) Every person who has knowledge and control of any particular activity in a forestry operation must ensure that the activity is both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.
 - (3) The planning required under this section must
 - (a) include identification of any work activities or conditions at the workplace where there is a known or reasonably foreseeable risk to workers,
 - (b) be completed before work commences on the relevant activity, and
 - (c) be documented at the time of planning.
 - (4) If, after any planning referred to in subsection (3), there is a change in the workplace circumstances, including the work activities and the conditions of the workplace, and the change poses or creates a known or reasonably foreseeable risk to workers that was not previously identified, then
 - (a) the plan must be amended to identify and address the risk and provide for the health and safety of the workers at the workplace, and
 - (b) the amendment must be documented as soon as is practicable.

Purpose of guideline

This guideline provides guidance to WorkSafeBC prevention officers as well as stakeholders in the forest industry regarding accountability and responsibility for aspects of planning and conducting operations to ensure health and safety compliance in forestry operations.

Background

Most forestry in British Columbia takes place on publicly owned Crown lands managed by the province through the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO). The management of the forests and lands in which forestry operations take place is governed by a variety of legislation, including the *Forest Act* and the *Forest and Range Practices Act* and regulations associated with these Acts.

Under this legislation, the MFLNRO grants rights to harvest and market timber to licensees through a variety of types of licenses or tenures. These licenses also place certain obligations on the licensees. In general the terms of the license include conditions relating to harvesting practices, forest management, road building, reforestation, firefighting, and the like. Certain terms are dictated by forestry legislation; certain terms are functions of MFLNRO policy.

Historically, timber harvesting and related operations, particularly on the coast, were typically carried out directly by the licensee. In recent years, however, forest operations have evolved into a complex multi-layered mix of contractors, subcontractors, and independent operators. In the interior, the evolution has been less dramatic, as in that regional operations have historically involved a wide variety of contractors, often provided for in the tenures provided to licensees.

The MFLNRO determines an Annual Allowable Cut (AAC) for a particular broad region of the province, called a Timber Supply Area. This area may include any number of licenses, and provides specific authority to licensees to harvest certain areas included in their respective license area through specific cutting permits.

Licensees tend to contract operations related to harvesting and forest management to subsidiary organizations or to third-party contractors. In particular, licensees will often contract with subsidiaries or third-party contractors to oversee harvesting operations in specific areas (referred to as "blocks") within the cutting permit area. Such contractors (often referred to as "stump to dump" contractors) are often responsible for a wide range of operations with respect to a given cutting permit.

Those organizations, in turn, tend to contract out portions of the harvesting operations (such as falling, yarding, or timber transportation) within specific blocks to subcontractors (often referred to as "phase" contractors). Those subcontractors, in turn, may engage individuals such as fallers or equipment operators to perform specific tasks. These individuals might be employees under a contract of service or independent contractors, who also may engage other workers as employees or under contract.

All of these different organizations and individuals have responsibilities for ensuring forestry operations are planned and conducted in a manner that ensures the health and safety of forest workers.

"Planning and conducting" and the contracted out forestry workplace

Section 26.2(2) of the *Regulation* requires every person who has knowledge of and control over any particular activity in a forestry operation to ensure that the activity is both planned and conducted in a manner consistent with this *Regulation* and with safe work practices acceptable to WorkSafeBC.

The health and safety at forestry workplaces is the responsibility of all workplace parties that have an influence on how work is conducted. Section 26.2(2) reinforces that idea by requiring each person in a forestry operation to plan and conduct activities that they have knowledge of and control over. This obligation lies with all workplace parties. For example, the MFLNRO must ensure that access to Crown lands is provided in an adequately planned way so that workers of different tenure holders are not placed at risk. Licensees must plan overall operations in a manner that ensures that work can be carried out with a minimum of risk. Workers, for their part, must carry out their work in a manner that protects their own safety and the safety of other workers.

With respect to work that is to be provided under contract, "plan and conduct" should include the following obligations:

- Evaluating the risks the operations of contractors at one workplace within the license area will impose on the workers at another, and, where necessary, coordinating those activities in order to ensure that health and safety of workers is not put at risk.
- Monitoring the operations of contractors to ensure that they are meeting their health and safety obligations and are, in turn, monitoring the health and safety performance of their subcontractors. As noted above, where the contracting employer appoints a contract supervisor, that individual should monitor compliance with health and safety requirements as a function of his or her duties to monitor compliance with the terms of the contract.

Obligation of employers to workers of different employers

In considering the importance of planning and conducting work in contracted out forestry workplaces, it is important to note the obligation of section 21(1)(a)(ii) of the *Act*, which states:

21(1) Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out...

This section requires that every employer must ensure not only the health and safety of its workers, but also the health and safety of "any other workers present at a workplace at which that employer's work is being carried out."

A given work activity is not necessarily merely the work of the direct employer of the workers carrying out the work. The work may also be considered to be the work of an employer that has engaged a contractor instead of having its own workers carry out that work.

With respect to forestry operations, the entire range of activities relating to timber harvesting, transportation, and forest management should be viewed as the licensee's work, as well as the work of the contractors and subcontractors performing the work. In turn, the entire range of harvesting activities which a stump to dump contractor has been contracted to administer should be considered that contractor's work in addition to the licensee's work. In this way, the work of a single hand faller, for example, may be considered the work of many entities up the contracting chain for the purposes of establishing the health and safety duties of that entity under section 21(1)(a)(ii).

Every contractor and subcontractor will have health and safety duties with respect to the worker and workplace where the work is carried out.

The extent of that duty, and the manner in which it is discharged, will depend on the circumstances. Factors to be considered in assessing whether an employer has a health and safety obligation at a particular workplace include the following:

- The degree of control exercised by the contracting employer over the contractor in other areas of its business. The degree of control should be evaluated by reviewing both the terms of the contract between the parties as well as the reality of the relationship.
- The extent to which the contracting employer knew or should have known of a hazard or situation of non-compliance created by the activities of its contractor. For example, where the contracting employer appoints an individual such as a contract supervisor to monitor compliance with the terms of contract, it may be reasonable to conclude that the contracting employer knew or should have known of a lack of compliance with health and safety requirements.
- Whether it is reasonable to expect the contracting employer to have undertaken safety precautions.

The extent to which an employer took into consideration occupational health and safety matters in structuring and administering its relationship with any contractor it engaged should also be examined.

In engaging a contractor to carry out forestry operations, the contracting employer must take reasonable steps to ensure that the contractor is capable of discharging its health and safety obligations towards its workers and subcontractors, and take reasonable steps to monitor the contractor's safety performance and address any issues that arise. The monitoring activities that are reasonable in the circumstances, ranging from receiving safety reports or reviewing administrative records through to direct inspections, will correlate generally to the degree of control the contracting employer exercises over, and the monitoring of, other aspects of the contractor's operations.

G26.2-2 Planning log hauling operations for varying road grades

Issued: September 28, 2005; Editorial Revision May 1, 2008

Regulatory excerpt

Section 26.2 of the *OHS Regulation* ("*Regulation*") states:

- (1) The owner of a forestry operation must ensure that all activities of the forestry operation are both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.
- (2) Every person who has knowledge and control of any particular activity in a forestry operation must ensure that the activity is both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.
 - (3) The planning required under this section must
 - (a) include identification of any work activities or conditions at the workplace where there is a known or reasonably foreseeable risk to workers,
 - (b) be completed before work commences on the relevant activity, and
 - (c) be documented at the time of planning.
- (4) If, after any planning referred to in subsection (3), there is a change in the workplace circumstances, including the work activities and the conditions of the workplace, and the change poses or creates a known or reasonably foreseeable risk to workers that was not previously identified, then
 - (a) the plan must be amended to identify and address the risk and provide for the health and safety of the workers at the workplace, and
 - (b) the amendment must be documented as soon as is practicable.

Purpose of guideline

The purpose of this guideline is to provide direction about appropriate risk assessments that should be conducted in planning log hauling operations on varying road grades to ensure worker safety.

Risk assessment

If log haul operations are to be conducted on road grades that exceed those listed in the Ministry of Forests' *Forest Road Engineering Guidebook*, a risk assessment should be conducted before any hauling is conducted. The risk assessment factors will depend on the grade of the road, namely

1. *Grades 0 to 18% (18% for short pitches is the maximum listed in the Forest Road Engineering Guidebook)*

The following conditions should be in place to ensure log haul operations on these grades do not present a safety concern:

- The vehicle can be brought to a safe stop on the road surface and grade given the weather conditions at that time.
- The vehicles are properly maintained.
- Speed is not excessive (excessive speed for this guideline is considered as speed above the design speed, above which the operator is not in adequate control of the vehicle, or speed above which the unit could not be brought to a safe stop given a single failure in the driveline).

Vehicle loads are within the limits of the equipment.

2. *Grades in excess of 18% (grades exceeding road grades listed in the Ministry of Forests' Forest Road Engineering Guidebook):*

There are many factors that contribute to safe operations on these grades, including: weather conditions; road surface friction; grade and horizontal alignment; side slope; velocity of the vehicle; load carried by the vehicles; size, style and condition of brakes; obstacles ahead; and location and size of drop-offs.

The employer must perform a risk assessment to ensure that the equipment being used is capable of performing in a safe manner given weather conditions at the time of log hauling. This assessment should include the following:

- Specifications regarding the road surface condition;
- Vehicle speed
- Length of pitch
- Road relief
- Curve radius
- Comments on specific terrain hazards to negotiate

The risk assessment should not rely solely on the fact that trucks or other equipment may have negotiated similar roads without incident during past operations.

The risk assessment should also address the situation where if an upset condition (such as adverse weather conditions or a failure in the driveline) were to occur, how that upset condition would be controlled or mitigated. The risk assessment needs to confirm that the vehicle or other equipment can be brought to a safe stop under the anticipated hauling or upset conditions. If hauling conditions fall outside the anticipated parameters of the risk assessment, a reassessment should be conducted before hauling continues.

A clear work procedure must be developed based upon the risk assessment described above and include specific instructions for all factors included in the risk assessment. In addition, the risk assessment should include instructions for correct brake adjustment, and if necessary, brake temperature checks. The risk assessment and subsequent work procedure should be discussed and agreed upon with the loading and hauling crews.

Once completed, the risk assessment must confirm that the vehicles or other equipment travelling on these slopes are capable of doing so safely before hauling operations begin.

G26.2-3 Multiple cuts - Mechanical falling

Issued February 19, 2016; Editorial Revision July 3, 2018

Regulatory excerpt

Section 26.2 of the *OHS Regulation* ("*Regulation*") states:

- (1) The owner of a forestry operation must ensure that all activities of the forestry operation are both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.
- (2) Every person who has knowledge and control of any particular activity in a forestry operation must ensure that the activity is both planned and conducted in a manner consistent with this Regulation and with safe work practices acceptable to the Board.
 - (3) The planning required under this section must
 - (a) include identification of any work activities or conditions at the workplace where there is a known or reasonably foreseeable risk to workers,
 - (b) be completed before work commences on the relevant activity, and
 - (c) be documented at the time of planning.
 - (4) If, after any planning referred to in subsection (3), there is a change in the workplace circumstances, including the work activities and the conditions of the workplace, and the change poses or creates a known or reasonably foreseeable risk to workers that was not previously identified, then
 - (a) the plan must be amended to identify and address the risk and provide for the health and safety of the workers at the workplace, and
 - (b) the amendment must be documented as soon as is practicable.

Purpose of guideline

This guideline is intended to provide information on using mechanical harvesters to fall trees using multiple cuts and the planning that is required before such cuts are made. The guideline should be read in conjunction with [G26.2-1 Planning and conducting a forestry operation](#) and [G26.16 Slope limitations - Safe work procedures](#).

Scope of guideline

This guideline only applies to using multiple cuts to completely fall a tree before proceeding to fall the next tree. Using multiple cuts to fall a single tree before proceeding to fall the next tree is acceptable where the process is adequately planned and safe work practices are developed, implemented, and followed.

This guideline does *not* apply to partially cut trees which are either bypassed or left unattended during the falling process, as outlined in [section 26.29.3](#) of the *Regulation*. There are currently no safe work practices acceptable to WorkSafeBC under section 26.29.3(3) permitting what is commonly known as "double-pass cutting" or "double-cutting", in which a mechanical harvester works along the front of a row of trees, partially cutting each tree in sequence (leaving each partially-cut tree unattended), and then works its way along the back of the row to complete the cuts and guide the trees to the ground. "Double-pass cutting" does not take into account tree condition or machine capacity, nor does it consider the limited ability of the harvester operator to accurately determine how much of the base diameter of the tree has been cut off or how much holding wood is left to support the standing tree.

Planning

Section 26.2(2) of the *Regulation* requires that every person who has knowledge and control of any particular activity in a forestry operation must ensure that the activity is both planned and conducted in a manner consistent with the *Regulation* and with safe work practices acceptable to WorkSafeBC.

Adequate planning should include the selection of equipment capable of safely falling the size and condition of trees on the block. Employers and others should be mindful of the requirements of section 4.3(1) of the *Regulation* which states:

The employer must ensure that each tool, machine and piece of equipment in the workplace is

- (a) capable of safely performing the functions for which it is used, and
- (b) selected, used and operated in accordance with
 - (i) the manufacturer's instructions, if available,
 - (ii) safe work practices, and
 - (iii) the requirements of this Regulation;

section 26.12.1 of the *Regulation* which states:

- (1) Any equipment designed for a specific function in a forestry operation or adapted for use in a forestry operation must be capable of performing safely the functions for which it is being used.
- (2) The requirements of subsection (1) are met if the equipment is used
 - (a) in accordance with the manufacturer's instructions,
 - (b) as specified by a professional engineer, or
 - (c) in a manner acceptable to the Board;

and section 26.29.2 of the *Regulation* which states:

A mechanical harvester must not be used to fell a tree if

- (a) the tree is in a condition that, if felled in that condition, it would pose a reasonably foreseeable risk to the harvester operator, or
- (b) the mechanical harvester is not capable of falling the tree safely.

In addition, adequate planning should address the particular hazards and risks present on the block. These items are listed below under the headings of "site-specific procedures."

Safe work practices

The following safety considerations should be taken into account when falling trees with mechanical harvesters using multiple cuts:

- Multiple cuts should only be used to directionally fall a tree
- The equipment must have sufficient pushing power to direct the tree against its lean
- Sufficient holding wood should be maintained until the machine is positioned to make the final cut

Safe work practices for conducting multiple falling cuts should include both *general* and *site-specific* procedures.

General procedures should address the following issues:

- How the harvester operators will be trained and instructed in the work to be performed
- How the work is to be supervised and monitored

- How the harvester operator will maneuver the machine in order to complete the falling process
- The steps the operator will take when cutting any trees to gain access to the full 360 degrees of the initial tree being cut. If full access is not possible without falling other trees first, the harvester operator must first fall those trees that are preventing access before any cuts are made in the initial tree
- Steps to follow in the event falling cuts are initiated and cannot be completed
- An assessment by the harvester operator of the hazards associated with multiple falling cuts, such as stability of the tree (top and stem, excessive rot, limb tied, etc.)
- Maintaining directional control over the tree by the harvester operator through the falling process
- Control of the fall of the tree by the harvester operator in a manner that ensures the stability of the machine and the protection of the operator at all times
- The steps that will be taken to ensure the health and safety of all workers who may be exposed to the hazard of the tree during the multiple cutting process

Site-specific procedures should address the particular hazards and risks present at the time and place the falling takes place, such as the following:

- Topography (slope, broken rock, loose shale, stable, or slippery snow pack, etc.)
- Wind and weather conditions, including an assessment of visibility and ability to clearly see the tree from ground to top
- Other work activity taking place at the falling location
- The condition of the tree or trees to be partially cut to ensure they are stable enough to support multiple cuts. This assessment should consider the likelihood of the trunk collapsing due to decay or other defect (taking into account and the possibility of the top of the tree breaking off and striking the machine)
- Slope limitations that may affect harvester stability while making cuts or pushing the tree over
- How to effectively control the fall of trees during the falling process to ensure that no additional hazards to workers are created by the actions of the harvester

Hazards to consider and mitigate include the following:

- brushing of standing timber
- damage to adjacent trees
- whether falling is upslope
- accumulation of debris against the butt of standing trees if a hand faller or other worker will later be at the base of the tree for other types of work

G26.3.1(1)(a) Acceptable standard for training

Issued February 11, 2009

Regulatory excerpt

Section 26.3.1(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) Workers in a forestry operation who fight a forest fire must be
 - (a) trained in their fire fighting duties in accordance with a standard acceptable to the Board, and
 - (b) physically capable of performing their duties safely and effectively.

Purpose of guideline

The purpose of this guideline is to specify the training requirements for workers in a forestry operation in order for them to be considered trained in accordance with a standard acceptable to WorkSafeBC for section 26.3.1(1)(a) of the *Regulation*.

Standard acceptable to WorkSafeBC

S-100 Basic Fire Suppression and Safety is a training program developed by the B.C. Forest Service (BCFS), Protection Branch of the Ministry of Forests and Range. Workers who have been trained in S-100 and have received a certificate of completion from a BCFS-endorsed instructor are considered to have been trained in accordance with a standard acceptable to WorkSafeBC.

Alternative training standards

Employers, or training providers, who have developed training standards other than S-100, may apply to WorkSafeBC for review. Applications can be made to the Manager of the Certification Services department of WorkSafeBC.

G26.11 Wildlife dangerous tree assessment

Issued December 14, 2012; Editorial Revision January 29, 2014; Editorial Revision July 30, 2021

Regulatory excerpt

Section 26.11 of the *OHS Regulation* ("*Regulation*") states:

- (1) If it is known or reasonably foreseeable that work will expose a worker to a dangerous tree,

- (a) the tree must be felled, or
 - (b) a risk assessment of the tree must be undertaken by a person who has completed a training program acceptable to the Board.
- (2) If a risk assessment under subsection (1) determines that a tree poses a risk to a worker, the recommendations made in the risk assessment for eliminating or minimizing the risk must be implemented before the work referred to in that subsection starts.
- (3) Despite subsections (1) and (2), if work in a forestry operation is to be carried out in an area that has more than 500 dangerous trees per hectare, the Board may approve a request to work without felling or assessing all the dangerous trees if, before the work starts,
- (a) a person who has completed a training program acceptable to the Board conducts a risk assessment of a representative sample of the dangerous trees, and
 - (b) any recommendations made in the risk assessment for eliminating or minimizing the risks are implemented.

Section 26.1 of the *Regulation* states:

"dangerous tree" means a tree that is a hazard to a worker due to

- (a) its location or lean,
- (b) its physical damage,
- (c) overhead conditions,
- (d) deterioration of its limbs, stem or root system, or
- (e) any combination of the conditions in paragraphs (a) to (d);

Purpose of guideline

The purpose of this guideline is to describe an acceptable training program to WorkSafeBC with respect to a person who will be qualified to undertake a dangerous tree risk assessment.

Background

Dangerous trees present significant hazards to those working in proximity to them. It is important that the hazards of dangerous trees are identified and adequately managed. Where work may expose a worker to a dangerous tree, section 26.11 requires a risk assessment to be performed by a person who has completed a training program acceptable to WorkSafeBC, and that person to make recommendations for managing the hazard. The purpose of this guideline is to set out what training program is acceptable to WorkSafeBC.

Training programs acceptable to WorkSafeBC

For the purposes of section 26.11 of the *Regulation*, currently there are two training programs acceptable to WorkSafeBC, each with a different focus.

In the context of forest harvesting & silviculture, parks & recreation, and wildland fire safety operations, only a person who has completed the Wildlife Dangerous Tree Assessor's Course, administered by the Wildlife Tree Committee (WTC), can complete a risk assessment and make recommendations for managing dangerous trees.

The WTC is a multi-agency committee composed of representatives from the provincial Ministry of Forests and Range, Ministry of Environment and Climate Change, WorkSafeBC, industry, labour, and public interest groups from across the province. The training course provides information and technical procedures for assessing dangerous trees and establishing appropriate safe work practices in situations where there is potential exposure of workers.

With respect to arboriculture operations, the Tree Risk Assessment Qualification (TRAQ) course provides training with respect to the assessment of dangerous trees that exist in urban areas and urban and/or rural interface areas, and is an acceptable training program to WorkSafeBC for dangerous tree assessors in that industry. The TRAQ course is administered by the International Society of Arboriculture (ISA).

Other courses

WorkSafeBC recognizes that other training courses may be developed that may meet the requirements for acceptance under section 26.11(1) of the *Regulation*. WorkSafeBC will review any proposed courses for acceptance to ensure they meet a standard acceptable to WorkSafeBC. Any new courses WorkSafeBC identifies as acceptable under section 26.11(1) will be added to this guideline for the information of workplace parties and WorkSafeBC prevention officers.

Persons wishing to have WorkSafeBC consider an alternative course for acceptance under section 26.11(1) may submit that course to WorkSafeBC for review and evaluation. Please contact [Certification Services](#) for further information.

Guidelines Part 26 - Equipment operation

G26.16 Slope limitations - Safe work procedures

Regulatory excerpt

Section 26.16 of the *OHS Regulation* ("*Regulation*") states:

- (1) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]
- (2) If the manufacturer's maximum slope operating stability limit for logging equipment is known, the equipment must be operated within that limit.
- (3) If the manufacturer's maximum slope operating stability limit for logging equipment is not known, the equipment must be operated within the following limits:
 - (a) a rubber tired skidder must not be operated on a slope which exceeds 35%;
 - (b) a crawler tractor, feller buncher, excavator and other similar equipment must not be operated on a slope which exceeds 40%;
 - (c) any other forestry equipment specifically designed for use on a steep slope must not be operated on a slope which exceeds 50%.
- (4) Despite subsections (2) and (3) but subject to subsection (5), logging equipment may be operated beyond the maximum slope operating stability limits specified in those subsections if
 - (a) a qualified person conducts a risk assessment of that operation, and
 - (b) written safe work practices acceptable to the Board are developed and implemented to ensure the equipment's stability during operation.
- (5) Despite anything in this section, logging equipment must not be operated in a particular location or manner if its stability cannot be assured during that operation.

Purpose of guideline

This guideline is intended to give direction as to what is required for an employer to fulfill the obligations of sections 26.16(4)(a)(b) and 26.16(5) with respect to the development of safe work procedures for the operation of equipment beyond the limitations in section 26.16(3) and to ensure stability of logging equipment on steep slopes.

Operating logging equipment on steep slopes

The operation of logging equipment on steep slopes presents a serious hazard in the form of equipment rollover, which can result in serious injury or death to equipment operators and other workers. It is therefore crucial that logging equipment be operated within the manufacturer's safe operating stability limit. Where that limit is unknown, section 26.16(3) sets out slope limitations for particular pieces of equipment. Despite these restrictions, logging equipment may be operated beyond these slope limitations, provided that there is a risk assessment of the operation done by a qualified person and there are safe work practices acceptable to WorkSafeBC implemented during the operation.

The intention of sections 26.16(4)(a)(b) and 26.16(5) is to permit the employer and owner of the workplace to allow the slope stability limitations to be exceeded in situations in which it may not be viable or practicable to bring in an alternate harvesting system. Operating equipment for longer durations on slopes that are at or beyond the equipment's safe operating limit overburdens machinery. Because this activity increases workers' exposure to risk, these operations have to be carefully managed, planned, and supervised.

Steep slope operations need to involve careful management of both the hazards presented by the terrain and the duration of workers' exposure to the hazard.

In addition, employers and others should be mindful of the requirements of section 26.12.1(1) of the *Regulation*, which states

Any equipment designed for a specific function in a forestry operation or adapted for use in a forestry operation must be capable of performing safely the functions for which it is being used.

And, section 26.16(5) of the *Regulation* states

Despite anything in this section, logging equipment must not be operated in a particular location or manner if its stability cannot be assured during that operation.

The following sets out the required considerations for operating logging equipment on steep slopes beyond the manufacturer's maximum operating stability limit or the limits in section 26.16(3). In order to be compliant with section 26.16(4), such operations must be

- Adequately planned
- Subject to a thorough site-specific risk assessment, with defined steep slope sites identified
- Conducted in accordance with site-specific safe work practices acceptable to WorkSafeBC

Planning for steep slope logging

Section 26.2(1) of the *Regulation* states:

The owner of a forestry operation must ensure that all activities of the forestry operation are both planned and conducted in a manner consistent with this *Regulation* and with safe work practices acceptable to the Board.

Forestry operations must be properly planned and conducted in a manner consistent with the *Regulation* and safe work practices acceptable to WorkSafeBC.

Regulation section 26.2(3)(a) states that this obligation "include identification of any work activities or conditions at the workplace where there is a known or reasonably foreseeable risk to workers."

The planning of forestry operations must include identification of any steep slope areas in a cut block to determine how these areas will be dealt with. If a block that has been selected for harvest has slopes that are outside of the maximum operating stability limits of the machines intended for use at this workplace, then consideration must be given to whether the harvesting plan can be amended to identify a more appropriate selection of equipment or techniques for the workplace, such as specially designed steep slope equipment or a cable system.

Note that under sections [26.2\(3\)\(b\) and \(c\)](#), the planning of a forestry operation must be completed before work commences and documented. Therefore any identification of areas of steep slope logging and the plan regarding how to deal with those areas, including the risk assessment and the work procedures, must be carried out and documented before the work is undertaken.

Conducting the risk assessment

Once a cut block has been assessed and defined portions of the cut block have been identified as having slopes that will exceed the operating stability guidelines of the logging equipment, the first obligation of the employer prior to exceeding these slope limits is to have a qualified person conduct a risk assessment. Based upon this risk assessment, appropriate site-specific safe work procedures are to be developed that will assure machine stability on the slopes.

The required elements of the risk assessment are to

- Identify and assess the steep slopes in the cut block
- Evaluate the duration of worker exposure to work in steep slope areas
- Evaluate risks posed by the characteristics of the terrain, including the following:
 - the degree of slope
 - terrain classification, and the soil conditions that can be expected, including depth of soils and underlying materials
 - ground roughness including rocky areas, loose soils, or materials
 - the impact of operations on the hydrology of the site, and any resulting effects on terrain stability
- Evaluate machine capabilities, limitations, and performance characteristics
- Consider operational factors such as
 - average tree size
 - approximate tree weights and species
 - allowable stump height
 - any harvesting site-specific specifications
- Consider environmental considerations such as weather, i.e. rain, wind, snow, frost, fog, etc.
- Consider how isolated the work will be and the proximity to assistance
- Determine any other relevant risk factors present at that workplace

In accordance with section 26.2(3)(c) of the *Regulation* the risk assessment must be adequately documented at the time of planning.

The risk assessment must be carried out by a "qualified person." The *Regulation* defines qualified as

"qualified" means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof

The "qualified person" for the purposes of section 26.16 must be capable of competently evaluating the elements of the risk assessment listed above. The person conducting the risk assessment for steep slope operations is expected to

- Possess extensive experience in working on steep slopes in variable terrain and conditions
- Be knowledgeable of the machines being used during the total harvesting operation; not just one phase such as bunching. The familiarity with the equipment must include the selection of the equipment, limitations on maneuverability and stability, and use of accessories which would increase traction or stability, e.g. chains or grousers
- Be familiar with the training needs and experience of the logging equipment operators
- Be familiar with the specific site to be harvested which would include knowledge of the terrain, soils, and weather variables for the location including the planned season of harvest
- Be knowledgeable in developing safe work procedures that are based upon a site-specific risk assessment.

Ideally the qualified person will possess formal training or trade certification (such as a Registered Professional Forester) that would suggest the person is capable of exercising responsible and sound judgment. Given that in order to complete the risk assessment there must be an overall understanding of the entirety of the steep slope logging operations, the qualified person should typically be someone other than the equipment operator, unless that operator is in a supervisory capacity and possesses the skills and knowledge outlined above.

Where the qualified person does not possess the knowledge or information outlined above, he or she needs to be capable of obtaining the

information from others, and be capable of fully understanding the information and incorporating it into the assessment.

Developing and implementing safe work practices

In order to operate equipment in areas which exceed manufacturer's safe operating limits or the limits in section 26.16(3), safe work practices acceptable to WorkSafeBC must be developed and adequately documented.

The following elements are those that WorkSafeBC considers necessary for the safe work practices to be acceptable. In conducting inspections or investigations, WorkSafeBC prevention officers will compare the employer's safe work practices to ensure they meet the elements listed below.

a) Link to risk assessment

The site-specific machine stability steep slope safe work practices are to be created with specific reference to the conditions identified and evaluated in the risk assessment.

b) Identification of the work area

Where possible, the safe work practices should address minimizing the extent of the steep slope work and ensuring that the duration of worker exposure to steep slope areas is kept manageable.

This should also include, where possible, the identification of "no go" areas, including any cutoff points in the cut block that are designated as too steep, rocky, or unstable and are no go zones for the equipment being used.

Other considerations may include machine free zones or setback distances from environmentally sensitive areas, and areas that are prone to sliding or washout.

c) Equipment selection and operating procedures

Safe work practices are to cover equipment selection and set out which machine is most appropriate for use on the slope being harvested based upon a stability assessment of the machine. This stability assessment should consider things such as

- Manufacturer's specifications
- Consideration of features intended to facilitate equipment performance on steep slopes, such as self leveling cabs
- Safety equipment on the machine including Roll Over Protective Structures (ROPS) and seatbelts
- Visibility for operators
- Condition of the tires including inflation
- Use and condition of chains and band tracks, and on tracked equipment the condition of the tracks, grousers, and guarding

Note that equipment maintenance will be critical for machines used on steep slopes as break downs in these areas will compound the risk to the machine operators.

Safe work practices will have to address equipment selection even where equipment designed for steep slope situations is being used. However, the risk assessment and resulting safe work practices may be streamlined in such situations.

Specific procedures should address the following:

- i. Planning the direction of equipment travel for each piece of equipment used in the harvesting operation. This is to be considered with a view to keeping the logging equipment on the lowest gradient of slope during the work as well as providing the greatest stability for the equipment. Always avoid cross slope travel and winching a turn of logs at an angle to the machine. Always travel down slope keeping the logs tight to the apron and close to the machine.
- ii. Addressing the effects upon weight distribution and changes to the centre of gravity on the machine when negotiating the slope and any ground variations.
- iii. When operating a feller buncher, considering the width of the falling swath, as the slope increases in steepness usually the width of the swath will decrease. With an increase in the gradient of the slope the feller buncher will limit the slewing width which allows the operator to keep the felling machine's centre of gravity close to the face of the slope which increases machine stability.
- iv. Addressing how to effectively handle loads, for example, weight transfer when rotating larger trees on a steep slope which can be dealt with by drawing the tree towards the machine or felling at a 45 degree angle to the slope, or ensuring that loads on forwarders are moderate size and do not over balance the machine.

d) Address undertaking site modifications where appropriate

Procedures need to identify areas in which modifications to the site are acceptable and planned to increase machine stability. This could include the construction of skid trails or roads as appropriate.

e) Operator qualifications, training, and supervision

The safe work practices need to set out how the equipment operators will be trained and instructed on how the work is to be performed. In

addition, they must set out how the work is to be supervised and monitored.

f) Dealing with emergencies

Procedures need to be in place for dealing with equipment breakdown, situations where equipment operators find themselves in difficulties, and for dealing with an upset condition. Equipment will have to be available to render assistance in such situations.

Implementing safe work practices

Safe work practices encompassing these elements must not only be developed, they must be implemented. Employers must ensure that these procedures not only exist, but that equipment operators and other workers involved in the operation are provided instruction and training in the procedures. [Section 26.3](#) of the *Regulation* requires all workers to have received training necessary to perform their duties. Though this training need not be overly formal, it needs to be adequately documented.

In addition, employers must ensure that these procedures are followed by these workers. This would involve adequate supervision and monitoring of the operations by qualified people and correcting any deviation from the procedures, as well as identifying any new risks that arise during the operations and adjusting the safe work practices accordingly.

G26.18 Acceptable standards for landslide risk assessments

Issued December 18, 2015; Editorial Revision November 21, 2017

Regulatory excerpt

Section 1.1 of the *OHS Regulation* ("*Regulation*") states:

"qualified registered professional" means

- (a) a professional engineer or professional geoscientist, and
- (b) in relation to a forestry operation, a person referred to in paragraph (a) or a registered professional forester, registered forest technologist or holder of a special permit under the *Foresters Act*;

Section 26.18 of the *Regulation* states:

In a forestry operation where there may be a risk of a landslide

- (a) the risk must be assessed in accordance with a standard acceptable to the Board,
- (b) if a risk is found to be present, written safe work procedures must be developed meeting the requirements of the standard, and
- (c) workers must be educated in the safe work procedures.

Purpose of guideline

The purpose of this guideline is to identify the acceptable standard for performing landslide risk assessments and developing written safe work procedures under section 26.18 of the *Regulation*. The guideline also clarifies that this work must be done by a qualified registered professional, with appropriate qualifications in landslide risk assessments.

Landslide risk assessments as professional work

Section 26.18 requires that landslide risks are assessed, and that safe work procedures are developed to address those risks. While section 26.18 does not specify who may perform this work, the work falls within the professional practices regulated under the *Engineers and Geoscientists Act* and the *Foresters Act*. These Acts prohibit individuals other than qualified registered professionals from performing this work.

The respective professional associations may place additional qualification requirements on their members to be able to perform landslide risk assessments. Where a WorkSafeBC prevention officer identifies that an individual is performing landslide risk assessments without being a qualified registered professional, or is otherwise unqualified, the prevention officer will refer that matter to the appropriate professional association. The prevention officer may also write orders under section 26.18.

Acceptable standards for landslide risk assessments and safe work procedures

Engineers & Geoscientists British Columbia (EGBC) and the Association of British Columbia Forest Professionals have developed the following three guidelines concerning landslides:

- *Guidelines for Managing Terrain Stability in the Forest Sector*
- *Guidelines for Professional Services in the Forest Sector – Terrain Stability Assessments*
- *Guidelines for Professional Services in the Forest Sector – Forest Roads*

The *Guidelines for Managing Terrain Stability in the Forest Sector* may be used to determine whether or not there is a risk of a landslide.

Where a risk of a landslide is present, section 26.18 of the *Regulation* applies and the *Guidelines for Professional Services in the Forest Sector – Terrain Stability Assessments* (TSA Guideline) is an acceptable standard for performing the work under section 26.18.

The *Guidelines for Professional Services in the Forest Sector – Forest Roads* may be of additional assistance for employers applying the TSA

Guideline where the risk of a landslide is connected to road building activities.

Landslide risks assessments, where necessary, should be incorporated into how a forestry operation is planned and conducted in accordance with section [26.2](#) of the *Regulation*.

Guidelines Part 26 - Manual falling and bucking

G26.21/26.22 Faller training – Application

Issued September 28, 2005; Revised May 1, 2008; Editorial Revision April 14, 2009; Editorial Revision May 9, 2014; Editorial Revision April 30, 2015; Editorial Revision October 28, 2015; Editorial Revision November 21, 2017; Editorial Revision May 31, 2021

Regulatory excerpt

Sections 26.21 and 26.22 of the *OHS Regulation* ("*Regulation*") state, in part:

26.21 Faller qualifications

(1) A worker must not fall trees or be permitted to fall trees, or conduct or be permitted to conduct bucking activities, associated with falling trees, unless

(a) the worker is qualified to do so to a standard acceptable to the Board, and

(b) the work being performed is within the documented and demonstrated capabilities of that worker.

...

26.22 Forestry operation faller training

(1) A worker may not work as a faller in a forestry operation unless the worker receives training for falling that is acceptable to the Board and is certified in writing as a competent faller under this section.

...

Purpose of guideline

Hand falling remains one of the most dangerous professions in British Columbia. It is crucial that fallers are trained in safe work practices so that they are able to recognize and eliminate or minimize hazards.

This guideline sets out what training is acceptable to WorkSafeBC for the purposes of section 26.22(1) of the *Regulation*, and who is required to receive faller training. It also describes what the "documented and demonstrated capabilities" of the worker mean for the purposes of section 26.21 of the *Regulation*.

Who must receive training?

The faller training requirement in section 26.22 of the *Regulation* applies to workers in a "forestry operation." Section 26.1 of the *Regulation* states that a forestry operation "means a workplace where work is done in relation to silviculture or harvesting trees, including constructing the means of access and transporting the harvested trees to a facility where they are processed or from which they are exported." Workers who fall trees in such workplaces will have to be trained and certified in accordance with section 26.22 of the *Regulation*. For discussion of what "forestry operation" is intended to cover, please refer to OHS Guideline [G26.1-1 Forestry operations and similar activities](#).

Faller training

To address the need for acceptable training, WorkSafeBC, in conjunction with forest industry employer associations, representatives of organized labour, and experienced hand fallers, has developed a faller training standard that meets the requirements of section 26.22 of the *Regulation*.

The delivery of training and certification meeting the *BC Faller Training Standard* (BCFTS) is administered by the following organizations:

- [BC Forest Safety Council \(BCFSC\)](#)
- [Energy Safety Canada](#) (the safety association for the upstream oil and gas industry)
- [BC Wildfire Service](#) (Ministry of Forests, Lands, Natural Resource Operations and Rural Development)

For more information about faller training and certification and for the contact information of the BCFTS administrators, please refer to the [Faller Training and Certification webpage](#).

The BCFTS consists of two primary components. The first component addresses new faller training, and covers the selection and use of appropriate personal protective equipment, the maintenance and operation of falling equipment, and tools, hazard recognition and control, and safe falling, bucking, and limbing procedures. The second component involves a written exam and a practical field evaluation of the faller's falling abilities, which, if successfully completed, will result in the issuance of a certificate to the faller.

Other courses

WorkSafeBC recognizes that other training courses may be developed that may meet the requirements for acceptance under section 26.22(1) of the *Regulation*. WorkSafeBC will review any proposed courses for acceptance to ensure consistency with the BCFTS. Any new courses

WorkSafeBC identifies as acceptable under section 26.22(1) of the *Regulation* will be added to this guideline for the information of workplace parties and WorkSafeBC prevention officers.

Persons wishing to have WorkSafeBC consider an alternative course for acceptance under section 26.22(1) of the *Regulation* may submit that course to WorkSafeBC for review and evaluation. Please contact [Certification Services](#) for further information.

Forestry operation fallers – Employer's obligation to ensure faller qualified

While the obligations in section 26.22 regarding receiving training are imposed on workers in a forestry operation, employers should note their obligations under section 26.21 of the *Regulation*.

Employers are required, as part of the obligation in section 26.21, to verify that fallers have received WorkSafeBC approved training. This can be done by ensuring that the faller possesses a valid faller training certificate or by enquiring with the *BCFSC*.

In addition to verifying that the faller has received WorkSafeBC approved training, employers are required to ensure that fallers are able to fall safely the size and type of timber that the faller will encounter in the conditions (such as terrain) that will be present at the workplace. Faller experience should be documented in the log book issued to each faller as part of the training process. Reviewing this information will assist the employer to make an appropriate decision about whether the faller is qualified for the conditions they will encounter. Employers should also evaluate the faller's work as part of determining whether the faller is capable of falling safely in the conditions they will face.

If the employer determines that a faller is not capable of falling the type of timber present in the workplace, the employer must either refuse to permit the faller to fall trees in those conditions, or provide the necessary training that would allow the faller to safely perform that work. Where training is provided, the employer should include the training information in the faller's log book.

Section 26.21 – Fallers in "similar activities" to forestry operations

While section 26.22 applies to fallers in forestry operations, section 26.21 is not restricted to "forestry operations" (refer to OHS Guideline [G26.1-1](#) for information on the application of Part 26 to forestry and similar operations).

Employers at workplaces that are not "forestry operations" but who will have workers falling and bucking trees must ensure that these workers are qualified for the tasks they will be carrying out. These types of operations may include the following:

- Arborist Technicians and Utility Arborists in forestry settings
- Parks workers
- Firefighters falling in emergency circumstances
- Land clearing where timber is being felled but not being "harvested"

HortEducationBC (HEBC) is authorized by WorkSafeBC to certify Arborist Technicians and Utility Arborists in falling and bucking activities. This certification allows Arborist Technicians and Utility Arborists to fall and buck trees within the scope of arborist work only. The certification offered through the HEBC provides qualifications acceptable to WorkSafeBC for Arborist Technicians and Utility Arborists under section 26.21, but does not constitute faller training or certification for workers in a forestry operation under section 26.22.

G26.21-1 Arborist qualifications

Issued March 9, 2012; Editorial Revision October 28, 2015

Regulatory excerpt

Section 26.21 of the *OHS Regulation* ("*Regulation*") states:

- (1) A worker must not fall trees or be permitted to fall trees, or conduct or be permitted to conduct bucking activities associated with falling trees, unless
 - (a) the worker is qualified to do so to a standard acceptable to the Board, and
 - (b) the work being performed is within the documented and demonstrated capabilities of that worker.
- (2) Subsection (1) (a) does not apply to a worker who is in a falling or bucking training program that is acceptable to the Board.

Purpose of guideline

This guideline is intended to set out the standard acceptable to WorkSafeBC for the qualifications for Utility Arborists and Arborist Technicians.

Background

Part 26 of the *Regulation* applies to forestry and similar operations. Section [26.22](#) sets out the qualifications necessary to fall trees in a forestry operation. Section 26.21 applies to workers in operations other than forestry who fall trees. In many contexts, Utility Arborists and Arborist Technicians will fall trees in operations similar to forestry. For the purposes of this section, Utility Arborists are workers that undertake work required to prune or clear vegetation in proximity to energized electrical equipment, structures, or conductors. Arborist Technicians are workers that undertake work required to prune or clear vegetation from targets (buildings, roads, parks, walkways, etc.) within an urban forestry setting.

Qualifications to fall trees

The qualification required for Utility Arborists and Arborist Technicians involves two components.

First, the Utility Arborist or Arborist Technician must have completed the relevant Industry Training Authority ("ITA") approved training program, including the modules on falling and bucking of trees. That program involves both classroom training delivered through public post-secondary institutions, private training institutions, and secondary schools that have been approved by the ITA; as well as a minimum number of hours of work experience.

Second, the Utility Arborist or Arborist Technician must have successfully completed an assessment by a Qualified Supervisor Trainer (QST), arranged through HortEducationBC.

Other courses

WorkSafeBC recognizes that other training courses may be developed that may meet the requirements for acceptance under section 26.21(1).

WorkSafeBC will review any proposed courses for acceptance to ensure it meets a standard acceptable to WorkSafeBC. Any new courses

WorkSafeBC identifies as acceptable under section 26.21(1) will be added to this guideline for the information of workplace parties and WorkSafeBC prevention officers.

Persons wishing to have WorkSafeBC consider an alternative course for acceptance under section 26.21(1) may submit that course for review and evaluation. Please contact [Certification Services](#) for further information.

G26.21-2 Faller qualifications – Performance upgrade

Issued January 23, 2015; Editorial Revision April 6, 2020

Regulatory excerpt

Section 26.21(1) of the *OHS Regulation* ("*Regulation*") states:

A worker must not fall trees or be permitted to fall trees, or conduct or be permitted to conduct bucking activities associated with falling trees, unless

(a) the worker is qualified to do so to a standard acceptable to the Board, and

(b) the work being performed is within the documented and demonstrated capabilities of that worker.

Purpose of guideline

The intent of section 26.21 of the *Regulation* is to ensure that fallers are capable of safely performing falling or bucking duties, without incurring danger to themselves or others. This is not a single point in time requirement. It applies on an ongoing basis.

There may be occasions where a WorkSafeBC prevention officer determines that performance upgrade training is required in order to reinstate a faller to the demonstrated skill level necessary to safely continue falling duties. This guideline provides an explanation of that determination and the accompanying processes.

Background

During a workplace inspection, a prevention officer may observe falling practices that are in contravention of the *Regulation*. Prevention officers will consider issuing orders to those persons who have not fulfilled their responsibilities under the *Workers Compensation Act* ("*Act*") and *Regulation*. Orders against an employer or prime contractor will be issued on an inspection report. Orders written against a worker will be issued on an Order to Worker (OtW) report. OtWs may also be issued against an employer, if the employer is acting in the capacity of a worker. Refer to OHS Guideline [G-P2-22 Orders to workers](#) for more information on orders to workers.

WorkSafeBC documentation, discussions, and orders *without* remedial training order

If a prevention officer determines that the faller's duties can safely continue when one or more contraventions have been observed, the prevention officer will document the contraventions in the report of the inspection and will clearly state and document compliance expectations. Compliance expectations will include a statement of the associated regulatory requirements and any actions required of the person, e.g., a requirement to submit a notice of compliance to WorkSafeBC. A prevention officer may schedule a follow-up inspection within several weeks to validate safe performance of the faller's work practices.

WorkSafeBC documentation, discussions, and orders *with* remedial training order

If, during a workplace inspection, a prevention officer determines that the faller's duties cannot continue safely, because of the high risk of serious injury or death to the faller or to others, the prevention officer may inform the faller, employer, and licensee that the faller is not permitted to continue falling without undergoing a performance upgrade training plan with a Qualified Supervisor/Trainer (QST).

WorkSafeBC inspections and inspection reports will focus on work site observations. There may be a number of contributing factors to observed contraventions of the *Regulation*, e.g., personal circumstances may cause a faller to be distracted from his work, and employers and workers need to be aware of the requirements of sections [4.19 \(Physical or mental impairment\)](#) and [4.20 \(Impairment by alcohol, drug or other substance\)](#) of the *Regulation*.

When an OtW is issued with respect to observed practices, it will include a clear statement of the contraventions, regulatory requirements, and performance expectations as necessary. The order will include a statement that the faller is restricted from falling trees in any forestry operation until the faller receives performance upgrade training from a qualified person (QST) or administrator-approved industry trainer, has undergone re-evaluation by a QST and has demonstrated competency levels meeting the requirements of section 26.21 of the *Regulation* and the competencies of the *BC Faller Training Standard*.

After discussions with the faller, the site supervisor and, as necessary, a WorkSafeBC QST, the prevention officer will clearly state (and document in the report) the minimum areas of practice that the performance upgrade training must address, with reference to the relevant section(s) of the *BC Faller Training Standard*. Before issuing this order, a prevention officer will normally consult with the WorkSafeBC senior regional officer for forestry.

An order for faller performance upgrade training does not necessarily restrict the faller from working in another role that he/she is qualified to perform, e.g., the faller may do bucking duties or operate a piece of equipment provided he/she is competent to do so.

Orders for performance upgrade training will not usually be written after a single observed violation unless the contravention is flagrant in nature. For example, such an order will not usually be written after a faller encountered an unpredicted situation such as cutting into a pocket of rot that was not observable from the outside of the tree. Usually, an order requiring performance upgrade training will be written in the following two circumstances:

- The faller has demonstrated a pattern or sequence of falling practices that are high risk and could, under different conditions, put the faller or others at risk of serious injury or death.
- The faller has committed a flagrant contravention of the *Regulation*, putting persons at immediate risk of serious injury or death.

A prevention officer will document the evidence obtained at the site that is relevant to the written orders. Evidence will be included with the inspection report or OtW and will typically include one or more of the following:

- Measurements of trees and labelled stumps, and identification of the tree species
- Annotated photographs as necessary, e.g., photos of measurements taken, labelled stumps, timber damaged from excessive brushing
- Site diagrams
- Notes of interviews with the faller and/or site supervisor
- Copies or excerpts of the fallers log book and any relevant training records
- Records of faller orientation and block start-up meetings

When issuing the order, a prevention officer will also inform the faller, and where practicable the faller's supervisor, of the following:

- The faller is not permitted to continue falling timber without successfully completing a performance upgrade training plan.
- The faller is to inform his supervisor, and any subsequent employers, that he has been removed from falling work until he has successfully completed performance upgrade training.
- The faller can request a full explanation from the prevention officer of the reasons for the written order(s) as well as a reconsideration of the issuance of the order(s). The faller can also initiate an informal review of the order(s) by contacting the prevention officer's regional prevention manager or the WorkSafeBC manager of interest for forestry.
- The faller has a right under the Act to have the order(s) impartially and formally reviewed by the Review Division of WorkSafeBC (this right is also documented in the report).
- A request for review does not constitute a stay of the order(s) issued. Failure to comply with the order(s) may result in further enforcement actions by WorkSafeBC.

Other responsible parties

When issuing orders to a faller, the prevention officer will also consider whether the other worksite parties have fulfilled their responsibilities under the *Act* and *Regulation*. For example, the prevention officer will consider whether the faller was properly supervised, whether the employer fulfilled its responsibilities under [section 21](#) of the *Act* and where applicable, whether the prime contractor has fulfilled its responsibilities under [section 24](#) of the *Act*. The prevention officer will also consider any owner/licensee's contractual agreement with a prime contractor and related responsibilities under [section 25](#) of the *Act*. For high risk and repeated contraventions, the prevention officer will also consider whether further enforcement activity is required, e.g., administrative penalty.

Faller performance upgrade training and re-evaluation

A faller who has been issued an order for performance upgrade training is restricted from falling duties until the training plan is complete and a prevention officer has closed the order. The faller needs to initiate the training plan by contacting an administrator of the *BC Faller Training Standard* (refer to OHS Guideline [G26.21/26.22](#)) or by directly contacting a QST. The employer or licensee may be able to help with that contact. The training plan needs to include retraining in the areas documented in the order by the prevention officer, and a *full* re-evaluation by a QST.

The upgrade training will be done by a QST or an industry trainer, using the applicable sections of the *BC Faller Training Standard*. The *full* competency re-evaluation needs to be completed and documented using the Field Examination and Evaluation form. The completed form must be signed by a QST and must include the date of the assessment and the QST Identification Number.

Compliance considerations for WorkSafeBC

Once a faller has completed the performance upgrade training plan, including re-evaluation and competency confirmation, a copy of the signed and dated Field Examination and Evaluation form needs to be sent to the originating prevention officer, along with contact information for the faller and the QST.

Once the faller has successfully completed the compliance expectations (training plan) of the issued order, the prevention officer will create a follow-up inspection report or OtW report documenting compliance with the order. The faller needs to have a copy of the WorkSafeBC follow-up report before resuming falling activities.

Issued May 9, 2014

Regulatory excerptsSection 26.22(2) of the *OHS Regulation* ("*Regulation*") states:

Without limiting subsection (1), faller training must include the following:

- (a) taking basic training in falling trees by working one-on-one with a qualified faller or trainer for a period of not less than 30 days;
- (b) in the presence of a qualified supervisor or trainer, taking a written or oral examination on falling;
- (c) after completion of basic training under paragraph (a) and passing the examination under paragraph (b), working as a trainee faller under the close supervision of a qualified faller or trainer for a minimum period specified in subsection (3).

Section 26.22(7) of the *Regulation* states:

Subsection (2) does not apply to a worker who satisfies all of the following requirements:

- (a) the worker has performed falling duties regularly for at least 2 years before the evaluation under paragraph (b) of this subsection takes place;
- (b) the worker's falling activity is evaluated by a qualified supervisor or trainer and it meets a standard acceptable to the Board;
- (c) in the presence of a qualified supervisor or trainer, the worker passes a written or oral examination on falling;
- (d) the worker is certified in writing as a competent faller by a person acceptable to the Board.

Purpose of guidelineThis guideline addresses the following questions related to the challenge process anticipated by section 26.22(7) of the *Regulation*.

- What are the steps of the challenge process?
- How is "at least 2 years" of experience referenced in paragraph (a) measured?
- When must the "at least 2 years" of experience have occurred?
- What does "performed falling duties" mean?
- Can experienced fallers from one industry use the challenge process to obtain certification in another industry?

Background information

In order for faller training to be acceptable to WorkSafeBC under section 26.22, it must meet the *BC Faller Training Standard*, or another standard that WorkSafeBC has identified as acceptable. Refer to OHS Guideline [G26.21/26.22 Faller training – Application](#) for further details of training acceptable to WorkSafeBC.

Requirements for faller training were originally included in the *Regulation* in 1998. The precursor of the challenge process currently contained in section 26.22(7) was intended as a grandfathering provision to ease implementation of the new training requirements by permitting experienced fallers to avoid the full training program, provided these experienced fallers were able to successfully complete a competency challenge. The full training program was intended for new fallers, or those experienced fallers that could not successfully complete a challenge process.

[Part 26](#) of the *Regulation* was revised and updated in 2008. At that time, the challenge process was retained in section 26.22(7) to permit trained and qualified fallers, including those from other jurisdictions, to avoid having to retrain through the use of the challenge process. As the faller training program had been in place for a number of years, it was not contemplated that the challenge process would continue to apply to experienced but untrained and uncertified fallers within British Columbia, since the skills of any experienced fallers that had not availed themselves of the opportunity to be grandfathered would have deteriorated, and it was considered appropriate that such fallers undertake retraining.

The challenge process is administered through the organizations that administer faller training and certification programs (the "Administrators"). Refer to OHS Guideline [G26.21/26.22 Faller training - Application](#) for further information about the Administrators.

Question 1: What are the steps of the challenge process?

The Administrators will use a challenge process that they have developed. In general, it will include the following steps:

- A check of the credentials of the challenger. The Administrator will need to see evidence that the challenger has an appropriate level of training.
- An initial skills assessment. The Administrator will need to observe the basic skills of the challenger to determine that no one is at risk of injury during the challenge process.
- A written or oral examination on falling, in the presence of a qualified supervisor or trainer.
- A thorough field examination and evaluation of the challenger's competence in falling.

It is necessary to successfully complete all four steps in order to successfully complete the challenge process. A certificate issued to a faller who

has successfully completed the challenge process is indistinguishable from a certificate issued to a faller who has completed the full training program

Notwithstanding that a faller holds a certificate, an employer must ensure that assigned work is within the documented and demonstrated capabilities of the faller (refer also to [section 26.21](#) of the *Regulation*).

Question 2: How is two years of experience measured?

The first issue for clarification is how, given the seasonality and irregular work schedules of typical forestry operations, is the two years of experience calculated for the purposes of section 26.22(7)?

Falling duties must have been performed regularly for at least two years. It is important that falling be conducted for a substantial portion of the available work season in order to be viewed as having been conducted regularly for the two years under consideration.

WorkSafeBC would consider a faller as having performed production falling duties regularly for a minimum of two years in both the forestry and/or the oil and gas industries, if falling duties are conducted for a minimum of 60 days for each of two calendar years.

The faller needs to provide verifiable documentation from his or her employer(s) that states the faller conducted falling duties for the required number of days. Acceptable documentation includes a reference and/or history of employment letter and one or more log books, or equivalent. The log books need to include a detailed training and work history.

Question 3: When must the two years of experience have occurred?

This issue relates to how recent the two years of experience must be. Section 26.22(7) refers to performing falling duties regularly for at least two years before the evaluation. The wording of the section suggests that the two years of experience immediately precedes the evaluation, or at least is relatively proximate to the evaluation. Falling experience well in the past, or that is extremely intermittent, would not constitute duties regularly performed for at least two years before the evaluation.

As section 26.22(7) anticipates relatively uninterrupted experience immediately preceding the evaluation, WorkSafeBC would consider the two years of experience to have occurred in the period directly leading up to the challenge process. Seasonality of the work and other reasonable factors may be taken into consideration by the Administrators when considering the window of opportunity in which the falling duties were carried out before the anticipated challenge date, and that this would be done on a case by case basis with some flexibility. For example, if the two years of falling experience have been acquired over a time period that stretches beyond four years immediately prior to the date of challenge, it should not be considered current experience.

The challenge process is intended to permit fallers already working, with current skills, to continue to work provided they can confirm their competency. It is not intended to permit workers with past or inconsistent experience to re-enter the industry without completing the full faller training program.

Question 4: What does "performed falling duties" mean?

Section 26.22(7) states that the falling duties must have been performed regularly for at least two years.

The faller needs to have conducted manual tree falling as his or her primary function, with the predominant portion of each of the required number of days being composed of manual tree falling and related duties. Manual tree falling and related duties would include the following:

- Planning and constructing escape routes
- Dealing with dangerous trees
- Bucking felled trees and logs
- Establishing minimum and maximum distances between fallers and other workers
- Summoning and rendering assistance to manage a falling difficulty or dealing with an emergency
- Controlling the fall of trees
- Minimizing unnecessary brushing
- Using mechanical assistance to fall trees
- Ensuring the well-being of each faller and buckler

The primary focus needs to be the actual falling activity.

Question 5: Can experienced fallers from one industry use the challenge process to obtain certification in another industry?

Section 26.22(7) permits fallers with recent experience to undertake the challenge process, so that those fallers who have recent skills and training are able to continue working without being put through the time and expense of a full faller training program. Fallers from within British Columbia or elsewhere that do not have the necessary recent training or experience are excluded from this process.

The limitations on proceeding through the challenge process contained in section 26.22(7) do not restrict fallers within one industry from challenging the evaluation to become qualified in another, provided the challenge process is in an industry subject to section 26.22 – that is, it relates to falling in a forestry operation and is training acceptable to WorkSafeBC, applying the *BC Faller Training Standard*.

There is no limitation on having performed falling duties within a specific industry or of a specific type. Provided they are qualified in an industry

governed by section 26.22 applying the *BC Faller Training Standard*, fallers can challenge the evaluation offered by Administrators in another industry. For example, production fallers may challenge through the oil and gas certification Administrator, and fallers from oil and gas may challenge the requirements through the production faller Administrator, though arborists, parks workers, or workers in agricultural operations are not entitled to use the challenge process to become qualified fallers in a forestry operation. In such circumstances WorkSafeBC prevention officers would view these certifications as invalid and non-compliant with sections 26.22 and 26.21.

Occupations such as arborists, parks workers, and agricultural workers may involve falling of trees, but do not generally involve regular performance of falling duties for the purpose of satisfying the challenge requirements. Other occupations may also fall into this category and be deemed ineligible to challenge the faller training requirements as determined by the Administrator of *BC Faller Training Standard* and Faller Certification on a case by case basis.

It is important to note that section 26.21 still limits the ability of the faller who has successfully challenged the evaluation to fall trees not only to the faller's "documented" capabilities, but also to the faller's "demonstrated" capabilities. Successfully challenging the evaluation under section 26.22(7) means the faller has met a minimum standard, and meets the competencies in the *BC Faller Training Standard*. However, the employer still needs to ensure the faller is capable of undertaking the specific work the employer has hired that faller to do.

Summary

Section 26.22(7) permits fallers who have performed falling duties regularly for at least two years before the evaluation to challenge a competency evaluation and avoid completing full faller training. Two years of experience means 60 days in each of two calendar years for oil and gas fallers, as well as for production harvesting fallers. The two years of experience must be reasonably contiguous with the date of the evaluation. The faller must have been primarily engaged in duties associated with falling trees during that time. Fallers that challenge the requirements must have training that is acceptable to WorkSafeBC, meaning it meets the requirements of the *BC Faller Training Standard*.

While the challenge process is available to fallers with current experience from outside of British Columbia, and to fallers with current experience in industries governed by Part 26, the challenge process is not available to fallers with less recent experience, or in industries that are not "forestry operations and similar activities" and which may have qualifications, but not qualifications covered by section 26.22.

G26.28 Summoning qualified assistance

Issued June 26, 2014; Editorial Revision May 31, 2021

Regulatory excerpt

Section 26.28 of the *OHS Regulation* ("*Regulation*") states:

(1) Qualified assistance must be readily available to fallers in case of difficulty, emergency or injury.

(2) Fallers and buckers must have an effective means to summon assistance.

Sections 26.23(2)(h) and (j) of the *Regulation* state:

(2) Fallers and buckers associated with falling activities must be provided with and follow written safe work practices acceptable to the Board for the type of work activity they perform, including procedures for the following:

(h) summoning and rendering assistance to manage a falling difficulty or to deal with an emergency;

(j) ensuring the well-being of each faller and buckler at least every half hour and at the end of the work shift.

Purpose of guideline

The intent of section 26.28 of the *Regulation* is to ensure fallers have qualified assistance readily available and have an effective means of summoning that assistance. This guideline provides an explanation of some of the terms used in the regulatory requirements.

Difficulty, emergency, or injury

The *Regulation* requires that assistance be readily available for situations of difficulty, emergency, or injury. In the context of this section, these terms have the following meanings:

Difficulty — A difficult situation for a faller is one where advice or assistance is needed before work can proceed but the situation is not urgent.

Emergency — An emergency for a faller is a situation where urgent action is required to prevent or control a hazard or otherwise allow a quick return to normal operations. There is usually less time for planning in an emergency. An example would be when a windstorm has caused blocked egress from the bush.

Injury — Any incident requiring first aid service.

Qualified assistance

Part 1 of the *Regulation* defines "qualified" as being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience, or a combination thereof.

In section 26.28(1), "Qualified assistance" means a person(s) capable of effectively helping or advising and assisting a faller. The qualifications necessary to advise or assist will differ depending on whether the need is because of difficulty, emergency, or injury. In the case of a falling

difficulty, another certified faller or qualified falling supervisor may be necessary to provide advice or assistance, whereas a person with first aid certification will be required in the case of injury. The required response times will also depend on the assistance required. First aid and emergency assistance usually need to be available more quickly than assistance to resolve a falling difficulty.

Guidance on the timeliness of first aid response can be found in OHS Guideline [G3.18\(2\) Availability of a first aid attendant](#). Required response times for qualified assistance regarding falling difficulties and dangerous tree scenarios can be different from first aid response. Resolution of these situations may take some time and does not necessarily require having someone immediately available for assistance if the hazard to workers is controlled during the wait period e.g., for a dangerous tree, the faller follows the process of marking the hazard area, informs the supervisor and any affected workers, and stays out of the area until a resolution is planned. Qualified assistance may then come from another faller, a qualified falling supervisor, a machine operator, etc.

In some ground skidding operations, single fallers are watched by machine operators. This may provide acceptable access to qualified assistance as long as all the necessary assistance is available e.g., if the machine operator is a first aid attendant, is able to readily observe the faller, drive right up and use the machine to rescue or assist the faller, and evacuation is not exceptionally difficult. This is not the case in most cable yarding operations on steep ground, as mobile equipment cannot usually access the falling area. In this case, the required assistance for a faller would be from another faller or qualified falling supervisor.

In steep logging operations, the only person that can effectively assist a faller in case of difficulty, emergency, or injury, is another faller or another worker who has equivalent skills. If, for instance, a faller is pinned by a log or tree, rescue can usually only be accomplished by someone who knows how to assess falling hazards and can buck the worker out. An occupational first aid attendant, machine operator, etc., may not be trained to do this.

Regardless of the means utilized by the employer to make assistance readily available, the person providing the assistance must:

- Be available to be summoned.
- Have an effective method of being summoned.
- Be prepared, equipped, and able to promptly render first aid. Prompt provision of first aid service means the first aid attendant can reach injured workers within 10 minutes. Refer to OHS Guideline G3.18(2).
- Know the faller's location.
- Be trained in the requirements of safely approaching and obtaining permission to enter the hazard area (two tree lengths).

Falling partner system

In practice, fallers often rely on a "falling partner system" for the required assistance. A partner system is an arrangement whereby two fallers are positioned in work areas such that they can readily attend and assist each other. In this system, each faller has a designated falling *partner*. More than two fallers may be included in this arrangement provided that each faller has the same access to assistance as if attended by a single designated *partner*.

The fallers' work areas must be arranged to provide sufficient room for them to be clear of the area within a two-tree length radius of the trees being felled, as required by section [26.24\(1\)](#) of the *Regulation*.

In this system, each faller has a knowledgeable and capable worker (qualified assistance) within beckoning distance to offer advice in case of difficulty and assistance in case of emergency. Accident investigations have resulted in recommendations that the injured faller should have called his *partner* over to help with a difficult or dangerous situation. This call is unlikely to happen if the only assistance available is a grade excavator operator (requiring a means of contact, caulk boots put on, etc.) or a faller at another helipad (requiring a means of contact, a helicopter to pick him up and take him to the pad, find his way to the falling site. etc.). Thus, relying on the grade operator in this example does not meet the requirement for qualified assistance.

A *partner system* would be an appropriate choice for the following:

- Work in steep areas
- Falling timber under conditions that may result in the need for advice or assistance which can only be provided by another experienced faller
- Work in areas where the faller could be pinned by rolling logs or falling trees, and cannot readily be reached by equipment capable of freeing them

At the faller's location, the *partner* must do the following:

- Be able to affect rescue if required. If, for instance, a faller is pinned by a log or tree, rescue can usually only be accomplished by another faller or someone who can assess and mitigate imminent danger, obtain a chain saw if the faller's is not available, judge pivot points, position, and use wedges, and otherwise be able to buck the faller out without aggravating the situation.
- Be able to slash a path for evacuation, if required.
- Have sufficient knowledge to discuss a falling or bucking difficulty or emergency, and help plan strategy.
- Be able to assist in overcoming the difficulty or emergency.

Workers other than certified fallers may be a *partner* only if they can provide equivalent level of assistance and fulfill the other requirements of the *Regulation*.

No falling partner

There is no regulatory requirement for an employer to utilize a *partner system* to provide the necessary qualified assistance. Subject to the criteria

explained above in this guideline, a system utilizing qualified assistance from other than another faller in proximity may satisfy the regulatory requirements where the faller is in the following:

- In an easily accessible location
- Able to safely wait for assistance, mark the hazard area, and inform others of the hazard
- Performing work in areas where, if the worker could be struck by or pinned by rolling logs or falling trees, the worker could readily be reached by a qualified person(s) or equipment capable of providing the required assistance
- The only faller employed at the operation
 - has another qualified person available to provide emergency services
 - another faller or qualified falling supervisor can be brought in to assist in overcoming falling difficulties

Safe work practices and procedures

The documented falling plan required by section [26.2](#) of the *Regulation* needs to include provision for qualified assistance.

For example, section 26.23(2)(h) requires that fallers and buckers be provided with and follow written procedures specifying the means of summoning and rendering assistance in case of falling difficulty or emergency. The procedures will need to address all three areas — falling difficulty, emergencies, and injury.

Section 26.23(2)(i) requires that fallers and buckers be provided with and follow written safe work procedures for ensuring the well-being of each faller and bucker at least every half hour and at the end of the work shift. The written procedures must specify the nature and timing of the checks.

Summoning assistance

Section 26.28(2) requires that fallers and buckers have an effective means of summoning assistance. The means will depend upon the circumstances. Many fallers use a radio. A whistle, although sometimes not as effective as other methods, is fairly reliable, is the minimum means, and should be available to all fallers. The whistle needs to be checked periodically and should be fastened in a location that will allow the faller to blow it even if his arms are pinned. Note that a "pea" whistle may not be effective in areas where the "pea" can freeze.

In a situation where an equipment operator provides qualified assistance, a whistle is not likely to be an acceptable means of summoning assistance due to the noise levels of the equipment and the airtight nature of many cabs.

Guidelines Part 26 - Traffic control for falling operations

G26.30 Traffic control when falling a tree

Issued July 15, 2019; Editorial Revision October 28, 2019

Regulatory excerpt

Section 26.30 of the *OHS Regulation* ("*Regulation*") states:

If, in any type of falling activity, a tree being felled may create a hazard to a user of a road, effective traffic control must be used to stop or control approaching traffic.

Purpose of guideline

The purpose of this guideline is to provide guidance on when effective traffic control is required if a tree is being felled in an area that may create a hazard to a road user.

Determining when effective traffic control is needed

Section 26.1 of the *Regulation* defines the active falling area as a 2-tree length radius of where a faller or mechanized falling equipment is located to fall a tree. For the purposes of section 26.30, a hazard is deemed to be present within this falling area, or when a roadway passes within 2-tree lengths of the tree being felled.

Guidelines Part 26 - Yarding

G26.41 Guylines

Issued May 1, 2008

Regulatory excerpt

Section 26.41 of the *OHS Regulation* states:

- (1) Guylines for a mobile yarder must be positioned
 - (a) as specified by the manufacturer, or
 - (b) in a manner acceptable to the Board.

...

Purpose of guideline

The purpose of this guideline is to describe the positioning of guylines for mobile yarders that is acceptable to WorkSafeBC.

Guyline positioning

Unless otherwise specified by the manufacturer, guylines for mobile yarders must be positioned as shown in the diagrams below.

Figure 26-1 Positioning guylines for mobile yarders

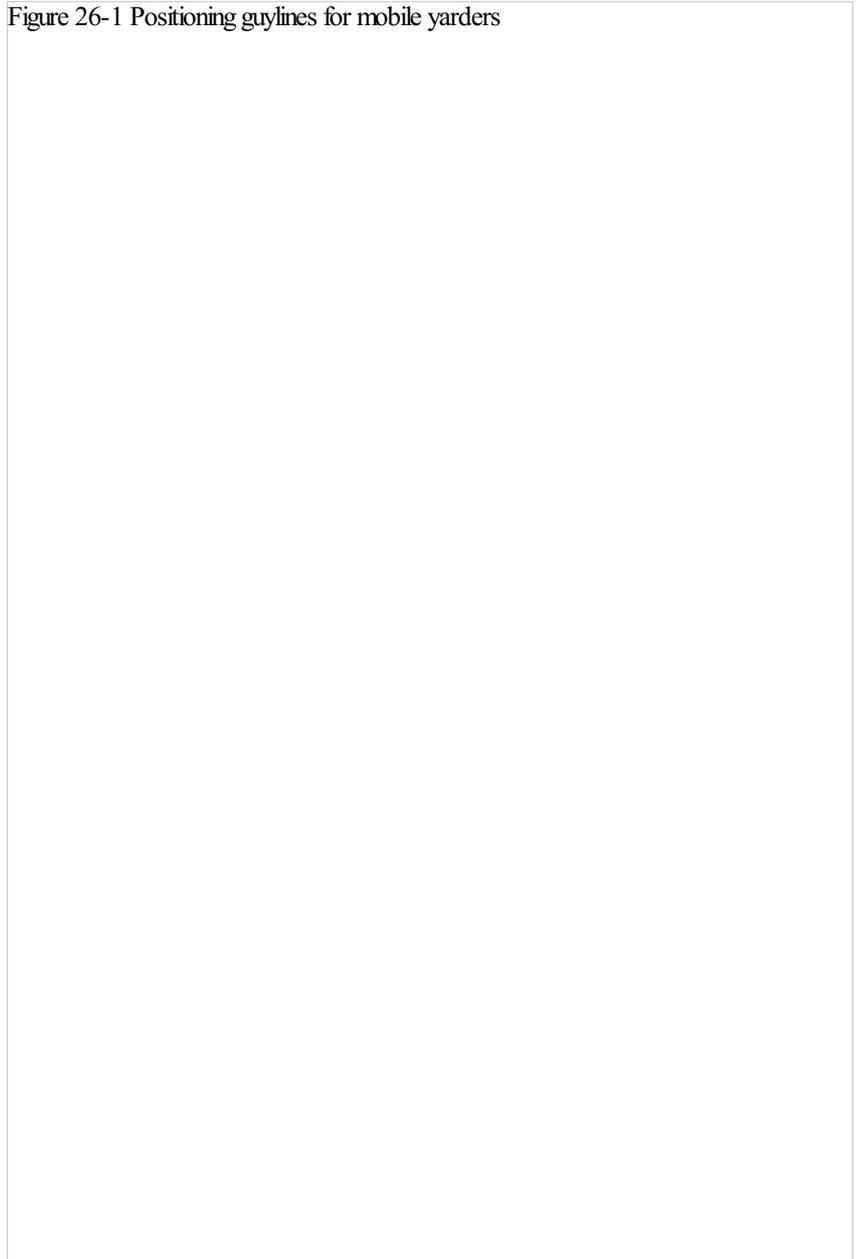


Figure 26-1 (Continued) Positioning guylines for mobile yarders

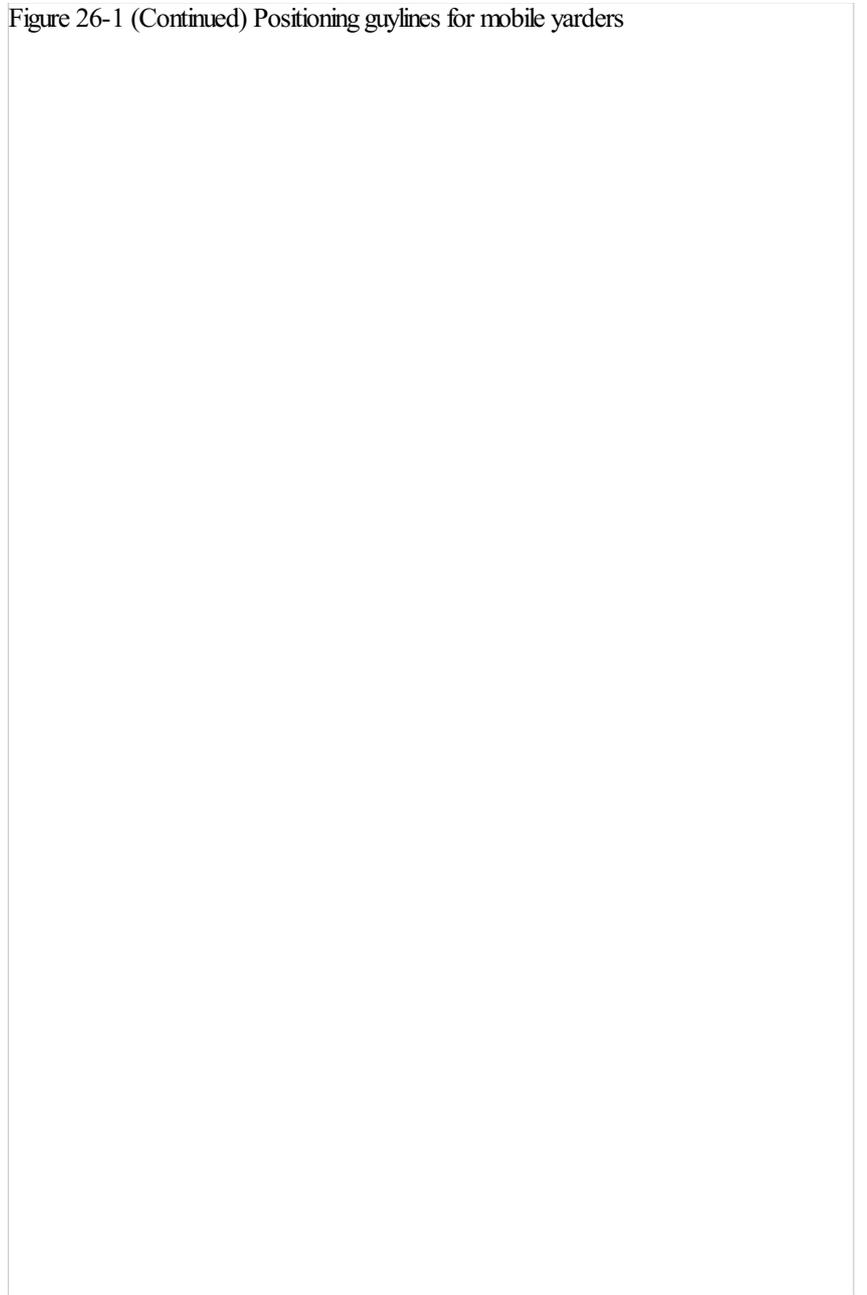
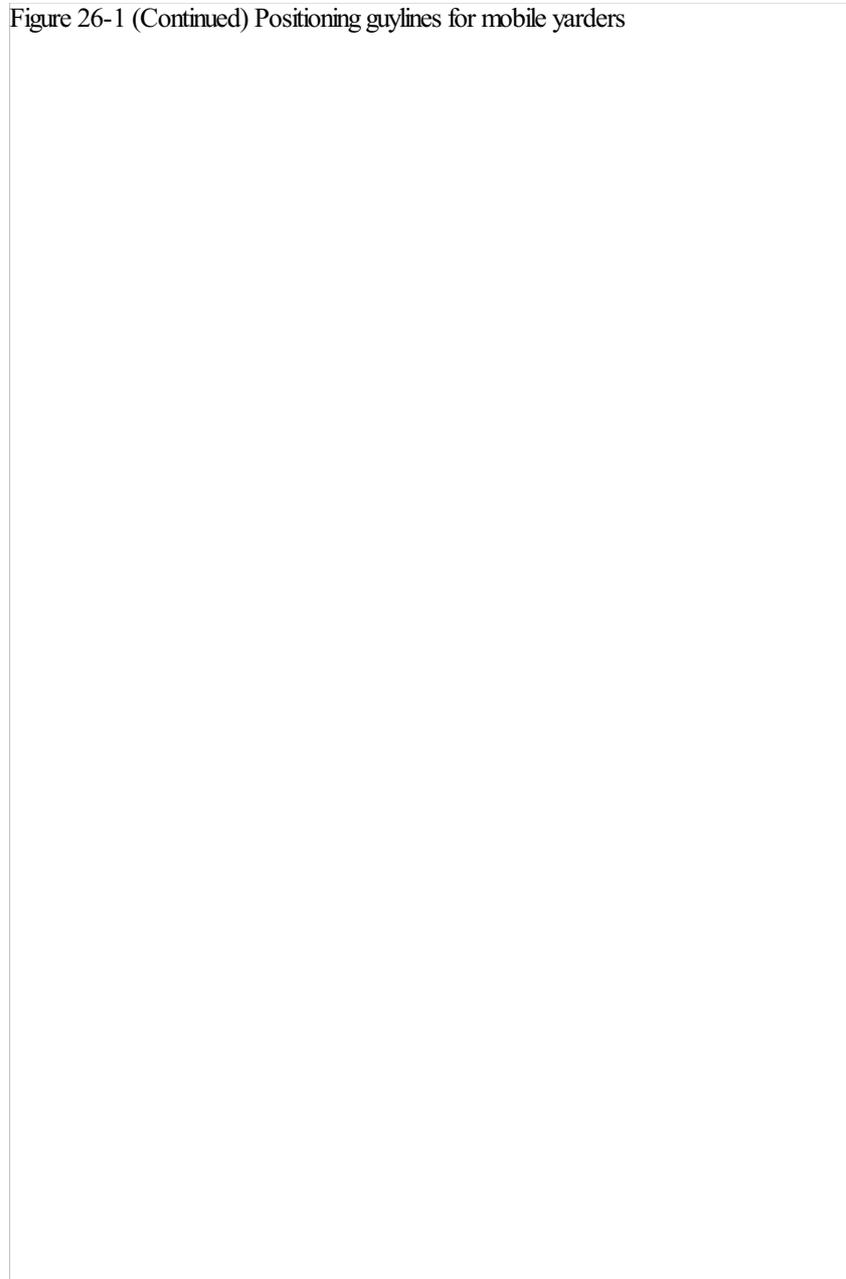


Figure 26-1 (Continued) Positioning guylines for mobile yarders



Guidelines Part 26 - Hauling

G26.65 Determining cab guard compliance

Issued August 4, 2015

Regulatory excerpt

Section 26.65 of the *OHS Regulation* ("*Regulation*") states, in part:

(1) In this section:

"cab guard" means a barrier guarding the back of the cab of a log transporter;

"certified welding inspector" means a person who is certified as a Level 2 or Level 3 welding inspector in accordance with *CSA Standard W178.2-08 (R2013), Certification of Welding Inspectors*;

"rated capacity", in relation to a cab guard, means the maximum cargo weight that may be transported by the log transporter and shift and contact the cab guard such that the cab guard is capable of withstanding a horizontal forward static load equal to 40% of that cargo weight, with this load uniformly distributed over the entire cab guard.

(2) For the protection of the driver of a log transporter, the log transporter must have a cab guard that meets all of the following requirements:

(a) subject to subsection (3), the cab guard is at least 15 cm (6 in) higher than the cab;

(b) the cab guard is at least as wide as the cab;

(c) the cab guard has no opening large enough to permit any item of cargo to pass through it;

(d) the cab guard is

(i) constructed with a main supporting structure made of steel, or

(ii) certified by a professional engineer as having a main supporting structure designed and constructed so that vibration and distortion generated by use of the log transporter cannot damage the cab guard;

(e) the cab guard is installed in a manner that ensures that the rated capacity of the cab guard is not diminished.

(3) The cab guard of a self-loading log transporter may be less than the height specified in subsection (2)(a) but must not be less than the cab height.

...

(6) A log transporter must be removed from service if there are any cracks, damage or other conditions that will decrease the rated capacity of the cab guard of the log transporter.

(7) A log transporter removed from service under subsection (6) must not be returned to service until

(a) the cab guard is

(i) repaired, and

(ii) inspected and certified to meet the rated capacity by the manufacturer, a professional engineer or a certified welding inspector, or

(b) the cab guard is replaced by a cab guard that meets the requirements of this section.

(8) The cab guard of a log transporter must be

(a) permanently marked with

(i) the name and address of its manufacturer,

(ii) the model number or serial number of the cab guard, and

(iii) the rated capacity of the cab guard, or

(b) identified by carrying in the log transporter a copy of a letter that

(i) accurately describes the barrier cab guard,

(ii) certifies the model number or serial number of the barrier cab guard and the rated capacity of the cab guard, and

(iii) has been signed by the manufacturer or a professional engineer.

Purpose of guideline

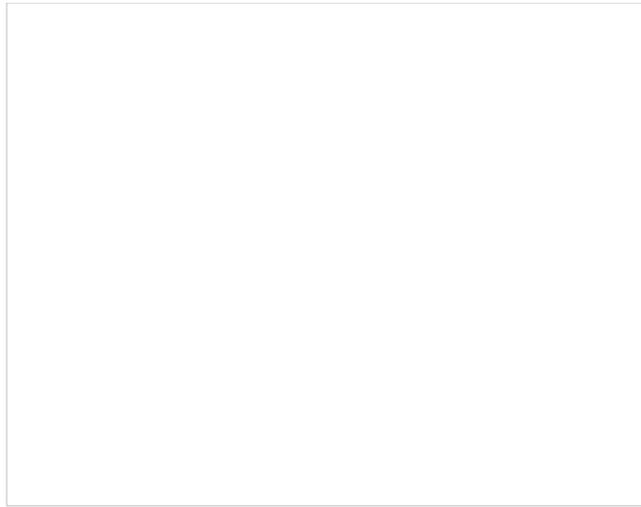
The purpose of this guideline is to assist workplace parties in determining whether a cab guard complies with section 26.65 of the *Regulation*. This includes the method of determining cab guard height and width and when aluminum may be used. The guideline also discusses WorkSafeBC's approach to cab guards that are not compliant with certain requirements of section 26.65.

Cab guard height

The purpose of a cab guard is to create a life space for a driver and passenger in the event that the logs shift towards the cab. The cab guard should absorb the load and allow logs to travel over the top of the driver and passenger areas. In order to do so, the cab guard must be 15 cm taller than the cab area of the log transporter under section 26.65(2)(a), or as tall as the cab area for a self-loading log transporter under section 26.65(3).

When the cab guard requirement was introduced in 1941, log transporter cabs had flat roofs. For these vehicles, cab height could be easily measured at the back of the cab roof, thus ensuring the cab guard protected the driver and passenger areas. This traditional measure, shown in *Diagram 1: Traditional cab measure*, remains an acceptable method of compliance with sections 26.65(2)(a) and 26.65(3).

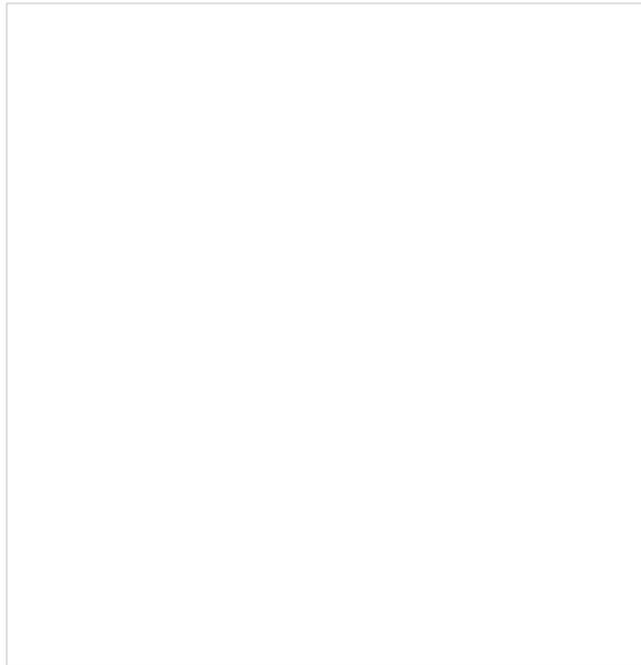
Diagram 1: Traditional cab measure

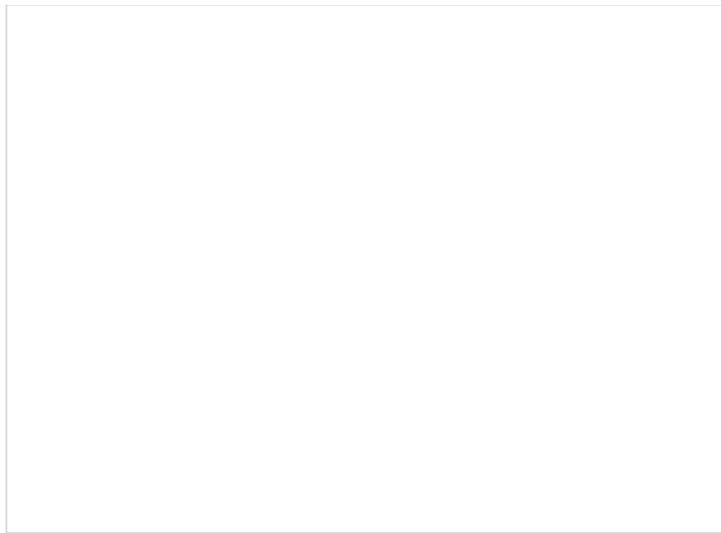


In recent decades, a number of developments in the design of log transporters, including sloped roofs, sleeper compartments, and air foils, have made the traditional measure difficult for some vehicles. To recognize these changes, WorkSafeBC accepts other measures of cab height. These alternative measures, like the traditional measure, must ensure that the driver and passenger area in a moving log transporter are protected. This requires determining the maximum height that the driver or passenger's head can be during normal driving.

In most log transporters, the interior ceiling immediately above the driver may be used to determine cab height. This point marks the maximum height that a person's head can be while the log transporter is in motion, regardless of seat positioning. Measures of this point can be taken from the floor of the cab. For example, in many cabs, the space from the floor of the cab to the ceiling above the driver will be 147 cm (58 in). This alternative measure is shown in *Diagram 2: Interior ceiling cab measure*.

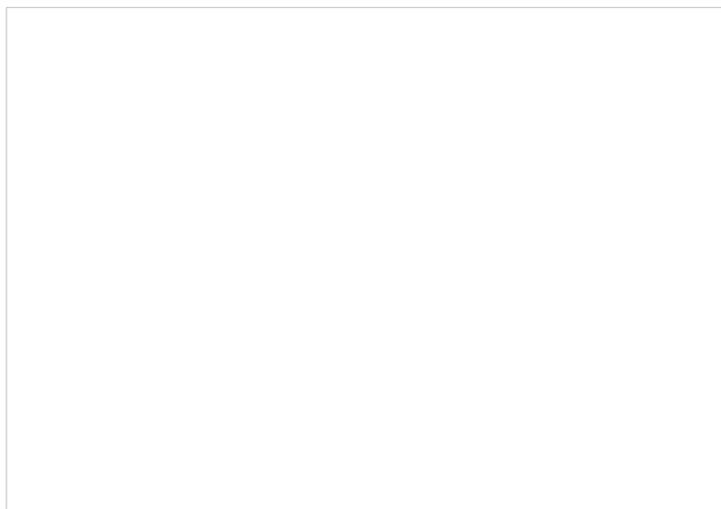
Diagram 2: Interior ceiling cab measure





In some log transporters, the top of the windshield will also be an acceptable measure of cab height. This is only the case where the driver and passenger's heads will be located below the top of the windshield regardless of seat positioning. This alternative measure is shown in *Diagram 3: Windshield cab measure*.

Diagram 3: Windshield cab measure



The cab does not include components that have been added to the exterior of the vehicle or behind the cab and are not intended to be occupied while the log transporter is in motion. Typical items that are not included in the cab for purposes of measuring height include the following:

- Exhaust stacks
- Lights
- Horns
- Air dams/wind deflectors that are not structurally integrated into the roof
- Sleeper compartments

The top of the cab guard will ordinarily be measured from the top structural cross-bar that extends across the entire width of the cab guard.

Cab guard width

In addition to extending 15 cm above the cab, cab guards must also be as wide as the cab. This means the cab guard must be as wide as the driver and passenger area. Items that are located outside the driver and passenger area do not form part of the cab for the purposes of measuring width.

Items that would typically not be included in width measurements include the following:

- Driver and passenger side mirrors
- Exhaust stacks
- Wheel fenders
- Steps or handles used to assist in getting into the cab

Use of aluminum in cab guards

Section 26.65(2)(d) requires that the main supports of the cab guard are either made of steel or have been certified by an engineer as being designed and constructed so that vibration and distortion will not damage the cab guard.

Aluminum distorts when exposed to the typical conditions of log transporting, significantly reducing its rated capacity and ability to withstand loads placed upon it. Accordingly, many aluminum cab guards may not be able to comply with section 26.65(2)(d). While section 26.65(2)(d) does

permit materials other than steel to form the main supports, the intention of this option is to allow for advances in materials that perform equal or better than steel with regard to exposure to vibration and distortion. This may allow supporting structures made of materials other than aluminum or steel, or combinations of aluminum and steel. Before any supporting structure that is not all steel is acceptable, an employer must obtain an engineering certificate confirming that the structure will withstand vibration and distortion without damage.

Aluminum may be used to form other parts of the cab guard. For example, aluminum may be used to enclose the space between the supporting structure's frame, ensuring that there are no openings large enough to allow a log to pass through the cab guard.

All cab guards, regardless of the material used, must have a rated capacity. This may be determined by the manufacturer, or certified by a professional engineer.

Bringing cab guards into compliance

Where a cab guard does not comply with one or more of the requirements in sections 26.65(2)(a) to 26.65(2)(d), but is of sufficient condition to nonetheless provide protection to the driver in the event of a rapid deceleration or shifting of the load, WorkSafeBC prevention officers will not write the log transporter out of service. Instead, prevention officers will require the employer to provide a compliance plan, outlining the steps that the employer will take to correct the non-compliance. For example, where the cab guard does not comply with the height, width, or size of opening requirement (sections 26.65(2)(a) through (c)), steps an employer may take to come into compliance may include the following:

- Obtaining a retrofitting kit from the manufacturer and installing it as per the manufacturer's instructions
- Having the cab guard modified as per the instructions of a professional engineer
- Replacing the cab guard

Where a cab guard does not comply with the requirement to be made of steel supporting structures, or otherwise certified by an engineer to withstand vibration and distortion (section 26.65(2)(d)), steps will be as follows:

- Obtaining certification from a professional engineer that the supporting structure is capable of withstanding vibration or distortion
- Replacing the cab guard

Prevention officers will provide employers with a reasonable amount of time to identify the steps the employer will take to bring the particular cab guard into compliance. This amount of time will take into account the particular issues identified by the prevention officer, and the time it would take to consider the applicable options to correct those issues. Once the steps are identified, prevention officers will similarly provide employers with sufficient time to implement the required changes.

Removing log transporters from service

Section 26.65(6) requires an employer to remove a log transporter from service anytime there are cracks, damage, or other conditions that will decrease the rated capacity of the cab guard. Employers are not required to remove log transporters from service where the deficiency in the cab guard will not affect the cab guard's rated capacity. Where an employer is uncertain about whether a deficiency affects rated capacity, the employer should obtain a second opinion. This may include consulting with the manufacturer or a professional engineer. Further, where the manufacturer specifies types of deficiencies that will require removal from service, the employer may use this information as a guide.

Deficiencies that will typically affect rated capacity and warrant removing the log transporter from service include the following:

- Observable cracks, damage, or holes cut into the main structural supports
- Observable cracks or damage in the welds on the main structural supports
- Inadequate connections between the cab guard and the truck frame

Lesser deficiencies that will not affect rated capacity should be promptly addressed by the employer, but will not require the employer to remove the log transporter from service. Prevention officers, when inspecting cab guards, will work with the employer to assess whether or not any identified deficiencies require the log transporter to be removed from service. Where the deficiency clearly affects rated capacity, the prevention officer will likely require the log transporter to be removed from service. In other instances, the prevention officer will work with the employer to set out a reasonable amount of time for the employer to correct the deficiency.

Returning log transporters to service

Where a log transporter is removed from service, either by the employer or by a prevention officer, the employer may either replace the cab guard or repair the deficiencies. If the employer repairs the deficiencies, section 26.65(7) requires the employer to have the repairs inspected and certified as meeting the cab guard's rated capacity. This inspection and certification may be done by the manufacturer, a professional engineer, or a certified welding inspector.

In many cases, it may be difficult for employers to have the manufacturer, a professional engineer, or a certified welding inspector inspect the repairs in person. Accordingly, it is acceptable for the inspection to take place remotely. This may be done by providing the individual doing the inspection with all the necessary information, including photos and descriptions of the work that was done, for the individual to inspect the equipment. Whether or not the particular inspection can be done remotely, and what information is necessary to conduct the inspection, is a decision to be made by the individual performing the inspection.

Where the repair was to a defect that did not affect rated capacity, and therefore did not require removing the log transporter from service, the repair does not need to be inspected and certified under section 26.65(7).

Off-highway log transporters

Some heavy-duty, off-highway log transporters are equipped with a steel water tank behind the cab. This water tank supplies water to the brakes as a coolant. WorkSafeBC is presently working with industry and engineering firms to determine how section 26.65 applies to these vehicles.

G26.65(1) Certified welding inspector — Alternate standards

Issued consequential to February 1, 2015 Regulatory Amendment; Editorial Revision May 31, 2021

Regulatory excerpt

Sections 26.65(1) of the *OHS Regulation* ("Regulation") states, in part:

(1) In this section:

...

"certified welding inspector" means a person who is certified as a Level 2 or Level 3 welding inspector in accordance with *CSA Standard W178.2-08 (R2013), Certification of Welding Inspectors*;

...

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

The purpose of this guideline is to specify, in the case of section 26.65(1) of the *Regulation*, alternative standards acceptable to WorkSafeBC for the certification of a welding inspector.

Background information

Section 26.65(1) of the *Regulation* requires that a certified welding inspector be certified as a Level 2 or Level 3 welding inspector in accordance with *CSA Standard W178.2-08 (R2013), Certification of Welding Inspectors* ("2008 Standard").

Section 4.4(2)(a) permits WorkSafeBC to accept another standard as an alternative standard.

**Acceptable alternative standards
Canadian Standards Association (CSA)**

WorkSafeBC has determined that *CSA Standard W178.2-14, Certification of Welding Inspectors* ("2014 Standard") is an acceptable alternative to the 2008 Standard referenced in section 26.65(1).

The 2014 Standard is the sixth edition of *CSA W178.2, Certification of welding inspectors*. *CSA Standard W178.2* is a certification standard for welding inspectors which states requirements for skills, competence, work experience, professional ethics, and physical requirements. *CSA Standard W178.2* also states criteria for issuing, maintaining, and revoking certified welding inspector certification. The Canadian Welding Bureau ("CWB") is stated within the body of *CSA Standard W178.2* as the sole administrator of this standard.

The CWB administers welding inspector certification according to the latest version of *CSA Standard W178.2*. The 2014 Standard differs from the 2008 Standard around qualified supervision, experience and training, code of ethics, examinations, and, re-certification requirements.

G26.65(2)(e) Installing the cab guard on the log transporter in a manner acceptable to WorkSafeBC

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 26.65(2) of the *OHS Regulation* ("Regulation") states:

(2) For the protection of the driver of a log transporter, the log transporter must have a cab guard that meets all of the following requirements:

(a) subject to subsection (3), the cab guard is at least 15 cm (6 in) higher than the cab;

(b) the cab guard is at least as wide as the cab;

(c) the cab guard has no opening large enough to permit any item of cargo to pass through it;

(d) the cab guard is

(i) constructed with a main supporting structure made of steel, or

(ii) certified by a professional engineer as having a main supporting structure designed and constructed so that vibration and distortion generated by use of the log transporter cannot damage the cab guard;

(e) the cab guard is installed in a manner that ensures that the rated capacity of the cab guard is not diminished.

Section 4.3(2) of the *Regulation* states:

Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out

(a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or

(b) as specified by a professional engineer.

Purpose of guideline

The purpose of this guideline is to provide direction about acceptable installation of a cab guard on a log transporter under section 26.65(2)(e).

Installation in a manner acceptable to WorkSafeBC

WorkSafeBC considers any one of the following methods to be acceptable in meeting the requirements for installing a cab guard of the log transporter under section 26.65(2)(e):

- One of
 - The cab guard of the log transporter is installed in accordance with the manufacturer's instructions and any standard the cab guard is required to meet (refer to section 4.3(2)(a) of the *Regulation*)
 - The cab guard of the log transporter is installed as specified by a professional engineer (refer to section 4.3(2)(b) of the *Regulation*)
- The fasteners for attaching the cab guard should be not less than grade 5 and not more than grade 8 quality.
- The cab guard of the log transporter carrying a load of logs weighing up to 84,000 lbs (38,100 kg) is installed so that each cab guard will, at a minimum, be attached to the log transporter by the equivalent of two 7/8 or 1 inch UNF grade 8 bolts (rods) with substantial tie straps. This is preferable to the use of U-bolts. The fastener's torque must meet the manufacturer's specifications. A spacer is often installed in the open section of the tractor C frame to help support the required torque.
- The cab guard of the log transporter carrying a load of logs weighing up to 84,000 lbs (38,100 kg) is installed so that each cab guard will, at a minimum, be attached to the log transporter by the equivalent of one of the following:
 - Six 3/4 inch grade 8 bolts on each side, three of which must be separated by approximately 5.5 inches starting from about 2 inches from the end at the front and rear of the 34-38 inch angle iron sill
 - Two 1 inch grade 8 U-bolts with bottom plates on each side, one at the front and one at the rear of the 34-38 inch sill or sub frame
 - Four 3/4 inch grade 8 bolts and one 1 inch grade 8 U-bolt on each side (U-bolt at the back towards the trailer)
 - Three 7/8 inch grade 8 U-bolts on each side (two U-bolts in the back and one at the front of the barrier)
- Also, when attaching the cab guard using U-bolts as described above
 - The fastener's torque must meet the manufacturer's specifications. A spacer is often installed in the open section of the tractor C frame to help support the required torque
 - The bend radius between the inside of the legs and the inside of the top of the bolt must be at least 3/4 inches
 - The U-bolt must closely fit the clamped components to avoid corner bending

Under [section 4.8\(2\)\(b\)](#) of the *Regulation*, if the cab guard attachment system has been modified in a manner which will change its rated capacity or rated load, the rated capacity or rated load must be certified by a professional engineer. Unauthorized modification may lead to equipment failure and operator injury.

G26.65(4) Log transporters pulling multiple trailers

Issued May 17, 2006; Editorial Revision May 1, 2008; Revised consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Sections 26.65(1), (2), and (4) of the *OHS Regulation* ("*Regulation*") state:

(1) In this section:

"*cab guard*" means a barrier guarding the back of the cab of a log transporter;

"*certified welding inspector*" means a person who is certified as a Level 2 or Level 3 welding inspector in accordance with *CSA Standard W178.2-08 (R2013), Certification of Welding Inspectors*;

"*rated capacity*", in relation to a cab guard, means the maximum cargo weight that may be transported by the log transporter and shift and contact the cab guard such that the cab guard is capable of withstanding a horizontal forward static load equal to 40% of that cargo weight, with this load uniformly distributed over the entire cab guard.

(2) For the protection of the driver of a log transporter, the log transporter must have a cab guard that meets all of the following requirements:

(a) subject to subsection (3), the cab guard is at least 15 cm (6 in) higher than the cab;

(b) the cab guard is at least as wide as the cab;

(c) the cab guard has no opening large enough to permit any item of cargo to pass through it;

(d) the cab guard is

(i) constructed with a main supporting structure made of steel, or

(ii) certified by a professional engineer as having a main supporting structure designed and constructed so that vibration and distortion generated by use of the log transporter cannot damage the cab guard;

(e) the cab guard is installed in a manner that ensures that the rated capacity of the cab guard is not diminished.

(4) The weight of cargo that is being transported by a log transporter and that may shift and contact the cab guard must not exceed the rated capacity of the cab guard.

Purpose of guideline

This guideline provides direction on how to calculate the weight of cargo being transported by a log transporter that may shift and contact the cab guard to determine the strength of the cab guard required under section 26.65(4).

Calculation of the weight of cargo being transported that may shift and contact the cab guard

Under section 26.65(4) of the *Regulation*, the weight of the cargo being transported that may shift and contact the cab guard must not exceed the rated capacity of the cab guard. When log transporters are pulling multiple trailers the cargo being transported may be carried on a second, and possibly a third trailer. Generally, the following is used to determine whether the weight of the trailers may shift and contact the cab guard:

- 100% of the load directly behind the bulkhead is considered to be able to shift and contact the cab guard
- 50% of the second trailer's load is considered to be able to shift and contact the cab guard
- 25% of the third trailer's load is considered to be able to shift and contact the cab guard

Calculating the rated capacity of the cab guard required under 26.65(4)

In order to calculate the strength of the cab guard, the rated capacity of the cab guard must withstand at least 40% of the load directly behind the driver, plus one half of 40% of the load in the second trailer, plus one quarter of 40% of the load in the third trailer.

Note: These calculations assume the following:

- The load is uniformly distributed and there is not a point load
- The overall length of truck tractors and semi-trailers does not exceed the requirements of the *BC Commercial Transport Regulations*, B.C. Reg. 30/78 as amended

Example

Consider a total load of 100 tons with 50 tons directly behind the barrier and 25 tons on each of two attached trailers. The barrier needs to have a horizontal static load rating of: $0.4 \times 50 \text{ tons} + 0.4 \times 0.5 \times 25 \text{ tons} + 0.4 \times 0.25 \times 25 \text{ tons} = 27.5 \text{ tons}$

G26.65(4)(b) Installing the barrier on the logging truck in a manner acceptable to WorkSafeBC

Issued May 17, 2006; Editorial Revision May 1, 2008; Withdrawn consequential to February 1, 2015 Regulatory Amendment

G26.68 Binder cinches

Issued March 5, 2013; Retired consequential to December 1, 2021 Regulatory Amendment

The guideline is being retired as it is no longer needed.

G26.69(2)(c) Safe work procedures for the use of a removal station

Issued August 1, 2013; Preliminary Revision consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 26.69 of the *OHS Regulation* ("*Regulation*") states:

(1) In this section, "removal station" means a structure that is designed to protect a person from being struck by logs, log chunks or debris falling off a log transporter when

(a) a wrapper or tiedown installed on a log load is removed, or

(b) a stake securing logs on a log transporter is released.

(2) The following activities must be conducted in accordance with written safe work procedures prepared by a qualified person:

(a) removing a wrapper or tiedown installed on a log load;

(b) releasing a stake securing logs on a log transporter;

(c) using a removal station.

(3) The written safe work procedures referred to in subsection (2) must be

(a) posted in a conspicuous location at any place where the activities referred to in that subsection take place and maintained in a legible condition, or

(b) effectively communicated to the workers and supervisors who conduct those activities if it is not practicable to post the safe work procedures in a conspicuous location.

(4) Wrappers and tiedowns must not be removed and stakes securing logs on a log transporter must not be released when a person is preparing to unload logs from a log transporter unless

(a) the person is using a removal station, or

(b) the logs are otherwise restrained to prevent them from falling on the person who is removing the wrappers or tiedowns or releasing the stakes.

(5) Once a wrapper or tiedown has been removed from a log load, the log load must not be moved if any person is exposed to the risk of logs, log chunks or debris falling off the log transporter.

(6) A removal station must not be used unless it is certified by a professional engineer as capable of performing its intended function.

Purpose of guideline

Workers removing wrappers, tiedowns, or stakes from a loaded logging truck are at risk of injury or death from logs, chunks, or other debris that may fall off the side of the truck into the area where the worker will stand to remove the wrappers, tiedowns, or stakes. *Regulation* section 26.69(4)(a) specifies the use of a removal station as one option to control this risk.

Section 26.69(2)(c) requires that written safe work procedures be developed for the use of the removal station. This guideline provides guidance for the qualified person when developing these safe work procedures.

Factors to be considered for procedures

Safe work procedures should include a step-by-step process of the necessary activities for removing wrappers, tiedowns, or stakes safely at the removal station.

When developing safe work procedures for the use of the removal station, the qualified person needs to consider and address the factors below as well as any other safety factors that are specific or unique to the location.

Safe work procedures should adequately address the following applicable factors:

- Sufficient lighting in the area of the removal station, as per the requirement for illumination in Part 4 of the *Regulation*.
- Signage or other means to guide truck drivers to line up the load of logs safely into the removal station or structure.
- Barriers and guides for orienting the truck; located so that even when the truck tires are rubbing against a barrier, the protective arms, when lowered, will still contact the truckload.
- The maximum log load specifications (i.e., butt diameter and length) need to be identified in the procedure.
- Identification of the protected area in the removal station as well as any "no access area" around the perimeter of the station, describing the means to prevent entry into this area.
- Use of a physical barrier or an effective warning system to prevent a truck from leaving the removal station prior to raising the protective arms.
- A means to lock out or otherwise prevent trucks from entering the removal station, if workers are required to enter the "no access area" for maintenance or repair work.
- Only one truck is allowed to use the removal station at a time unless the procedures specifically address simultaneous use.
- Restraining arms used with the removal station rest on the logs and other loaded materials, not on the stakes on the truck.
- Instructions for the driver to remain within the protected area while removing wrappers, tiedowns, or stakes.
- If a second worker is assisting the driver instruction for them to stay within the protected area and follow the same safe work procedures.
- Instructions for the driver to not attempt to leave the removal station until procedural steps have been completed that make it safe to do so.
- Instructions for the driver in case of unplanned events (e.g., when logs are hung up on the log truck or any part of the protective structure).
- Review of safe work procedures with drivers prior to using the removal station.

Contents

DIVISION 4 – EQUIPMENT

G28.38/28.40 [Protective structures on mobile equipment in agriculture](#) [Retired]

[Other Guidelines That Reference Agriculture](#)

Guidelines Part 28 - Division 2 - Hazardous Substances

G28.11 Personal hygiene – Shower and change facilities

Issued January 1, 2005

Regulatory excerpt

Section 28.11 of the *OHS Regulation* ("*Regulation*") states:

- (1) Section 5.82(2)(a) and (b) does not apply to agricultural operations on farm land.
- (2) If work processes involving substances such as lead, mercury, asbestos, silica or pesticides are high hazard, the employer must ensure that workers are provided with adequate and appropriate shower and change facilities.

Purpose of guideline

The purpose of this guideline is to explain that section 28.11(1) provides an exception to the application of section 5.82(2)(a) and (b) of the *Regulation* that requires a specific configuration of showers and change rooms for general industry.

Shower and change facilities

To assist with feasibility in agriculture, section 28.11(2) requires that the employer ensure agricultural workers are provided with adequate and appropriate shower and change facilities when engaged in high hazard work processes with a range of substances including lead, mercury, asbestos, silica, and pesticides.

Pesticides can present a risk of skin contamination and absorption. There are a variety of pesticides used in the agriculture sector, including organophosphates, carbamates, nitrophenols, and organonitrogens.

Under section 28.11(2), shower facilities are normally considered adequate and appropriate if they permit the worker to effectively wash off any skin contaminants, in privacy and in reasonable comfort. A person can wash effectively if the volume and head pressure of the water is *sufficient* for proper cleansing, and if the temperature of the water is sufficiently comfortable to permit the worker to shower for the time necessary to wash off contaminants. The shower need not involve plumbed water supply lines. For example, the source of water may be a tank with sufficient quantity and head pressure. Appropriate facilities will also include provision of cleansing agents and means of drying the body.

A change facility is normally considered adequate and appropriate if it is a sheltered place where workers can change clothes and store personal clothing while wearing protective clothing. A "sheltered place" is normally a weatherproof building, room, vehicle, or tent that has sufficient space for workers to change in privacy and to store their clothes.

Note: Other requirements that apply to personal hygiene include the following:

- [Section 5.82\(1\)](#), which addresses washing facilities and laundering of protective clothing
- [Section 5.82\(2\)\(c\)](#), which requires that the employer provide workers with time for showering and clothing change before the end of the work shift
- [Section 5.82\(3\)](#), which addresses reduced requirements for change rooms and shower facilities in remote locations
- [Section 6.95\(1\)](#), which lists work activities with pesticides that require provision of wash facilities, and shower facilities where there is a risk of body contamination

Guidelines Part 28 - Division 4 - Equipment

G28.38/28.40 Protective structures on mobile equipment in agriculture

Issued May 25, 2005; Editorial Revision July 10, 2007; Retired consequential to September 1, 2021 Regulatory Amendment

This guideline is being retired as sections 28.38 and 28.40 of the *Occupational Health and Safety Regulation* have been repealed.

Other Guidelines That Reference Agriculture

Also note: some other guidelines that have specific reference to agriculture include:

G3.1-2 [Farm labour contractors and growers - Responsibilities and OHS programs](#)

G4.41 [Waste material in agricultural operations](#)

G4.65 [Illumination levels](#)

G5.3-8 [The application of WHMIS in agriculture](#)

G7.8-1 [Annual hearing tests](#)

G8.12/8.13 [Use of safety headgear for workers on ATVs and similar equipment in agricultural operations](#)

G11.2-5 [Fall protection in agriculture](#)

G16.35 [ROPS standards - acceptable alternate standards](#)

Contents

GENERAL REQUIREMENTS

G29.0 [Aircraft Operations - Jurisdiction](#)

G29.3 [Pre-job planning and training](#)

G29.5 [Communications](#)

G29.12 [Unstable materials](#) [Retired]

Guidelines Part 29 - General requirements

G29.0 Aircraft Operations – Jurisdiction

Issued August 1999; Editorial Revision April 6, 2020; Editorial Revision September 30, 2021

Regulatory excerpt

Section 2 of the *Workers Compensation Act* ("Act") states, in part:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, ...

Purpose of guideline

The purpose of this guideline is to provide general guidance on the limits to WorkSafeBC's prevention jurisdiction over aircraft operations, resulting from the constitutional division of powers between the federal and provincial governments.

Federal government jurisdiction

Workers who are employed by federally-regulated employers, or performing work that has a high degree of functional integration with a federally-regulated aeronautics operation, will normally fall under federal jurisdiction.

The federal government generally has jurisdiction over the operation of aircraft, the aircraft's equipment, navigation, and crewing, including workers on the ground solely engaged in attaching or detaching loads from the aircraft.

WorkSafeBC's jurisdiction

WorkSafeBC's jurisdiction covers the safety of other workers on the ground where an aircraft is used in a provincially regulated business.

Some of the matters dealt with by Part 29 of the *OHS Regulation* ("Regulation") will be to a large extent under the control of the owner or pilot of the aircraft who is outside WorkSafeBC's jurisdiction. For example, the flying of loads over workers as prohibited by [section 29.9](#) of the Regulation and the load that an aircraft can safely lift under [section 29.15](#) of the Regulation fall in this category. In such situations, the employer who hires the aircraft company, or the owner or prime contractor where there is more than one employer at the workplace, should coordinate the work to ensure that these provisions are complied with. Refer to [section 24](#) of the *Act* and [section 26.2](#) of the *Regulation* for further information.

G29.3 Pre-job planning and training

Issued August 1999

Regulatory excerpt

Section 29(3) of the *OHS Regulation* ("Regulation") states:

- (3) The employer must

- (a) provide written safe work procedures for workers who are exposed to hazards from aircraft operations,
- (b) ensure that workers are provided with adequate pre-job instruction and that the instruction is documented, and
- (c) ensure that workers can demonstrate the ability to safely perform their tasks as required.

Purpose of guideline

The purpose of this guideline is to explain the requirement that pre-job instruction be documented.

Instruction

Adequate pre-job instruction, as required by section 29(3) of the *Regulation*, should include orientation of the worker to the written safe work procedures; followed by instruction and initial supervision on the job.

The type and length of the training provided will depend on the job to be done and the worker's previous experience.

Documentation

All parts of the training process must be documented. The documentation may consist of signed acknowledgments by workers, notes kept by supervisors, or other training records.

An employer at a remote worksite may not have all the documentation at that site. WorkSafeBC prevention officers may consider whatever documentation the employer has but, if insufficient, may ask the employer to produce the documentation at another time and place.

G29.5 Communications

Issued August 1999

Regulatory excerpt

Section 29.5(1) of the *OHS Regulation* ("*Regulation*") states:

- (1) The employer must ensure that effective communication between air and ground crews has been established before initiating airlift operations.

Purpose of guideline

The purpose of this guideline is to describe good practices for ensuring effective communication as required in section 29.5(1) of the *Regulation*.

Safeguards for effective communication

The following safeguards should be in place to ensure effective communication:

- If an operation uses several radio channels or frequencies, they should be coordinated or adjusted to ensure continued uninterrupted communication
- Management should ensure ground workers identify aircraft when giving airlift direction to aircrews.
- Pilots should acknowledge ground crew directions before airlifts are initiated

G29.12 Unstable materials

Issued August 1999; Retired May 31, 2021

Contents

GENERAL REQUIREMENTS

G30.4 [Plumbing](#)

G30.7 [Grossing station ventilation](#)

G30.8 [Fume hoods](#)

G30.8(2.5) [Certification of installation of a laboratory fume hood](#)

G30.9 [Airflow monitoring](#)

G30.12 [Biological safety cabinets](#)

G30.13 [Centrifuges](#)

SPECIFIC SUBSTANCES AND PROCEDURES

G30.29 [Electrophoresis](#)

Guidelines Part 30 - General requirements

G30.4 Plumbing

Section [30.4\(1\)](#) of the *OHS Regulation* requires that laboratory water faucets with goosenecks be protected by vacuum breaks. These vacuum breaks must meet the requirements of ANSI Standard ANSI/ASSE 1001-1990 (Pipe Applied Atmospheric Type Vacuum Breakers) or other standard acceptable to the board. Other standards acceptable to the board include the BC Plumbing Code and CSA Standard CAN/CSA-B64.7-94, Vacuum Breakers, Laboratory Faucet Type (LFVB).

The BC Plumbing Code requires that connections to potable water systems be designed and installed so that substances that may render the water non-potable cannot enter the system. In addition, the BC Plumbing Code also requires premises or zone isolation for laboratory facilities where a potentially severe health hazard may be caused by back flow.

The purpose of a vacuum break is to prevent back-siphoning of contaminated water into the potable water supply used for eyewash heads, emergency showers, other laboratory sinks, or other services outside the laboratory when a hose or tubing is attached to the faucet. The most common back-siphon prevention device for laboratory gooseneck faucets is an atmospheric type vacuum break. This vacuum break is not designed for continuous pressure applications and so is installed after the last control valve. An in-line pressure type vacuum break may be installed to prevent back-siphoning simultaneously at several sinks so long as back-siphoning into any part of a potable water system is prevented and the device supplies the same level of protection as a faucet-mounted atmospheric type vacuum break. Such a device would possibly be installed at a location not immediately visible to workers. The location of the device should be clearly identified and communicated to workers.

G30.7 Grossing station ventilation

Issued December 18, 2015

Regulatory excerpt

Section 30.7 of the *OHS Regulation* ("*Regulation*") states:

Laboratory equipment and instruments which may emit harmful quantities of a substance during their operation must be provided with an effective local exhaust ventilation system.

Purpose of guideline

The purpose of this guideline is to explain the ventilation requirements that apply to grossing stations.

Background

Grossing stations are widely used in various workplaces, such as histology and pathology laboratories. While most grossing stations do not fall within the definition of a "laboratory fume hood" under [section 30.7.1](#) of the Regulation, they are still subject to a number of ventilation requirements. Some of those requirements are highlighted below.

Ventilation requirements

Section 30.7 of the Regulation requires laboratory equipment and instruments which may emit harmful quantities of a substance to be provided with an effective local exhaust ventilation system.

Ventilation system requirements are set out in sections [5.60–5.71](#) of the Regulation. Section [5.64](#) states that air contaminants must be controlled at the source by an effective local exhaust ventilation system. Further, [section 5.61](#) states that a ventilation system for controlling airborne contaminants in the workplace must be designed, installed, and maintained using established engineering principles. Established engineering principles are outlined in publications such as *Industrial Ventilation – A Manual of Recommended Practice* (American Conference of Governmental Industrial Hygienists), *CSA Z317.2-01 Special Requirements for Heating, Ventilation, and Air Conditioning (HVAC) Systems in Health Care Facilities*, and applicable ANSI, ASHRAE, SMACNA, and NFPA standards.

Once installed, the system will be annually tested and regularly inspected and maintained at intervals that ensure it remains effective (inspection and maintenance records should be kept and readily available).

Recirculation of formaldehyde prohibited

[Section 5.70\(1\)](#) of the Regulation prohibits the recirculation of substances designated under [section 5.57\(1\)](#), such as formaldehyde. Under section 5.57 of the Regulation, the employer must replace designated substances, if practicable, with a material which reduces the risk to workers. If substitution is not practicable, the employer must implement an exposure control plan to maintain workers' exposure as low as reasonably achievable below the exposure limit. The exposure plan must meet the requirements of [section 5.54](#). However, the recirculation of formaldehyde and other designated substances is prohibited.

Manufacturer's instructions

As required by [section 4.3\(2\)](#) of the Regulation, the installation, inspection, testing, repair, and maintenance of grossing stations must be carried out in accordance with the manufacturer's instructions, or as specified by a professional engineer.

Additional considerations

Before purchasing and installing a grossing station, the following should be considered:

- How the grossing station will be used (e.g., impact of multiple persons needing to work in it at the same time)
- Type of equipment used/stored on the bench during the tasks to be performed (e.g., cutting boards, chemical dispensing, and access to waste containers)

- Integration of splash protection shields into the unit design
- Ventilation failure warnings (visual and audible alarms)
- Effective capture rate at all locations where formalin (or other designated substance) vapours may arise or be generated (consider vapours emitted from the specimen during grossing and disposal activities, waste containers, and chemical dispensing)
- Spill containment, such as a lip on the station
- Adequate lighting
- Whether the station will be running continuously or with controls easily accessible to the worker
- Whether other ventilation in the room interferes with the operation of the grossing station

G30.8 Fume hoods

Issued August 1999; Editorial Revision February 1, 2008; Editorial Revision April 14, 2022

Regulatory excerpt

Section 30.8(2) of the *OHS Regulation* ("*Regulation*") states:

A laboratory fume hood must

- (a) be connected to a local exhaust ventilation system,
- (b) provide average face velocities of 0.4 m/s (80 fpm) to 0.6 m/s (120 fpm) across the operational face opening,
- (c) not have face velocities of less than 80% of the average face velocity required in paragraph (b) at any point across its operational face opening, and
- (d) not have face velocities of more than 120% of the average face velocity required in paragraph (b) at any point across its operational face opening.

Section 30.8(3) of the *Regulation* states:

A laboratory fume hood must be located to prevent cross drafts or other disruptive forces from lowering the air flow across the operational face opening to unacceptable levels.

Purpose of guideline

The purpose of this guideline is to explain measures that may be taken by small laboratories or mobile laboratories that may have difficulties meeting the requirements of section 30.8(2) and 30.8(3) of the *Regulation*.

Small laboratories and mobile laboratories

Sections 30.8(2) and 30.8(3) of the *Regulation* respectively specify minimum air flows and placement considerations for laboratory fume hoods.

These sections may present special challenges for small laboratories or mobile laboratories, where, because of their size and inadequate air balancing, air flows through the fume hood may be significantly affected by wind conditions, and open or shut doors. To minimize disturbances of airflow patterns, the employer may need to

- Develop more detailed and more restrictive safe work procedures
- Implement more administrative controls, such as one worker in the lab at a time
- Implement engineering controls, such as double air-lock doors

Where the fume hood is still susceptible to significant cross-drafts and pressure changes despite the implementation of control measures and workers are at risk of exposure to harmful materials, the employer may need to continuously monitor the airflow in the hood. Particular care must be taken with the distribution of replacement air and movement of personnel in small laboratories. Horizontal sashes can offer better containment and splash protection than vertical sashes.

A ventilation system must be balanced to ensure that the desired airflow is or can be delivered and to accommodate typical or anticipated occupancy rates. Balancing is the process of adjusting the system, such as by altering damper positions or changing fan speed, to deliver the right amount of air at the right temperature to each space, or to provide additional make-up air to compensate for the exhausted air. The outdoor air requirements for a given indoor space will vary depending on the occupant density and the activities performed. When determining if a system is properly balanced, typical occupancy rates need to be considered. Refer to Table 2 of *ASHRAE Standard 62.1-2016* for guidance. The building may be fully occupied (close to design standards), partially occupied (significantly below design standards), or unoccupied (no workers or only a skeleton staff on duty). Note that even if the building is considered to be "unoccupied," the requirements for controlling exposure in [Part 5](#) apply if contaminants are being generated, such as during the use of janitorial products by one or more workers after normal business hours.

If the temperature, carbon dioxide concentration and humidity level stay within acceptable ranges, the system is balanced. There is nothing to be gained by measuring airflow if the system is controlling these parameters.

G30.8(2.5) Certification of installation of a laboratory fume hood

Issued April 9, 2009

Regulatory excerpt

Section 30.8(2.5) of the *OHS Regulation* ("Regulation") states:

The installation of a laboratory fume hood must be certified by a professional engineer.

Purpose of guideline

The purpose of this guideline is to provide guidance to employers and engineers on the factors for consideration during certification of the installation of a laboratory fume hood.

Certification factors

To certify the installation of a laboratory fume hood, a professional engineer is required to conduct an assessment of *Regulation* requirements related to the installation of the hood. The certification does not require an assessment of operational provisions such as those prescribed in *Regulation* subsections [30.8\(5\)](#), [\(6\)](#), [\(9\)](#), and [\(10\)](#).

Items assessed by the professional engineer for certification of the installation should typically include:

- That the fume hood is installed in accordance with manufacturer's specifications. The professional engineer will likely refer to the specification sheet supplied with the hood, since the specifications typically outline the manufacturer's requirements for installation (see also *Regulation* section [4.3\(2\)](#))
- That the hood is located within the room to avoid cross drafts (see also *Regulation* section [30.8\(3\)](#)) as well as the most recent edition of the following manual: *Industrial Ventilation – A Manual of Standard Practice*, published by the American Conference of Governmental Industrial Hygienists)
- That the hood is properly balanced with uniform flow (see also *Regulation* subsections [30.8\(2b\)](#), [\(2c\)](#), and [\(2d\)](#))
- That the hood is properly hooked up to the exhaust system and that the exhaust system is installed in accordance with good engineering practice (see also *Regulation* subsections [30.8\(2\)\(a\)](#) and [30.10](#))
- That a commercially manufactured laboratory fume hood has been factory certified to meet the appropriate containment tests (see also *Regulation* subsections [30.8\(2.3\)](#) and [\(2.4\)](#))
- If custom built, that the hood has been tested for containment as per *Regulation* subsections [30.8\(2.3\)](#) and [\(2.4\)](#))
- That the hood is constructed of materials compatible with its use (see also *Regulation* section [30.8\(4\)](#))
- That the controls for the operation of the hood and its service features are installed in accordance with *Regulation* subsections [30.8\(7\)](#) and [\(8\)](#)

G30.9 Airflow monitoring

Issued August 1999; Revised November 17, 2003; Revised February 1, 2008

Regulatory excerpt

Section 30.9 of the *OHS Regulation* ("Regulation") states:

(1) Face velocities over the operational face opening of a laboratory fume hood must be quantitatively measured and recorded.

(2) The ability of a laboratory fume hood to

(a) maintain an inward flow of air across the operational face opening, and

(b) contain contaminants

must be assessed and recorded using a smoke tube or other suitable qualitative method.

(3) The actions described in subsections (1) and (2) must be performed

(a) after the laboratory fume hood is installed and before it is used,

(b) at least once in each 12 month period after installation, and

(c) after any repair or maintenance that could affect the air flow of the hood.

(4) If a laboratory fume hood is found to be operating with an average face velocity of less than 90% of the average face velocity required in section [30.8\(2\)](#), the employer must immediately take corrective action to bring the average face velocity within the required range of velocities.

(5) Airflow in a laboratory fume hood must be monitored continuously if loss of airflow will result in risk to a worker.

(6) A laboratory fume hood that is being installed must have an alarm capable of indicating when the average face velocity falls below the minimum average face velocity level required in section [30.8\(2\)](#) when the hood is in use.

Purpose of guideline

The purpose of this guideline is to provide information about techniques to measure average face velocity. The guideline also discusses 'continuous monitoring' under section 30.9(5).

Measuring face velocity

Section 30.8(2) of the *Regulation* specifies fume hood exhaust ventilation rates in terms of air velocities measured over the operational face area of the hood. The operational face area is determined by the height of the sash and will vary with the work carried out in the fume hood. Section 30.9 contains rules for measuring and recording airflow.

The average air velocity is generally calculated by taking the average of measurements made over at least 6 points at the operational face of the hood with the sash raised to its highest position. If the measured average velocity is less than specified in section 30.8, repeat measurements should be made with the sash lowered successively until both the specified average air velocity, and the minimum acceptable air velocity are attained. The sash height where this is determined should be marked. A mechanical stop should be installed to prevent the sash from being raised beyond that point. The sash height should not be less than 30 centimeters (12 inches). If the minimum acceptable air velocities cannot be attained with the above procedure, modification should be made to improve the ventilation so the specified air velocities are maintained at the sash height required for the work performed.

When a sash height adjustment is necessary on a fume hood, which is part of a manifold system (several hoods serviced by a single exhaust fan), all fume hoods in the system should be rechecked at completion of all the adjustments to ensure face velocity compliance. This operation may have to be repeated several times before compliance is achieved.

Smoke tube tests will help to determine whether conditions of air turbulence exist at the face of the hood. If these conditions exist so that air spills out past the hood face, the condition should be corrected.

Continuous monitoring of airflow

Where there is a risk to workers in the event of loss of airflow, section 30.9(5) requires that the employer continuously monitor the airflow in a fume hood if loss of air flow would result in risk to the worker. In the context of this section, "continuous monitoring" should include both the continuous measurement of airflow through the hood or duct (usually by measuring duct static pressure or air speed) and a notification to workers of low-flow by way of an alarm, light, or other effective means. The employer should develop a safe response procedure to the alarm.

G30.12 Biological safety cabinets

Issued August 1999; Editorial Revision February 1, 2008; Editorial Revision April 9, 2019

Regulatory excerpt

Section 30.12(2) and 30.12(3) of the *OHS Regulation* ("*Regulation*") states in part:

...

- (2) Biological safety cabinets must be certified by a qualified person at least annually and before use after
- (a) initial installation,
 - (b) change of the HEPA (high efficiency particulate air) filter,
 - (c) moving of the unit, and
 - (d) any repair or maintenance that could affect the seal of the HEPA filter.

(3) Certification procedures used for compliance with subsection (2) must meet the requirements of the *National Sanitation Foundation (NSF) Standard 49-2002, Class II (Laminar Flow) Biohazard Cabinetry*, and a record of the results must be maintained.

...

- (6) Biological safety cabinets used for handling a biological agent must be operated and ventilated in accordance with the *Laboratory Biosafety Guidelines 3rd edition, 2004*, issued by the Public Health Agency of Canada.

Purpose of guideline

The purpose of this guideline is to specify another acceptable standard under section 30.12(2) of the *Regulation*. The guideline also discusses the term 'qualified person,' the field certification requirements for biological safety cabinets, and a link to access the *Laboratory Biosafety Guidelines 3rd edition*.

Other acceptable standard

Under sections 30.12(2) and 30.12(3) of the *Regulation*, a qualified person must certify biological safety cabinets in accordance with the requirements of *National Sanitation Foundation (NSF) Standard 49-2002, Class II (Laminar Flow) Biohazard Cabinetry*. Another acceptable standard is CSA Standard Z316.3-M87, *Biological Containment Cabinets: Installation and Field Testing*.

Qualified person

The definition of "qualified" is provided in section 1.1 of the *Regulation*. For the purpose of section 30.12(2), a "qualified person" is a person with knowledge, training, and experience in certification of biological safety cabinets. For example, one combination of knowledge, training, and experience that would be acceptable to WorkSafeBC would be a person who has been accredited by the [National Sanitation Foundation](#) (NSF)

to perform testing of biological safety cabinetry.

Field certification requirements

The field (as opposed to factory) certification requirements for biological safety cabinets are listed in Annex F of the NSF standard. The tests that make up these requirements include the following:

- Downflow velocity profile test
- Inflow velocity test
- Airflow smoke patterns
- HEPA filter leak test
- Cabinet leak test (required when a cabinet is first installed, if it is relocated, or after maintenance procedures that require removal of the panels)
- Electrical leakage, ground circuit resistance, and polarity tests
- Lighting intensity test
- Vibration test
- Noise level test

A cabinet that meets the test criteria should have the following information visibly posted on the cabinet:

- Date of certification
- Date cabinet should be recertified (stated as no later than a specified date)
- Number of the certifier's report (a reference document showing the tests performed and the results. WorkSafeBC would accept an alternative means of readily locating the certifier's report, such as the serial number of the cabinet)
- Name, address, and telephone number of the certifying company
- Signature of the qualified person who performed the field certification tests

Biological agents

A biological safety cabinet for handling a biological agent designated as a hazardous substance under section 5.1.1 of the Regulation must be operated and ventilated in accordance with the [Laboratory Biosafety Guidelines 3rd edition \(2004\)](#). This manual can be accessed on [publications.gc.ca](#).

G30.13 Centrifuges

Issued August 1999

Under [section 30.13\(3\)](#), the employer must ensure that centrifuge doors are interlocked, unless exempted by CSA Standard *C22.2 No. 151-M1986*. The CSA standard requires an interlock on a centrifuge where E_{\max} exceeds 1 kiloJoule. For these centrifuges, the catch must be locked in the engaged position when the motor is energized and it must remain locked until the energy level drops to 1 kiloJoule or less.

For centrifuges where E_{\max} is less than 1 kiloJoule, a readily accessible lever or knob can be used for releasing the catch, so long as it is designed to minimize the chance of unintentional operation. The CSA standard requires that, where a lever or knob is provided for releasing the catch on an access of a centrifuge, the following warning statement must be prominently marked adjacent to the lever or knob:

WARNING: DO NOT OPEN THE ACCESS COVER UNTIL THE HEAD HAS STOPPED

Guidelines Part 30 - Specific substances and procedures

G30.29 Electrophoresis

Issued August 1999; Editorial Revision April 14, 2022

Regulatory excerpt

Section 30.29(1) of the *OHS Regulation ("Regulation")* states:

- (1) Electrophoresis apparatus must be designed and maintained so that any hazardous electrical current is shut off when the cover is opened.

Purpose of guideline

The purpose of this guideline is to highlight section 30.29(1) of the Regulation that requires electrophoresis equipment be designed and maintained so that any hazardous electrical current is shut off when the cover is opened.

Hazardous electrical current

For the purpose of this section, "hazardous electrical current" is any current that is large enough to startle a worker. Even low levels of current may startle a worker and cause an inadvertent action. Refer to the booklet [Working Safely Around Electricity](#) for the effects of electrical current on the human body.

Cover

The cover referred to in this section is any physical barrier that prevents access to any hazardous electrical energy during operation. In some commercial electrophoresis systems, this may be the cover of the sample tray or carrier; in other systems, the cover may be over an electrolyte solution or gel.

Contents

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

- G31.10 [Personal protective clothing and equipment](#) [Retired]
- G31.13(2) [Safety headgear – Alternate standard](#)
- G31.14 [Protective coats, pants, and hoods – Alternate standard](#)
- G31.15 [Stationwear and personal garments](#)
- G31.16 [Firefighter gloves – Alternate standard](#)
- G31.17(3) [Fall protection – Alternate standards](#)
- G31.18(2) [Personal alert safety system – Alternate standard](#)

RESPIRATORS

- G31.23 [Entry into Buildings](#)
- G31.26 [Maintenance and inspection of self-contained breathing apparatus](#)

TRANSPORTATION

- G31.29 [Enclosed crew cabs – Alternate standards](#)
- G31.32 [Vehicle Exhaust in Firehalls](#)

AERIAL DEVICES AND GROUND LADDERS

- G31.33 [General](#)
- G31.34 [Inspection and testing](#)
- G31.37 [Ground ladders – Alternate standards](#)

Guidelines Part 31 - Personal protective clothing and equipment

G31.10 Personal protective clothing and equipment

Issued August 1, 1999; Retired October 20, 2020

This guideline is no longer needed.

G31.13(2) Safety headgear – Alternate standard

Issued October 23, 2012

Regulatory excerpt

Section 31.13(2) of the *OHS Regulation* ("*Regulation*") states:

Safety headgear must meet the requirements of *NFPA 1972, Helmets for Structural Firefighting: Structural Fire Fighters Helmets, 1992 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify an acceptable alternate standard for structural firefighters' safety headgear.

Background information

Section 31.13(2) of the *Regulation* requires that safety headgear for firefighters meet *NFPA 1972, Structural Firefighting: Structural Fire Fighters Helmets, 1992 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standard

WorkSafeBC has determined that for structural firefighting *NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2007 Edition* is an acceptable alternate standard to the 1992 edition of *NFPA 1972* referenced in section 31.13(2) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Information about NFPA 1971

More information about *NFPA 1971* can be found in the guideline [G31.14 Protective coats, pants, and hoods - Alternate standard](#).

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1971* can be found at <http://www.nfpa.org/1971>.

G31.14 Protective coats, pants, and hoods – Alternate standard

Issued October 23, 2012

Regulatory excerpt

Section 31.14(a) of the *OHS Regulation* ("*Regulation*") states:

Firefighters required to approach the seat of a fire or enter a structure or other hazardous area during an incident must wear protective coats, pants and hoods meeting the requirements of

(a) *NFPA 1971, Protective Clothing for Structural Fire Fighting, 1991 Edition*, or

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify an acceptable alternate standard for structural firefighters' protective coats, pants, and hoods.

Background information

Section 31.14(2) of the *Regulation* requires that protective clothing for structural firefighting meet *NFPA 1971, Protective Clothing for Structural Fire Fighting, 1991 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standard

WorkSafeBC has determined that for structural firefighting *NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2007 Edition* is an acceptable alternate standard to the 1991 edition of *NFPA 1971* referenced in section 31.14(a) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Changes to the standards

The 1997 edition of *NFPA 1971* combined into a single standard four former standards on structural firefighting apparel: *NFPA 1971*, covering clothing; *NFPA 1972*, covering helmets; *NFPA 1973*, covering gloves; and *NFPA 1974*, covering footwear.

Five key differences between the 2007 edition and the editions of the standards referenced by the *Regulation* are as follows:

1. A total heat loss (THL) test was added to evaluate how effective coats and pants are at dissipating heat from the firefighter. Heat stress is a significant cause of firefighter injuries. Clothing with a high THL rating may help reduce heat stress but may reduce thermal protective performance (TPP).
2. A conductive and compressive heat resistance (CCHR) test was added for insulation at the shoulders and knees.

The shoulder area of a coat can become compressed by the self-contained breathing apparatus (SCBA) straps and the knee areas by kneeling. The CCHR test helps ensure that the thermal insulation in these areas performs as specified in the Standard while compressed.
3. A new glove dexterity test was added.

The new glove dexterity test is better able to distinguish between gloves with good dexterity and with bad dexterity. It may be easier to work using gloves meeting the 2007 edition.

4. Optional chemicals, biological agents, and radiological particulates (CBRN) protection requirements were added.

The CBRN requirements provide limited protection to firefighters from some CBRN terrorism agents that could be released as a result of a terrorist attack.

The CBRN protection only applies to complete ensembles which include a coat, pants, boots, gloves, helmet and SCBA. The optional CBRN requirements do not decrease the protection offered in structural firefighting.

5. Proximity firefighting protective clothing requirements were added to *NFPA 1971*.

The NFPA standards on structural and proximity firefighting protective clothing have been combined into one standard. [Part 31](#) of the *Regulation* does not require proximity firefighting protective clothing to meet a NFPA standard.

Scope of NFPA 1971

NFPA 1971 specifies minimum design, performance, testing, and certification requirements for structural and proximity firefighting protective ensembles. Ensemble elements include coats, pants, helmets, gloves, footwear, and interface components. Footwear and proximity firefighting protective ensembles are not required by Part 31 to meet a NFPA standard. This is because the scope of the NFPA standards referenced by sections [31.13](#), [31.14](#), and [31.16](#) excludes proximity firefighting.

NFPA 1971 does not specify how protective clothing and equipment is used or maintained. It does not provide criteria for wildland firefighting protective clothing and equipment.

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1971* can be found at <http://www.nfpa.org/1971>.

G31.15 Stationwear and personal garments

Issued August 1, 1999; Editorial Revision August 2004

Regulatory excerpt

Section 31.15 of the *OHS Regulation* ("*Regulation*") states:

Firefighters required to approach the seat of a fire or enter a structure or other hazardous area during an emergency incident must not wear shirts, trousers, jackets or coveralls that have poor thermal stability or that ignite easily.

Purpose of guideline

The purpose of this guideline is to specify the requirements of section 31.15 of the *Regulation* regarding stationwear or other garments.

Thermal stability and ignition

Stationwear or other garments worn under protective coats and pants must not create a hazard to a firefighter due to poor thermal stability or ignition of the garment. A garment that can withstand 204 degrees C (400 degrees F) for 5 minutes without melting, dripping, or igniting will satisfy this requirement.

In thermal stability tests performed by the WorkSafeBC laboratory, the following clothing samples tested did not melt, drip, or ignite when exposed to a temperature of 204 degrees C for 5 minutes:

- 100% cotton shirting and pant fabric
- 90% cotton, 10% polyester shirting fabric
- 50% cotton, 50% polyester T-shirt fabric
- 35% cotton, 65% polyester shirting and pants fabric

The following fabric failed this requirement:

- 100% nylon fabric

G31.16 Firefighter gloves – Alternate standard

Issued October 23, 2012

Regulatory excerpt

Section 31.16 of the *OHS Regulation* ("*Regulation*") states:

Firefighters required to approach the seat of a fire or enter a structure or other hazardous area during an emergency incident must wear gloves meeting the requirements of *NFPA 1973, Gloves for Structural Fire Fighting, 1988 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify an acceptable alternate standard for structural firefighters' gloves.

Background information

Section 31.16 of the *Regulation* requires that gloves for structural firefighting meet *NFPA 1973, Gloves for Structural Fire Fighting, 1988 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standard

WorkSafeBC has determined that for structural firefighting *NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2007 Edition* is an acceptable alternative to the 1988 edition of *NFPA 1973* referenced in section 31.16 of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Information about NFPA 1971

More information about *NFPA 1971* can be found in the guideline [G31.14 Protective coats, pants, and hoods - Alternate standard](#).

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1971* can be found at <http://www.nfpa.org/1971>.

G31.17(3) Fall protection – Alternate standards

Issued October 22, 2010, Revised October 23, 2012

Regulatory excerpt

Section 31.17(3) of the *OHS Regulation* ("*Regulation*") states:

- (3) Rescue ropes, rappelling lines and safety belts and harnesses including safety hooks, rope grabs, lowering devices, and related equipment must meet the requirements of *NFPA 1983, Fire Service Life Safety Rope, Harness and Hardware, 1990 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify, in the case of section 31.17(3) of the *Regulation*, an alternate standard acceptable to WorkSafeBC for rescue ropes, rappelling lines, safety belts, and harnesses including safety hooks, rope grabs, lowering devices, and related equipment.

Background information

Section 31.17(3) of the *Regulation* requires that some fall protection equipment employed in firefighting activities meet *NFPA 1983, Fire Service Life Safety Rope, Harness and Hardware, 1990 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standards

WorkSafeBC has determined that the 2012 Edition and 2006 Edition of *NFPA 1983: Standard on Life Safety Rope and Equipment for Emergency Services* are acceptable alternatives to the 1990 edition referenced in section 31.17(3) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standards accepted in the guideline or the standard in the *Regulation*.

Selection of equipment

Although equipment meeting the 2012 and 2006 editions of *NFPA 1983* meet the requirements of section 31.17(3) the equipment selected needs to be appropriate to the task and be compatible with the other equipment used. For example, a medium elongation laid life saving rope may not be appropriate for lifting of freely suspended workers where they can spin and the rope can unwind.

Scope of NFPA 1983

NFPA 1983 specifies minimum design, performance, testing, and certification requirements for life safety ropes and other equipment. It only applies to equipment used by emergency services and does not apply to equipment for mountain rescue, cave rescue, lead climbing operations, recreational use, or use by general industry.

2006 Edition

In addition to changes to refine design and performance criteria and test methods, the title of *NFPA 1983* was changed in the 2006 edition. The new title reflects the broader audience for the equipment covered by the standard.

2012 Edition

The 2012 edition adds new equipment to the scope of the standard and changes what was light use equipment to technical use equipment.

The 2012 edition classifies equipment as *general use*, *technical use*, or *escape use*. *General use* equipment is the strongest. *Technical use* loads are lower than *general use* loads and *technical use* equipment would more commonly be used in complicated specialized rescues. *Escape use* equipment is for the self-rescue of a single fire or emergency services' person from a life-threatening emergency situation. Refer to clause A.3.3.35 of the 2012 edition for more information on the selection of *technical use* or *general use* equipment.

The 1990 edition of *NFPA 1983* called *general use* and *technical use* equipment two-person and one-person equipment, respectively.

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2012 edition of *NFPA 1983* can be found at <http://www.nfpa.org/1983>.

G31.18(2) Personal alert safety system – Alternate standard

Issued October 23, 2012

Regulatory excerpt

Section 31.18(2) of the *OHS Regulation* ("Regulation") states:

(2) A PASS device must meet the requirements of *NFPA 1982, Personal Alert Safety Systems (PASS) for Fire Fighters, 1993 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify, in the case of section 31.18(2) of the *Regulation*, an alternate standard acceptable to WorkSafeBC for Personal Alert Safety Systems (PASS).

Background information

Section 31.18(2) of the *Regulation* requires that PASS meet *NFPA 1982, Personal Alert Safety Systems (PASS) for Fire Fighters, 1993 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept another standard as an alternative standard.

Acceptable alternate standard

WorkSafeBC has determined that *NFPA 1982: Standard on Personal Alert Safety Systems (PASS), 2007 Edition*, is an acceptable alternative to the 1993 edition referenced in section 31.18(2) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

NFPA 1982

There are five main differences between the 2007 edition and the 1993 edition:

1. New high temperature requirements to ensure that PASS remain functional and audible at a fire scene.
Research from the National Institute for Occupational Safety and Health (NIOSH) into firefighter deaths found that PASS were not always heard at high temperatures. Testing by the National Institute for Standards and Technology (NIST) found that all PASS on the market at the time experienced significant alarm signal degradation at temperatures between 300°F and 500°F.
2. New loudness requirements to prevent muffling of the alarm signal when a firefighter wearing PASS is unconscious on the ground.

3. New water immersion requirements to ensure that the PASS remains functional and water does not enter the PASS.
NIOSH found signs of water leakage into PASS in some fatalities.
4. Automatic activation of PASS.
Clause A.6.2.2 of the 2007 edition explains that fatalities occurred where firefighters wearing PASS that were not activated went down in situations where they could likely have been rescued if other firefighters had known they had gone down.
5. Allowing for integration of PASS into Self-Contained Breathing Apparatus (SCBA) to ensure that firefighters always wear them.
Clause A.6.2.2 of the 2007 edition explains that stand-alone PASS devices have become separated from firefighters and the newer edition allows integration with the SCBA.

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1982* can be found at <http://www.nfpa.org/1982>. Not all old editions are available for free.

Guidelines Part 31 - Respirators

G31.23 Entry into Buildings

Issued April 27, 2000

Regulatory excerpt

Section 31.23 of the *OHS Regulation* ("*Regulation*") states:

- (1) When self-contained breathing apparatus must be used to enter a building, or similar enclosed location, the entry must be made by a team of at least 2 firefighters.
- (2) Effective voice communication must be maintained between firefighters inside and outside the enclosed location.
- (3) During the initial attack stages of an incident at least one firefighter must remain outside.
- (4) A suitably equipped rescue team of at least 2 firefighters must be established on the scene before sending in a second entry team and not more than 10 minutes after the initial attack.
- (5) The rescue team required by subsection (4) must not engage in any duties that limit their ability to make a prompt response to rescue an endangered firefighter while interior structural firefighting is being conducted.

Purpose of guideline

The purpose of this guideline is to discuss the application of section 31.23, with consideration of the requirements of [section 8.35](#) of the *Regulation*, which must also be met during firefighting operations.

Oxygen deficient atmosphere

Section 31.19 states "Firefighters who may be exposed to an oxygen deficient atmosphere or to harmful concentrations of air contaminants must wear a self-contained breathing apparatus of a positive pressure type having a rated minimum duration of 30 minutes." A firefighter entering a part of a building or similar enclosed location that is burning or smoke-filled is considered to be exposed to such an atmosphere. The atmosphere is potentially immediately dangerous to life or health (IDLH) or oxygen deficient. Section 31.23(1) requires such an entry by firefighters to be made by a team of at least 2 firefighters. Section 8.35 requires that whenever a worker enters or works in an IDLH or oxygen deficient atmosphere, the worker must be attended by at least 1 other worker stationed at or near the entrance who is similarly equipped and capable of effecting rescue.

Rescue duties

Section 31.23(4) allows firefighters at the scene to start their initial attack of a fire or a rescue operation involving entry if additional firefighters are expected to be on scene and able to provide a suitably equipped rescue team within 10 minutes of the start of the initial attack. To establish that there are additional firefighters likely to be on the scene within 10 minutes there needs to be effective communication between the crew at the scene, the incident commander, and other firefighters being dispatched to the incident. This may be achieved either by direct communication between the firefighters or by coordination through a central dispatch. However, during this 10 minute "window," a third firefighter must be dressed, equipped, and available to be the rescue worker as required by section 8.35. Standard operating procedures for firefighter entry into a burning building or similar enclosed area stipulate the entry team take with them a hose which is charged and capable of spraying water should the need arise. This means a firefighter or other qualified worker must remain at the fire engine pump controls and act to ensure the water supply is available to the firefighters making the entry. This pump operator cannot be the rescue worker required by section 8.35 as the pump operator cannot leave the pump to perform rescue duties. Hence the minimum number of crew required on scene prior to commencing entry into a hazardous area for the initial attack of a fire or to search for occupants would be four if a charged hose is to be taken in by the entry team. Other equipment operators, such as the operator of an aerial platform, who are required to remain at an equipment operating position, would be in the

same position as the pump operator and cannot be designated to perform rescue duties.

Self-contained breathing apparatus (SCBA)

There may be incidents requiring firefighters to use SCBA to enter a building or similar enclosed location even though there is no fire and no smoke. For example, a refrigeration plant leaking ammonia may require an emergency response by firefighters to rescue a person or to shut off or control the leak. (Section 31.5(2) of the *Regulation* requires the fire department have written procedures for such situations if it will do such responses.) In such circumstances the entry team would not likely need to take a charged hose in, so minimum crew size would be 3, for the first 10 minutes. All 3 firefighters would need to have donned the required protective clothing and breathing apparatus. Two would be the entry team, and the third firefighter would be the rescue worker required by section 8.35. The crew would have to establish prior to their initial entry that, within 10 minutes of the initial entry, a fourth firefighter with the required protective clothing and breathing apparatus is expected to be on scene and ready to join the rescue firefighter to establish the rescue team required by section 31.23(4).

If, during the first 10 minutes of the initial attack, circumstances change so there will be a delay beyond the 10-minute "window" in arrival of the additional crew needed to establish the 2 firefighter rescue team, the initial attack must be terminated until the rescue team can be established.

G31.26 Maintenance and inspection of self-contained breathing apparatus

Issued May 17, 2006; Revised October 23, 2012; Editorial Revision July 3, 2018; Editorial Revision October 20, 2020

Regulatory excerpt

Section 31.26 (Maintenance and records) of the *OHS Regulation* ("*Regulation*") states:

- (1) Self-contained breathing apparatus, including regulators, must be serviced and repaired by qualified persons.
- (2) Inspection of compressed air cylinders must be done in accordance with *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators*.
- (3) Compressed air cylinders must be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*.
- (4) Complete maintenance and repair records for each self-contained breathing apparatus and all air cylinders must be kept in accordance with the requirements of *CSA Standard CAN/CSA-Z94.4-02, Selection, Use, and Care of Respirators* (section 10.3.3.2.2-b to f, inclusive).

Section 4.9(3) of the *Regulation* states:

If this Regulation requires a machine or piece of equipment to have inspection and maintenance records, then detailed reports of inspection, maintenance, repairs and modifications must be kept for the duration of the service life of the machine or equipment and must be reasonably available to the workplace and made available, upon request, to the operator and to anyone else involved in the operation, inspection, testing or maintenance of the equipment.

Section 4.4(2) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
 - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board ...

Purpose of guideline

This guideline provides information on the application of the four requirements of section 31.26 of the *Regulation* covering inspection of self-contained breathing apparatus (SCBA), servicing and repair, hydrostatic testing, and maintenance and repair records.

An SCBA includes a full facepiece incorporating a second stage regulator, compressed air cylinder, first stage regulator, pressure gauge, alarm, connecting tubes, harness assembly and associated fittings. An SCBA offers one of the highest levels of respiratory protection available and is designed to provide protection in oxygen-deficient atmospheres and in situations where high or unknown concentrations of toxic air contaminants are present.

This guideline accepts two alternate (revised) standards under section 4.4(2)(a). It accepts *CSA Standard CAN/CSA Z94.4-18* as an alternate standard to *CSA Standard CAN/CSA-Z94.4-02* and *CAN/CSA B339-18* as an alternate standard to *CAN/CSA B339-96*.

Section 31.26(1) - Servicing and repair

This provision requires that SCBAs, including regulators and components like hose connectors, hoses, cylinders, facepieces, head straps, regulators, harness components, warning devices and gauges are serviced and repaired by a qualified person. "Qualified," as defined by section 1.1 of the *Regulation*, means being knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience, or a combination thereof. For the purposes of section 31.26(1), qualified SCBA maintenance personnel will

- Be qualified through training and experience to inspect, maintain and repair respirators in accordance with the manufacturer's written instructions

- Inspect, maintain, and repair SCBAs as required
- Ensure that maintenance tools are kept in good repair and properly calibrated
- Maintain appropriate records of maintenance and repair in accordance with section 31.26(4) of the *Regulation*

Only registered facilities can repair and requalify SCBA cylinders. Contact Transport Canada to locate a facility.

Section 31.26(2) - Inspection

This provision requires that compressed air cylinders must be inspected in accordance with *CSA Standard CAN/CSA Z94.4-02 Selection, use, and care of respirators*. *CSA Standard CAN/CSA Z94.4-18* is an acceptable alternative to the 2002 edition referenced in section 31.26(2) of the *Regulation*. This Standard covers inspection of SCBA cylinders, including those made of steel, aluminum, and composites. Inspections require an examination of both the exterior and interior of cylinders. Inspections must be done according to the requirements of the following:

- *CAN/CSA-B339*
- *CAN/CSA-B340*
- *CGA C-6, C-6.1, or C-6.2* as appropriate
- Transport Canada regulations under the Transportation of Dangerous Goods Act
- Manufacturer's instructions

Cylinder manufacturers typically provide detailed inspection instructions.

Internal Inspections

Internal inspections are required for all cylinders at least at the time of hydrostatic testing. Transport Canada or the manufacturer may specify more frequent internal inspections. The purpose of the internal inspection is to look for the presence of corrosion, moisture, oil, or other deposits.

CSA Z94.4-18 requires at least annual inspections of steel and aluminum cylinders over 15 years old when the cylinders are in current use. *CSA Z94.4-18* requires composite cylinders to be removed from service if they are at least 15 years old.

External Inspections

External inspections are conducted on a more frequent basis than internal inspections. *CSA Z94.4-18* requires that cylinders be inspected externally after each use and before refilling. In addition, cylinders for emergency use, such as emergency escape SCBA cylinders, must be inspected on a schedule to ensure readiness for the anticipated emergency use.

The National Fire Protection Association (NFPA) recommends that SCBA, including cylinders, be inspected externally at least:

- At the start of a duty period (e.g. a shift) if assigned to an individual user
- Once a duty period for SCBA on fire trucks
- Weekly for other SCBA available for use

Volunteer departments should inspect SCBA at least before use and weekly.

The purposes of the external inspection include the following:

- Identifying any obvious damage to the cylinder
- Verifying that the hydrostatic test date is current

Defective equipment is to be identified as "out of service" and removed from service until repaired and replaced.

Refer to *CSA Standard CAN/CSA-Z94.4-18* and Transport Canada for further information.

Section 31.26(3) - Hydrostatic testing

This provision requires that compressed air cylinders be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*. *CAN/CSA B339-18 Cylinders, spheres, and tubes for the transportation of dangerous goods* is an acceptable alternative to the 1996 edition referenced in section 31.26(3) of the *Regulation*.

CSA Standard CAN/CSA-B339 specifies the requirements for the manufacturing, inspecting, testing, marking, requalifying, repairing, and rebuilding of cylinders, spheres and tubes for the transportation of dangerous goods. Clause 24 of this Standard specifies the requirements for retesting, inspecting, reheat treatment, repairing, and rebuilding of used containers. The minimum frequency of hydrostatic testing is specified in Table 29.

For more information on Transport Canada requirements contact the Transportation of Dangerous Goods Pacific office at 604-666-3955 or TDGPacific-TMDPacific@tc.gc.ca

Section 31.26(4) - Maintenance and repair records

This provision requires that maintenance and repair records at a minimum contain the following information required by *CSA Z94.4-18*:

- (a) Date of inspection
- (b) Physical condition of the respirator and cylinder

(c) Cleaning and sanitizing of respirators

(d) Repairs done to respirators and cylinders

(e) Tests performed on respirators and cylinders or remedial actions taken

Section 4.9(3) of the *Regulation* requires that these records be reasonably available to the workplace and made available upon request to the user and to anyone else involved in the operation, inspection, testing, or maintenance of the SCBA.

This guideline does not discuss SCUBA cylinders, which are subject to different requirements for inspection, maintenance, and hydrostatic testing.

Guidelines Part 31 - Transportation

G31.29 Enclosed crew cabs - Alternate standards

Issued October 23, 2012

Regulatory excerpt

Section 31.29(2) of the OHS Regulation ("*Regulation*") states:

(2) New firefighting vehicles ordered after April 15, 1998 must have fully enclosed crew cabs meeting the requirements of *NFPA 1901, Automotive Fire Apparatus, 1991 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify, in the case of section 31.29(2) of the *Regulation*, an alternate standard acceptable to WorkSafeBC for firefighting vehicle crew cabs.

Background information

Section 31.29 of the Regulation requires that firefighting vehicle crew cabs ordered after April 15, 1998 meet the requirements of *NFPA 1901, Automotive Fire Apparatus, 1991 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept another standard as an alternative standard.

Acceptable alternate standards

WorkSafeBC has determined that the crew cab requirements of the 2009 edition of *NFPA 1901, Standard for Automotive Fire Apparatus* are acceptable alternatives to the crew cab requirements of the 1991 edition referenced in section 31.29 of the *Regulation*. The crew cab requirements of *NFPA 1901* are contained in *Chapter 14: Driving and Crew Areas*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

NFPA 1901

Some of the requirements of *Chapter 14: Driving and Crew Areas* of the 2009 edition of *NFPA 1901* include the following:

- All crew riding positions are within an enclosed area
- Each crew riding position has an approved seat and seat belt
- The seats and seating positions meet certain minimum dimensions
- A location for helmet storage is provided
- A label indicates that helmets are not to be worn while seated
- Self-Contained Breathing Apparatus (SCBA) units are secured with a positive latching mechanical means
- Any equipment in the cab is securely fastened
- There are two means of exiting the fully enclosed crew cab

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2009 edition of *NFPA 1901* can be found at <http://www.nfpa.org/1901>.

G31.32 Vehicle exhaust in firehalls

Issued August 1, 1999; Revised November 17, 2003; Editorial Revision October 2004

Regulatory excerpt

Section 31.32 of the OHS Regulation ("*Regulation*") states:

Unless air monitoring shows that levels of vehicle exhaust gas components are below the exposure limits established under section 5.48, effective local venting for the exhaust gases must be provided in vehicle areas in firehalls.<.p>

Purpose of guideline

The purpose of this guideline is to determine whether local exhaust venting is required as stated in section 31.32 of the *Regulation*.

Air monitoring

The following are guidelines on how air monitoring is to be conducted to determine whether local exhaust venting is required:

1. The air monitoring should be done in places such as the living quarters, service bays, and other locations where firefighters are normally present during on-duty hours.
2. The fire hall should be set up based on normal incident response with the maximum number of fire apparatus responding.
3. The overhead door(s) should be open or closed for the duration in accordance with written work procedures for the fire hall.
4. Where two or more fire halls in a fire department require the installation of a local exhaust system, the implementation may be phased in over a longer period. A reasonable compliance period would be two years where two or three fire halls must be upgraded, or three years where four or more fire halls require upgrading.

Contact your [local WorkSafeBC office](#) for information on sampling of diesel- or gasoline-based automotive exhaust.

Guidelines Part 31 - Aerial devices and ground ladders

G31.33 General

Issued June 3, 2019

Regulatory excerpt

Section 31.33 of the *OHS Regulation* ("*Regulation*") states:

An aerial device used for firefighting must meet the requirements of *NFPA 1904, Aerial Ladder and Elevating Platform Fire Apparatus, 1991 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify an alternate standard to *NFPA 1904, Aerial Ladder and Elevating Platform Fire Apparatus, 1991 Edition*, identified in section 31.33 of the *Regulation*.

Background information

The standard identified in section 31.33 of the *Regulation* has been updated and replaced by *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition*.

Acceptable alternate standards

WorkSafeBC has determined that *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition* is an acceptable alternate to the standard listed in section 31.33 of the *Regulation*.

G31.34 Inspection and testing

Issued June 3, 2019; Revised June 19, 2020

Regulatory excerpt

Section 31.34 of the *OHS Regulation* ("*Regulation*") states:

- (1) A fire department aerial device must be inspected and tested in accordance with good engineering practice at intervals not exceeding 12 months, and certified as safe for use by a professional engineer or the equipment manufacturer.
- (2) The inspection and testing of a fire department aerial device must be done in accordance with the requirements of *NFPA 1914, Testing Fire Department Aerial Devices, 1991 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify an alternate standard to *NFPA 1914, Testing Fire Department Aerial Devices, 1991 Edition*, identified in section 31.34(2) of the *Regulation*. It also outlines some of the factors that should be considered when determining if an inspection has been conducted in accordance with "good engineering practice" under section 31.34.

Background information

The standard identified in section 31.34(2) of the *Regulation* has been updated and replaced by *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition*.

Acceptable alternate standards

WorkSafeBC has determined that *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition* is an acceptable alternate to the standard listed in section 31.34(2) of the *Regulation*.

The acceptance of this standard for section 31.34(2) of the *Regulation* means that non-destructive testing must be done every five (5) years as per section 22.1.2(1) of the *NFPA 1911 Standard* and all other inspection and testing must be completed annually as required by section 31.34(1) of the *Regulation* and section 22.1.1 of the *NFPA 1911 Standard*.

Good engineering practice

The Engineers and Geoscientists of BC (EGBC), in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*, describes the standard of practice that engineering professionals should follow when carrying out equipment inspections and certifications. WorkSafeBC considers following this EGBC guideline as following good engineering practice for the annual inspections and certifications of firefighting aerial devices.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

Inspection and certification process

The EGBC has defined the annual inspection and certification process for firefighting aerial devices in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*.

A copy of the EGBC's professional practice guideline can be accessed here - [Annual Equipment Inspection and Certification in British Columbia](#).

G31.37 Ground ladders – Alternate standards

Issued August 1, 1999; Editorial Revision April 2005; Revised October 23, 2012

Regulatory excerpt

Section 31.37 of the *OHS Regulation* ("Regulation") states:

- (1) A ground ladder used by firefighters must meet the requirements of *NFPA 1931, Design of and Design Verification Tests for Fire Department Ground Ladders, 1989 Edition*.
- (2) A ground ladder must be used, tested and maintained in accordance with the requirements of *NFPA 1932, Use, Maintenance, and Service Testing of Fire Department Ground Ladders, 1989 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
 - (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify, in the case of section 31.37 of the *Regulation*, an alternate standard acceptable to WorkSafeBC for ground ladders and provide information about the inspecting and testing of ground ladders.

Background information

Section 31.37(1) of the *Regulation* requires that ground ladders used by firefighters meet the requirements of *NFPA 1931, Design of and Design Verification Tests for Fire Department Ground Ladders, 1989 Edition*.

Section 31.37(2) of the *Regulation* requires that ground ladders used by firefighters be used, tested, and maintained in accordance with *NFPA 1932, Use, Maintenance, and Service Testing of Fire Department Ground Ladders, 1989 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept another standard as an alternative standard.

Acceptable alternate standards

WorkSafeBC has determined that *NFPA 1931: Standard for Manufacturer's Design of Fire Department Ground Ladders, 2010 Edition* is an acceptable alternative to the 1989 edition referenced in section 31.37(1) of the *Regulation*.

WorkSafeBC has determined that *NFPA 1932: Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders, 2010 Edition* is an acceptable alternative to the 1989 edition referenced in section 31.37(2) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Significant changes to the standards

The 2010 standards allow two new types of ladders.

1. Combination ladders can be used as both a stepladder and a single or extension ladder. They have a maximum load of 340 kg (750 lb.).
2. Multi-purpose ladders must meet either *ANSI A14.2 Ladders – Portable Metal – Safety Requirements* or *ANSI A14.5 Ladders – Portable Reinforced Plastic – Safety Requirements* and be Type 1A or 1AA. They have a maximum load of 136 kg (300 lb.) and need to have heat sensor labels attached in accordance with Clause 6.2.10.2.4 of the 2010 edition of *NFPA 1932*.

Both new types of ladders must be inspected in accordance with the 2010 edition of *NFPA 1932*.

Inspection and testing frequency

The 2010 edition of *NFPA 1932* requires that ground ladders be visually inspected, as follows, in accordance with the standard at least:

1. Once every month
2. After each use
3. After use other than as specified in *NFPA 1932*

The 2010 edition of *NFPA 1932* requires that ground ladders be service tested as follows:

1. Before the ladder is placed in service for the first time
2. At least annually
3. At any time a ladder is suspected of being unsafe
4. After the ladder has been subjected to overloading
5. After the ladder has been subjected to impact loading or unusual conditions of use
6. Whenever the ladder has been exposed or is suspected of having been exposed to direct flame contact
7. Whenever the heat sensor label has changed to indicate heat exposure
8. After any repairs have been completed, unless the only repair was replacing the halyard
9. After use other than as specified in *NFPA 1932*

Old extension ladders

Extension ladders constructed prior to the adoption of the 1984 edition of *NFPA 1931* may not meet the tests required by either the 1989 or 2010 edition of *NFPA 1932*. If these ladders do not meet the tests, they cannot be used and must be replaced.

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2010 edition of *NFPA 1931* can be found at <http://www.nfpa.org/1931>. The 2010 edition of *NFPA 1932* can be found at <http://www.nfpa.org/1932>.

Contents

EVACUATION AND RESCUE

G32.4(1) [Rope replacement](#)

Guidelines Part 32 - Evacuation and rescue

G32.4(1) **Rope replacement**

Issued September 21, 2012

Regulatory excerpt

Section 32.4(1) of the *OHS Regulation* ("*Regulation*") states:

(1) Ropes and associated rigging equipment used only for rescue or evacuation or training in such procedures must

(a) be of low stretch (static) kernmantle construction or equivalent,

- (b) when new, have a minimum safety factor of 10 to 1, based upon a one-person load of 140 kilograms (300 pounds), and
- (c) be replaced at intervals stated by the manufacturer, but not exceeding 5 years.

Section 32.5 of the *Regulation* states:

- (1) Ropes and associated equipment must be inspected visually and physically by qualified workers after each use for rescue, evacuation or training purposes.
- (2) Equipment must not be used after it
 - (a) has been overstressed,
 - (b) has been subject to temperatures above 150°C (300°F), or
 - (c) shows significant damage due to contact with chemicals or due to any other cause.

Section 32.6 of the *Regulation* states, in part:

- (2) Maintenance records must be kept, including but not limited to
 - ...
 - (c) the date put into service,
 - ...
- (3) Maintenance records must be available upon request to any worker concerned with the safe operation of the equipment or to an officer.

Section 4.3 of the *Regulation* states, in part:

- (2) Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out
 - (a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or
 - ...

Purpose of guideline

The purpose of this guideline is to clarify when rope needs to be replaced and the application of 32.4(1)(a) and (c) to associated rigging.

Associated rigging

The low stretch (static) kernmantle construction requirement of section 32.4(1)(a) and the five year replacement requirement of section 32.4(1)(c) do not apply to metallic rigging components such as carabiners. If a component has both textile and metallic parts only the textile components are subject to the minimum five year replacement interval. If the manufacturer of any rigging component specifies replacement intervals more frequent than the *Regulation*, section 4.3(2)(d) of the *Regulation* requires that they be followed.

The factor of safety requirements of 32.4(1)(b) apply to all associated rigging.

Rope replacement

The age of a rope is the time from when it was first put into service. A rescue rope is considered to be "in service" if it is available for use in life safety applications. Rescue ropes need to be replaced five years after they are put into service. The date put into service needs to be recorded in the maintenance records for the rope (the "rope log"). Manufacturer and user group test results on old ropes indicate that rope does not age until it is first put into service.

A rope may need to be replaced before it is five years old based on the results of an inspection. Most manufacturers provide inspection criteria. If inspection criteria are provided section 4.3(2)(d) of the *Regulation* requires they be used. If a rope does not pass inspection because of wear or damage it needs to be replaced, even if it is not five years old.

Section 32.4(1)(c) requires that if a manufacturer recommends replacing ropes more frequently than every five years, their recommendations must be followed.

Contents

Part 1 – Scope of Act

Division 2 – Scope of OHS Provisions

- G-P1-2-1 [WorkSafeBC jurisdiction over operations involving Aboriginal people](#)
- G-P1-2-2 [BC Safety Authority](#)
- G-P1-2-3 [Labour Program – Employment and Social Development Canada \(ESDC\) jurisdiction](#)
- G-P1-2-4 [Fire safety and prevention](#)
- G-P1-2-5 [Jurisdiction over railways](#)
- G-P1-2-6 [WorkSafeBC jurisdiction over helilogging operations](#)
- G-P1-2-7 [Jurisdiction over mines](#)
- G-P1-2-8 [Jurisdiction over marine operations](#)
- G-P1-2-9 [Jurisdiction over oil and gas operations](#)

Part 2 – Occupational Health and Safety

Division 1 – Interpretation and Purposes

- G-P2-14 [About OHS Guidelines](#)

Division 4 – General Duties of Employers, Workers and Others

- G-P2-21 [Communicable disease prevention](#)
- G-P2-21(1) [The BC Human Rights Code and responsibilities of employers](#)
- G-P2-21(1)-2 [Labour supply firms and client employers – Responsibilities](#)
 - G-P2-21(1)-3 [Bullying and harassment](#)
- G-P2-21(2)(f) [Copy of the Act readily available](#)
- G-P2-22 [Orders to workers](#)
- G-P2-25-1 [Owner obligations – Public lands](#)
- G-P2-30 [Responsibilities of the persons/parties in a workplace](#)

Division 5 – Joint Committees and Worker Representatives

- G-P2-32-1 [Variations in joint committee requirements](#)
- G-P2-41-1 [Joint committee course approval](#)

Division 6 – Worker Protection in Relation to Prohibited Actions

- G-P2-49 [Complaint by worker respecting prohibited action or failure to pay wages](#)
- G-P2-50(1) [Determining if a prohibited action complaint has been settled](#)

Division 7 – Information Requirements

- G-P2-53(1) [Maintaining the confidentiality of information](#)

Division 9 – Variance Orders

- G-P2-60 [Variance process](#)

Division 10 – Employer Accident Reporting and Investigation

- G-P2-68-1 [WorkSafeBC notification of serious injuries](#)
- G-P2-70-1 [Participation by worker representatives in incident investigations](#)
- G-P2-71-1 [Preliminary incident investigation and interim corrective actions](#)
- G-P2-72-1 [Full incident investigation, report, and follow-up actions](#)

Division 11 – Board Inspections, Investigations and Inquiries

- G-P2-75-1 [Advance notice of inspections](#)
- G-P2-75-2 [Commencement of an inspection](#)
- G-P2-75-3 [Follow up inspections](#) [Retired]
- G-P2-75-4 [Use of equipment during inspections](#)
- G-P2-75-5 [Incident Investigations](#) [Retired]
- G-P2-75(1) [WorkSafeBC Authority on a Public Road](#)
- G-P2-75(3)(c) [Use of Legal Sample Bags for samples collected by WorkSafeBC officers](#)

Division 12 – Enforcement

G-P2-83-1 [Compliance agreements with employers](#)
G-P2-84-1 [Worker orders](#) [Withdrawn]
G-P2-84-2 [Order\(s\) where there is no violation](#) [Retired]
G-P2-84-3 [Protection of privacy in inspection reports](#)
G-P2-85 [COVID-19 vice president directives](#) [Retired]
G-P2-85-1 [Extension of implementation period](#)
G-P2-85-2 [Approvals, acceptances, authorizations, or permissions under the OHS Regulation](#)
G-P2-89 [Order to stop using or supplying unsafe equipment](#)
G-P2-94-1 [OHS citations](#)
G-P2-95-2 [High risk violations](#)

Guidelines - Workers Compensation Act, Part 1 Division 2 - Scope of OHS Provisions

G-P1-2-1 WorkSafeBC jurisdiction over operations involving Aboriginal people

Issued: September 28, 2005; Editorial Revision April 6, 2020

Regulatory excerpt

Section 2 of the *Workers Compensation Act* ("Act") provides:

Subject to section 3, the OHS provisions apply to

(a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,

Policy Item P1-2-1 provides:

(a) Where, for jurisdictional reasons, the Board is totally excluded from inspecting an operation

Board officers will not knowingly issue an order or exercise another Board power under the OHS provisions of the *Act* with respect to an operation in this situation.

If Board officers observe what they believe to be a violation of a statute or a regulation administered by another agency, they will:

- notify the other agency of the observation; and
- cooperate with that agency in dealing with the situation to the extent this is consistent with the Board's mandate and the officers' duties under the *Workers Compensation Act*.

Purpose of guideline

The purpose of this guideline is to clarify the authority of WorkSafeBC over the occupational health and safety (OH&S) of organizations that are operated by Aboriginal people or employ Aboriginal workers, or which are located on Indian reserves.

Summary

WorkSafeBC has jurisdiction over the OH&S of employers operating in B.C. until it can be established otherwise. With respect to organizations involving Aboriginal people or located on an Indian reserve, the federal government, and not WorkSafeBC, will have jurisdiction over:

- Activities undertaken by an Indian band or band council, or an organization that is operated directly by or closely integrated with an Indian band or band council, that are related to the administration or governance of the band or the reserve.
- An organization that is engaged in activities that are closely connected with Indian status, rights or identity.

Jurisdiction remains with WorkSafeBC where the operations in question are not linked to band administration or Indian status, rights or identity.

Ordinary commercial operations will fall under Board jurisdiction, even where the workers or owners of the business are Aboriginal people, or the business is located on a reserve.

A Board prevention officer faced with the assertion that OH&S enforcement infringes an Aboriginal or treaty right should refer the matter to his or her manager.

Jurisdiction over "Indians" and OH&S

The *Constitution Act, 1867* lists exclusive areas in which each of the federal and provincial governments may enact laws. OH&S laws are considered to fall under the provincial authority over "property and civil rights."

Though there is a presumption that OH&S falls under provincial jurisdiction, if it can be established that an organization operates predominantly in an area the *Constitution* provides is to be regulated by the federal government, the OH&S of that organization will fall under federal jurisdiction and WorkSafeBC will have no jurisdiction.

One area listed in the *Constitution* as falling under federal jurisdiction is "Indians and lands reserved for the Indians". The federal government regulates this area through the *Indian Act*, which defines the legal rights of Indians, establishes and regulates Indian reserves, establishes band councils to administer reserves, and describes a number of things that a band council is empowered to do.

While the federal government has the exclusive power to enact laws relating to "Indians", this does not mean that only laws enacted by the federal government can apply to Aboriginal people. Provincial laws of "general application," like OH&S laws, will apply to Aboriginal people and organizations that are owned by Aboriginal people or employ Aboriginal workers, or which operate on a reserve, unless it can be said that regulating the labour relations of the organization is integral to regulating "Indians and the lands reserved for Indians."

In this regard the federal government, and not WorkSafeBC, will have jurisdiction over band councils, or organizations integrated with them, that:

- Are carrying out activities that relate to the administration and governance of reserves and band members in accordance with the authority granted band councils under the *Indian Act*.
- Are carrying out activities that relate to Indian status, rights or identity.

Examples of situations where the federal government, and not WorkSafeBC, will have jurisdiction include:

- Workers employed by a band who carry out construction work on reserve residences or provide other municipal services exclusively on an Indian reserve.
- Law enforcement officers on an Indian reserve operating under the authority of a band.
- Health services organizations on an Indian reserve, provided the organization is operated by, or under the authority of the band, and the clientele is predominantly "Indian".
- Social service agencies operated by, or under the authority of a band, provided the target clientele is predominantly "Indian".

Note that the determination of WorkSafeBC jurisdiction over OH&S under the OHS provisions of the *Act* is separate from the requirement for employers to pay assessments to WorkSafeBC and the entitlement of workers to compensation for work related injury or illness under the compensation provisions of the *Act*; that is, WorkSafeBC may not have jurisdiction over the OH&S of an organization, even though the organization is required to be registered as an employer with WorkSafeBC.

Subsidiary organizations and contractors

Band councils will often delegate to separate organizations or engage contractors to perform tasks associated with the band administration. Such organizations may fall under federal jurisdiction if:

- They themselves can be said to be federal organizations, that is if they exist predominantly for the purposes of carrying out functions relating to the band council's mandate and their operations are predominantly dedicated to carrying out these functions.
- There is a "high degree" of operational integration with a federally regulated organization, or if the contractor forms an integral part of a federally regulated enterprise.
- If the federally regulated organization is dependent on the provincial enterprise to carry out its federally regulated tasks.

In determining jurisdiction over contractors engaged in activities on an Indian reserve or connected to a band's operations or authority, prevention officers should determine the nature of the contractor's business on an ongoing basis, and assess whether the above factors are present.

Board jurisdiction

While the activities of bands or band councils in governing and administering reserves will fall under federal jurisdiction, not all activities carried out by a band or by a band council are necessarily federally regulated. The OH&S of ordinary commercial activities, even if carried out directly by an Indian band or located on a reserve will not normally be federally regulated and will fall under Board jurisdiction.

Examples where WorkSafeBC will have jurisdiction over organizations operated by Aboriginal people include:

- Forestry operations.
- Commercial fishing.
- Recreational guiding operations.
- Manufacturing, services, or other commercial/industrial activities, whether on reserve or off.

Aboriginal and treaty rights, the Nisga'a Treaty and self government

Prevention officers may encounter situations where there is an assertion that WorkSafeBC does not have jurisdiction because the activity in question relates to an Aboriginal or treaty right, or that the activity falls under a band's right to self government.

While Aboriginal and treaty rights are protected under the *Constitution*, it is unlikely that Board enforcement activities would be undertaken in a way that would infringe those rights.

With respect to the Nisga'a Treaty, that Treaty explicitly sets out that it does not affect federal or provincial jurisdiction in respect of OH&S. However, the Treaty provides that the Nisga'a government must have notice of industrial relations proceedings involving individuals employed on Nisga'a lands where an issue relating to the Treaty or Nisga'a culture has been raised. This right to notification probably extends to enforcement activities by WorkSafeBC.

One band in British Columbia, the Sechelt Band, has formally established the right to self government. However, under this arrangement, the laws of general application of Canada and British Columbia continue to apply, and therefore WorkSafeBC is not precluded from asserting its jurisdiction over OH&S enforcement.

Prevention officers should engage in enforcement activities under the presumption that the enforcement activity is not precluded as the result of the

existence of a treaty or Aboriginal right. A prevention officer faced with the assertion that OH&S enforcement infringes an Aboriginal or treaty right or a right to self government should refer the matter to his or her manager.

What should prevention officers consider?

The following questions may assist in determining if jurisdiction over an employer or workplace involving Aboriginal people rests with the federal government:

- Is the operation run by a band council?
- What is the nature of the operation? Is it a commercial enterprise? Does it carry out tasks related to band or reserve administration or governance(see above - i.e. policing, municipal services, governance, providing reserve housing, or health care)?
- If the organization is a contractor/subsidiary, what is the nature of the organization's normal activities? Does the organization have a permanent and very close relationship with a band council? Is the council dependent on the contractor/subsidiary to carry out tasks relating to governance or administration?
- Does the organization have a purpose of benefiting band members or first nations?

G-P1-2-2 BC Safety Authority

Issued October 26, 2005; Revised February 13, 2006; Revised October 19, 2007; Revised April 13, 2011; Revised December 19, 2014; Editorial Revision November 21, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

Section 2 of the *Workers Compensation Act* ("Act") states:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, and
- (c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Purpose of guideline

The purpose of this guideline is to describe the respective areas of authority of WorkSafeBC and the BC Safety Authority (operating as Technical Safety BC — "TSBC").

Purpose and jurisdiction of Technical Safety BC (TSBC)

Technical Safety BC is an independent, self-funded organization that is responsible for administering the *Safety Standards Act* and regulations under it. TSBC oversees the safe installation and operation of the following:

- Electrical equipment and systems
- Boilers, pressure vessels, and refrigeration systems
- Natural gas and propane appliances and systems, including hydrogen
- Elevating devices, such as elevators and escalators
- Railways, including commuter rail
- Passenger ropeways, such as aerial trams and ski lifts
- Amusement devices
- Complex and integrated technical systems involving several technologies

Inspections, investigations, and other enforcement by WorkSafeBC

WorkSafeBC expects workplace parties to comply with safety standards and certification levels established by TSBC, but any compliance orders issued by WorkSafeBC will be based on a provision of the *Act* or the *Occupational Health and Safety Regulation* ("Regulation").

WorkSafeBC prevention officers will not issue orders pursuant to the *Safety Standards Act* or regulations under it

TSBC's legislation focuses primarily on ensuring that systems are installed, maintained, and operated properly for the safety of the public. While WorkSafeBC has jurisdiction over workplaces that involve the types of equipment and systems that are regulated by TSBC, WorkSafeBC's authority is limited to the occupational health and safety aspects of those workplaces. As a result, a single employer may be inspected or investigated by WorkSafeBC prevention officers for occupational health and safety compliance, and by TSBC inspectors for public safety compliance. Where practicable, inspection or investigation personnel from both agencies will coordinate their inspection and investigation efforts where it may be beneficial to safety or necessary to minimize disruption at the workplace.

Requirements for notifying and cooperating with TSBC

Prevention Manual Policy Item [P1-2-1 Application of the OHS Provisions - Where Jurisdictional Limits Exist](#) provides direction to prevention officers inspecting an operation that WorkSafeBC is not totally excluded from, but where certain equipment or activities included in the operation are covered by a statute or regulation administered by another agency, such as TSBC. The policy requires prevention officers who observe what they believe to be a violation of the *Safety Standards Act*, or regulations under it, to do the following:

- Notify TSBC of the details of the observation that they believe to be a violation of TSBC legislation
- Cooperate with TSBC in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and prevention officers' duties under the *Act*

Before notifying TSBC, the prevention officer should inform the employer of the situation and mention that TSBC will be contacted.

If TSBC requests it and it is practicable to do so, the prevention officer will preserve the scene of an incident until TSBC personnel are able to attend. TSBC inspectors are instructed to do the same if a similar request is made by a prevention officer.

There is a Memorandum of Understanding between WorkSafeBC and the BC Safety Authority (TSBC), which requires cooperation and permits information sharing. Prevention officers who have questions about the Memorandum of Understanding may contact the OHS Practice and Engineering Support.

Example of cooperation between WorkSafeBC and TSBC

During the course of an inspection of a ski resort, a prevention officer learns that the employer has failed to implement an occupational health and safety program even though one is required under [section 3.1](#) of the *Regulation*. The prevention officer may make an order requiring that a program be established.

During the inspection, the prevention officer also observes a worker doing maintenance on a piece of equipment without the use of lockout as required by [Part 10](#) of the *Regulation*. The prevention officer may issue an order requiring that proper lockout procedures be followed. The prevention officer also learns that the employer conducts avalanche control by deploying explosives from the chair lift. [Part 21](#) of the *Regulation* will apply, and the officer may issue orders as appropriate.

Finally, the prevention officer notices that operating permits for the chairlifts are not kept where these devices are located, as required by the *Elevating Devices Safety Regulation*, administered by TSBC. The prevention officer decides that in this case there is no immediate danger or undue risk present. The prevention officer will not write an order to enforce this requirement of the *Elevating Devices Safety Regulation*, but will notify TSBC and cooperate in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and the prevention officer's duties under the *Act*.

Where a prevention officer identifies a condition of immediate danger or undue hazard at a workplace that is a possible violation of the *Safety Standards Act* or regulations under it, the prevention officer will contact TSBC immediately. The prevention officer may also consider taking action to minimize the danger to workers under an appropriate provision of the *Act* or *Regulation*, such as a stop work order.

Sharing of information

Prevention officers will provide TSBC with timely notification whenever their activities will impact TSBC. Prevention officers, after consulting with their managers, will respond in a timely manner to TSBC's requests for information related to an inspection or incident investigation. This includes statistical information and analysis, where resources allow, or copies of summaries of records of inspections, investigations, witness statements, and other information relevant to an inspection or incident investigation. TSBC inspectors will do the same.

Where information is requested by TSBC that does not pertain to an inspection or incident investigation, such requests will be forwarded to WorkSafeBC's Freedom of Information and Protection of Privacy Office.

Seizure of evidence

WorkSafeBC and TSBC each have the power to seize evidence in the course of an investigation. Personnel from both parties should cooperate prior to the seizure of evidence to ensure, as much as possible, that one party's seizure of evidence does not adversely affect the other party's investigation.

If seized evidence is to be tested, prevention officers will consult with TSBC and make reasonable efforts to ensure the testing does not adversely affect TSBC's investigation. Prevention officers will provide TSBC with advance notice of the time and location of testing so that TSBC personnel may attend if they wish to do so. TSBC inspectors will do the same.

Contact information for TSBC

Technical Safety BC
 Suite 400 - 88 6th Street
 New Westminster, BC V3L 5B3
 Email: contact@technicalsaftybc.ca
 Toll free: 1-866-566-SAFE (7233)
 Phone: (604) 660-6286
 Fax: (604) 660-6215

G-P1-2-3 Labour program - Employment and Social Development Canada (ESDC) jurisdiction

Issued February 22, 2006; Editorial Revision September 30, 2009; Revised September 30, 2010; Editorial Revision June 26, 2014; Editorial Revision April 6, 2020

Regulatory excerpt

WorkSafeBC's prevention jurisdiction is set out in section 2 of the *Workers Compensation Act* ("*Act*"):

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, and
- (c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Purpose of guideline

The purpose of this guideline is to provide general guidance on the limits to WorkSafeBC's prevention jurisdiction resulting from the constitutional division of powers between the federal and provincial governments.

Federal/Provincial jurisdiction

The *Constitution Act, 1867* ("*Constitution*") lists exclusive areas in which each of the federal and provincial governments may enact laws. Most labour relations and employment matters including Occupational Health and Safety ("OHS"), fall under the provincial authority over "property and civil rights." This authority over provincial organizations is regulated and administered by WorkSafeBC.

Although there is a presumption that all OHS falls under provincial jurisdiction, the OHS of certain organizations will fall under federal jurisdiction. The OHS of an organization may come under federal jurisdiction in one of the following two ways:

1. **Federal competence**
First, if it can be established that an organization operates predominantly in an area of federal competence under the *Constitution*, and if it can be said that regulating the labour relations of that organization is necessary for regulating that area of federal competence, the OHS of that organization will fall under federal jurisdiction and WorkSafeBC will have no jurisdiction. Examples of areas of federal competence include the following:
 - Businesses connected with navigation and shipping (see OHS Guideline [G-P1-2-8](#))
 - Railways, pipelines, and lines of ships extending beyond the limits of B.C.
 - Ferries between B.C. and another province or between B.C. and another country
 - Interprovincial or international trucking and shipping
 - Airports, aircraft and airlines
 - The administration of Indian reserves
 - Banks within the meaning of section 2 of the federal *Bank Act*
 - Telecommunications (radio and television broadcasting, as well as cable, telephone, and internet systems)
 - Grain elevators licensed by the Canadian Grain Commission
 - Federal public service, including federal Crown corporations and agencies
 - Exploration and development of petroleum on lands subject to federal jurisdiction

In evaluating whether an organization operates in an area of federal competence, the enquiry must be made into the normal activities of the organization in the context of the nature of the service, business, or work performed by the organization. It is the core nature of the business that must be evaluated; individual or intermittent projects or activities should not bear on the determination of whether an organization is under federal jurisdiction.

2. **Integral to federal organization**
Second, if an organization's operations cannot be considered federally regulated on their own (such as with a contractor doing work for a federally regulated business), the organization may be considered to be under federal jurisdiction if the organization is "integral" to a federally regulated organization. This may exist where there is a high degree of operational integration with a federally regulated organization, (for example, where there is common management, corporate control and direction, or a natural link or operational continuity), or where the federally regulated organization is dependent on the provincial enterprise to carry out its federally regulated operations.

It is important to note also that employers in B.C. under federal jurisdiction must be registered and pay assessments to WorkSafeBC, and WorkSafeBC will administer claims of workers for these employers. The registration status of an employer is irrelevant to whether that employer falls under WorkSafeBC's prevention jurisdiction, and a determination that an employer is beyond WorkSafeBC's prevention jurisdiction does not impact the requirement to register or a worker's entitlement to compensation.

WorkSafeBC protocol where there are jurisdictional limits

Where the OHS of an organization falls under federal jurisdiction, WorkSafeBC is precluded from exercising its powers to inspect that organization. The occupational health and safety of organizations under federal jurisdiction is regulated through Part II of the Canada Labour Code and its associated regulations, which is administered by the Labour Program of Employment and Social Development Canada ("*ESDC*").

Policy Item [P1-2-1](#) provides general guidance on how WorkSafeBC prevention officers will exercise their powers in situations where it has been established that there are jurisdictional limits on those powers. The policy states that, where WorkSafeBC is totally excluded from inspecting an operation, prevention officers will not knowingly issue an order or exercise another power under the OHS provisions with respect to an operation in this situation.

If prevention officers observe what they believe to be a violation of a statute or a regulation administered by another agency, they will

- Notify the other agency of the observation that they believe to be a violation of its statute or regulation. As part of this notification, it is recommended that prevention officers forward a copy of the inspection report, if one was prepared, to the other agency. It should be noted, for further clarity, that if the workplace is not within the OHS jurisdiction of WorkSafeBC, the inspection report must not include an order and it is not required to be posted.
- Cooperate with that agency in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and the prevention officers' duties under the *Act*.

While section 2(c) of the *Act* permits the federal government to submit to the application of the OHS provisions of the *Act*, which would give WorkSafeBC the ability to inspect organizations that are under federal jurisdiction, the federal government has not submitted to the application of the OHS provisions of the *Act* under this section.

Questions

Prevention officers' questions about jurisdiction may be directed to the OHS Practice and Engineering Support department of WorkSafeBC.

G-P1-2-4 Fire safety and prevention

Issued February 22, 2006; Revised April 4, 2006; Editorial Revision April 6, 2020

Regulatory excerpt

Section 2 of the *Workers Compensation Act* states:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, and
- (c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Purpose of guideline

The purpose of this guideline is to describe WorkSafeBC's relationship to the Office of the Fire Commissioner ("Office") and the Office's jurisdiction over fire safety and fire protection in British Columbia.

Jurisdiction

The Office is the senior authority having jurisdiction over fire safety and prevention in B.C. The Office administers the *Fire Services Act* and its regulations, and appoints and trains local assistants to the Fire Commissioner.

Under the authority of *Prevention Manual Policy Item P1-2-1 Application of the OHS Provisions - Where Jurisdictional Limits Exist*, where WorkSafeBC prevention officers observe what they believe to be a violation of the *Fire Services Act* or its regulations, prevention officers will notify the local assistant to the Fire Commissioner. Before notifying the local assistant, the prevention officer should inform the employer of the situation that may be a violation of the *Fire Services Act* or its regulations and that the officer will be advising the Office about a possible violation.

Prevention officers will not issue an order or exercise another power to directly enforce a statute or regulation of another agency.

Prevention officers can contact the Office at (250) 952-4913 to obtain contact information for local assistants in their region.

The Office advises that at times, there may be some outstanding fire safety issues that are not resolved in a workplace. These could be violations under the *Workers Compensation Act* or the *OHS Regulation*. The local assistants to the fire commissioner (LAFCs) will let the owners/employers know that the items, if not corrected, will be reported to WorkSafeBC. The LAFCs will report issues they are aware of that affect worker health and safety to WorkSafeBC by calling the Prevention Call Centre or the toll free number. If the issue involves a high risk or immediate danger to a worker, the LAFC would advise the Prevention Call Centre so that a prevention officer could be assigned to respond promptly. For less urgent matters, the LAFC would understand that it may take several business days for the prevention officer to receive the information and follow up.

G-P1-2-5 Jurisdiction over railways

Issued April 1, 2006; Revised October 19, 2007; Editorial Revision November 21, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

WorkSafeBC's prevention jurisdiction is set out in section 2 of the *Workers Compensation Act* ("*Act*"):

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,

(b) the government of British Columbia and every agency of that government, and

(c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Purpose of guideline

The purpose of this guideline is to outline WorkSafeBC's jurisdiction over railways. Prior to the enactment of legislative changes in 2004 which redesigned the regulatory framework governing railways, the *Act* excluded prevention jurisdiction over railways. On April 1, 2004, WorkSafeBC was given jurisdiction over the occupational health and safety of railways and rail operations within provincial jurisdiction. The BC Safety Authority (operating as Technical Safety BC — "TSBC") assumed the other regulatory responsibilities which previously rested with the provincial government.

Provincial jurisdiction

Only railways and rail-related operations operating entirely within the province fall under WorkSafeBC's prevention jurisdiction. Certain railways still remain beyond provincial jurisdiction, namely railways extending beyond the province. These fall under federal jurisdiction and WorkSafeBC is excluded from exercising powers under the *Act* over these operations.

Specific railways/operations

WorkSafeBC's jurisdiction extends to the occupational health and safety of onboard operations and facilities of the following types of operations:

- Common carrier passenger or freight railways operating exclusively within the province, including:
 - Island Corridor Foundation (Southern Railway of Vancouver Island Ltd., formerly Esquimalt and Nanaimo Railway)
 - Grand Forks Railway
 - International Rail Road Systems
 - Southern Railway of British Columbia
- Industrial railways and sidings e.g. at pulp and paper mills (provided they are not operated by federal employers like ports, grain terminals, etc.)
- Commuter railways, which include:
 - Skytrain (BC Rapid Transit Company)
 - Canada Line (Intransit BC)
 - Evergreen Line (proposed)
 - All proposed street car systems
- Recreational railways, such as amusement rides

For further clarification, railway operations once carried on by BC Rail have been transferred to CN Rail. As CN Rail is a national carrier, the former BC Rail operations are now under federal jurisdiction, including occupational health and safety requirements.

Notifying Technical Safety BC

While WorkSafeBC has jurisdiction over occupational health and safety with respect to provincial railways, the TSBC - Railway Safety Program is responsible for regulating the general railway safety standards for the protection of the public. TSBC's railway inspectors enforce the *Railway Safety Act* and regulations and have jurisdiction over the same provincial railways and provincial common carrier railways as WorkSafeBC (see above).

Prevention Manual Policy Item [PI-2-1 Application of the OHS Provisions - Where Jurisdictional Limits Exist](#) provides directions to WorkSafeBC prevention officers inspecting an operation that WorkSafeBC is not totally excluded from, but for which certain equipment or activities included in the operation are covered by a statute or regulation administered by another agency, such as TSBC.

For example, where a prevention officer in the course of an inspection or investigation of a railway becomes aware of possible breaches of the railway operating rules under the *Railway Safety Act* or regulations, the policy requires the prevention officer to

- Notify TSBC of the details of the observation that they believe to be a violation of its statutes or regulation
- Cooperate with TSBC in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and the prevention officer's duties under the *Act*

Before notifying TSBC, the prevention officer should inform the employer of the situation that may be a violation of a statute or regulation of TSBC.

G-P1-2-6 WorkSafeBC jurisdiction over helilogging operations

Issued June 6, 2006; Editorial Revision April 6, 2020

Regulatory excerpt

Section 2 of the *Workers Compensation Act* ("*Act*") provides:

Subject to section 3, the OHS provisions apply to

(a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British

(b) the government of British Columbia and every agency of that government

Purpose of guideline

The purpose of this guideline is to clarify the authority of WorkSafeBC over the occupational health and safety (OHS) of organizations that conduct helilogging operations.

Summary

WorkSafeBC has jurisdiction over the regulation of OHS of employers operating in B.C. until they are excluded for some reason. WorkSafeBC is excluded from OHS enforcement activity with respect to employers that operate in federally regulated industries.

For helilogging operations, employers involved in air operations will fall under federal jurisdiction. In addition, helilogging ground crews that are employed by such federally regulated employers or that work for different employers that are integrated with the federal employer will fall under federal jurisdiction.

Jurisdiction over OHS

The *Constitution Act, 1867* ("*Constitution*") lists exclusive areas in which each of the federal and provincial governments may enact laws.

Labour relations and employment matters, including OHS, fall under the provincial authority over "property and civil rights."

Regulation of OHS falls under provincial jurisdiction, unless it can be established that an organization operates predominantly in an area of federal competence under the *Constitution* and that regulating the labour relations of the organization is integral to regulating that area of federal competence. The OHS of that organization then will fall under federal jurisdiction and WorkSafeBC will have no jurisdiction over OHS concerns.

Likewise, an operation that would otherwise fall under provincial jurisdiction may fall under federal jurisdiction if there is a "high degree of operational integration" with a federally regulated organization. For example, if that operation forms an integral part of a federally regulated organization, or if the federally regulated organization is dependent on the provincial enterprise to carry out its federally regulated tasks.

In assessing whether an organization is federally regulated, the courts inquire into the operations and normal activities of the organization in the context of the nature of the service, business, or work performed.

Federal jurisdiction over helilogging

It is clear that the OHS of helilogging workers engaged in air operations will generally fall under the federal jurisdiction over aeronautics. However, determining the OHS jurisdiction of the helilogging ground crew requires a case by case inquiry into the particular circumstances.

The federal government will have jurisdiction over the operations of ground crews involved in helilogging operations if it can be established that the ground crew's operations form part of the federally regulated aeronautics operations. For example, where both the ground crew and the air crew have the same employer.

Where there is a ground crew that is not part of an aeronautics operation, the crew will be under federal jurisdiction if there is a high degree of "functional integration" with the aeronautics undertaking. Functional integration may exist where there is common management, corporate control and direction over both the ground crew and air crew, or where there is a natural link or operational continuity between the activities of the ground and air crew.

WorkSafeBC will have jurisdiction over the ground crew where the crew operates independently of the aeronautic undertaking and cannot be said to be integrated into the operations of the aeronautic undertaking. This may exist where the ground operation undertakes a variety of operations, some of which may relate to helilogging or helilogging clients and where there is little interaction between the air crew and the ground crew.

What should field officers ask?

In determining if a ground crew working in helilogging is under WorkSafeBC jurisdiction, WorkSafeBC prevention officers should consider the following:

- Who is the employer? A large integrated logging firm? An air service or helilogging business? A ground crew contractor? A smaller contractor supplying services or equipment to the above?
- Does the ground crew employer carry out only ground operations? Are the ground operations part of a larger operation?
- Is the ground crew dedicated to helilogging operations only?
- Are air and ground crews separated into different divisions or administrative units?
- Is there common management for air and ground crews?
- Are the ground crews full time employees, or contractors? If they are contractors, is the helilogging operation reliant in an ongoing, permanent, or continuous nature?
- What is the nature of the normal or predominant activities of the ground crew contractor? What services does it provide? Does it engage exclusively or primarily in the provision of helilogging ground crews? What percentage of the business is dedicated to helilogging operations?
- How much control does the helilogging employer exercise over the contractor? How dependent is the contractor on the helilogging operation? In what way "dependent?"
- Does the contractor's ground crew have special skills, training or knowledge relating to helilogging?
- Are the activities they carry out unique or specific to helilogging?
- How are the helilogging operations performed? How direct is the link between the actual activities of the contractor's ground crew and the air operations?

Issued June 18, 2008; Editorial Revision September 19, 2014; Editorial Revision April 6, 2020; Editorial Revision July 30, 2021

Regulatory excerpt

WorkSafeBC's prevention jurisdiction is set out in section 2 and 3 of the *Workers Compensation Act* ("Act")

Section 2 of the *Act* states:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, and
- (c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Section 3 of the *Act* states:

(1) The OHS provisions and the regulations under those provisions do not apply in respect of the following:

- (a) mines to which the *Mines Act* applies;
 - (b) unless a regulation under subsection (2) applies, the operation of industrial camps to the extent their operation is subject to regulations under the *Public Health Act*.
- (2) The Lieutenant Governor in Council may, by regulation, provide that all aspects of the OHS provisions and the regulations under those provisions apply to camps referred to in subsection (1)(b), in which case those provisions and regulations prevail over the regulations under the *Public Health Act* to the extent of any conflict.

Purpose of guideline

The purpose of this guideline is to clarify the authority of WorkSafeBC over the occupational health and safety ("OHS") of organizations that conduct operations on or around mines.

Ministry of Energy, Mines and Low Carbon Innovation OHS jurisdiction

WorkSafeBC's prevention jurisdiction does not extend to mines to which the *Mines Act* applies. Under the *Mines Act*, a "mine" includes

- (a) a place where mechanical disturbance of the ground or any excavation is made to explore for or to produce coal, mineral bearing substances, placer minerals, rock, limestone, earth, clay, sand or gravel
- (b) all cleared areas, machinery and equipment for use in servicing a mine or for use in connection with a mine and buildings other than bunkhouses, cook houses and related residential facilities
- (c) all activities including exploratory drilling, excavation, processing, concentrating, waste disposal and site reclamation
- (d) closed and abandoned mines
- (e) a place designated by the chief inspector as a mine

The approval of mining projects under the *Mines Act* and the *Health, Safety and Reclamation Code for Mines in British Columbia* is administered by the Ministry of Energy, Mines and Low Carbon Innovation ("EMLI"). A permit from EMLI is required for coal and mineral exploration programs, placer mining, sand and gravel pits and quarries, proposed coal or hardrock mineral mines, major expansions or modifications of producing coal and hardrock mineral mines, as well as large pilot projects, bulk samples, trial cargoes, and test shipments.

All activities conducted in relation to mining within the boundaries of a *Mines Act* permit area fall within the OHS jurisdiction of EMLI. Examples include: mining drilling and exploration; construction and blasting on mine property; operation of mining company labs and mobile equipment at a mine site; roads on mine property; and processing facilities, power lines, and pipelines that service the mine and are situated within the mine boundaries. Sites outside of the mine permit area that are designated as "mines" by the Chief Inspector of Mines will also fall under EMLI's OHS jurisdiction.

Aggregate pits, such as gravel pits, that are exploited primarily for commercial purposes constitute "mines" under the *Mines Act* and are thus within the OHS jurisdiction of EMLI. In other words, if the primary purpose of the excavation is to extract aggregate, OHS over the pit will be the responsibility of EMLI. Examples of such pits include gravel pits primarily used for building a logging road (unless the pit is situated within the

road's right-of-way) or for selling gravel. On the other hand, if the excavation is primarily conducted for development purposes (for example, for erecting a foundation structure for a building) under a development or building permit from another level of government (such as a municipality or regional district), the aggregate pit will fall within the jurisdiction of WorkSafeBC, even if the excavated material is eventually sold.

WorkSafeBC OHS jurisdiction

WorkSafeBC has jurisdiction over OHS with respect to areas, machinery, equipment and buildings that are not used to service or in connection with a "mine" as defined above. This includes, for example, access roads outside of the mine boundaries, and timber removal operations that are not connected to the mining activity (even if they are carried out within the mine boundaries). Likewise, WorkSafeBC has OHS jurisdiction over bunkhouses, cook houses and related residential facilities that are used to service a mine or in connection with a mine, to the extent that they are workplaces in which workers such as cooks, maintenance people, and others are employed.

WorkSafeBC's jurisdiction also extends to service roads running through mine boundaries that are used to access areas beyond the mine, such as forestry or oil and gas operations. It should also be noted that oil and gas exploration and production activities are within WorkSafeBC's jurisdiction.

Dual OHS jurisdiction

While WorkSafeBC is excluded from enforcing OHS requirements at a "mine" site, there are employers in respect of which jurisdiction will be divided between WorkSafeBC and EMLI. In other words, there are employers who are under WorkSafeBC jurisdiction for much of their business, but who operate on some "mine" workplaces where WorkSafeBC has no jurisdiction. In these situations, WorkSafeBC requirements will apply in general to the employers, but WorkSafeBC has no jurisdiction to enforce specific requirements with respect to those "mine" workplaces.

For example, a road construction firm that operates a gravel pit to build an industrial road (such as a logging road) will be subject to general WorkSafeBC requirements around safety programs and health and safety committees. However, WorkSafeBC may not enforce specific requirements around the firm's operation of mobile equipment at the gravel pit.

Other examples of situations where dual jurisdiction may arise include concrete plants with associated gravel pits. In these situations, the jurisdictional dividing line will vary from case to case. The more direct and regular the connection between the activity and the mine site, the more likely it is to be "for use in servicing a mine or for use in connection with a mine." For instance, a loader that is routinely used to dump gravel into the processing plant will fall within WorkSafeBC's jurisdiction. In contrast, if the loader constitutes a significant part of the operation of the gravel pit and is only used occasionally in relation to the processing plant, OHS over that piece of equipment will be the responsibility of EMLI.

Further information

When faced with assertions that OHS over a particular facility or activity falls outside of WorkSafeBC's jurisdiction, or situations where the jurisdictional divide is unclear, WorkSafeBC prevention officers may contact EMLI to obtain further information about the operations in question. In addition, prevention officers should consult with their manager.

Questions about jurisdiction over mines, and other questions relating to the jurisdiction of WorkSafeBC over OHS, may be directed to the OHS Practice and Engineering Support department of WorkSafeBC.

Requirements for notifying and cooperating with EMLI

Prevention Manual Policy Item [P1-2-1 Application of the OHS Provisions - Where Jurisdictional Limits Exist](#) provides that prevention officers will not issue an order or exercise another power to directly enforce a statute or regulation administered by EMLI. The policy also requires prevention officers who observe what they believe to be a violation of a statute or a regulation administered by EMLI to

- Notify EMLI of the details of the observation that they believe to be a violation of its statute or regulation. As part of this notification, it is recommended that prevention officers forward a copy of the inspection report, if one was prepared, to EMLI. It should be noted, for further clarity, that if the workplace is outside of WorkSafeBC's jurisdiction, the inspection report must not include an order and it is not required to be posted.
- Cooperate with EMLI in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and prevention officers' duties under the *Act*.

Before notifying EMLI, the prevention officer should inform the employer of the situation that may be a violation of a statute or regulation of EMLI and that the prevention officer will be contacting EMLI for its follow-up.

Contact information for EMLI regional offices is available online at <https://www2.gov.bc.ca/gov/content/industry/mineral-exploration-mining/health-safety/certifications>

G-P1-2-8 Jurisdiction over marine operations

Issued September 24, 2008; Revised February 4, 2010; Revised November 23, 2010; Editorial Revision April 6, 2020; Editorial Revision April 30, 2020

Regulatory excerpt

WorkSafeBC's prevention jurisdiction is set out in section 2 of the *Workers Compensation Act* ("*Act*"), which provides, in part:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,

(b) the government of British Columbia and every agency of that government, and

(c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Purpose of guideline

The purpose of this guideline is to clarify the authority of WorkSafeBC over the occupational health and safety ("OHS") of organizations that conduct marine operations.

Jurisdiction over OHS

The *Constitution Act, 1867* ("*Constitution*") lists exclusive areas in which the federal and provincial governments may enact laws. The regulation of OHS falls under provincial jurisdiction. However, if an organization operates predominantly in an area that is within federal jurisdiction under the *Constitution*, such as navigation and shipping, and the regulation of the OHS of the organization is integral to regulating that area of federal competence, the OHS of that organization will fall under federal jurisdiction (Human Resources and Social Development Canada and Transport Canada have signed a [memorandum of understanding](#) to administer the OHS requirements in the federal transportation section). In those instances, WorkSafeBC will have no jurisdiction over OHS concerns.

Likewise, an operation that would otherwise be under provincial jurisdiction may fall under federal jurisdiction if there is a high degree of operational integration with a federally regulated organization. In other words, if the provincial operation forms an integral part of a federally regulated organization, or if the federally regulated organization is dependent on the provincial enterprise to carry out its federally regulated tasks, OHS over the operation will be under federal jurisdiction.

In assessing whether an organization is federally regulated, the courts inquire into the operations and normal activities of the organization in the context of the nature of the service, business, or work performed.

Commercial fishing

WorkSafeBC has OHS jurisdiction over the business of fishing, which encompasses the activities of the crew and the operation of the vessel and its gear in the territorial waters and navigable rivers of British Columbia. If the journey is between two ports within the province, WorkSafeBC has jurisdiction over these matters. Fishing operations are subject to the requirements of the *OHS Regulation* ("*Regulation*"), including sections [24.69 - 24.143](#).

Transport Canada may control only the fundamental aspects of navigation and shipping within the province. For example, it may impose rules designed to ensure the safety of vessels as long as the rules relate only to maritime matters, such as communication procedures, crew navigation qualifications, and emergency equipment. In addition, Fisheries and Oceans Canada may manage the fishery resources.

There are a number of activities on board commercial fishing vessels that are the joint focus of WorkSafeBC and the federal government. These include the stowing of cargo and catch, the setting and retrieving of the vessel's anchor, engine room procedures, and emergency drills.

This division of responsibilities is reflected in a memorandum of understanding between WorkSafeBC and Transport Canada respecting OHS jurisdiction on fishing vessels. Fishing vessels are not the only vessels over which WorkSafeBC and Transport Canada may have joint jurisdiction.

Vessels

WorkSafeBC has OHS jurisdiction over ferries, tugboats, boom boats, barges, and vessels used to transport workers, materials, or products that travel between ports in British Columbia. Firms that carry out regular interprovincial or international operations fall under the exclusive OHS jurisdiction of the federal government.

Even when a firm is within the OHS jurisdiction of WorkSafeBC (for instance, BC Ferries), any aspects of that firm's operations that are integral to navigation and shipping will fall under federal jurisdiction. The following are some examples:

- Bridge and helm station activities relating to navigational components of the vessel (e.g., autopilot operations, helming)
- "Rules of the road" (Transport Canada's collision regulations)
- Crew qualifications and certification respecting navigational aspects
- Emergency drills and rescue procedures prescribed by Transport Canada
- Emergency equipment
- Land-to-vessel and vessel-to-vessel communication procedures relating to navigation
- Vessel navigational components

The following are some examples of matters that are within the OHS jurisdiction of WorkSafeBC:

- Engine room procedures relating to matters such as indoor air quality, electrical safety, and emergency evacuation
- Personal protective equipment ("PPE") requirements for workers tasked with set-up and retrieval of the vessel's anchor, as applicable
- OHS aspects of emergency drills (e.g., PPE requirements, procedures)
- Vessels used to transport workers are subject to the requirements of the *Regulation*, including sections [17.15-17.26](#)
- Activities that involve loading and unloading materials, equipment, or products from a vessel within WorkSafeBC jurisdiction, including the use of equipment such as cranes to perform that work, are subject to the relevant requirements of the *Regulation* in Part 14.

Wharves

Wharves, docks, and mooring floats are within the OHS jurisdiction of WorkSafeBC. As a result, they are subject to the requirements of the *Regulation*, including sections [24.2-24.6](#).

Ports and harbours

The federal government has OHS jurisdiction over ports and harbours that serve interprovincial or international routes. The federal government's responsibility also extends to any operations in those sites that are functionally integrated with or essential to federal navigation or shipping undertakings. For example, firms that provide stevedoring services (loading and unloading of ships) are under federal jurisdiction.

Federal jurisdiction over the OHS of enterprises that transport or handle goods may also arise if the transportation of grains or dangerous goods is involved.

Ship construction and repairs

WorkSafeBC has jurisdiction over the OHS of enterprises engaged in the construction, repair, and maintenance of vessels. However, if the ship repair operations are conducted by a firm that is under federal jurisdiction (e.g., because it provides regular international shipping services), the OHS of those operations will fall under federal jurisdiction.

Aquaculture

Firms that conduct aquaculture operations (e.g., fish farming) are under the OHS jurisdiction of WorkSafeBC.

Dredging and construction of works

The federal government has OHS jurisdiction over firms engaged in the dredging of waterways for the purpose of creating, repairing, or maintaining navigation lanes and harbours. However, the construction of other works in navigable watercourses (including wharf construction and foundation piling) is under the jurisdiction of WorkSafeBC.

Dual jurisdiction

Often times a firm will engage in more than one activity. The typical approach for jurisdictional analysis is to treat an entire firm as a single entity—that is, treating all parts of the firm as being under either provincial or federal jurisdiction without dividing it up. However, where a firm's operations can be divided into distinct divisions or operational areas (for example, pier construction vs. channel dredging) each division can be treated separately for jurisdictional purposes.

Requirements for notifying and cooperating with the federal government

Prevention Manual Policy Item [P1-2-1 Application of the OHS Provisions - Where Jurisdictional Limits Exist](#) provides that WorkSafeBC prevention officers will not knowingly issue an order or exercise another power to directly enforce a statute or regulation administered by another agency. The policy also requires prevention officers who observe what they believe to be a violation of a statute or a regulation administered by another agency to conduct the following:

- Notify the agency of the details of the observation that they believe to be a violation of its statute or regulation. As part of this notification, it is recommended that prevention officers forward a copy of the inspection report, if one was prepared, to the agency. It should be noted that if the workplace is outside of WorkSafeBC's jurisdiction, the inspection report must not include an order and it is not required to be posted.
- Cooperate with the agency in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and prevention officers' duties under the *Act*.

Before notifying the agency, the prevention officer should inform the employer of the situation which may be a violation of a statute or regulation of another agency, and that the prevention officer will be contacting the agency for their follow-up.

Questions

When faced with assertions that OHS over a particular facility or activity falls outside of WorkSafeBC's jurisdiction, or situations where the jurisdictional divide is unclear, prevention officers should consult with their manager. Questions about jurisdiction over OHS may also be directed to the OHS Practice and Engineering Support department of WorkSafeBC.

G-P1-2-9 Jurisdiction over oil and gas operations

Issued April 13, 2011; Editorial Revision April 6, 2020

Regulatory excerpt

WorkSafeBC's prevention jurisdiction is set out in section of the *Workers Compensation Act* ("*Act*"), which provides, in part:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, and
- (c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Purpose of guideline

The purpose of this guideline is to explain the authority WorkSafeBC has over the occupational health and safety ("OHS") of organizations that conduct oil and gas operations.

Jurisdiction over OHS

The *Constitution Act, 1867* ("Constitution") lists exclusive areas in which the federal and provincial governments may enact laws. The regulation of OHS falls within provincial jurisdiction. However, if an organization operates predominantly in an area that is within federal jurisdiction under the *Constitution*, and the regulation of the OHS of the organization is integral to regulating that area of federal competence, the OHS of that organization will fall within federal jurisdiction. In those instances, WorkSafeBC will have no jurisdiction over OHS concerns.

Likewise, an operation that would otherwise be under provincial jurisdiction may fall within federal jurisdiction if there is a high degree of operational integration with a federally regulated organization. In other words, if the provincial operation forms an integral part of a federally regulated organization, or if the federally regulated organization is dependent on the provincial enterprise to carry out its federally regulated tasks, OHS over the operation will be under federal jurisdiction.

In assessing whether an organization is federally regulated, the courts inquire into the operations and normal activities of the organization in the context of the nature of the service, business, or work performed.

Pipelines

WorkSafeBC has OHS jurisdiction over pipelines that are located entirely within the bounds of the province. This includes bypass pipelines used to connect directly with interprovincial pipelines. On the other hand, interprovincial and international pipelines are under federal jurisdiction.

Upstream facilities

Upstream gathering and processing facilities will be under federal jurisdiction if they form part of a single undertaking with an interprovincial or international, and thus federal, pipeline. A mere physical connection between upstream facilities and a federal pipeline, in the absence of other factors, is not sufficient to make them a single federal undertaking. In order for several operations to constitute a single federal undertaking, they must be "functionally integrated" and subject to "common management, control and direction." For example, a single federal undertaking is likely to exist if the same personnel are responsible for operating and servicing both the upstream facilities and the pipeline. This is done under the direction and supervision of a common management team, and the primary purpose of the upstream plants is to facilitate transmission of the product through the pipeline.

If the facilities do not constitute a single federal undertaking, they will only be federally regulated if they are "integral" to the interprovincial or international pipeline. For example, in cases where the upstream operations (e.g., production of natural gas) constitute the primary activity and the interprovincial or international pipeline is clearly secondary, then the upstream facilities will be under WorkSafeBC jurisdiction.

Provincial contractors

Provincial contractors working on federal undertakings (including interprovincial and international pipelines) are normally within WorkSafeBC jurisdiction regarding OHS requirements. However, provincial contractors will generally fall within federal jurisdiction if: (1) there is an ongoing, high degree of operational and functional integration between the contractor and the federal operation; or (2) the federal operation is entirely dependent on the contractor.

If a WorkSafeBC prevention officer encounters a provincial firm working on a federal undertaking, the prevention officer should collect information relating to the degree of integration between the provincial contractor's crews and the federal enterprise. As well, the prevention officer should collect information relating to the dependency of the federal operation on the provincial contractor. Specifically, the prevention officer should attempt to determine the following:

- The extent to which the provincial contractor's crews are working closely with the federal operator's crews, and if the provincial contractor and its crews are managed by the federal enterprise
- The length of the relationship between the provincial contractor and the federal operator (i.e., is it ongoing or for a specified time period?)
- If the provincial contractor works exclusively with the federal operator or if the provincial contractor has many clients
- If the performance of the federal enterprise is entirely dependent upon the provincial contractor
- If the provincial contractor is owned in whole or in part by the federal operator

Requirements for notifying and cooperating with the federal government

Employment and Social Development Canada (ESDC) is responsible for enforcing OHS requirements in federal workplaces. ESDC has entered into a [memorandum of understanding](#) with the National Energy Board ("NEB") regarding the application and enforcement of OHS legislation in the federal oil and gas sector. Under that Memorandum of Understanding, the NEB is responsible for the investigation of hazardous occurrences and enforcement in the federal oil and gas sector, while ESDC is responsible for the investigation of hazardous occurrences and enforcement at the head offices and regional offices located in metropolitan centres.

Prevention Manual Policy Item [P1-2-1 Application of the OHS Provisions - Where Jurisdictional Limits Exist](#) provides that prevention officers will not knowingly issue an order or exercise another power to directly enforce a statute or regulation administered by another agency. The policy also requires prevention officers who observe what they believe to be a violation of a statute or a regulation administered by another agency to:

- Notify the agency of the details of the observation that they believe to be a violation of its statute or regulation. As part of this notification, it is recommended that prevention officers forward a copy of the inspection report, if one was prepared, to the agency. It should be noted that if the workplace is outside of WorkSafeBC's jurisdiction, the inspection report must not include an order and it is not required to be posted.

- Cooperate with the agency in dealing with the situation to the extent this is consistent with WorkSafeBC's mandate and prevention officers' duties under the *Act*.

Before notifying the agency, the prevention officer should inform the employer about the situation which may be a violation of a statute or regulation of another agency, and that the prevention officer will be contacting the agency for their follow-up.

Questions

When faced with assertions that OHS over a particular facility or activity falls outside of WorkSafeBC's jurisdiction, or situations where the jurisdictional divide is unclear, prevention officers should consult with their manager. Questions about jurisdiction over OHS may also be directed to the OHS Practice and Engineering Support department of WorkSafeBC.

Guidelines - Workers Compensation Act, Part 2 Division 1 - Interpretation and Purposes

G-P2-14 About OHS Guidelines

Issued September 30, 2009; Editorial Revision April 6, 2020

Regulatory excerpt

WorkSafeBC's mandate over occupational health and safety in the province is set out under section 17 in the *Workers Compensation Act* ("*Act*"). The mandate includes ensuring that reasonable standards are maintained for the protection of the health and safety of workers, and the occupational environment in which they work. The duties, functions and powers that WorkSafeBC may exercise in fulfilling this mandate include, in part

- To exercise the Board's authority to make regulations to establish standards and requirements for the protection of the health and safety of workers and the occupational environment in which they work
- To provide services to assist joint committees, worker health and safety representatives, employers, and workers in maintaining reasonable standards for occupational health and safety and occupational environment
- To ensure that persons concerned with the purposes of the OHS provisions are provided with information and advice relating to the Board's administration and to occupational health and safety and occupational environment generally
- To provide assistance to persons concerned with occupational health and safety and occupational environment

In addition to the requirements for health and safety and the occupational environment that are set out in the *Act*, the *Occupational Health and Safety Regulation* ("*Regulation*") also sets out legal requirements. To assist with the administration of the *Act* and the *Regulation*, WorkSafeBC publishes policies, guidelines, and other materials.

Hierarchy of authority

The hierarchy of authority between the *Act*, *Regulation*, policies, and guidelines is as follows:

The *Act* provides the legal authority and framework for all WorkSafeBC prevention activity. The *Regulation* is enacted under the authority of the *Act*. The *Act* and the *Regulation* both set out legally binding requirements on employers, workers, and other workplace parties.

Policies and guidelines are intended to provide direction on compliance with the *Act* and the *Regulation*. Prevention policies are issued by the Board of Directors and are binding on WorkSafeBC decision makers. They cannot conflict with requirements in the *Act* or the *Regulation*.

Guidelines are issued to further WorkSafeBC's prevention mandate by providing information to stakeholders. They cannot conflict with the requirements in the *Act* or the *Regulation*. In the event of a conflict, a prevention policy will take precedence over a guideline.

About Prevention Policies and the Prevention Manual

Prevention policies are issued on the authority of the Board of Directors. The policies related to occupational health and safety are published in the "Prevention Manual."

About OHS Guidelines

OHS guidelines are interpretive documents relating to specific sections of the *Act* or the *Regulation* which are intended to assist in the application and interpretation of these many requirements. Guidelines are issued on the authority of the Vice-President, Worker and Employer Services Division. In general terms, they are published to provide workplace parties with information about how compliance can be achieved under a particular section, and the approach to compliance that a WorkSafeBC prevention officer can be expected to take on an inspection at a workplace.

The guidelines communicate information to assist workplace parties in a variety of ways. A guideline may do one or more of the following:

- Explain terms or phrases used in the *Act* or the *Regulation*
- Explain the intent of a legal requirement, or provide background or educational information to enhance understanding of a legal requirement
- Provide one or more suggested options for compliance
- Prescribe procedures, measures, standards, or training courses acceptable to WorkSafeBC
- Communicate the existence of a vice-president directive suspending the application of a regulatory requirement

How "Enforceable" Are Guidelines?

A frequent question is whether workplace parties are required to apply the information provided in a guideline, and what are the consequences if they choose not to.

The simple answer is that whether a party is bound by a guideline will depend on the reason for, and intent of the particular guideline.

1. Information about complying

Most OHS guidelines simply provide information about complying with legal requirements that are in the *Act* or the *Regulation*. For these guidelines, the information and examples discussed in the guideline are not, strictly speaking, mandatory in nature - other means of complying may be acceptable, provided that the objectives of the requirement in the *Act* or the *Regulation* are met.

One common use of a guideline to provide information about compliance is where a section sets out very broad based requirements (referred to as performance based requirements). Many employers will want to know in these instances, "What do I need to do to meet this requirement?"

In the case where there may be more than one way to comply with a requirement, a workplace party can choose to follow a method of compliance that is not contemplated by the applicable guideline. To accept an alternative approach to compliance, prevention officers will consider the information provided in a guideline as one source of information for deciding to assist them in determining if the chosen method of compliance being proposed meets the legal requirements in the *Act* or the *Regulation*.

For example, [section 4.21](#) of the *Regulation* requires that an employer develop and implement procedures for checking the well being of workers who work alone. The guideline for this section ([G4.21](#)) provides information about methods for accomplishing this, including the various systems and technologies that may be used. The guideline serves to assist the employer only, and is not meant to be strictly followed in order to achieve compliance. The employer can review this information and use it to determine how they can best meet the requirements of section 4.21 given their particular circumstances.

2. Prescribing WorkSafeBC determinations

Many guidelines relate to sections of the *Regulation* that give WorkSafeBC the ability to set out mandatory standards. In these cases, the guideline simply communicates WorkSafeBC's standard that must be followed. Such sections tend to have language like "acceptable to the board" or "approved by the board."

For example, [section 21.5](#) of the *Regulation* provides that only the holder of a valid blaster's certificate issue "by the board" or "acceptable to the board" may conduct or supervise a blasting operation. [Guideline G21.5](#) sets out the agencies that are accepted by WorkSafeBC to issue valid certificates. Only certificates issued in accordance with the guideline will be recognized as valid by prevention officers.

In any event, whether providing information about compliance, or setting out a standard to be followed, the actual wording of the *Act* or the *Regulation* and the information contained in a guideline should be thoroughly reviewed by a workplace party when choosing a course of action.

Developing and updating OHS Guidelines

The OHS Practice and Engineering Support department at WorkSafeBC coordinates the development and updating of guidelines. The guideline process uses the expertise of subject matter experts within WorkSafeBC, as well as input from industry and labour representatives, and affected stakeholders, to thoroughly canvas the issues at hand, and reach practical, workable resolutions which are communicated in guidelines.

New guidelines and updates to guidelines are initially released for use marked as a "Preliminary Issue" with the effective date indicated, and will remain so marked for a minimum of 60 days. These guidelines are posted on the WorkSafeBC website for public comment during this time period. There are two reasons for the "Preliminary Issue" step. First, it allows WorkSafeBC to issue guidance material in a timely manner to address issues that arise. Second, a consultative body called the Policy and Practice Consultative Committee (PPCC) made up of representatives of industry and labour receives the guideline and is given the opportunity to review and comment before it is finalized.

At the conclusion of the 60-day consultation period, any necessary changes to a guideline are made, and the "Preliminary Issue" marking is removed.

Anyone who wishes to comment on a guideline or has suggestions for a new guideline can contact the OHS Practice and Engineering Support department at WorkSafeBC's Richmond office by email at regpraconsult@worksafebc.com

Guidelines - Workers Compensation Act, Part 2 Division 4 - General Duties of Employers, Workers and Others

G-P2-21 Communicable disease prevention

Preliminary Issue July 1, 2021

Regulatory excerpt

Section 21 of the *Workers Compensation Act* ("*Act*") states, in part:

21 General duties of employers

(1) Every employer must

- (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out, and
 - (b) comply with the OHS provisions, the regulations and any applicable orders.
- (2) Without limiting subsection (1), an employer must
- (a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,
 - (b) ensure that the employer's workers
 - (i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,
 - ...
 - (c) establish occupational health and safety policies and programs in accordance with the regulations,
 - (d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,
 - (e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,
 - ...
 - (g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and
 - ...

Purpose of guideline

This guideline helps employers understand their obligation to reduce the risk to their workers from communicable diseases in their workplaces.

Obligation to protect the health of workers

Section 21 of the *Act* requires employers to ensure the health of their workers. This obligation includes ensuring that basic steps are taken to reduce the risk to workers from communicable diseases.

Communicable diseases are illnesses caused by an infectious agent or its toxins that occur through the direct or indirect transmission of an infectious agent or its products from an infected individual or another vector. For the purpose of this guideline, the communicable diseases of concern are those that circulate in the community from time to time and as a result may be introduced into a workplace, such as COVID-19, norovirus, and influenza. When warranted, the Provincial Health Officer or a medical health officer ("Public Health") may indicate communicable diseases of concern to B.C. workplaces.

During periods of elevated risk where Public Health officials issue guidance, notices, or orders related to an employer's region and industry, employers must take steps to implement appropriate measures in accordance with the guidance of Public Health. These measures are in addition to the general measures for communicable disease prevention which should be in place at all times.

While these measures around communicable diseases are applicable to all employers, some employers will also have additional requirements to develop and implement exposure control plans under [section 6.34](#) of the *OHS Regulation* ("*Regulation*"). Refer to [OHS Guideline G6.34-1](#) for examples of workplaces which are likely to require an exposure control plan.

General measures for communicable disease prevention

Employers must implement the following general measures of communicable disease prevention to the extent practicable in their workplaces, and communicate them to their workers.

- Policies to support staff with symptoms
 - Implement a policy for supporting workers who have symptoms consistent with a communicable disease. Workers should not remain, or be permitted to remain, at the workplace if they are experiencing symptoms of a communicable disease.
- Hand-hygiene facilities
 - Ensure basic hand-hygiene facilities are available and provide the necessary supplies.
 - Workers should be reminded to maintain basic levels of hand hygiene.
 - As required by [section 4.85](#) of the *Regulation*, ensure plumbed or portable washroom facilities are readily available and are maintained and kept clean.
- Clean environment

- Maintain a clean environment through routine cleaning processes that are appropriate for the workplace and industry.
- - Building ventilation (HVAC systems)
 - Ensure the building's ventilation system is in good operating condition as designed, and that preventative maintenance is conducted.
 - Employers must comply with [sections 4.70 through 4.80](#) of the *Regulation* related to indoor air quality. These sections of the *Regulation* require ventilation systems to be properly balanced, which means verifying that the system meets its design conditions for air flow, temperature, humidity, and other design parameters.
- - Supporting vaccination
 - Support workers in receiving vaccinations for COVID-19 and other vaccine-preventable illnesses.
 - Take into consideration workers who cannot be vaccinated. In rare instances, some workers may be advised by their physicians that they should not be vaccinated due to a medical condition, such as a severe allergy to parts of the vaccine. Some workers may choose not to be vaccinated due to other reasons.
 - Be mindful of privacy and human rights laws, and seek advice when implementing policies requiring vaccines in the workplace.

[Communicable disease prevention: A guide for non-healthcare employers](#) can assist employers in understanding the components of communicable disease prevention and develop a communicable disease plan.

Public Health guidance

Public Health and the BC Centre for Disease Control publish guidance and instructions on preventing transmission of communicable diseases. Employers are expected to monitor and review published guidance and instructions related to the employer's industry, region, or workplace, and implement the measures to the extent practicable.

Responding to elevated risks

From time to time, Public Health may advise of elevated risks of communicable disease transmission in particular workplaces or contexts. Where Public Health has advised of an elevated risk of communicable disease transmission relevant to an employer's workplace, region, or industry, employers must take steps to assess the risk in the workplace and to follow the necessary measures to the extent practicable as provided by Public Health. Employers must communicate these measures to their workers. [Communicable disease prevention: A guide for non-healthcare employers](#) can assist employers in understanding the components of communicable disease prevention to respond to the elevated risk of communicable disease in their workplace.

Useful websites

[BC Centre for Disease Control](#)
[Office of the Provincial Health Officer](#)

G-P2-21(1) The *Human Rights Code* of British Columbia and Responsibilities of Employers

Issued February 4, 2005; Editorial Revision June 29, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

Section 21(1) of the *Workers Compensation Act* ("Act") states:

- 21(1) Every employer must
- (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out, and
 - (b) comply with the OHS provisions, the regulations and any applicable orders.

Sections 13(1) and 13(4) of the *Human Rights Code* ("Code") of British Columbia state:

Discrimination in employment

- 13(1) A person must not
- (a) refuse to employ or refuse to continue to employ a person, or
 - (b) discriminate against a person regarding employment or any term or condition of employment because of the race, colour, ancestry, place of origin, political belief, religion, marital status, family status, physical or mental disability, sex, sexual orientation, gender identity or expression, or age of that person or because that person has been convicted of a criminal or summary conviction offence that is unrelated to the employment or to the intended employment of that person.

13(4) Subsections (1) and (2) do not apply with respect to a refusal, limitation, specification or preference based on a bona fide occupational requirement.

Purpose of guideline

The purpose of this guideline is to provide direction to WorkSafeBC prevention officers in dealing with worker complaints that compliance with provisions of the *Act* or *OHS Regulation* ("*Regulation*") may violate provisions of the *Code*.

Background

There are circumstances in which a worker may refuse to perform certain work practices prescribed by the *Act* or *Regulation* based upon religious or other protected characteristics specified in section 13(1) of the *Code*. Moreover, a worker may complain that an employer that attempts to compel the worker to comply with the requirements of the *Act* or *Regulation* in light of his or her particular complaint is discriminating against the worker contrary to the provisions of the *Code*. At this point, the employer may choose to call a prevention officer to assist in resolving the matter.

Bona fide occupational requirements and accommodation of workers

It is generally accepted that regulatory requirements are *bona fide* occupational requirements, as they are reasonably necessary to assure the safety of workers. Even so, an employer may have to make reasonable attempts to accommodate a worker's protected characteristics listed in section 13(1) of the *Code* (such as a physical disability or religious beliefs).

What constitutes accommodation to the point of undue hardship is a question that rests on the unique facts of each case. Accommodation may take many forms depending on the circumstances, including reassignment, changing work schedules, modifying machinery, and so forth. The point of undue hardship will generally vary with the size of the employer, as larger employers may find it easier to accommodate a worker's protected characteristics without suffering a great degree of harm.

The employer is usually expected to take the initiative in proposing ways to accommodate a worker, and a worker is expected to actively participate in the process.

Role of the prevention officer

WorkSafeBC does not enforce *Code* requirements, which are beyond the scope of the *Act*. *Code* requirements are administered by the BC Human Rights Tribunal. If a prevention officer encounters a situation where the *Code* is at issue and a violation of the *Act* or *Regulation* is apparent, the prevention officer will first ensure that any immediate risk to the health and safety of workers is controlled. The prevention officer will then inform the employer that he or she may have a duty to accommodate the worker's protected characteristics (such as a physical disability, religious beliefs, or other characteristics listed in section 13(1) of the *Code*). The prevention officer will advise the employer to contact the [BC Human Rights Tribunal](#) or seek legal advice.

The prevention officer will not advise the employer on accommodation issues, as the nature of accommodation is a complex legal question which is dependent on numerous factors related to the employer's operations. The prevention officer should also refrain from writing orders until the employer has had an opportunity to seek further advice, including legal counsel, to resolve the issue. However, the prevention officer could advise on alternative work practices that comply with the *Act* or *Regulation* which could be acceptable to both parties.

The prevention officer should return to the worksite after a reasonable period of time and discuss what steps (if any) the employer has taken to resolve the issue and any ongoing *Act* or *Regulation* violations that stem from *Code*-related issues. If the employer has not taken steps to address any ongoing violations, the prevention officer should no longer refrain from writing orders against the employer. The prevention officer should ensure compliance with the *Act* and *Regulation*, regardless of any outstanding *Code*-related issues at the worksite, as the onus rests with the employer to accommodate a worker in the face of bona fide occupational requirements.

Any dispute that arises regarding the employer's choice of accommodation measures (if any) would fall within the jurisdiction of the [BC Human Rights Tribunal](#) and should be dealt with by that agency.

G-P2-21(1)-2 Labour supply firms and client employers - Responsibilities

Issued April 13, 2011; Editorial revision consequential to August 4, 2015 Regulatory Amendment; Revised July 27, 2017; Editorial Revision April 6, 2020

Regulatory excerpt

Responsibilities for worker health and safety are established by the *Workers Compensation Act* ("*Act*") and the *OHS Regulation* ("*Regulation*").

Section 21 of the *Act* states:

21 General duties of employers

- (1) Every employer must
 - (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out, and
 - (b) comply with the OHS provisions, the regulations and any applicable orders.
- (2) Without limiting subsection (1), an employer must

- (a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,
- (b) ensure that the employer's workers
- (i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,
- (ii) comply with the OHS provisions, the regulations and any applicable orders, and
- (iii) are made aware of their rights and duties under the OHS provisions and the regulations,
- (c) establish occupational health and safety policies and programs in accordance with the regulations,
- (d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,
- (e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,
- (f) make a copy of this Act and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,
- (g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and
- (h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

Section 30 of the *Act* states:

- (1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.
- (2) If one of the persons subject to the obligation complies with the applicable provision, the other persons subject to the obligation are relieved of that obligation only during the time when
 - (a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and
 - (b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

Section 3.1 of the *Regulation* states:

3.1 When program required

- (1) An occupational health and safety program as outlined in section 3.3 must be initiated and maintained
 - (a) by each employer that has
 - (i) a workforce of 20 or more workers, and
 - (ii) at least one workplace that is determined under section 3.16 (2)(b) to create a moderate or high risk of injury, or
 - (b) by each employer that has a workforce of 50 or more workers.
- (1.1) If subsection (1)(a) or (b) applies to the employer, the occupational health and safety program applies to the whole of the employer's operations.
- (2) Despite subsection (1) an occupational health and safety program may be required in any workplace when, in the opinion of an officer, such a program is necessary.

Purpose of guideline

The purpose of this guideline is to

- Provide information regarding labour supply firms and their role as employers of workers that are provided to workplaces operated by other employers
- Discuss the occupational health and safety responsibilities of employers who use workers supplied by labour supply firms
- Discuss how the requirements for a health and safety program apply to workplaces where workers of labour supply firms are present
- Provide information on responsibilities for investigating and reporting on workplace incidents

Background

Many firms in a variety of industries routinely engage the services of labour supply firms to supply workers to their workplaces. These labour supply firms hire workers directly and arrange for them to work at their client firms' workplaces. This practice is most common in the construction industry, but also occurs in manufacturing, warehousing, and other industries where the need for labour will fluctuate. In these situations, questions can arise as to the role of both the labour supply firm as the direct employer of the worker, and the client firm as the employer who is responsible for conditions at the workplace and who directs the work performed by the worker.

Labour supply firms and their responsibilities as employers

Both the client firm and the labour supply firm have health and safety obligations with respect to these workers. The labour supply firm is the direct employer of the workers, and therefore has the responsibilities of an employer with respect to these workers.

Under section 21(1) of the *Act*, the labour supply firm as the direct employer has the responsibility to ensure the worker's health and safety. A key element is to evaluate the client's ability to adequately protect, instruct, and supervise the worker. Engaging a less sophisticated client firm will necessarily entail more diligence from the labour supply firm regarding the instruction and supervision it gives its workers.

Aspects of fulfilling this obligation should include the following:

- Assessing the capacity of the client firm to protect, instruct, and supervise the worker
- Clarifying with the client firm the tasks the worker will be performing and ensuring the worker is limited to tasks for which he or she is qualified
- Ensuring the worker is adequately qualified, experienced, and trained for the tasks that the client firm will have the worker perform
- Providing general safety orientation and training
- Monitoring the work on an ongoing basis to ensure the worker is performing work in a safe environment within his or her capabilities

Under section 21(2) of the *Act*, the labour supply firm's obligation includes the following:

- Making the worker aware of reasonably foreseeable hazards that the worker will be exposed to at the client firm's workplace
- Ensuring the worker is provided with appropriate personal protective equipment
- Providing information, instruction, and supervision necessary for the worker to ensure the health and safety of that worker and other workers at the client firm's workplace

The labour supply firm may rely to a greater or lesser degree on the client firm to carry out aspects of these obligations. However, the labour supply firm is expected to confirm that these elements of its compliance will be carried out by the client firm by communicating clearly its expectations in advance and following up with the client firm. Failure of the client firm to carry out these elements will result in the labour supply firm's non-compliance.

The client firms and their responsibilities as employers

As a practical matter workplace conditions, site-specific matters, and the direct supervision of the worker are necessarily beyond the direct control of the labour supply firm and within the control of its client firm. The client firm also has health and safety obligations with respect to the labour supply firm's workers.

Section 21(1)(a)(ii) of the *Act* sets out that every employer must ensure the health and safety not only of its own workers, but "any other workers present at a workplace at which that employer's work is being carried out." The scope of this duty depends on the employer's knowledge of and control over the workplace, its hazards, and the workers in question. Though it may depend on the type of work and the sophistication of the client firm, in many situations the role of the client firm should be nearly identical to that of the direct employer. That is, the client firm should ensure the health and safety of the labour supply firm's worker to the same extent that it is required to ensure the health and safety of its own workers.

The client firm should

- Accurately detail the tasks that it requires the worker to perform
- Ensure the labour supply firm is supplying an adequately qualified worker for those tasks
- Limit the worker to the tasks it has communicated to the labour supply firm
- Provide personal protective equipment not already supplied by the worker or the labour supply firm
- Provide site orientation and instruction to the worker regarding the task and associated hazards, and confirm the worker's ability to perform those tasks safely

The following clarifies how some specific requirements in the *Regulation* should be approached where workers of labour supply firms are present at client firm workplaces.

Impact on the client firm's OHS program requirements

OHS Guideline [G3.1 \(Occupational health and safety program\)](#) provides detailed information on the application of section 3.1 of the *Regulation*. It discusses how to count workers for the purposes of determining whether a formal occupational health and safety (OHS) program is required, and outlines considerations that will be used by WorkSafeBC prevention officers when exercising their discretion to require a formal OHS program under [section 3.2](#) of the *Regulation*. A brief summary of the main points from the guideline is provided below.

Workers are included in the count if they are employed for more than a month. In addition, they are included if they have currently worked for less than a month but have previously worked periodically for the employer.

As noted in section 3.1(1) of the *Regulation*, if an employer employs workers in at least one moderate- or high-risk operation, there must be a

formal OHS program if the total workforce in all operations is 20 workers or more. Construction workplaces, for example, are normally considered to be moderate- to high-risk workplaces.

First aid

Under the requirements for first aid in [Part 3 \(Rights and Responsibilities\)](#) of the *Regulation*, the labour supply firm, as the employer, is responsible for ensuring that first aid is provided for its workers. In complying with this obligation, typically the labour supply firm will need to confirm with its client firm that first aid is being supplied at the workplace.

The client firm is expected to include the labour supply firm's workers in its first aid planning, and adjust the first aid services to include the total number of workers on site.

Protection from hazardous materials/WHMIS

Under their responsibilities as employers, the client firms are required to maintain a safe workplace.

Information requirements on hazardous materials are covered primarily in Part 5 (Chemical Agents and Biological Agents) of the *Regulation*. Most substances to which a worker might be exposed are covered by the Workplace Hazardous Materials Information System (WHMIS), which is addressed in [sections 5.3 to 5.18](#). For hazardous substances covered by WHMIS, the worker must receive the education and training required by sections 5.6 and 5.7 of the *Regulation*. [Section 5.6](#) deals with general (generic) requirements to ensure workers know, among other things, the elements of the WHMIS program, and the content required on labels and safety data sheets (SDS). [Section 5.7](#) addresses site-specific requirements for training in the safe procedures for hazardous products in the workplace.

The labour supply firm and the client firm may, depending on the arrangements between them, share in the responsibilities for both generic instruction and site-specific training. It may be a typical scenario for the labour supply firm to ensure generic instruction is given, and the client firm to cover site-specific training.

New Worker Orientation

[Sections 3.22 to 3.25](#) of the *Regulation* require all young and new workers to receive orientation and training specific to the workplace. New workers include workers who are relocated to a new workplace if the hazards in that workplace are different from the hazards in their previous workplace. Again, responsibilities may be shared between the client firm and the labour supply firm on how the various specified training and orientation elements are addressed. It may, for example, be reasonable to expect that the labour supply firm take the lead on providing generic instruction on topics that are not site-specific, with the client firm taking responsibility for site-specific topics. Records must be kept of the orientation and training provided.

Specific direction concerning the obligations of farm labour contractors to establish occupational health and safety programs is set out in OHS Guideline [G3.1-2 Farm labour contractors and growers](#).

Accident Reporting and Investigation

[Sections 68-73](#) of the *Act* set out employer obligations to report and investigate workplace accidents. An employer must immediately notify WorkSafeBC of any incident that involves the following:

- Serious injury to or death of a worker
- Major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system, or excavation
- Major release of hazardous substances
- Fire or explosion that had a potential for causing serious injury to a worker
- Blasting accident causing personal injury
- Dangerous incident involving explosives, whether or not there is personal injury

An employer must investigate any of the above listed incidents, as well as any incident that involves the following:

- Diving incident, as set out in section 24.34 of the *Regulation*
- Injury requiring medical treatment
- Minor injury or no injury but had potential for causing serious injury (near miss or close call)

Generally, the obligation to report and investigate a workplace incident rests primarily with the employer present at the workplace at which the accident or incident took place. This is because the employer present at the workplace, generally the client firm, will likely be best positioned to

- Identify any unsafe conditions, acts, or procedures that significantly contributed to the incident
- Determine the corrective action necessary to prevent the recurrence of similar incidents
- Determine the cause(s) of the incident
- Take the necessary corrective actions

If the client firm conducts an incident investigation, the labour supply firm can help the people investigating the incident by providing details about the information, instruction, and training that workers received. The labour supply firm can also provide insight into how expectations were communicated between the labour supply firm and client firm.

A labour supply firm may be required to undertake an independent incident investigation in some situations. Examples include, but are not limited to, the following:

- The client firm has not complied with the obligation to investigate the incident
- The client firm's incident investigation identified gaps in communication between the labour supply firm and the client firm as significantly contributing to the incident

The employer(s) that conducts an incident investigation must prepare any associated incident investigation reports or corrective action reports that are required. More information about incident investigations and associated reports are set out in Prevention policies [P2-71-1](#) and [P2-72-1](#), and the associated guidelines.

G-P2-21(1)-3 Bullying and harassment

Issued November 1, 2013; Editorial Revision April 6, 2020

Regulatory excerpt

Responsibilities for worker health and safety are established by the *Workers Compensation Act* ("Act") and the *OHS Regulation* ("Regulation").

Section 21 of the *Act* states:

21 General duties of employers

(1) Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), an employer must

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,

Policy P2-21-2 ("Policy") states:

"bullying and harassment"

(a) includes any inappropriate conduct or comment by a person towards a worker that the person knew or reasonably ought to have known would cause that worker to be humiliated or intimidated, but

(b) excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.

Reasonable Steps to Address the Hazard

WorkSafeBC considers that reasonable steps by an employer to prevent where possible, or otherwise minimize, workplace bullying and harassment include the following:

(a) developing a policy statement with respect to workplace bullying and harassment not being acceptable or tolerated;

(b) taking steps to prevent where possible, or otherwise minimize, workplace bullying and harassment;

(c) developing and implementing procedures for workers to report incidents or complaints of workplace bullying and harassment including how, when and to whom a worker should report incidents or complaints. Included must be procedures for a worker to report if the employer, supervisor or person acting on behalf of the employer, is the alleged bully and harasser;

(d) developing and implementing procedures for how the employer will deal with incidents or complaints of workplace bullying and harassment including:

i. how and when investigations will be conducted;

ii. what will be included in the investigation;

iii. roles and responsibilities of employers, supervisors, workers and others;

iv. follow-up to the investigation (description of corrective actions, timeframe, dealing with adverse symptoms, etc.); and

v. record keeping requirements;

(e) informing workers of the policy statement in (a) and the steps taken in (b);

(f) training supervisors and workers on:

i. recognizing the potential for bullying and harassment;

ii. responding to bullying and harassment; and

iii. procedures for reporting, and how the employer will deal with incidents or complaints of bullying and harassment in (c) and (d) respectively;

(g) annually reviewing (a), (b), (c), and (d);

(h) not engaging in bullying and harassment of workers and supervisors; and

(i) applying and complying with the employer's policies and procedures on bullying and harassment.

Purpose of guideline

The purpose of this guideline is to provide information regarding the requirement for employers to prevent where possible, or otherwise minimize, workplace bullying and harassment. This guideline also provides information on WorkSafeBC's approach to dealing with individual specific complaints relating to cases of bullying and harassment, including the right to refuse work and discrimination concerns.

While this guideline provides guidance on the application of the Policy under section 21 relating to bullying and harassment, a handbook and other resources providing detailed information on how to prevent and deal with workplace bullying and harassment is provided in an [online tool kit](#) of resources produced by WorkSafeBC.

Background

All employers are required to take steps to eliminate, where possible, or otherwise minimize the risks to workers from bullying and harassment in the workplace. It is the employer's responsibility to take steps including developing and implementing procedures for workers to report incidents or complaints of workplace bullying and harassment, and developing and implementing procedures for how the employer will deal with complaints, in order to minimize bullying and harassing behaviours at the workplace. Supervisors and workers also have obligations in connection with bullying and harassment. The Policies relevant to [supervisors](#) and [workers](#) are available here.

Prevention officers' role is to ensure employers have implemented policies and have an appropriate framework for dealing with bullying and harassment, and that supervisors and workers are meeting their obligations under the Policy. Prevention officers will also ensure that workers with individual complaints about bullying or harassment are referred to appropriate resources at WorkSafeBC for proper assistance guided by each individual's circumstances.

What is "bullying and harassment?"

"Bullying and harassment" is defined in the Policy as including "any inappropriate conduct or comment by a person towards a worker that the person knew or reasonably ought to have known would cause that worker to be humiliated or intimidated, but excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment."

There are a number of elements in the definition, which are described below.

"Conduct or comment"

The use of these two terms is intended to indicate that a broad spectrum of behaviour is captured in the definition. It includes not just words, but actions, gestures and other behaviours.

Examples of conduct or comment that might constitute bullying and harassment include, but are not limited to, the following:

- Verbal aggression or insults; calling someone derogatory names
- Vandalizing a worker's belongings or work equipment
- Sabotaging a person's work
- Spreading malicious gossip or rumours about a person
- Engaging in harmful or offensive initiation practices
- Physical assault or threats (this would also constitute "violence" or "improper activity or behaviour")
- Making personal attacks based on someone's private life and/or personal traits
- Making aggressive or threatening gestures
- Engaging in targeted social isolation

While a number of these examples will involve overt or easily observable behaviours, bullying and harassment can also include more subtle and less obvious conduct or comment. Whether any conduct or comment will constitute bullying and harassment will depend on the context, and whether the individual engaging in the conduct or comment knew or reasonably ought to have known that the worker subject to it would be humiliated or intimidated.

"By a person"

Bullying and harassment is not limited to behaviour engaged in by a worker towards another. The definition encompasses behaviour engaged in by a person that a worker may encounter at the workplace, such as clients, customers, members of the public, etc. While employers and supervisors may not have direct control over the behaviour of such non-workers, it is important to acknowledge that employers and supervisors must

implement procedures to ensure bullying and harassing behaviour from non-workers is prevented or minimized, and appropriately addressed if such behaviour should occur.

"Knew or reasonably ought to have known would cause that worker to be humiliated or intimidated"

The use of the phrase "knew or reasonably ought to have known" creates an objective standard for bullying and harassing behaviour. That is, the test of whether any conduct or comment is bullying and harassment includes the following:

- The person knew his or her conduct or comment would cause that worker to be humiliated or intimidated, or
- A reasonable person would have considered the conduct to cause humiliation or intimidation to that worker.

Even if the person alleged to have engaged in bullying and harassment claims to be unaware that the behaviour was humiliating or intimidating, the behaviour may still be bullying and harassment if a reasonable person in the same situation would have known the behaviour was humiliating or intimidating to that worker. The use of this phrase ensures that anyone engaging in offensive behaviour cannot be "willfully blind" to its effects, nor can the behaviour be excused on the basis that the person engaging in the behaviour didn't intend it to humiliate or intimidate the worker.

The use of the phrase "that worker," means that the characteristics of the worker who is the subject of the alleged bullying or harassment need to be taken into account in determining if the conduct or comment would be humiliating or intimidating. Conduct or comments that one worker may accept or tolerate might cause a different worker to be humiliated or intimidated.

What is *not* bullying and harassment?

The definition of "bullying and harassment" specifically excludes reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.

Management and direction of workers or the place of employment include, for example, decisions relating to the following:

- Job duties or the work to be performed
- Workloads and deadlines
- Lay offs, transfers, and reorganizations
- Work instruction, supervision, or feedback
- Work evaluation
- Performance management
- Discipline, suspension, or termination

While the employer may exercise its authority to make legitimate management decisions, this does not mean that these decisions can be undertaken in a manner that would constitute bullying or harassment.

Reasonable steps to address the hazard

Employers must take a number of steps to prevent or otherwise minimize workplace bullying and harassment. These steps include the following:

- *Developing a policy statement with respect to bullying and harassment*
The policy statement must clearly state that bullying and harassment will not be tolerated.
- *Taking steps to prevent or minimize bullying and harassment*
The employer must take steps to eliminate or otherwise minimize workplace bullying and harassment. It is not enough for an employer to merely respond to complaints of bullying and harassment if it arises. Where an employer is aware of circumstances that present a risk of bullying or harassment, the employer must consider how best to proactively prevent or minimize that risk and must take action to do so. The specific action the employer takes must be appropriate to the circumstances. These actions may range from providing direction and supervision to affected workers, to providing specific training to workers on managing difficult situations, to imposing workplace arrangements that minimize the risk of bullying and harassment.
- *Developing and implementing reporting procedures*
The employer must implement a mechanism by which bullying and harassment issues are reported to the employer including how, when, and to whom a worker should report incidents or complaints. Included must be procedures for a worker to report if the employer, supervisor, or person acting on behalf of the employer is the alleged bully and harasser.

Reporting procedures should clearly set out the method by which a worker can report a complaint. For example, the procedures should indicate if workers are to report directly to the employer, or to specified designates such as human resources personnel, or to supervisors.

- *Developing and implementing procedures on how to deal with incidents and complaints*
The employer must implement procedures for responding to complaints or incidents of bullying and harassment. The procedures must ensure a reasonable response to the complaint or incident and aim to fully address the incident and ensure that bullying and harassment is prevented or minimized in the future.

Developing and implementing procedures for how the employer will deal with incidents or complaints of workplace bullying and harassment must include the following:

- How and when investigations will be conducted

- What will be included in the investigation
- Roles and responsibilities of employers, supervisors, workers and others
- Follow up to the investigation (description of corrective actions, timeframe, dealing with adverse symptoms, etc.)
- Record-keeping requirements

Investigations into bullying and harassment should:

- Be undertaken promptly and diligently, and be as thorough as necessary in the circumstances
- Be fair and impartial, providing both the complainant and the subject of the complaint fairness in evaluating the allegations
- Be sensitive to the interests of the parties, and maintain confidentiality to the extent possible in the circumstances
- Be focused on finding facts and evidence, including interviews of the complainant, the subject, and any witnesses
- Incorporate, where necessary, the need for both the complainant and the subject of the investigation to have assistance during the investigation process

Following the investigation, the employer must promptly take any necessary corrective action.

The extent to which employers are required to involve worker and employer representatives of the joint health and safety committee, as well as whether the employer must provide the joint health and safety committee with the results of a bullying and harassment investigation, is currently being reviewed for further Policy development by WorkSafeBC. Further direction on the obligations of employers in conducting investigations will be communicated by that Policy.

While more detailed Policy on the role of the joint health and safety committee is being developed, it is important to note that section 21(2)(g) of the *Act* requires employers to consult and cooperate with joint committees and worker health and safety representatives at the employer's workplace. It is expected that employers will engage in ongoing consultation with the joint health and safety committee or worker health and safety representative regarding the nature and effectiveness of their bullying and harassment program, and to engage with the joint health and safety committee in the course of the annual review.

Training and communication

- Every employer must ensure everyone understands their responsibilities in connection with bullying and harassment. This includes providing specific training with regard to the employer's policy and procedures. Workers and supervisors should be trained on the following:
 - How to recognize bullying and harassment
 - How workers who experience or witness bullying and harassment should respond
 - Who workers can go to for help and what help will be provided
 - Who the contacts are for reporting incidents
 - Who is responsible for following up on complaints and incidents

Workers who investigate incidents and complaints should receive specific training and instruction that is appropriate for the sensitive and challenging task of responding to bullying and harassment complaints.

Annual review

- Employers must engage in an annual review of the policy statement, reporting and investigation procedures, and steps taken to prevent or minimize bullying and harassment to ensure their effectiveness.

WorkSafeBC has published additional resources to assist with developing policies and procedures to deal with workplace bullying and harassment, which can be found [here](#).

Multiple employer workplaces

Situations involving bullying and harassment are not limited to single employer workplaces. It is important to bear in mind that employers must take steps to prevent or minimize bullying and harassment that might originate from workers of other employers at a multiple employer workplace, as well as ensuring the employer's own workers do not bully or harass the workers of other employers.

Section 24 of the *Act* requires a prime contractor at a multiple employer workplace to do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with health and safety requirements. This requirement would extend to maintaining a system for dealing with complaints of bullying and harassment between workers of different employers and ensuring employers comply with the requirements around bullying and harassment.

Other rights and remedies

In addition to the requirements of the Policies under the *Act*, there may be other avenues that are available to a worker who believes they have been bullied or harassed at the workplace. Whether any of these will be appropriate avenues to pursue will depend on the circumstances of each case.

Refusal of unsafe work - Section 3.12 of the Regulation

A worker may refuse to carry out any work process where he or she has "reasonable cause to believe that to do so would create an undue hazard to the health and safety of that person." In some situations, continuing to work where there is exposure to bullying and harassment may provide reasonable grounds to believe there is an undue hazard to the worker who is subject to the behaviour. An exercise of a worker's right to refuse work in such cases will follow, as with other refusals, the direction and procedures set out in [section 3.12](#) and as further discussed in OHS

Guideline [G3.12 Refusal of unsafe work](#).

There may be cases where a worker who has made a complaint about bullying or harassment believes he or she has also suffered adverse affects with respect to any term or condition of their employment as a consequence of making the complaint. In such instances, a worker may make a complaint of prohibited action to WorkSafeBC. The usual practice and procedures established for prohibited action complaints would apply.

Further information is set out in OHS Guideline [G-P2-49 Worker complaints of discriminatory action respecting and failure to pay wages complaints](#).

Others

The collective agreement at a workplace may include language which prohibits harassment and provides further measures, such as requiring an investigation and/or filing of a grievance. Also, if bullying and harassment is based on a prohibited ground within the provisions of the *Human Rights Code*, the worker may also have redress under that legislation. At the extreme, bullying and harassment could involve threats of or actual violence, and would therefore fall within the violence provisions in sections [4.27 through 4.31](#) of the *Regulation*, and even into the realm of police investigation and criminal sanction.

Enforcement

Prevention officers in the course of regular inspections will seek to confirm that the requirements of the Policies have been implemented at the workplace. In doing so, they will apply the normal practice used by prevention officers to determine and confirm compliance with occupational health and safety requirements.

Prevention officers may also attend a workplace in response to an "action request" based on a complaint or concern. For example, a worker may advise WorkSafeBC of concerns such as the requirements of the Policies not having been put into place at a workplace, or the policy statement or established procedures not having been implemented.

Given the sensitivity of surrounding allegations of bullying and harassment, in the course of their inspections, prevention officers will take care to protect sensitive and confidential information that they collect, either through a review of documentation or witness interviews. However, complete confidentiality cannot be guaranteed; full disclosure of information can occur during a review or appeal procedure. Finally, all persons questioned during an inspection by a prevention officer have the right to be accompanied by a person of their choice who is reasonably available during questioning, as is provided by section 80 of the *Act*.

G-P2-21(2)(f) Copy of the *Act* readily available

Issued April 27, 2000; Updated March 28, 2002; Editorial Revision February 7, 2006; Editorial Revision April 6, 2020

Regulatory excerpt

Section 21(2)(f) of the *Workers Compensation Act (Act)* states:

Without limiting subsection (1), an employer must... (f) make a copy of this *Act* and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,...

Purpose of guideline

This guideline discusses considerations involved in determining how to make a copy of the *Act* and *OHS Regulation* ("*Regulation*") "readily available" under section 21(2)(f) of the *Act*.

"Readily available"

What constitutes "readily available" requires the exercise of judgement with some consideration of the circumstances surrounding the request. For example, if reference to the *Act* or *Regulation* is for health and safety purposes related to the work under way or about to take place, then a worker should be able to review the relevant material promptly, though not necessarily immediately on demand. However, this may mean that the work has to stop, or may not start until the health or safety issue is clarified. This will be particularly relevant if the issue is one of a worker exercising the right to refuse unsafe work. If the need for reference is for a claims or assessment matter, the actual time it takes to make the *Act* readily available for review might reasonably be a longer time than for making the health and safety related portions available.

Use of electronic versions of the legislation

The copy of the *Regulation* and *Act* that is made readily available for workers may be either a printed or electronic version. If an employer chooses to meet the requirement under section 21(2)(f) by providing access to an electronic version of the *Act* and *Regulation*, the employer should be prepared to provide assistance to workers who do not have sufficient computer skills or equipment to access the electronic version on their own. The employer should also be prepared to print off portions of the *Act* or *Regulation* as the worker may reasonably request to deal with a particular topic or issue.

The use of WorkSafeBC's "Excerpts" from the *Act*

WorkSafeBC reproduces some portions of the *Act* relating to occupational health and safety matters as "**Excerpts**" from the *Act*, which are available on-line (see below). An employer might comply with section 21(2)(f) of the *Act* by having a copy of these excerpts as well as the *Regulation* reasonably available at the workplace and by having a plan in place to provide workers access to the complete *Act* within a few work days.

The employer's plan for providing workers access to the complete *Act* might include arrangements to visit a company's office or other fixed work location, a local library or another resource center where the relevant material can be accessed in print form or online. The *Act* requires the

employer to post and keep posted "a notice advising where the copy is available for review".

Sources of the *Act* and *Regulation*

The following Internet addresses provide unofficial online versions of the *Regulation* and excerpts of the *Act*.

[OHS Regulation](#)
[Workers Compensation Act](#)

Legislation can also be purchased from [Crown Publications Inc.](#) (phone 250-387-6409 or 1-800-663-6105 toll-free in North America)

G-P2-22 Orders to workers

Issued September 30, 2009; Editorial Revision April 6, 2020

Regulatory excerpt

Section 22 (General duties of workers) of the *Workers Compensation Act* ("*Act*") states:

(1) Every worker must

(a) take reasonable care to protect the worker's health and safety and the health and safety of other persons who may be affected by the worker's acts or omissions at work, and

(b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), a worker must

(a) carry out the worker's work in accordance with established safe work procedures as required by the OHS provisions and the regulations,

(b) use or wear protective equipment, devices and clothing as required by the regulations,

(c) not engage in horseplay or similar conduct that may endanger the worker or any other person,

(d) ensure that the worker's ability to work without risk to that worker's health or safety, or to the health or safety of any other person, is not impaired by alcohol, drugs or other causes,

(e) report to the supervisor or employer

(i) any contravention of the OHS provisions, the regulations or an applicable order of which the worker is aware, and

(ii) the absence of or defect in any protective equipment, device or clothing, or the existence of any other hazard, that the worker considers is likely to endanger the worker or any other person,

(f) cooperate with the joint committee or worker health and safety representative for the workplace, and

(g) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

Section 23 (General duties of supervisors) of the *Act* states:

(1) Every supervisor must

(a) ensure the health and safety of all workers under the direct supervision of the supervisor,

(b) be knowledgeable about the OHS provisions and those regulations applicable to the work being supervised, and

(c) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), a supervisor must

(a) ensure that the workers under the supervisor's supervision

(i) are made aware of all known or reasonably foreseeable health or safety hazards in the area where they work, and

(ii) comply with the OHS provisions, the regulations and any applicable orders,

(b) consult and cooperate with the joint committee or worker health and safety representative for the workplace, and

(c) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

Purpose of guideline

The purpose of this guideline is to explain the factors that will be considered in determining whether or not to issue orders to workers (OtWs).

Background

Under the broad enforcement power in section 84 of the *Act*, WorkSafeBC prevention officers may issue orders to various workplace parties pursuant to provisions of the *Act* and the *OHS Regulation* ("*Regulation*"). The general duty sections of [Part 2, Division 4](#) of the *Act* assign responsibilities for health and safety in the workplace to employers, workers, supervisors, prime contractors, and suppliers, as well as directors and officers of corporations.

Prevention policy provides that all parties with duties under the *Act* may be able to affect the health and safety of persons at or near a workplace. While the employer has the primary responsibility for health and safety at their workplace, any and all of the parties may be cited for violations of their statutory duties as more than one party may be responsible. Each party must fulfill the obligations imposed on him or her and where those obligations have not been fulfilled, prevention officers may issue orders to all the parties.

In issuing orders, the main consideration is not which party is most responsible for a workplace violation. Rather, prevention officers consider issuing orders on those persons who are not in compliance with their responsibilities under the *Act* and *Regulation*. Whether orders are issued on an employer or not, the prevention officer will consider if orders on the supervisors and workers are required. OtWs may also be issued against an employer, if they are acting in the capacity of a worker.

Responsibilities

Worker

Workers must work safely, and should encourage their co-workers to do the same. An important component of a worker's responsibility for his or her own safety is to ask for training if he or she is unsure about the hazards of their job or how to safely perform a work task.

Responsibilities of workers set out under section 22 of the *Act* include

- Taking reasonable care to protect his or her health and safety and the health and safety of others
- Following safe work procedures
- Using appropriate personal protective equipment (ppe)
- Not engaging in horseplay or other hazardous conduct
- Ensuring that their ability to work is not impaired by alcohol, drugs, or other causes
- Reporting to his or her supervisor or employer unsafe conditions and contraventions of the *Act* or *Regulation*
- Co-operating with prevention officers

Workers may not be disciplined for refusing to perform a task that they have reasonable cause to believe is dangerous. A supervisor or worker has the right to refuse unsafe work and the employer should advise them of that right.

Supervisor

Under section 23 of the *Act*, supervisors have specific responsibilities that are additional to their duties as workers under section 22. The supervisor's responsibilities include

- Providing training and orientation to new and young workers
- Instructing workers in safe work procedures
- Training workers in their assigned tasks, and checking that their work is being done safely
- Ensuring that only authorized and properly trained workers operate tools and machinery, use hazardous chemicals, and enter confined spaces
- Ensuring that equipment and materials are properly handled, stored, and maintained
- Correcting and investigating unsafe acts and conditions that they observe or that are reported to them

Supervisors have the right and responsibility to refuse to direct workers to perform work the supervisor considers unsafe.

Issuing orders

In determining whether or not an OtW is appropriate against a supervisor or worker, a prevention officer needs to consider three elements and determine the role that each element contributed.

Knowledge

First, did the supervisor or worker have knowledge of the hazard, the risk of injury, or the requirements applicable to the work involved? Evidence of sufficient knowledge may be demonstrated by considering what training and orientation they received on the job. For example, the supervisor or worker may have obtained general knowledge of the hazard through previous education, from training received through a formal trade qualification, experience at the task, or in the industry.

Control

Second, did the supervisor or worker have control over the hazard? Were adequate controls readily available at the worksite and were the controls properly used? Examples of controls include personal protective equipment, local exhaust ventilation, or an exposure control plan. An order should only be issued if the supervisor or worker had some means within their authority to control or reduce the hazard.

Reasonable steps to be taken

Third, did the supervisor or worker take reasonable steps within their authority to control the hazard? Taking reasonable steps may include

wearing personal protective equipment or using appropriate safety procedures.

Situations where an OtW may be appropriate include

- Worker fails to use ppe in accordance with requirements ([section 8.9](#) of the *Regulation*)
- Supervisor does not ensure appropriate ppe is available, properly worn, and maintained ([section 8.8](#) of the *Regulation*)
- Blaster fails to follow safe blasting procedures ([section 21.66](#) of the *Regulation*)
- Worker fails to comply with lockout procedures ([section 10.7](#) of the *Regulation*)
- Worker engages in improper activity or behaviour at the workplace ([section 4.25](#) of the *Regulation*)
- Crane operator does not follow proper procedures ([section 14.38\(2\)](#) of the *Regulation*)
- Worker remains at workplace while being impaired ([section 4.20\(1\)](#) of the *Regulation*)
- While spraying isocyanate-containing paint, the worker does not wear the airline respirator that was properly selected and provided for the worker's use by the employer. The worker was aware of the lung sensitization hazard associated with exposure to isocyanate.
- Worker enters a live sewer well (confined space) without conducting pre-entry atmospheric testing and without ventilating the space. The worker was aware that the well was a confined space that could contain a hazardous atmosphere. Worker was also provided with adequate instruction and training regarding pre-entry requirements and other safe work procedures for confined space entry work.

Examples

1. A WorkSafeBC prevention officer observes three workers on a roof without proper fall arrest equipment at a height of 20 feet from ground. The prevention officer determines through discussion that one of them is the assigned supervisor and the other two are workers that are working on this job after hours from their regular employment.

The prevention officer finds that the employer has supplied all three workers with fall arrest equipment, but the equipment has been left in the truck. The supervisor is unable to produce training logs to demonstrate that the workers have been instructed in fall protection, and neither of the workers is able to properly don their harnesses when asked to do so by the prevention officer. The prevention officer determines that the supervisor had knowledge of the hazards of falling from the roof, and sufficient ability to control the hazard but failed to take reasonable steps to do so.

The supervisor would be issued an OtW for failing to fulfill his obligations under the *Act* and the *Regulation*. The workers in this example were neither properly trained nor instructed by the supervisor to wear the fall arrest equipment. This lack of training meant the workers did not know how to use the equipment, and they did not understand the risks of failing to wear it. In addition to issuing an OtW to the supervisor, the prevention officer could consider if orders would be warranted against the employer for failing to ensure that proper training and orientation were done.

2. In another example, a prevention officer finds a similar situation but the supervisor is able to produce a training log that shows the workers were trained in fall protection, and the workers can demonstrate that they understand the purpose of, and how to use, the fall arrest equipment at the worksite.

In this case, the prevention officer would issue an OtW against each of the workers. These workers had knowledge of the hazard, and were supplied with the proper equipment and training to control the hazard. Through their own actions they failed to take reasonable steps to control the hazard. The prevention officer could also consider if an OtW is warranted against the supervisor for failing to fulfill his obligations as a supervisor under the *Act* and *Regulation* to ensure the workers wore the equipment.

Collaborative approach

While orders are often regarded by employers and others as punitive in nature, they are not meant to punish. Orders are meant to provide direction to the workplace parties to ensure compliance with general duties and other requirements that address specific hazards at the workplace, thereby ensuring the health and safety of all. This is true of worker orders as well as orders to other parties.

In many cases, the OtW can be used as a learning tool for a supervisor or worker and should not be regarded as a punitive measure. However, the OtW can be used appropriately to serve as the foundation for progressive discipline by an employer or further compliance activity by a prevention officer.

The OtW also supports engaging the supervisor or worker in health and safety at work through

- Educating the supervisor or worker about their responsibilities
- Ensuring the safety of supervisor or worker (and others) at the workplace
- Persuading the supervisor or worker to take responsibility for their own safety
- Having the supervisor or worker understand the effect of their actions on the health and safety of others at the workplace

When issuing an OtW, these goals can often best be achieved by including the employer and using a collaborative approach between the employer and worker. The prevention officer can also ask the employer to agree to follow-up with the supervisor or worker to ensure their understanding of and compliance with, the OtW.

Orders to workers against employers, suppliers, directors, or officers

Orders to workers may be issued against any workplace party who meets the definition of a worker, even where they also meet the definition of an employer, supplier, director, or officer. Where these workplace parties are also workers, they must comply with the duties of a worker.

Procedural Directions When Issuing an OtW

Procedures

Where a prevention officer determines that the criteria for issuing an OtW have been met the following procedures apply when issuing the OtW.

First, the prevention officer should consult with the worker and the employer of the worker. This consultation should cover

- Why the OtW is being issued
- What are the responsibilities of each party to ensure compliance with the OtW
- What are the possible consequences of not complying with the OtW

Second, the prevention officer will issue the OtW, and require the order to be posted in the worksite (see below for further information). The prevention officer may include text outlining the consequences of not complying with the order. Consequences include possible prosecution and fine, orders being issued against the employer for failing to ensure the worker complies with the OtW, and orders to stop using equipment or stop work generally where either order is appropriate.

The prevention officer may also include a Notice of Compliance for the worker to complete. The Notice of Compliance will be completed and signed by the worker, in conjunction with the employer, and will outline what steps the worker agrees to take to ensure compliance with the order.

Finally, the prevention officer will determine if a follow-up is needed with the worker and/or employer to ensure that compliance has been achieved, and if applicable, if the steps in the Notice of Compliance have been followed.

Posting of OtWs

The prevention officer should instruct the employer to post the OtW at the workplace in a similar manner that is required to post an Inspection Report (IR). The employer should be instructed to give a copy of the OtW to the joint health and safety committee or worker health and safety representative, as applicable. The authority to instruct the employer to post the OtW is [section 84\(2\)\(f\)](#) of the *Act*. Under this section, a prevention officer may also order any person to post the OtW, if the prevention officer deems it necessary.

Disclosure to the employer of the OtW and posting the OtW are meant to assist workplace parties to meet the required standards for occupational health and safety. For example, the information on an OtW can assist an employer to

- Determine what procedure or practice improvements, training, or other measures may be required in the workplace to prevent similar violations
- Ensure that the violation was made by the employer's worker or supervisor and not that of another party, such as a subcontractor
- Identify the possible need for corrective action relating to a particular worker or supervisor, such as further training or discipline
- Make other parties at the workplace aware of potential hazards and improper practices

Information in an IR

Where an OtW is issued as the result of a prevention officer's findings on an inspection, the prevention officer should reference the number of the OtW report in the applicable IR. The name or other personal information about the worker related to the OtW should not be included in the IR or in any other records that are available to the public upon request to Prevention Records. A request to WorkSafeBC for disclosure of an OtW will be dealt with by Prevention Records, and in accordance with the *Freedom of Information and Protection of Privacy Act*.

G-P2-25-1 Owner obligations - Public lands

Issued December 21, 2009; Editorial Revision March 7, 2011; Editorial Revision April 6, 2020

Regulatory excerpt

Section 25 of the *Workers Compensation Act* ("Act") states:

Every owner of a workplace must

- (a) provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace,
- (b) give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace, and
- (c) comply with the OHS provisions, the regulations and any applicable orders.

Purpose of guideline

The purpose of this guideline is to provide some clarification of the owner's obligations with respect to publicly owned land that may be used or accessed by workers.

Background

Most of the province consists of land that is owned publicly. While most work in the province is carried out on privately owned lands and

premises, much work in the province is carried out on publicly owned land. This land is managed through government departments or through Crown corporations or similar agencies (public owners) which provide a variety of different forms of access to these lands for industrial or commercial purposes. Owners of public lands include the province and various levels of government such as cities, towns and municipalities.

The various forms of access to public lands include the following

- Agricultural leases and grazing permits
- Forestry tenures, such as forest licenses, licenses to cut, timber sales, woodlot licenses, pulpwood agreements and forest road permits
- Leases and Rights of way (e.g. for roads, power lines, pipelines)
- Municipal permits to work on or access municipally-owned or controlled property
- Control or authority granted over lands exercised by government or public bodies through specific pieces of legislation
- Licenses of occupation
- Oil and gas exploration licenses and leases
- Work permits and other temporary access permits
- Guide outfitters licenses
- Trap line permits

Public owners will have the obligations under the *Act* with respect to public lands used as workplaces. The primary obligation is that of an owner under section 25 of the *Act*, however in certain circumstances other obligations contained in the *Act* and the *OHS Regulation* ("*Regulation*") may come into play.

The owner's obligation

The *Act* places specific obligations on owners of workplaces, as follows:

Every owner of a workplace must

- (a) provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace,
- (b) give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace,

These obligations reflect the unique role that owners of workplaces have in possessing knowledge of risks inherent in their lands and premises as well as the control they have over shaping the infrastructure. They also acknowledge that the owner of lands and premises where work is being carried out does not have the same level of control over or responsibility for the work that is being carried out as the direct employer of the workers doing the work, who have the primary health and safety obligations under the *Act* and *Regulation* towards workers at the workplace.

The obligations in section 25 are to provide lands and premises in a manner that ensures health and safety and to provide information to employers about known health and safety hazards.

The owner's obligation - Providing lands and premises in a safe condition

With respect to the first obligation in section 25, providing lands and premises in a manner that ensures health and safety, the nature of the obligation will depend on the nature of the workplace.

Most access granted to public lands is to lands in an undeveloped state. In such circumstances, the extent of the public owner's obligation under this section would be minimal. For example, though remote lands to which the province grants access to guides and outfitters are unquestionably workplaces, it would be unreasonable to expect ministries of the government to take steps to remove or mitigate hazards that are an inherent part of the environment, and which would be reasonably expected by employers and workers to be present.

Where the public owner provides access to lands on which they own improvements, it will be expected that these improvements will be provided and maintained in a condition that provides a safe environment for workers. For example, where an employer is provided access to a workplace across a bridge owned by a municipality, the municipality must ensure that the bridge has been adequately maintained and has the capacity to withstand loads placed on it by the employer and its workers.

The owner's obligation - Providing information

Under section 25(b), the owner also has an obligation to provide information it is aware of to employers or prime contractors on its lands in order to allow them to control those hazards.

As with the obligation under section 25(a), this obligation with respect to undeveloped lands is relatively straightforward. The public owner would be expected to provide information about unusual hazards present at such workplaces, but not about hazards that can reasonably be expected by the employer. For example, where a grazing permit area includes an abandoned mine, it would be expected that the presence of that mine would be communicated to the permit holder.

The information that the owner should provide includes the presence of other permit holders to the same area, where overlapping operations might create a hazard to the workers of the different operations. Providing information about the presence of other permit holders allow them to take steps to coordinate among themselves. For example, the recipient of an oil and gas licence should be made aware of forest tenures in the area for which the permit is issued.

Prime contractor obligations

The obligations of a public owner are not limited to those in section 25.

[Section 24](#) of the *Act* states that where there are workers of two or more employers present at a workplace, the prime contractor must ensure coordination of activities and establish and maintain a system for ensuring health and safety compliance. Where no prime contractor is designated, those obligations will fall to the owner.

It is important to recognize that while the public owner is clearly an owner of the public lands, the definition of "owner" in [section 13](#) of the *Act* is broad, and includes permit holders, licensees, lessees and other delegates of the owner. As a result, workplaces on public lands will often have multiple owners. Policy [P2-25-1](#) sets out a number of considerations for determining responsibilities in multiple owner situations. Considerations are knowledge, control and reasonableness.

In most situations where the public owner provides access to its lands to employers, the public entity will not have sufficient knowledge of or control over the workplace to be considered the owner that will be the prime contractor if none is designated. For example, where a municipality leases an entertainment venue to a third party, the municipality will tend to provide control over the facility to the lessee, and the lessee will have the most knowledge of the work that occurring at the venue. This suggests that the lessee would be the prime contractor if none is designated. However, each situation is unique and must be evaluated independently. Where the public entity maintains the greatest degree of control over and knowledge of the operations of a multiple employer workplace on its land it will be responsible for the obligations under section 24, if no prime contractor is designated.

Employer obligations

In addition to the owner obligation, a public entity will have obligations as an employer. In addition to the obligations the public entity will have to its own workers, it will have obligations under [section 21\(1\)\(a\)\(ii\)](#) where workers of other employers are present at a workplace that the entity's work is being carried out. In most situations where the public entity is merely providing access, rather than commissioning work or obtaining services, this will not be the case, as the entity's "work" is simply to administer the lands. However, this will depend on the nature of the public entity's involvement in the work, and the extent to which the workplace should be characterized as one where the entity's work is being carried out.

A public entity may also have additional obligations of an employer where it administers public lands. A number of sections of the *Act* and *Regulation* place obligations on "an" employer. The result is that employers other than the direct employer of the worker at the relevant workplace may have those obligations. In such situations, the obligation may arise where it is reasonable to have expected the public entity to have fulfilled that obligation, depending on whether there is a nexus between the obligation and the elements of the workplace under the control of the public entity. For example, [section 69](#) of the *Act* states that an employer must undertake an investigation of an accident that involved a major structural failure or collapse of a building. Even though the public entity may not be the employer of the workers present at the workplace, where that accident involved public owned infrastructure, this obligation will require the public entity to investigate the collapse of a public owned building.

G-P2-30 Responsibilities of the persons/parties in a workplace

Issued March 28, 2002; Revised June 6, 2007; Editorial Revision April 6, 2020

Regulatory excerpt

Section 30 of the *Workers Compensation Act* ("*Act*") states:

- (1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.
- (2) If one of the persons subject to the obligation complies with the applicable provision, the other persons subject to the obligation are relieved of that obligation only during the time when
 - (a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and
 - (b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

Policy Item P2-29/30-1 provides:

All parties with duties under the *Act* may be able to affect the health and safety of persons at or near a workplace. Any and all of these parties may be cited for violations of their statutory duties regardless of whether or not another person has fulfilled his or her statutory responsibilities.

Under section 30 of the *Act*, one person may be relieved of his or her obligations under the OHS provisions of the *Act* or the regulations if

- Another person who is subject to the same obligations complies with those obligations
- Simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense
- The health and safety of persons at the workplace would not be put at risk by the compliance of only one person

The first requirement of this Limited Exemption means that persons who have the same duty under the *Act* or regulations may agree amongst themselves as to who should perform it. The Board is neither bound by any agreements of this nature, nor by whether the terms of the agreement are complied with. The Board's primary concern is that the duty in question is fulfilled.

Further, even if the first requirement is satisfied, the Limited Exemption will only apply if the Board determines that the second and third requirements set out in section 30 are also satisfied. The third requirement of the Limited Exemption will not be met if performance of the occupational health and safety duty by one person leaves health and safety risks that would be eliminated by others performing their duty.

Purpose of guideline

The purpose of this guideline is to provide examples of the application of section 30 of the *Act*.

Background

At any workplace, more than one workplace party may be responsible for particular workplace conditions or hazards. Each party must fulfill the obligations posed on him or her through the *Act* and *OHS Regulation* ("*Regulation*"). Where those obligations have not been fulfilled, WorkSafeBC prevention officers may issue orders and, where appropriate, recommend administrative penalties or prosecutions.

In most circumstances, workplace parties may not contract out or delegate their responsibilities, or otherwise rely on others to discharge their responsibilities. However, section 30 of the *Act* provides for a Limited Exemption to a workplace party's compliance obligations. This exemption, further described in Policy Item [P2-29/30-1: General Duties - Overlapping Obligations](#) (Policy) above, allows a workplace party to make arrangements with another party to fulfill that party's obligation. It is important to bear in mind that in order for the Limited Exemption to apply, all the elements set out in section 30 and summarized in the bulleted list in the Policy must be met. These are

- Another person who is subject to the same obligations complies with those obligations
- Simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense
- The health and safety of persons at the workplace would not be put at risk by the compliance of only one person

Some examples may assist in understanding the applicability of the Limited Exemption in section 30 of the *Act*.

Example 1:

An employer operates a small wood-processing plant. The employer decides to hire a contractor to supervise a small crew made up of both the contractor's and the employer's workers to clean up wood waste around machines and conveyors on a Saturday when the plant is not operating.

The employer tells the contractor he is responsible for making sure everything is done safely, ensures the contractor understands lockout procedures, and provides the contractor with access to the controls for the machinery. The contractor ensures the machinery is adequately locked out, as required by Part 10 of the *Regulation*, and performs the required maintenance safely.

In this example, the employer fulfilled its obligation for the Saturday job. The elements of section 30 are met, as both the employer and the contractor had an obligation to ensure that the machinery was locked out, but having the employer comply with the lockout provisions as well as the contractor would have resulted in unnecessary duplication. However, had the contracting employer not fulfilled the lockout requirements, both the employer and the contracting employer would have been in violation of Part 10.

Example 2:

An employer operates a manufacturing plant and requires an air compressor. The employer contacts a supplier (an equipment dealer/rental firm) and orders a used compressor. The only compressor the supplier had was missing the guard around the cooling fan and its drive belts. The supplier shipped the unit to the employer with the guard missing. The employer noticed the guard was missing, and before putting the compressor into service in the plant, ensured that a replacement guard that met the requirements of Part 12 of the *Regulation* was made in its machine shop from a guard from another piece of equipment that was not in service.

While the guarding on the equipment was ultimately compliant, the supplier did not meet its obligations under [section 26](#) of the *Act* to ensure its equipment was safe or provide directions regarding the safe use of the equipment. Section 30 does not apply, as the employer and the supplier did not have the same obligation. Further, the Policy states that: "The third requirement of the Limited Exemption will not be met if performance of the occupational health and safety duty by one person leaves health and safety risks that would be eliminated by others performing their duty." In this example, the supplier left the risk to be eliminated by the employer performing its duty. Section 30 does not automatically excuse one party from compliance merely because another party has addressed the non-compliant situation and ensured that a hazardous situation was avoided.

Example 3:

An office building is being renovated. The owner has hired a prime contractor to coordinate the various contractors working on the renovation. Each contractor that is an employer for the purposes of the *Act* and *Regulation*, must provide its workers "the information, instruction, training and supervision necessary to ensure the health and safety of those workers" under [section 21](#) of the *Act*. However, some aspects of this obligation may of necessity be fulfilled by the prime contractor at the workplace, as it fulfills its obligation to coordinate the workplace, depending on the prime contractor's system of coordination and the realities of the particular workplace.

The employer will inevitably remain responsible for certain aspects of instruction, training, and supervision (such as how to perform tasks safely and to ensure the workers conform to the prime contractor's system for coordinating the workplace). For those aspects of instruction, training, and supervision that the realities of the workplace suggest would be better performed by the prime contractor, then section 30 permits the employer to be excused from having to undertake those activities. However, if the prime contractor is not performing its obligations effectively, or its system of coordination is such that contact with workers is limited, then the employer is responsible to ensure that all aspects of worker instruction, training, and supervision are adequate to ensure health and safety.

Regulatory excerpt

The *Workers Compensation Act* ("Act") states:

31 General requirement for employer to establish joint committee

An employer must establish and maintain a joint health and safety committee

- (a) in each workplace where 20 or more workers of the employer are regularly employed, and
- (b) in any other workplace for which a joint committee is required by order.

32 Variations in committee requirements

(1) Despite section 31, the Board may, by order, require or permit an employer to establish and maintain

- (a) more than one joint committee for a single workplace of the employer,
- (b) one joint committee for more than one workplace or parts of more than one workplace of the employer, or
- (c) one joint committee for the workplace or parts of the workplaces of a number of employers, if the workplaces are the same, overlapping or adjoining.

(2) An order under subsection (1) may

- (a) specify the workplace, workplaces or parts for which a joint committee is required or permitted, and
- (b) provide for variations regarding the practice and procedure of a joint committee from the provisions otherwise applicable under the OHS provisions or the regulations.

36 Duties and functions of joint committee

A joint committee has the following duties and functions in relation to its workplace:

- (a) to identify situations that may be unhealthy or unsafe for workers and advise on effective systems for responding to those situations;
- (b) to consider and expeditiously deal with complaints relating to the health and safety of workers;
- (c) to consult with workers and the employer on issues related to occupational health and safety and occupational environment;
- (d) to make recommendations to the employer and the workers for the improvement of the occupational health and safety and occupational environment of workers;
- (e) to make recommendations to the employer on educational programs promoting the health and safety of workers and compliance with the OHS provisions and the regulations and to monitor their effectiveness;
- (f) to advise the employer on programs and policies required under the regulations for the workplace and to monitor their effectiveness;
- (g) to advise the employer on proposed changes to the workplace, including significant proposed changes to equipment and machinery, or the work processes that may affect the health or safety of workers;
- (h) to ensure that accident investigations and regular inspections are carried out as required by the OHS provisions and the regulations;
- (i) to participate in inspections, investigations and inquiries as provided in the OHS provisions and the regulations;
- (j) to carry out any other duties and functions prescribed by regulation.

37 Joint committee procedure

- (1) Subject to the OHS provisions and the regulations, a joint committee must establish its own rules of procedure, including rules respecting how it is to perform its duties and functions.
- (2) A joint committee must meet regularly at least once each month, unless another schedule is permitted or required by regulation or order.

Purpose of guideline

The joint health and safety committee ("joint committee") plays an important role in an employer's internal responsibility system, providing workers and the employer a forum to address health and safety issues in a consultative manner.

The purpose of this guideline is to set out the employer's responsibility in ensuring the joint committee is properly established and maintained.

This guideline is also intended to provide guidance on the factors that a WorkSafeBC prevention officer may consider in determining whether to issue an order to vary the joint committee structure under section 32.

Employer obligation

Under section 31, the employer has an obligation to "establish and maintain" a joint committee where required. The establishment and maintenance of the joint committee means that the employer must ensure the following:

- The committee is meeting its obligations under section 36 in actively identifying and addressing potential health and safety concerns
- The committee established rules and procedures for its operation under section 37(1)
- The committee meets a minimum of once a month as required by section 37(2)

The employer also has obligations under section [3.26 and 3.27](#) of the OHS Regulation regarding evaluation of the committee and training of members.

The employer should work with the joint committee in ensuring that obligations under these sections, as well as its other general duties as required by the *Act* or the *OHS Regulation*, are met.

The employer is expected to take an active role in ensuring the joint committee functions as required.

Varying the joint committee structure

Section 31 requires a joint committee be established and maintained at each workplace where there are 20 or more workers of the employer. An employer, or members of a joint committee at a particular workplace may wish to vary this requirement to provide a structure that is more appropriate for the type of workplace or workplaces operated by the employer. The situations where this may arise include the following:

- The employer may have a number of similar workplaces and it may be more practical or effective to have a single joint committee encompassing all of these workplaces, rather than a number of distinct committees operating separately
- The employer may wish to have distinct committees for each workplace, but operated under the umbrella of a corporate safety committee
- The employer may have a number of similar workplaces; some of which may not have the 20 workers needed to require a joint committee, and worker representatives may desire a structure that includes these workplaces
- The workplace might not have 20 or more workers "regularly" employed, though there may be a large number of workers with irregular employment and health and safety issues that are best addressed through a committee structure
- The employer has different workforces with different health and safety issues at a single workplace
- Two or more employers in the same workplace

Process

Varying the joint committee requirements in section 31 may only be done by a Board (i.e., WorkSafeBC) order. Typically this will be triggered by a request from the employer, members of the committee, or the union.

The request should be supported by as much relevant information as possible. This could include the following:

- Terms of reference for the proposed committee
- Reasoning as to why the proponent believes that a new structure will work better towards addressing hazards and reducing injuries
- Proposed number of representatives
- Meeting minutes for any existing committees
- Injury statistics
- Hazard rating for each of the workplaces involved and types of hazards present at the workplace
- Most recent committee evaluation (as required by section 3.26(2) of the *OHSR*) for any existing committees

In considering the request, the prevention officer's goal is to evaluate whether the proposed structure will be practical and equal or more effective than the structure set out in section 31. Factors that the prevention officer should consider include the following:

- Nature of the employer's overall safety program or safety history
- Nature of the work undertaken at the different workplaces and whether the health and safety issues vary widely or share broad similarities
- Nature or makeup of the workforce, and whether there should be representation from specific workplaces
- Nature of the relationship between workers and the employer at the different workplaces
- Practicality of communication between workers and their committee representatives

The prevention officer should ensure that there is a union or workers' representative agreement to the proposed structure and that workers' interests are best represented in the proposed structure.

The prevention officer will provide a time limit to the order to allow for the new structure to be reviewed and a renewal by the prevention officer will be based on the findings of the review. This review should include the committee evaluation to ensure the new structure is effective.

The initial approval will be for 1 year to allow for the new structure to be evaluated. Subsequent approval may be for up to three years.

G-P2-41-1 Joint committee course approval

Issued February 27, 2001; Revised March 25, 2005; Editorial Revision October 23, 2012; Editorial Revision September 15, 2015; Editorial Revision consequential to April 3, 2017 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Section 41(1) of the *Workers Compensation Act* ("Act") states:

Each member of a joint committee is entitled to an annual educational leave totalling 8 hours, or a longer period if prescribed by regulation, for the purposes of attending occupational health and safety training courses conducted by or with the approval of the Board.

Purpose of guideline

The purpose of this guideline is to provide information on determining what courses are considered approved to meet the educational leave entitlement.

Under section 41 of the *Act*, each member of a joint committee and each worker health and safety representative is entitled to eight hours of annual educational leave for the purposes of attending occupational health and safety training courses. This educational leave is an entitlement, and is in addition to the mandatory minimum training for members of a joint committee and worker health and safety representative required under section 3.27 of the *OHS Regulation*.

Approved courses

The following sets out what is a course "conducted by or with the approval of the Board" under section 41 of the *Act*.

WorkSafeBC developed courses

Course materials and guides are available free of charge on WorkSafeBC's website <https://www.worksafebc.com/en/health-safety/education-training-certification/joint-health-safety-committee-member>.

WorkSafeBC does not provide occupational health and safety training courses to the general public. For information on providers of WorkSafeBC developed courses, contact local [OHS Training Providers](#).

WorkSafeBC's Certification Services department is also available to provide information about training, and can be reached at (604) 276-3090 or toll-free (from within BC) at 1-888-621-7233, extension 3090 for further information.

Other courses

Other occupational health and safety (OHS) training courses are acceptable provided the employer follows a reasonable process of assessing the training needs of joint committee members and selecting appropriate training programs. Appropriate OHS training courses for joint committee members are related to the duties and the responsibilities of the joint committee.

A reasonable process for selecting OHS training courses would include the steps set out in [Policy Item P2-41-1](#) of the Prevention Manual and should consider the following:

- Applicability to the role as a joint committee member or worker health and safety representative
- Relevance to the training taken previously by the joint committee member or worker health and safety representative
- Relevance to the industry
- Relevance to occupational health and safety in general
- Needs assessment conducted by the joint committee member or worker health and safety representative

The selected training programs do not need to be referred to WorkSafeBC for pre-approval. However, WorkSafeBC reserves the right to deal with any disputes over the appropriateness of training and otherwise to monitor or inquire into the contents and conduct of training.

Guidelines - Workers Compensation Act, Part 2 Division 6 - Worker Protection in Relation to Prohibited Actions

G-P2-49 Complaint by worker respecting prohibited action or failure to pay wages

Issued August 16, 2000; Revised April 2, 2004; Revised February 16, 2006; Revised May 17, 2006; Editorial Revision March 7, 2011; Editorial Revision June 26, 2014; Editorial Revision July 2, 2015; Revised March 18, 2016; Editorial Revision July 27, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

The prohibited action provisions are in [Division 6 of Part 2](#) of the *Workers Compensation Act* ("Act").

Purpose of guideline

The purpose of this guideline is to describe the enforcement steps WorkSafeBC may take if an employer does not comply with an order arising out of a prohibited action complaint.

Background

Section 48 of the *Act* protects workers from certain prohibited actions by an employer, union, or person acting on behalf of an employer or union.

More information for workers around what is considered prohibited action, the process for making a complaint, including submitting a complaint online, is available at <https://www.worksafebc.com/en/for-workers/just-for-you/prohibited-action-complaints>

Enforcing orders arising from prohibited action claims

If a worker makes a complaint about prohibited action, and that complaint is accepted, WorkSafeBC may order the employer to take certain steps to correct the prohibited action. This may include paying lost wages, paying expenses, or reinstating the worker. The order will often include a requirement to submit a notice of compliance, which requires the employer to outline how the employer plans to comply with the order. As with any orders, employers must comply with all prohibited action orders, including orders to submit a notice of compliance.

When an employer does not comply with an order arising out of a prohibited action complaint, WorkSafeBC may take additional enforcement action. This can include the following:

- Issuing an order under section 21(1)(b) of the *Act* for failing to comply with an order
- Proceeding towards a citation under section 94 refer to Policy Item P2-94-1 OHS Citations
- Proceeding towards an administrative penalty under section 95

More information for employers around what is considered prohibited action, and the remedies WorkSafeBC may order as a result of a successful prohibited action complaint is available at <https://www.worksafebc.com/en/for-employers/just-for-you/respond-prohibited-action-complaints>.

G-P2-50(1) Determining if a prohibited action complaint has been settled

Issued September 28, 2007; Editorial Revision November 26, 2019; Editorial Revision April 6, 2020

Regulatory excerpt

Section 50(1) of the *Workers Compensation Act* ("Act") states:

(1) If the Board receives a complaint under section 49(2), it must immediately inquire into the matter and, if the complaint is not settled or withdrawn, must

(a) determine whether the alleged contravention occurred, and

(b) deliver a written statement of the Board's determination to the worker and to the employer or union, as applicable.

Section 49(3) of the *Act* states:

(3) A complaint under subsection (2) must be made in writing to the Board,

(a) in the case of a complaint respecting a matter referred to in subsection (1)(a), within one year of the action considered to be prohibited, and

(b) in the case of a complaint respecting a matter referred to in subsection (1)(b), within 60 days after the wages became payable.

Purpose of guideline

This guideline sets out the authority and practice that WorkSafeBC applies in determining whether a prohibited action complaint has been "settled" as contemplated under section 50 of the *Act*.

Background

Section 50(1)(a) requires WorkSafeBC to determine whether an alleged contravention under section 49(2) has occurred, provided the complaint "is not settled or withdrawn."

In some cases, the parties to a prohibited action complaint may disagree about whether they, in fact, reached a settlement of the complaint that they agreed was final and binding on them. It then becomes necessary to determine if a final and binding settlement was reached before any further considerations can take place regarding the complaint.

Discussion

[Section 19](#) of the *Act* sets out WorkSafeBC's jurisdiction with respect to the OHS provisions of the *Act*, and provides WorkSafeBC with the exclusive authority to "...inquire into, hear and determine all those matters and questions of fact and law arising or required to be determined..." under the OHS provisions. The broad jurisdiction for WorkSafeBC to make determinations under the OHS provisions includes the authority to determine whether a prohibited action complaint has been settled for the purposes of section 50. Further, as provided in section 19, once WorkSafeBC has determined whether a settlement has been reached, that determination is "...final and conclusive and is not open to question or review in any court" (subject to a judicial review).

Where the parties to a prohibited action complaint dispute whether they reached a final and binding settlement of the complaint, it becomes the duty of WorkSafeBC to consider the disputed settlement, together with the circumstances leading to it, and make a final determination of the issue.

This practice applies regardless of the complaint settlement process in which the parties engaged, and includes any WorkSafeBC-sponsored mediation or settlement process.

Where WorkSafeBC determines a final and binding settlement was reached by the parties, WorkSafeBC will regard the complaint as having been settled as contemplated by section 50(1) and will take no further action on it. Alternatively, where WorkSafeBC determines a final and binding settlement was not reached, WorkSafeBC will proceed with adjudication of the complaint in accordance with the prohibited action provisions under the *Act*.

Guidelines - Workers Compensation Act, Part 2 Division 7 - Information Requirements

G-P2-53(1) Maintaining the confidentiality of information

Issued October 23, 2012; Editorial Revision April 6, 2020

Regulatory excerpt

Section 53(1)(e) of the *Workers Compensation Act* ("*Act*") states:

(1) A person must not disclose or publish the following information, except for the purpose of administering this Act and the regulations or as otherwise required by law:

...

(e) in the case of information received by the person in confidence by reason of the performance of a duty or the exercise of a power under the OHS provisions, Part 7 or the regulations, the name of the informant.

Purpose of guideline

This guideline discusses the obligation placed upon WorkSafeBC prevention officers to protect the confidentiality of workers or other persons who bring workplace health and safety concerns to the attention of WorkSafeBC.

Discussion

Concerns about health and safety conditions at or near workplaces are regularly brought to the attention of WorkSafeBC. Often these concerns are raised by workers or other persons who wish to remain anonymous.

An environment that encourages individuals to bring forward health and safety concerns is an element in furthering WorkSafeBC's health and safety mandate. Such an environment requires that health and safety concerns can be brought to WorkSafeBC by individuals without fear of reprisal, retribution, or damage to their relationship with the employer or other workplace party. As a result, WorkSafeBC will, to the extent of its ability, protect the identities of individuals that bring concerns forward.

In the majority of instances where health and safety concerns are reported to WorkSafeBC, officers will respond by conducting an inspection of the workplace. Where the concern has been brought forward by a person wishing to remain anonymous, prevention officers will protect the identity of the individual to the extent possible and are prohibited by section 53(1)(e) of the *Act* from disclosing to the employers at the worksite the identity of the person that reported the health and safety concern.

While prevention officers will, to the extent possible, protect the identity of individuals bringing health and safety concerns forward, this may not fully guarantee that the individual's identity will never be learned by the employer or other workplace party. For example, where the workplace party challenges any orders issued to it as a result of the inspection through an order review, the workplace party will have the right to challenge evidence that is relevant to the order. Where the individual has provided information that was necessary to provide as evidence relevant to the order, it may be necessary to provide the name of that individual so that the workplace party can look into the accuracy of the information. For this reason, prevention officers will typically attempt to obtain adequate evidence without using information provided by the individual seeking anonymity. Where this is not possible prevention officers should alert the individual to the need to use that information to issue an order, and should be sensitive to the concerns of that individual while balancing the need to ensure health and safety issues at the workplace are addressed.

Guidelines - Workers Compensation Act, Part 2 Division 9 - Variance Orders

G-P2-60 Variance process

Issued April 1, 2006; Editorial Revision November 24, 2006; Revised September 30, 2010; Editorial Revision April 6, 2020

Regulatory excerpt

Sections 60–67 of Division 9 of Part 2 of the ("*Act*") outline the statutory requirements concerning variances to requirements of the *OHS Regulation* ("*Regulation*"). The *Act* can be accessed on the [WorkSafeBC web site](#).

The following four sections have central relevance to the variance process:

- Section 60, which provides WorkSafeBC with the authority to consider applications, the scope of possible variance decisions, and the criteria that must be met in issuing a decision
- Section 62, which deals with information that must be provided by the applicant
- Section 63, which outlines the obligation of the applicant to post notice of a variance application and to provide copies to parties such as the joint occupational health and safety committee or worker representative, and to the union as applicable
- Section 64, which establishes the obligation of WorkSafeBC to consult with persons who may be affected by a requested variance

Excerpts of these provisions are shown below.

Section 60 – Board may authorize variances from regulations

- (1) On application, the Board may, by order, authorize a variance from a provision of the regulations.
- (2) A variance order may be made only if the Board is satisfied that the variance
 - (a) affords protection for workers equal to or greater than the protection established by the provision being varied, or
 - (b) has substantially the same purpose and effect as the provision being varied.
- (3) A variance order may be made applicable to
 - (a) a specified workplace, or
 - (b) a specified work process at all or specified workplaces of a specified employer.
- (4) As a limit on the authority under subsection (1), a provision in a regulation of the Lieutenant Governor in Council under the OHS provisions may be varied only if this is permitted by regulation of the Lieutenant Governor in Council.

Section 62 - Application for variance

- (1) Subject to the regulations and subsection (2), an application for a variance must be made in writing to the Board and must include
 - (a) a description of the requested variance,
 - (b) a statement of why the variance is requested, and
 - (c) information with respect to the benefits and drawbacks in relation to the matters addressed by the applicable regulation that might reasonably be anticipated if the variation is allowed.
- (2) In the case of an application by a single worker for a variance order that would apply only to that worker, an application may be made as permitted by the Board.
- (3) The applicant must also provide the Board with the technical and any other information required by the Board to deal with the application.

Section 63 - Notice of application

- (1) If the variance would apply to an existing workplace, the applicant must
 - (a) post a copy of the application at the workplace and keep it posted there until the decision on the requested variance is received by the applicant,
 - (b) provide a copy to the joint committee or worker representative, as applicable, and
 - (c) if workers at the workplace are represented by a union, send a copy to the union.
- (2) If the variance would apply to a workplace that is not yet in existence, immediately after submitting the application for variance,
 - (a) the applicant must publish a notice of the application where it would reasonably be expected to come to the attention of persons who may be affected by the decision on the requested variance, and
 - (b) the notice must include
 - (i) a description of the requested variance, and
 - (ii) a statement of why the variance is requested,

Section 64 - Consultation on application

- (1) After receiving an application for variance, the Board may give notice of the application and conduct consultations respecting that application as the Board considers advisable.
- (2) Before making a decision on an application, the Board must provide an opportunity for persons who may be affected by the requested variance to submit to the Board information respecting their position on the requested variance.
- (3) A union representing workers who may be affected by the requested variance is considered a person who may be affected for the purposes of subsection (2).

Purpose of guideline

This guideline provides information on how to submit an application for a variance and the information needed in the submission. It describes the process followed by WorkSafeBC in reviewing an application and issuing a decision.

The guideline also addresses matters such as the obligation of the applicant to post information and advise persons who may be affected by the variance, and the obligation of WorkSafeBC to consult with those affected persons.

Submitting an application

A variance application must, as required by section 62 of the *Act*, be in writing and signed. It should be directed to:
OHS Practice and Engineering Support, WorkSafeBC, PO Box 5350 Stn Terminal, Vancouver BC, V6B 5L5.

Information needed in a submission

In assembling the information for a submission the applicant should be aware that any variance issued by WorkSafeBC must meet at least one of the criteria for equivalent protection for workers, as established by section 60(2) of the *Act*.

Section 62 of the *Act* outlines specific types of information to be included in the submission: a description of the variance, why it is requested, and information on benefits and drawbacks. Information on the reason(s) for the request is expected to include comments on the practicability of complying with the unvaried requirement. "Practicability" is defined in Part 1 of the *Regulation* as "that which is reasonably capable of being done."

Also, section 62(3) of the *Act* requires that the applicant provide technical and any "other information" needed by WorkSafeBC to deal with the application.

"Other information," as established by [Policy P2-62-1](#), will generally include the following:

- The location of the workplace
- The type and nature of the work process
- The regulation(s) proposed for modification
- A description of the proposed procedure or practice that would provide an equivalent level of health and safety to that provided by the regulation(s)
- How workers will be trained and supervised
- Confirmation that, as per section 63 of the *Act*
 - The variance application has been posted at the workplace, and a copy has been provided to the joint occupational health and safety (OHS) committee or the worker health and safety representative and to the union, if the workers at the workplace are represented by a union, or
 - If the workplace is not yet in existence, notice has been published where it would reasonably be expected to come to the attention of persons who may be affected

Review of an application

The technical review of an application is conducted at WorkSafeBC by a variance coordinator who specializes in the matters involved. The coordinator may request additional technical information from the applicant as per section 62(3) of the *Act*. The coordinator will also draw together any further required information, for example, from the WorkSafeBC prevention officer who is familiar with the applicant's operation.

Consultation on an application

Section 64 of the *Act* establishes the obligation of WorkSafeBC to consult with persons who may be affected by a variance decision. The application is reviewed to determine whether there is information that identifies the affected persons. In a workplace these parties will typically be the joint OHS committee or worker health and safety representative, as applicable, and as per section 64(2), any union representing affected workers.

In some circumstances there may be other affected persons. For example, on a multi-employer worksite, an affected person may be a subcontractor whose workers work near the location or process to which the variance would apply.

If the identity of affected parties is not clear from the application, then WorkSafeBC will contact the applicant for that information. In terms of timeliness of the process, it is in the applicant's interest to ensure that affected persons are identified in the application, and further, to include information from those parties that provides their position on the requested variance.

Issuance of a decision

The criteria for accepting or rejecting an application for a variance are established by section 60(2) of the *Act*. WorkSafeBC must be satisfied that a variance provides protection for workers equal to or greater than the protection established by the provision being varied, or that it has substantially the same purpose and effect as that provision.

The decision will be issued to the applicant in writing. Copies will also be sent to any affected parties who submitted information in the consultation process.

Requirement to post the decision

The applicant for the variance must post a copy of the decision at the workplace. If the variance is accepted the applicant must keep the decision posted throughout the time the variance is in effect. If the application is denied the decision must be posted for 7 days or the period required by the order, whichever is longer.

Previous advice regarding exceptions to OHS regulatory requirements

Please note that any directives or advice relating to interpretations of the *Regulation* providing for exceptions to any regulatory requirements that may have been issued by the Board prior to the enactment of the OHS provisions of the *Act* in 1999, whether through letters or other documentation, are of **NO FORCE AND EFFECT**.

All requirements of the current *Regulation* must be complied with unless an alternative approach has specifically been granted to a person who has made an application under Division 9 of the *Act*, in accordance with the variance process set out therein. Anyone wishing to rely on an alternative approach to a requirement under the *Regulation* must follow the variance process outlined above.

Prevention officers will not accept any documentation relating to previous advice or interpretations relating to variances to regulatory requirements. Only those variances that have been documented and provided to persons under the *Act* will be considered.

Guidelines - Workers Compensation Act, Part 2 Division 10 - Employer Accident Reporting and Investigation

G-P2-68-1 WorkSafeBC notification of serious injuries

Issued February 12, 2008; Editorial Revision February 11, 2009; Revised consequential to January 1, 2016 Amendments to the Act; Editorial Revision September 25, 2019; Editorial Revision April 6, 2020

Regulatory excerpt

Section 68 of the *Workers Compensation Act* ("*Act*") states:

68(1) An employer must immediately notify the Board of the occurrence of any accident that

- (a) resulted in serious injury to or the death of a worker,
- (b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,
- (c) involved the major release of a hazardous substance,
- (d) involved a fire or explosion that had a potential for causing serious injury to a worker, or
- (e) was an incident required by regulation to be reported.

Purpose of guideline

The purpose of this guideline is to set out what WorkSafeBC considers to be a "serious injury," which an employer would be required to report to WorkSafeBC.

What employers must report

Section 68 provides that employers must immediately report

- Any incident that kills or seriously injures a worker
- A major leak or release of a dangerous substance
- A major structural failure or collapse of a structure, equipment, construction support system, or excavation
- A fire or explosion that had a potential for causing serious injury to a worker
- Any blasting accident that results in injury, or unusual event involving explosives (required by regulation)
- A diving incident that causes death, injury, or decompression sickness requiring treatment (required by regulation)

Such incidents must also be investigated by the employer under [section 69](#).

"Serious Injury"

Section 68 provides that employers must notify WorkSafeBC of an accident that resulted in the "serious injury" or death of a worker. The term "serious injury" is not defined in the *Act*.

A serious injury is any injury that can reasonably be expected at the time of the incident to endanger life or cause permanent injury. Serious injuries include both traumatic injuries that are life threatening or that result in a loss of consciousness, and incidents such as chemical exposures, heat stress, and cold stress which are likely to result in a life threatening condition or cause permanent injury or significant physical impairment.

Traumatic injuries that should be considered "serious injuries" include

- Major fractures or crush injuries, such as
 - A fracture of the skull, spine, or pelvis
 - Multiple, open or compound fractures, or fractures to major bones such as the humerus, fibula or tibia, or radius or ulna
 - Crushing injuries to the trunk, head or neck, or multiple crush injuries
- An amputation, at the time of the accident, of an arm or leg or amputation of a major part of a hand or foot
- Penetrating injuries to eye, head, neck, chest, abdomen, or groin
- An accident that caused significant respiratory compromise, or punctured lung
- Circulatory shock (i.e., internal hemorrhage) or injury to any internal organ

- Lacerations that cause severe hemorrhages
- All burns that meet the rapid transport criteria of the Occupational First Aid Training Manual, including
 - Third degree burns to more than 2% of the body surface
 - Third degree burns to the face, head, or neck
 - Burns of any degree with complications
- An asphyxiation or poisoning resulting in a partial or total loss of physical control (i.e., loss of consciousness of a worker in a confined space) or a respiratory rate of fewer than 10 breaths per minute or severe dyspnea (difficult or laboured breathing)
- Decompression illness, or lung over-pressurization during or after a dive or any incident of near drowning
- Traumatic injury which is likely to result in a loss of
 - Sight
 - Hearing
 - Touch

Injuries that require a critical intervention such as CPR, artificial ventilation or control of hemorrhaging or treatment beyond First Aid, such as the intervention of Emergency Health Services personnel (e.g. transportation to further medical attention), a physician and subsequent surgery, or admittance to an intensive care unit should also be considered "serious injuries."

"Major Release of a Hazardous Substance"

Section 68 provides that employers must notify WorkSafeBC of any accident that involved the major release of a hazardous substance. The term "major release of a hazardous substance" is explained in [Policy Item P2-68-1](#).

A major release does not only mean a considerable quantity, or the peculiar nature of the release, such as a gas or volatile liquid, but, more importantly, the seriousness of the risk to the health of workers. Factors that determine the seriousness of the risk include the degree of preparedness of the employer to respond to the release, the necessity of working in close proximity to the release, the atmospheric conditions at the time of the release and the nature of the substance.

"Immediately"

Employers are required to report serious injuries and fatalities to WorkSafeBC immediately. This reporting should occur as part of the employers' response at the time of the incident. In responding to the incident, employers should ensure any workplace conditions that present an immediate hazard to other workers are addressed, ensure first aid and medical treatment for the worker, and then notify WorkSafeBC of the incident.

The purpose of the reporting requirement in section 68 is to ensure that a WorkSafeBC prevention officer and/or an investigations officer is able to respond to the incident, as soon as possible, in order to:

- Attend at the scene to conduct an investigation of the incident and ensure the integrity of the scene
- Offer availability of counseling services, as appropriate
- Undertake an inspection of the workplace to help ensure that workers are protected before work is resumed
- Help ensure that any post-incident response or cleanup is performed in a safe manner
- Provide a referral to compensation services

The requirement to immediately report a serious injury or fatality is separate from the requirement to report injuries for claims purposes. **Filing a Form 7 will not satisfy the obligation to immediately report a serious injury or fatality.**

Failure to immediately notify WorkSafeBC of a serious injury or fatality will be considered a breach of section 68 of the *Act*, and may result in an administrative penalty.

To report a serious incident or fatality, phone 604.276.3100 (Lower Mainland) or 1.888.621.7233 (1.888.621.SAFE) (24 hours a day, 7 days a week).

G-P2-70-1 Participation by worker representatives in incident investigations

Issued July 27, 2016; Revised consequential to April 3, 2017 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Section 70 of the *Workers Compensation Act* ("*Act*") states:

- (1) An investigation required under this Division must be carried out by persons knowledgeable about the type of work involved and, if they are reasonably available, with the participation of the employer or a representative of the employer and a worker representative.
- (2) For the purposes of subsection (1), the participation of the employer or a representative of the employer and a worker representative includes, but is not limited to, the following activities:
 - (a) viewing the scene of the incident with the persons carrying out the investigation;
 - (b) providing advice to the persons carrying out the investigation respecting the methods used to carry out the investigation, the scope of the investigation, or any other aspect of the investigation;

(c) other activities, as prescribed by the Board.

(3) The employer must make every reasonable effort to have available for interview by a person conducting the investigation, or by an officer, all witnesses to the incident and any other persons whose presence might be necessary for a proper investigation of the incident.

(4) The employer must record the names, addresses and telephone numbers of persons referred to in subsection (3).

Section 3.28 of the *OHS Regulation* ("Regulation") states:

For the purposes of section 70(2)(c) of the *Workers Compensation Act*, the following activities are prescribed:

- (a) assisting the persons carrying out the investigation with gathering information relating to the investigation;
- (b) assisting the persons carrying out the investigation with analyzing the information gathered during the investigation;
- (c) assisting the persons carrying out the investigation with identifying any corrective actions necessary to prevent recurrence of similar incidents.

Purpose of guideline

The purpose of this guideline is to clarify the role of worker representatives in employer incident investigations, and to explain how to determine whether a worker representative is "reasonably available" to participate.

Worker representative participation

Section 69 of the *Act* specifies which incidents must be investigated by an employer, and requires that both a preliminary investigation (section 71) and a full investigation (section 72) be conducted. Section 70 of the *Act* specifies that these investigations must be carried out by persons knowledgeable about the type of work involved. It also requires the participation of the employer or employer representative, and a worker representative, if they are reasonably available.

Pursuant to section 70(2) of the *Act* and section 3.28 of the *Regulation*, the participation of a worker representative includes, but is not limited to, the following:

- Viewing the scene of the incident with the persons carrying out the investigation
- Providing advice respecting the methods used to carry out the investigation, the scope of the investigation, or any other aspect of the investigation
- Assisting the persons carrying out the investigation with
 - Gathering information related to the investigation
 - Analyzing the information gathered during the investigation
 - Identifying any corrective actions necessary to prevent recurrence of similar incidents

Incident investigations involve managers and workers working together as both bring different experience, understanding, and perspective to the process. The participation of worker representatives in incident investigations plays an important part in maintaining healthy and safe workplaces. Employers must ensure that if worker representatives are reasonably available they participate in the incident investigation. This may include the following:

- Delaying the investigation until a worker representative is available, provided the delay will not compromise the quality of the investigation, and the timelines prescribed by sections 71 and 72 of the *Act* can be met
- Facilitating the participation of a worker representative by telephone, video conferencing, or other means

"Reasonably available"

Whether a worker representative is reasonably available to participate in an employer incident investigation is a question that needs to be determined on a case-by-case basis after taking into account all relevant factors. Some of these considerations include the following:

- The distance to be travelled by the worker representatives from their current location to the scene of the incident: For example, the incident may have occurred at a remote location or at a site with limited access, or the worker representative may be conducting work at a distant location.
- Workplace practices around after-hours work: Calling a worker representative in to participate in an incident investigation after hours may be easily accommodated in some workplaces. However, this may not be the case in workplaces with strict shift schedules.
- The type of investigation to be conducted (preliminary or full): Given the timelines prescribed by sections 71 and 72 of the *Act* (48 hours and 30 days, respectively), incident investigations cannot be held up unreasonably. If no worker representative is available until after the expiry of the 48-hour deadline, then the preliminary investigation should proceed without participation from a worker representative. However, if a worker representative is not available at the start of the full investigation, the person conducting it should do what is necessary immediately and then facilitate participation when the worker representative becomes available.
- The shift schedule of worker representatives: As outlined above, a preliminary investigation must be completed within 48 hours of the occurrence of an incident. If a worker representative will be on shift within a timeframe that allows for both participation and the timely completion of that preliminary investigation, then the employer will facilitate participation when the worker returns to work. On the other hand, if no worker representative will be on shift within that timeframe, the employer is expected to attempt to contact all worker representatives to ascertain if they are available.

In workplaces where there is a joint health and safety committee, the committee should consider establishing rules of procedure around contacting worker representatives to participate in incident investigations. If no worker representative is reasonably available, another worker who was designated as an alternate by a worker representative may participate in the investigation (refer to section 46 of the *Act*).

Concerns about participation

There may be situations where a worker representative is not reasonably available to participate in an employer incident investigation. However, these situations will be the exception rather than the rule. If there are concerns that worker representatives are not adequately participating in incident investigations or the investigation report appears incomplete and no corrective action has been taken, these issues should be raised at a joint health and safety committee meeting. Should the issues remain unresolved, a WorkSafeBC prevention officer can be requested to investigate and determine the employer's compliance with this obligation.

In workplaces where there is no joint health and safety committee, concerns about worker participation, incomplete incident investigation reports, or insufficient corrective action can be raised with a prevention officer.

G-P2-71-1 Preliminary incident investigation and interim corrective actions

Issued January 1, 2016; Editorial Revision consequential to April 3, 2017 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpts

Section 71 of the *Workers Compensation Act* ("*Act*") states:

- (1) An employer must, immediately after the occurrence of an incident described in section 69, undertake a preliminary investigation to, as far as possible,
 - (a) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (b) if unsafe conditions, acts or procedures are identified under paragraph (a) of this subsection, determine the corrective action necessary to prevent, during a full investigation under section 72, the recurrence of similar incidents.
- (2) The employer must ensure that a report of the preliminary investigation is
 - (a) prepared in accordance with the policies of the board of directors,
 - (b) completed within 48 hours of the occurrence of the incident
 - (c) provided to the Board on request of the Board, and
 - (d) as soon as practicable after the report is completed, either
 - (i) provided to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, posted at the workplace.
- (3) Following the preliminary investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(b).
- (4) If the employer takes corrective action under subsection (3), the employer, as soon as practicable, must
 - (a) prepare a report of the action taken, and
 - (b) either
 - (i) provide the report to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

[Prevention Policy P2-71-1](#) sets out the elements of a preliminary investigation report, and the interim corrective action report. The policy also sets out the circumstances in which WorkSafeBC may consider that an employer is not able to identify all of the unsafe conditions, acts or procedures that significantly contributed to the incident.

Purpose of guideline

The purpose of this guideline is to provide guidance to employers around preliminary incident investigations, interim corrective actions and associated reports.

Purpose of the preliminary incident investigation

The purpose of the preliminary incident investigation is to

1. Identify any unsafe conditions, acts, or procedures that significantly contributed to the incident; and
2. Determine corrective action to be implemented to prevent similar incidents from occurring during the course of the full incident investigation.

When is a preliminary incident investigation required?

Section 69 of the *Act* specifies which incidents must be investigated by an employer. These include any incident that involves the following:

- Serious injury to or death to a worker
- Major structural failure or collapse
- Major release of hazardous substances
- Fire or explosion that had a potential for causing serious injury to a worker
- Blasting accident causing personal injury
- Dangerous incident involving explosives, whether or not there is personal injury
- Diving incident, as defined by regulation
- Injury requiring medical treatment
- Minor injury or no injury but had potential for causing serious injury

A serious injury is any injury that can reasonably be expected at the time of the incident to endanger life or cause permanent injury. Serious injuries include both traumatic injuries that are life threatening or that result in a loss of consciousness, and incidents such as chemical exposures, heat stress, and cold stress which are likely to result in a life-threatening condition, cause permanent injury, or significant physical impairment. [Guideline G-P2-68-1 WorkSafeBC notification of serious injuries](#) provides further guidance around the types of injuries that WorkSafeBC consider to be serious.

A major release of a hazardous substance means not only a considerable quantity, or the peculiar nature of the release, such as a gas or volatile liquid, but, more importantly, the seriousness of the risk to the health of workers. Factors which determine the seriousness of the risk include the degree of preparedness of the employer to respond to the release, the necessity of working in close proximity to the release, the atmospheric conditions at the time of the release, and the nature of the substance. [Prevention Policy Item P2-68-1](#) provides additional guidance around what constitutes a major release of a hazardous substance.

The term medical treatment is not defined in the *Act* or *OHS Regulation* ("*Regulation*"). For the purpose of this guideline, medical treatment means services rendered by a medical practitioner. Medical treatment usually involves treatment above and beyond that provided at the workplace by a first aid attendant.

An injury requiring medical treatment includes any injury for which:

- A worker has sought or received medical treatment
- Medical treatment is obviously required
- A worker states an intention to seek medical treatment
- A first aid attendant has referred a worker for medical treatment, even if the worker does not subsequently attend for medical treatment

Incidents that resulted in minor or no injury, but had the potential for causing serious injury, are sometimes called "close calls" or "near misses." These incidents must be investigated, as they are evidence of conditions or practices that, if allowed to continue, may result in serious injury to or the death of a worker.

The following incidents are required by *Regulation* to be investigated, and require a preliminary incident investigation:

- [Section 21.3](#) blasting accident causing personal injury or any other dangerous incident involving explosives, whether or not there is personal injury
- [Section 24.34](#) diving incidents, including:
 - Injury or death
 - Convulsions or serious impairment of consciousness during or after a dive
 - Decompression illness
 - Lung overpressurization
 - Any serious mishap or a series of events which render equipment or procedures suspect, before, during, or after the diving operation.

Investigation participants

The preliminary incident investigation must be carried out by people who are knowledgeable about the work being performed in the area where the incident occurred. The employer, or a representative of the employer, and a worker representative must participate in the investigation if they are reasonably available. Participating in the investigation includes:

- Viewing the scene of the incident with the person who is conducting the preliminary incident investigation.
- Providing advice on the investigation scope and methods.
- Assisting the persons carrying out the investigation with: gathering information relating to the investigation, analyzing the information gathered during the investigation, and identifying any corrective actions necessary to prevent recurrence of similar incidents.

Elements of the preliminary investigation report

The preliminary investigation report must include the full name and job title of all individuals involved in, or having knowledge specific to the incident. This includes any workers injured or killed in the incident, witnesses to the incident, the people who carried out the investigation, and any other people whose presence might be necessary for a proper investigation of the incident.

Section 70 of the *Act* requires that an employer record the names, addresses, and telephone numbers of witnesses and others involved in the investigation. An employer may wish to record this information at the same time as it is conducting an investigation; however, the employer should only record personal information relevant to the investigation on the incident investigation report form.

All investigation reports and corrective action reports must be provided to the joint committee or worker health and safety representative, as applicable. If there is no joint committee or worker health and safety representative, the reports must be posted at the workplace. In preparing the incident investigation report and corrective action report, an employer should be mindful of the personal privacy of individuals involved in the incident.

Reasonable efforts should be made to safeguard personal information that is collected in the course of an investigation, while also ensuring the reports contain all the required information. Examples of personal information may include an individual's home phone number, home address, or details of an individual's pre-existing medical condition.

The preliminary investigation report must include a statement of the sequence of events that preceded the incident. The sequence of events is a list of actions, events, or decisions that happened before and after the incident. The sequence of events is listed in order from earliest to latest, and can help to understand what happened and in what order. The sequence of events should then be analyzed to identify unsafe conditions, acts, or procedures that significantly contributed to the incident.

A preliminary incident investigation report must be completed within 48 hours of the occurrence of the incident, regardless of how far along the employer is in the incident investigation process. An employer should make every effort to identify unsafe conditions, acts, or procedures, recognizing that the circumstances surrounding the incident may limit the employer's ability to immediately access the workplace or speak with the people involved. The employer should be mindful of the goal of preventing similar incidents from occurring during the course of the full incident investigation, and should implement interim corrective actions accordingly.

The preliminary investigation report must include information about corrective actions that have been identified and taken. This includes information about corrective actions identified as required to prevent a recurrence of similar incidents during the course of the full investigation, interim action taken and corrective action that has been identified but not yet taken.

The written report of a dangerous incident involving explosives must contain information specified in [section 21.3\(2\)](#) of the Regulation, including information about the blasters involved and the types of explosives used. These reporting requirements are in addition to the elements of the preliminary incident investigation report. Consult the *Regulation* and Guideline [G21.3 Dangerous incident reports](#) for more information about dangerous blasting incident reports. Reports may be combined as long as all of the requirements have been met and the reports are completed within the required time.

WorkSafeBC incident response and investigations

A WorkSafeBC officer may attend the scene of an incident, make inquiries, or conduct an investigation. WorkSafeBC's decision to conduct an incident investigation does not relieve an employer from the obligation to conduct its own investigation into the cause(s) of the incident.

Reporting incidents for OHS and compensation purposes

Employers are required to report [section 68](#) incidents to WorkSafeBC Prevention Services immediately by phoning 604.276.3100 (Lower Mainland) or 1.888.621.7233 (1.888.621.SAFE) (24 hours a day, 7 days a week).

The requirement to immediately report section 68 incidents is separate from the requirement to report injuries to WorkSafeBC for the purpose of initiating a claim for compensation. An employer must complete [Employer's Report of Injury or Occupational Disease \(form 7\)](#) to report an injury to WorkSafeBC Compensation Services (the claims department). Submitting a Form 7 will not satisfy the obligation to immediately report a section 68 incident, nor does it take the place of a preliminary incident investigation report.

Forms and additional resources

WorkSafeBC has developed a variety of incident investigation and corrective action reporting forms. These forms are available as Microsoft Word documents and as dynamic PDF forms, and can be found online at WorkSafeBC.com, under [Forms & Resources](#). Additional employer resources for conducting an incident investigation are available on [WorkSafeBC.com](#), under Health & Safety > Create & manage a healthy & safe workplace > Incident investigations.

G-P2-72-1 Full incident investigation, report, and follow-up actions

Issued January 1, 2016; Editorial Revision April 6, 2020

Regulatory excerpts

Section 72 of the *Workers Compensation Act* ("Act") states:

- (1) An employer must, immediately after completing a preliminary investigation under section 71, undertake a full investigation to, as far as possible,
 - (a) determine the cause or causes of the incident investigated under section 71,
 - (b) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (c) if unsafe conditions, acts or procedures are identified under paragraph (b) of this subsection, determine the corrective action

necessary to prevent the recurrence of similar incidents.

(2) The employer must ensure that a report of the full investigation is

(a) prepared in accordance with the policies of the board of directors,

(b) submitted to the Board within 30 days of the occurrence of the incident, and,

(c) within 30 days of the occurrence of the incident, either,

(i) provided to the joint committee or worker health and safety representative, as applicable, or

(ii) if there is no joint committee or worker health and safety representative, posted at the workplace.

(3) The Board may extend the time period, as the Board considers appropriate, for submitting a report under subsection (2)(b) or (c).

(4) Following the full investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(c).

(5) If the employer takes corrective action under subsection (4), the employer, as soon as practicable, must

(a) prepare a report of the action taken, and

(b) either

(i) provide the report to the joint committee or worker health and safety representative, as applicable, or

(ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

[Prevention Policy P2-72-1](#) sets out the elements of a full investigation report and corrective action report. The policy also provides examples of situations where WorkSafeBC may consider it appropriate to grant extensions for submitting the full investigation report.

Purpose of guideline

The purpose of this guideline is to provide guidance to employers around full incident investigations, corrective action following the full investigation, and associated reports.

Purpose of a full incident investigation

The purpose of a full incident investigation is to

1. Determine the cause or causes of the incident.
2. Identify any unsafe conditions, acts, or procedures that significantly contributed to the incident.
3. Determine corrective action to be implemented to prevent similar incidents from occurring in the future.

When is a full incident investigation required?

A full investigation is required for any incident requiring a preliminary investigation, and must be undertaken immediately following the preliminary investigation. Within 30 days of the occurrence of the incident, a full investigation report must

- Be submitted to WorkSafeBC
- Be provided to the joint committee or worker health and safety representative, as applicable, or if there is no joint committee or worker health and safety representative, posted at the workplace

WorkSafeBC may extend the period for submitting the full investigation report.

Elements of the full investigation report

The full investigation report must include the employer's full legal name, as well as any trade name or operating name under which the firm is doing business. Full contact information for the firm must also be provided, including the firm's address, phone number, and WorkSafeBC account number.

The full name and job title of all individuals involved in, or having knowledge specific to the incident or accident, must be provided in the full investigation report. This includes the name and job title of any workers injured or killed in the incident, witnesses to the incident, the people who carried out the investigation, and any other people whose presence might be necessary for a proper investigation of the incident.

Depending on the nature of the workplace, there may be other people, such as a prime contractor or property owner, who have duties or responsibilities for workplace safety. The full investigation report must identify these people as well as any other relevant workplace parties who were actively involved in the incident or who are implementing the corrective action following the full investigation.

The full investigation report must include a description of the incident and statement of the sequence of events that preceded the incident, and must

identify any unsafe conditions, acts, or procedures that significantly contributed to the incident. These may build on the information provided in the preliminary investigation report, but must include any additional information identified in the course of the full investigation.

The full investigation report must include a determination of the cause(s) of the incident. To establish the cause, analyze the facts and circumstances of the incident to identify the underlying factors that led to the incident. Consider the underlying factors that made the unsafe conditions, acts, or procedures possible.

The full investigation report must include information about corrective actions that have been identified and taken. This includes information about corrective actions identified as required to prevent a recurrence of similar incidents, corrective action that has been taken and corrective action that has been identified but not yet taken.

Corrective action

During the course of the full investigation the employer may identify additional unsafe conditions, acts, or procedures that significantly contributed to the incident. The employer may also decide that different or additional corrective action will be more effective than the interim corrective action originally undertaken.

The full incident investigation report must include the corrective action the employer has identified to prevent the recurrence of similar incidents. This includes corrective actions that have been taken as well as corrective actions that will be taken in the future.

The corrective action report following the full investigation must set out the action taken to prevent the recurrence of similar incidents. If corrective action is expected to take more than 30 days to implement, the interim corrective action report may be updated and revised until such time as all corrective action has been implemented. Examples of corrective action that may take more than 30 days include shipment of new equipment, completion of training course, or construction of updated facilities.

The corrective action report, and all updated reports must, as soon as reasonably possible, be provided to the joint committee or worker health and safety representative, as applicable. If there is no joint committee or worker health and safety representative, the reports must be posted at the workplace.

Combining reports

Depending on the complexity of the incident investigation it may be possible to complete the full investigation report and resulting corrective action within 48 hours. Occasionally, it may be possible to determine the cause or causes of an incident immediately, or shortly after the incident. In these limited cases, where an employer has fulfilled the objectives of a full incident investigation within 48 hours of the incident, the employer may complete and submit a full investigation report within 48 hours. A report of any corrective action taken must also be prepared and distributed as soon as reasonably possible after completing the full investigation report. Details on what to do when the incident investigation and resulting corrective action are completed within 48 hours are set out in Prevention Policy P2-72-1.

Extensions for submitting the full investigation report

The full investigation report must be submitted to WorkSafeBC within 30 days of the incident. The full investigation report must also, within 30 days, be provided to the joint committee or worker health and safety representative, or if there is no joint committee or worker health and safety representative, be posted in the workplace. This time may be extended when WorkSafeBC considers it appropriate to do so.

Where an employer is unable to complete the full investigation for reasons outside of its control, the employer may make a request to WorkSafeBC for an extension. The request for an extension should be made as soon as possible, but no later than 30 days after the incident.

[Policy P2-72-1.4](#) provides examples of situations where WorkSafeBC may consider it appropriate to grant an extension. These include situations where

- Remoteness of the location of the incident creates delays in an employer's investigation
- Technical aspects of the investigation cannot be evaluated within 30 days of the accident or incident
- Third party reports related to the full investigation are pending
- An investigation by WorkSafeBC, the police, or another agency restricts the employer's ability to investigate the cause(s) of the incident
- An employer does not know about an accident or incident that resulted in injury to a worker, because there is a delay in the worker seeking the related medical treatment.

WorkSafeBC does not consider it appropriate to extend the time period for submitting an employer's full investigation report on the sole basis that WorkSafeBC's own investigation report has not yet been disclosed.

Forms and additional resources

WorkSafeBC has developed a variety of incident investigation and corrective action reporting forms. These forms are available as Microsoft Word documents and as dynamic PDF forms, and can be found online at WorkSafeBC.com, under [Forms & Resources](#).

Additional employer resources for conducting an incident investigation are available on WorkSafeBC.com, under Health & Safety > Create & manage a healthy & safe workplace > Incident investigations.

Regulatory excerpts

Section 75(1) and (2) of the *Workers Compensation Act* states:

- (1) An officer of the Board may enter a place, including a vehicle, vessel or mobile equipment, and conduct an inspection for one or more of the following purposes:
- (a) preventing work-related accidents, injuries or illnesses;
- (b) ascertaining the cause and particulars of a work-related accident, injury or illness or of an incident that had the potential to cause a work-related accident, injury or illness;
- (c) investigating a complaint concerning health, safety or occupational environment matters at a workplace;
 - (d) determining whether there is compliance with the OHS provisions, the regulations or an order.
- (2) An inspection may be conducted
- (a) at a reasonable hour of the day or night, or
 - (b) at any other time if the officer has reasonable grounds for believing that a situation exists that is or may be hazardous to workers.

[Section 76](#) establishes restrictions on access to private residences.

[Section 78\(1\)](#) of the *Act* provides that the employer, or a representative of the employer, and a worker representative, may accompany the officer on an inspection.

[Section 78\(5\)](#) of the *Act* states that "nothing in this section requires the Board or an officer to give advance notice of an inspection."

Purpose of guideline

The purpose of this guideline is to describe situations where a WorkSafeBC prevention officer may determine it is appropriate to give advance notice of an inspection.

Background

An inspection is a visit to a workplace in order to:

- Determine compliance with the *Act*, *OHS Regulation* ("*Regulation*"), or an order
- Observe work practices and conditions at the workplace
- Investigate incidents and complaints around occupational health and safety

A prevention officer may conduct an inspection of any workplace, at any time or place work is being done.

Inspections may be made with no prior notice to any employer, union official, or any other person. Typically inspections are conducted without notice, as the purpose of most inspections is to review conditions at the workplace during the normal course of business. A prevention officer may however give advance notice of an inspection where the prevention officer determines that doing so is necessary for the proper completion of the inspection. The following are examples of situations where a prevention officer may give advance notice of an inspection.

1. Where a union official or other worker makes a specific complaint, and asks to personally show a prevention officer the subject of the complaint. In this situation, a prevention officer may make an appointment with that person for that purpose. Generally, no other person will be informed of the intended inspection; however, another regulatory body may be advised when coordinated involvement is required.
2. Where an employer requests an inspection, it may be arranged by appointment with the employer. In this situation, the worker representative should also be informed.
3. Where a prevention officer regards it as necessary for the proper completion of an inspection that a particular employer representative, worker representative, or other person should be present during the inspection, the prevention officer may arrange an inspection by appointment. In that case, the appointment will be arranged with the appropriate employer representative or worker representative. Advance notice will generally not be given for any subsequent inspections at that workplace.
4. Prevention officers may attend a workplace in response to a complaint of workplace bullying and harassment. Given the sensitivity surrounding allegations of workplace bullying and harassment, the prevention officer may contact the employer before attending the workplace. Advance notice will also ensure the appropriate employer and worker representatives are present.
5. Where the workplace is occupied as a private residence, advance notice may be required as set out in section 76(1)(b) of the *Act*.

An employer may request that a prevention officer consult with them and provide education on matters relating to workplace health and safety. If during the course of an employer-initiated inspection, violations of the *Act* or *Regulation* are observed, the prevention officer may issue orders or enter into a compliance agreement with the employer.

When starting an inspection, a Board prevention officer will inform the employer and worker representative, if any, as to the nature of the inspection; that is safety or hygiene, occupational environment, medical, or a combination of any two or more. Although an inspection is made for a specific purpose, for example safety, other observed violations will be addressed.

There are special procedures for initiating certain types of inspections, for example, federal WHMIS inspections conducted on behalf of Employment and Social Development Canada (EDSC). The officers doing those inspections will be trained in those procedures.

Where a prevention officer attends at a place of work for a purpose other than an inspection, the employer and the appropriate workers' representative should be notified that the officer has not come for an inspection, although immediate hazards observed by the prevention officer will be addressed.

A prevention officer will only cross a picket line, legally established or otherwise, to carry out Board duties when so directed by a Manager or Director and when the union organizing the line agrees. If the union does not agree, the prevention officer will report the circumstances to the Manager or Director for instructions.

For the right of the employer and workers to have a representative accompany the officer during an inspection, see sections [46](#) and [78](#) of the *Act* and Policy [P2-46-1](#).

G-P2-75-3 Follow up inspections

Guideline withdrawn, no longer required — August 29, 2016

G-P2-75-4 Use of equipment during inspections

Issued October 27, 2004; Revised August 29, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Section 75 of the *Workers Compensation Act* ("*Act*") reads, in part, as follows:

- (1) An officer of the Board may enter a place, including a vehicle, vessel or mobile equipment, and conduct an inspection for one or more of the following purposes:
 - (a) preventing work-related accidents, injuries or illnesses;
 - (b) ascertaining the cause and particulars of a work-related accident, injury or illness or of an incident that had the potential to cause a work-related accident, injury or illness;
 - (c) investigating a complaint concerning health, safety or occupational environment matters at a workplace;
 - (d) determining whether there is compliance with the OHS provisions, the regulations or an order.
- (2) An inspection may be conducted
 - (a) at a reasonable hour of the day or night, or
 - (b) at any other time if the officer has reasonable grounds for believing that a situation exists that is or may be hazardous to workers.
- (3) An officer may do one or more of the following for the purposes of an inspection under this Division:
 - (a) bring along any equipment or materials required for the inspection and be accompanied and assisted by a person who has special, expert or professional knowledge of a matter relevant to the inspection;
...
 - (c) take samples and conduct tests of materials, products, tools, equipment, machines, devices or other things being produced, used or found at the place, including tests in which a sample is destroyed;
...
 - (i) take photographs or recordings of the workplace and activities taking place in the workplace;
...
- (4) The authority to conduct an inspection under this Division is not limited by any other OHS provision or by any regulations giving specific authority in relation to the inspection.
...

Purpose of guideline

The purpose of this guideline is to provide guidance around the use of equipment or materials required for an inspection, and to set out the procedure to be followed where an employer has a concern around the safety of a piece of equipment.

Sampling, measurement, recording, and testing equipment

A WorkSafeBC prevention officer may enter a place to conduct an inspection, investigate an incident, or make inquiries. The prevention officer may bring along any equipment or materials required, including sampling, measurement, recording, photographic, and testing equipment.

An inspection may be conducted at a reasonable hour of the day or night, or at any other time an officer has reasonable grounds to believe that a situation exists that is hazardous to workers. Access to a place is generally not dependent on obtaining permission from the property owner or any employer. If however a workplace is also occupied as a private residence, access may be restricted, as set out in [section 76\(1\)\(b\)](#) of the *Act*.

An employer may request that certain equipment not be used or introduced into the workplace where the use of the equipment could endanger workers. For example, the use of certain equipment may be restricted in an atmosphere that is likely to have high concentrations of flammable gases or vapours. Prevention officers should ensure that any equipment or materials used during an inspection, investigation, or inquiry does not endanger workers or others present in the workplace.

Where an employer or other person at the workplace objects to the use of certain equipment on safety grounds, the prevention officer will consider the concern and may gather additional information or expert opinions as required. Depending on the circumstances, the prevention officer may proceed to use the equipment, consult with his or her manager, or take whatever other steps seem appropriate.

G-P2-75-5 Incident Investigations

Issued: September 28, 2005; Revised February 6, 2006; Retired September 21, 2012

G-P2-75(1) WorkSafeBC Authority on a Public Road

Issued August 16, 2000; Editorial Revision October 2004; Editorial Revision April 6, 2020

Section 75(1) of the *Workers Compensation Act* ("*Act*") states:

- (1) An officer of the Board may enter a place, including a vehicle, vessel or mobile equipment, and conduct an inspection for one or more of the following purposes:
 - (a) preventing work-related accidents, injuries or illnesses;
 - (b) ascertaining the cause and particulars of a work-related accident, injury or illness or of an incident that had the potential to cause a work-related accident, injury or illness;
 - (c) investigating a complaint concerning health, safety or occupational environment matters at a workplace;
 - (d) determining whether there is compliance with the OHS provisions, the regulations or an order.

Note section 74 of the *Act* sets out that the authority under section 75 to conduct inspections also applies to investigations and inquiries.

Officers of WorkSafeBC have not traditionally investigated vehicle accidents occurring on highways or other public roads. The practice was in part based on Policy 6.04 of the *Occupational Safety and Health Division Policy and Procedure Manual*, which discusses the investigation of log truck accidents. Policy 6.04 states that WorkSafeBC's inspection jurisdiction is limited to "landings, dumpsites, sorting yards, wharves, and other areas involving loading or unloading equipment on an industrial road"; it does not extend to other portions of industrial roads nor to public highways. The policy also states that WorkSafeBC must be notified of accidents involving injuries on public highways or any portion of an industrial road in all cases, and in some situations WorkSafeBC may investigate those accidents. This policy is based on a 1982 letter from the Superintendent of Motor Vehicles.

A recent court decision (*Regina vs. H.M.C. Services Inc*) and changes to the *Workers Compensation Act* have made Policy 6.04 no longer valid. In the referenced court case WorkSafeBC initiated a prosecution as a result of a vehicle accident occurring on a public highway in 1998. The case involved a road sweeper unit being operated on a public road without any traffic control in place. The employer brought a preliminary challenge to WorkSafeBC's jurisdiction to investigate an accident on a public highway. The court ruled that WorkSafeBC has jurisdiction to inspect where a worker or employer is involved.

In addition to the above referenced court decision, the following discussion looks at some other applicable principles.

1. Section 2(a) of the *Workers Compensation Act* states that WorkSafeBC's prevention jurisdiction extends to "every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia". Section 3(1) of the *Act* excludes certain industries from WorkSafeBC's jurisdiction under Part 2 of the *Act*, notably mines and railways, but does not generally exclude vehicle accidents or highways. Certain operations on highways, such as inter-provincial trucking, fall within federal jurisdiction and are therefore excluded from WorkSafeBC's jurisdiction by the Constitution of Canada. Apart from these exceptions, WorkSafeBC has jurisdiction over all work activities on highways in BC.
2. If WorkSafeBC has prevention jurisdiction over a particular industry, location, activity or other circumstance, all the relevant prevention provisions of the *Act* and regulations apply. This includes the obligation of the employer to notify WorkSafeBC of accidents, and WorkSafeBC's powers to inspect and investigate accidents. It is not possible, for example, for there to be an obligation to notify WorkSafeBC without there being a right to inspect and investigate.
3. There are several other provincial statutes regulating activities on public roads. These include the *Commercial Transport Act*, the *Forest Practice Code of British Columbia Act*, the *Highway Act*, the *Industrial Transportation Act*, the *Motor Vehicle Act*, and the *Motor*

Carrier Act. These *Acts* do not remove WorkSafeBC's general jurisdiction over activities on highways. Generally speaking, persons on highways must comply with all the relevant provisions of the applicable acts and regulations. If, for example, there are *Motor Vehicle Act* regulations and *Workers Compensation Act* regulations governing their activities, they must follow both.

4. If there is an inconsistency between two *Acts* or their regulations, the one that is most specific to the particular circumstance will govern. This means that generally speaking the special provincial acts relating to highways listed in item 3 above would override any contrary provision in WorkSafeBC's regulations. This is reflected in the note to section 16.2 of the *OHS Regulation*, which states "Mobile equipment required to meet the requirements of the *Motor Vehicle Act* or the *Industrial Transportation Act* is subject to this Regulation for matters not specifically governed by those Acts and the regulations under them."
5. It is not the role of officers of WorkSafeBC to enforce other provincial acts and regulations relating to activities on public roads. Inspections and investigations by officers of WorkSafeBC should generally be confined to matters covered by the *Workers Compensation Act* and regulations. Violations of other acts and regulations would typically be drawn to the attention of the other appropriate jurisdictional authority.

Policy 6.04 was retired effective October 1, 2001.

Prevention officers of WorkSafeBC should inspect and investigate occurrences on highways on the basis of the same criteria that they apply with respect to other workplaces. This means they should **not** inspect or investigate if

1. activities of the employer are subject to the specific exceptions in section 3(1) of the *Act* or to federal jurisdiction,
2. the circumstances involve an issue where the governing statutory or regulatory provision is under an act other than the *Workers Compensation Act*, for example, an accident resulting from a violation of the rules of the road laid down under the *Motor Vehicle Act*.

Federal jurisdiction over motor vehicles can generally be determined by looking at or inquiring on three criteria. First is the way the company or operation is chartered or governed. For example, operations of the federal government are in this group, as well as activities of airlines, telecommunication and broadcast (radio, television and cable TV) operations. Second is how the labour relations of the operation are governed. If the Canada Labour Code is the applicable law, it is federal jurisdiction. If the BC Labour Code applies, it is provincial jurisdiction and WorkSafeBC likely has inspection and investigation authority. And third, if the company is a transportation operation regularly transferring items to or from locations outside of BC, it is likely a federal jurisdiction. Note WorkSafeBC generally administers work-related injuries or occupational disease claims from the federal jurisdiction, but this aspect is not an indicator of WorkSafeBC's jurisdiction to inspect or investigate for prevention purposes at a particular operation or activity in the federal jurisdiction.

A prevention officer of WorkSafeBC should not exercise WorkSafeBC's authority to inspect or investigate work activity involving vehicle operation on a public road by flagging down and stopping a moving vehicle, unless such activity is being done jointly with another jurisdiction authorized and equipped to do so. Police or inspectors operating under the authority of the *Motor Vehicle Act* are examples of other jurisdictions that have such authority and the relevant equipment.

If a vehicle is stopped on a public road, a prevention officer of WorkSafeBC needs to exercise good judgement in determining whether it is reasonably safe to carry out an inspection or investigation at that time. This involves consideration of traffic volume on the road, sight lines for other vehicle operators to see and safely react to the stopped vehicle's location, and if other traffic can safely pass the stopped vehicle. If necessary, the officer should ask the driver to move the vehicle to another location on the road nearby or elsewhere so the inspection may be safely conducted.

If an inspection/investigation is taking place at the scene of a vehicle accident, a prevention officer of WorkSafeBC should only proceed with onsite activity if the scene is effectively controlled as necessary to make it safe from other road traffic. The officer should also make sure the vehicle(s) involved are not presenting a hazard through instability or the release of a hazardous material.

G-P2-75(3)(c) Use of *Legal Sample Bags* for samples collected by WorkSafeBC officers

Issued April 27, 2000; Editorial Revision October 2004; Editorial Revision April 6, 2020

Section 75(3)(c) of the *Workers Compensation Act* states that an "officer may ...for the purposes of an inspection under this Division ...take samples and conduct tests of materials, products, tools, equipment, machines, devices or other things being produced, used or found at the place, including tests in which a sample is destroyed;..."

Effective January 1, 2000, the Prevention Division initiated a "*Preservation of Sample*" program for all samples collected by a Board officer for submission to Occupational Disease Prevention Services for laboratory analysis. This is to ensure continuity of evidence and establish that tampering has not occurred during the conveyance of the sample (in a *Legal Sample Bag*) from the officer to Occupational Disease Prevention Services representative. This procedure is consistent with the generally accepted practices followed by other enforcement agencies for the seizure of items related to criminal investigations.

Each sample is to be sealed individually into a *Legal Sample Bag* at the time the sample is taken. This applies to all samples, whether a bulk sample or an air monitoring cassette or similar sample collection device. Bulk samples, such as asbestos-containing material, should be placed in a glass Teflon vial or other sealed enclosure before being placed in the *Legal Sample Bag*. Officers are to use sampling supplies and shipping containers as provided by Occupational Disease Prevention Services. The officer must fill out the required information indicated on the label attached to the legal sample bag. Ensure the bag is effectively sealed using the label fold-over tab. Ship the samples in accordance with the Occupational Disease Prevention Services "Field Officer Sampling Guide" along with a completed Analytical Request form.

Upon receipt of each sample bag at the laboratory, a laboratory representative will check the integrity of the sample bag. If the bag appears to be properly sealed and in good condition, the laboratory representative will indicate this by signing the sample bag label and forwarding the sample for

the required analysis. If the sample bag appears to have been improperly sealed, tampered with, or has been opened, the officer who submitted the sample will be contacted by the laboratory representative to discuss why this may have occurred, and to make a decision on analysis and use of the sample results.

Requests for supplies of *Legal Sample Bag* and other sampling equipment and collection devices should be made to the Occupational Disease Prevention Services. For further information on the collection and shipment of samples, refer to the current "Field Officer Sampling Guide" issued by Occupational Disease Prevention Services.

Guidelines - Workers Compensation Act, Part 2 Division 12 - Enforcement

G-P2-83-1 Compliance agreements with employers

Issued September 15, 2015; Revised January 1, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Section 83 of the *Workers Compensation Act* ("Act") states:

- (1) The Board may enter into an agreement with an employer if the Board considers that
 - (a) the employer has contravened, or failed to comply with, an OHS provision or a provision of the regulations,
 - (b) the employer has not contravened, or not failed to comply with, the same provision described in paragraph (a) within the 12-month period immediately preceding the contravention or failure referred to in that paragraph,
 - (c) the health or safety of workers, for which the employer has responsibilities under this Act, is not at immediate risk, and
 - (d) entering into the agreement is appropriate in the circumstances.
- (2) An agreement under subsection (1) must be in writing and must do the following:
 - (a) describe one or more actions the employer agrees to take, which may include one or more expenditures the employer agrees to make, to remedy the employer's contravention or failure referred to in subsection (1)(a) or the adverse effects that resulted from that contravention or failure;
 - (b) set out the time frame within which the employer, with respect to each action described under paragraph (a) of this subsection, agrees to
 - (i) take the action, and
 - (ii) report to the Board on the action taken;
 - (c) specify the date the agreement ends;
 - (d) set out the required manner, form and content of the report referred to in paragraph (b)(ii) of this subsection.
- (3) As soon as practicable after entering into an agreement under subsection (1), the employer must
 - (a) provide a copy of the agreement to the joint committee or worker health and safety representative, as applicable, or
 - (b) if there is no joint committee or worker health and safety representative, post a copy of the agreement at the workplace.
- (4) As soon as practicable after reporting to the Board under subsection (2)(b)(ii), the employer must
 - (a) provide a copy of the report to the joint committee or worker health and safety representative, as applicable, or
 - (b) if there is no joint committee or worker health and safety representative, post a copy of the report at the workplace.
- (5) Subject to subsection (6), an agreement under subsection (1) may be amended if agreed to by the Board and the employer.
- (6) The Board must rescind an agreement under subsection (1) if the Board considers that any of the following apply:
 - (a) the employer has failed to
 - (i) take any of the actions described under subsection (2)(a) within the time frame set out for the action under subsection (2)(b)(i), or
 - (ii) report to the Board within the time frame set out under subsection (2)(b)(ii);
 - (b) the employer intentionally provided false or misleading information in relation to the agreement;
 - (c) the health or safety of workers is at immediate risk, based on information received by the Board after the agreement was entered into.

(7) The Board may rescind an agreement under subsection (1) if the Board considers that the agreement no longer adequately protects the health or safety of workers.

(8) A rescission under subsection (6) or (7) takes effect immediately despite the employer not having received notice.

(9) As soon as practicable after rescinding an agreement under subsection (6) or (7), the Board must

(a) make reasonable efforts to provide verbal notice of the rescission to the employer, and

(b) send written notice of the rescission to the employer.

(10) Section 344(4) to (6) [*issues related to sending or receipt of orders and other documents*] does not apply to the sending of written notice under subsection (9) of this section.

(11) The employer must, as soon as practicable after receiving written notice under subsection (9),

(a) provide a copy of the written notice to the joint committee or worker health and safety representative, as applicable, or

(b) if there is no joint committee or worker health and safety representative, post a copy of the written notice at the workplace.

Purpose of guideline

The purpose of this guideline is to provide guidance on the issuance of compliance agreements under section 83 of the *Act*.

Background

Division 12 of the OHS provisions of the *Act* sets out WorkSafeBC's authority to use a variety of tools to ensure compliance with the *Act* and *OHS Regulation* ("*Regulation*"). One of those tools is the compliance agreement. Instead of issuing an order, WorkSafeBC may, in certain circumstances, enter into a compliance agreement in which a responsive employer voluntarily agrees to correct occupational health and safety ("OHS") violations within a short specified timeframe, and report back by a particular date. While the violations documented in a compliance agreement form part of the employer's compliance history, the successful completion of compliance agreements may contribute to a positive evaluation of an employer's overall compliance with OHS requirements.

Some examples of violations that may be appropriately addressed by a compliance agreement, depending on the circumstances, include failure to ensure that:

- Safety data sheets are up to date.
- Joint committee meeting reports and member names are posted.
- Minor deficiencies in equipment or a first aid kit are addressed.
- Housekeeping issues are addressed.

When a compliance agreement will not be offered

Not all violations can be appropriately addressed by a compliance agreement. Policy Item D12-186.1-1 ("the Policy") provides that WorkSafeBC will not enter into a compliance agreement with an employer under the following circumstances:

- The violation puts worker health or safety at immediate risk (in other words, it creates a likelihood of injury, illness, or death if not immediately remedied) [s.83(1)(c)];
- The violation is high risk as defined in [Policy Item P2-95-2](#);
- The employer has violated, within the last 12 months, the same provision of the *Act* or *Regulation* at any location or workplace. For example, if the employer violated the same provision of the *Regulation* on December 2 in its Prince George location and then again on October 12 of the following year in its Vancouver location, no compliance agreement would be offered for the October violation.
- A previous compliance agreement with the employer (under the same or a different provision of the *Act* or *Regulation*) was cancelled in the last three years due to the fault of the employer. When determining whether the cancellation was due to the employer's fault, the WorkSafeBC prevention officer will consider all relevant circumstances, including whether the employer did everything reasonably possible within its control to comply with the agreement.

When a compliance agreement may be appropriate

The compliance agreement is not an automatic first step in the enforcement process. As stated in the Policy, WorkSafeBC enters into compliance agreements at its own discretion, after considering the likelihood of an incident or exposure occurring because of the violation and the likely seriousness of any injury or illness that could result. Also, a compliance agreement can only be considered if WorkSafeBC believes that it is appropriate in the circumstances and the employer will likely fulfill its obligations under the agreement.

Some of the factors that must be considered when deciding whether a compliance agreement is appropriate in the circumstances include the following:

- *The employer's compliance history*: This includes the nature, number, and frequency of past violations.
- *The effectiveness of the employer's overall approach to managing OHS*: The employer must have an effective program for preventing OHS violations. If the employer displays a general lack of commitment to OHS, a compliance agreement will not be the appropriate tool. For example, if during the inspection the prevention officer observes one or more violations that may qualify for a compliance agreement and one high-risk violation, no compliance agreement will be offered to remedy the qualifying violation(s) due to the presence of a high-risk

violation.

- *The employer's willingness to enter into the agreement:* Employers enter into compliance agreements voluntarily. An employer may express an unwillingness to enter into a compliance agreement in a number of ways. For example, the employer may inform the prevention officer that they are not willing to do so. Alternatively, the employer may claim an inability to comply because of lack of knowledge, economics (such as saying they cannot afford to comply), impracticality of compliance, or related arguments. If the employer is not willing to enter into the agreement, the prevention officer will issue an order where appropriate.
- *Information provided by workers and union representatives:* This information will be weighed together with information received from the employer, as well as the prevention officer's own observations.

Requirements of compliance agreements

The Policy outlines the requirements of a compliance agreement. It must:

- Be between WorkSafeBC and an employer. Compliance agreements cannot be entered into with workers, independent operators, or other persons.
- Be in writing.
- Be signed by an appropriate employer representative who has the necessary authority to enter into agreements on behalf of the employer. It is the employer's responsibility to identify the appropriate authorized representative. An electronic signature in the form of an emailed response is acceptable provided the identity and job title of the person signing is known, and the electronic signature is attached to, or associated with, the compliance agreement.
- Describe the corrective actions the employer agrees to take.
- Provide the action deadline, report deadline, and the date the agreement ends (refer to "Compliance agreement deadlines" for more information).

In addition, the compliance agreement will describe the following:

- The violation(s) that will be addressed by the compliance agreement.
- Where applicable, interim measures that will be taken until compliance is achieved.
- The manner, format, and content of the compliance agreement report.
- The posting and distribution requirements.

Compliance agreement deadlines

The action deadline is the date by which the employer must complete its corrective action(s). This timeframe will be mutually agreed upon by WorkSafeBC and the employer, and it must be reasonable. Generally, 14 days from the date of the violation will be considered to be reasonable, but the prevention officer will take into account all relevant factors. For example, if one of the corrective actions entails installing new equipment, the time it takes to supply the equipment will be taken into consideration. On the other hand, if a violation can reasonably be corrected within a shorter timeframe (e.g., seven days), the action deadline will be agreed upon accordingly. The corrective actions contained in a compliance agreement are intended to be completed as soon as reasonably possible.

The report deadline is a reasonable, mutually agreed-upon date by which the employer must report back to WorkSafeBC on corrective actions taken. It will typically be seven days following the action deadline. The prevention officer's assessment of whether the agreement has been complied with may include a review of documentation provided by the employer and/or a site inspection; this will be documented in writing.

The agreement end date will typically be the same date as the report deadline.

It is the employer's sole responsibility to meet the action and report deadlines. Failure to meet these deadlines will result in cancellation of the compliance agreement.

Amending a compliance agreement

While the compliance agreement is still in effect (i.e., it has not ended or been cancelled), WorkSafeBC and the employer can agree to an amendment in writing. No signature by the employer's representative is required on an amendment.

As stated in the Policy, when determining whether an amendment is appropriate, the prevention officer will consider a number of factors on a case-by-case basis, including the employer's progress towards compliance.

In many cases, an amendment may simply consist of an extension of the action and/or report deadlines. These deadlines may be extended provided the request for an extension is made prior to the expiry of that particular deadline. WorkSafeBC does not have the discretion to extend a deadline that has been missed. Extensions of time must be reasonable and documented through an amended compliance agreement.

Cancelling a compliance agreement

The Policy provides that a compliance agreement will be cancelled by WorkSafeBC if:

- The agreement no longer adequately protects the health and safety of workers.
- The employer fails to complete its required actions by the action deadline.
- The employer fails to meet its reporting obligations by the report deadline.
- The employer intentionally provides false or misleading information in relation to the agreement.
- The health and safety of workers is at immediate risk based on information received by WorkSafeBC after the agreement was entered into (in other words, there is a likelihood of injury, illness, or death if the situation is not immediately remedied).

While the cancellation takes effect immediately whether or not the employer receives notice, the prevention officer will send written notice to the employer and will also make reasonable efforts to provide verbal notice.

It should be noted that the cancellation of a compliance agreement due to the employer's fault will not result in the cancellation of other compliance agreements that may already be in effect.

Posting requirements

Compliance agreements require employers to post the following documents at the workplace:

- Compliance agreements between the employer and WorkSafeBC.
- Amended compliance agreements between the employer and WorkSafeBC.
- Compliance agreement reports completed by the employer.
- Notices of cancellation of compliance agreements provided by WorkSafeBC.

These documents will be posted for the period of time stipulated in the compliance agreement. The employer must also provide copies of the above documents to the joint health and safety committee or worker health and safety representative, if applicable, and to the union if the compliance agreement relates to a workplace where workers of the employer are represented by a union.

Issuance of orders

As set out in the Policy, if a compliance agreement is entered into, WorkSafeBC will not issue an order for any violation specifically described in it while that specific compliance agreement is in effect. Orders may be issued, however, on violations not described in the agreement even if they are under the same provision of the Act or Regulation. For example, if WorkSafeBC and the employer enter into a compliance agreement to have the tool rests on a particular bench grinder adjusted as required, that does not preclude the issuance of an order regarding the adjustment of the tool rests on any other bench grinders at the workplace, unless the scope of the compliance agreement specifies the other equipment.

If the employer satisfactorily completes the compliance agreement, WorkSafeBC will not retroactively issue an order for violations addressed by the agreement.

When a compliance agreement is cancelled for any of the reasons set out above, WorkSafeBC will, except in exceptional circumstances, issue orders for any of the outstanding violations specifically described in the agreement. An example of an exceptional circumstance may be where an employer has been unable to submit the report by the report deadline due to a power outage.

If a compliance agreement has been cancelled, but the violations are not outstanding (e.g., the report was submitted late but the violations have been corrected), orders will not be issued.

Review of a decision to issue a compliance agreement

A prevention officer's decision to enter into a compliance agreement, rather than issue an order, is a decision to not issue an order. Certain persons (such as, for example, a worker or union) who are affected by a decision may request a review of a decision not to issue an order. However, the

Policy provides that once a compliance agreement has been entered into and is in effect, WorkSafeBC will not issue orders for any violations specifically described in the agreement. Similarly, once a compliance agreement has been satisfactorily completed by an employer, an order cannot be retroactively issued, including by the Review Division.

G-P2-84-1 Worker orders

Withdrawn September 30, 2009 (please refer to [G-P2-22](#) Orders to workers)

G-P2-84-2 Order(s) when there is no violation

Issued June 26, 2003; Editorial Revision June 2005; Revised April 25, 2012; Retired October 28, 2019

This guideline has been retired as it contained outdated or redundant material.

G-P2-84-3 Protection of privacy in inspection reports

Issued December 21, 2009; Editorial Revision April 6, 2020

Regulatory excerpts

See Sections [53](#) and [84](#) of the *Workers Compensation Act* ("Act").

Purpose of guideline

The purpose of this guideline is to advise about the correct approach to including information in an inspection report ("IR") which is subject to the *Freedom of Information and Protection of Privacy Act* ("FIPPA").

Background

FIPPA came into force in October 1993 and applies to all provincial ministries, Crown corporations, agencies, commissions, and boards, including WorkSafeBC. *FIPPA* governs how WorkSafeBC collects, uses, and discloses information. In particular, *FIPPA* compels WorkSafeBC to protect personal information.

Personal information in IRs

The name or other identifying personal information about a worker should not be included in an IR or in any other records that are available to the public upon request to WorkSafeBC (Prevention Records). Personal information is any recorded information about an identifiable individual other than business contact information. The following are some examples of personal information that should not be disclosed in an IR about an identifiable individual:

- Personal contact information (business contact information, including the person's job title, may be disclosed)
- Age
- Date of birth
- Employment, occupational, or educational history
- Medical information
- Details about a worker's injury
- Claim number or any other claim information
- Driver's licence number, social insurance number, or any other similar personal identifier
- Racial or ethnic origin
- Sexual orientation
- Marital status
- Religious beliefs

Examples of how to include personal information when needed

There may be a small number of cases where an IR will need to contain some personal information in order to support the WorkSafeBC prevention officer's decision. Only information that is absolutely necessary to exercise WorkSafeBC's mandate should be included. In those situations, an attempt should be made to present the information in a way that minimizes its personal nature, and if possible, documented in a consultation record ("CR") linked to the IR.

Worker names:

The name of individuals should not be disclosed in an IR. If it is necessary to document the actions of more than one worker in an IR, the prevention officer may refer to them as "worker A," "worker B," etc.

The name of individuals accompanying the prevention officer as worker and employer representatives will be included in an IR in the field provided in FirmFile. The name of the representative should not be included in the IR text if an observed violation relates directly to that individual. If a violation does relate directly to a representative, the IR text will simply refer to "a worker". For example: "a worker was not wearing adequate hearing protection". The IR should not contain any additional personal information about that individual.

Age and employment experience:

In cases where the age or employment experience of a worker is relevant to the orders or observations in an IR, that information should be expressed as a range. For example, if the inspection relates to the orientation and training provided to a "young worker," the IR may state that the individual is under 25 years of age, rather than specifying the worker's exact age.

Where it is relevant to document that a particular worker has extensive experience in a particular occupation, the IR may note that the worker has "more than 20 years of experience," or simply "substantial years of experience." Similarly, in the case of a "new worker," the IR should not specify the exact amount of time the worker has been employed.

Medical information:

There are some situations where medical information will be relevant to the inspection or order. For example, impairment may have been a factor in an incident or affected the safety of a worksite. In that case, it would be appropriate for the IR to state that the worker was impaired. However, the IR should not reference specific toxicology results or what has caused the impairment (drugs, alcohol, medication, etc). Similarly, in cases where a worker is exposed to a contagion or blood-borne pathogen such as Hepatitis C or HIV, the IR should state that the worker was exposed to a "blood-borne pathogen" or an "immune compromising condition." However, the IR should not disclose that the exposure resulted in the worker being diagnosed with a specific medical condition.

Personal opinions:

Workers' personal opinions about their employers or health and safety matters should not be included in an IR. These matters should instead be documented in a CR.

Confidential business information in IRs

In addition to personal information, *FIPPA* also protects information that would reveal trade secrets, or commercial, financial, labour relations, scientific, or technical information. If that information is provided in confidence and disclosing it would harm the business interests of a firm, it should not be included in an IR.

Orders to workers

As stated in OHS Guideline [G-P2-22](#), where an order to worker ("OtW") is issued as the result of a prevention officer's findings on an inspection, the applicable IR issued to the employer should reference the number of the OtW report. However, the name and other personal information about the worker related to the OtW should not be included in the IR.

This guideline is no longer needed because all of the Vice President directives have expired.

G-P2-85-1 Extension of implementation period

Issued May 15, 2002; Revised January 1, 2004; Editorial Revision October 14, 2004; Editorial Revision April 6, 2020

Section 85(1) of the *Workers Compensation Act* ("Act") states:

An officer of the Board may exercise the authority of the Board to make orders under the OHS provisions, subject to any restrictions or conditions established by the Board.

The Vice President, Prevention Services has the authority to exercise WorkSafeBC's power under section 85(1) to establish restrictions and conditions on the making of orders under the OHS provisions of the *Act*.

The *Occupational Health and Safety (OHSR)* took effect on April 15, 1998. Many new requirements were enacted under the *OHSR*, and therefore, a period of one year was granted to comply with the new requirements. The initial one-year period was extended by the Vice President for some sections where there were practical difficulties with compliance by the affected industries. A number of these extensions were due to expire on December 31, 2003.

Where the Vice President has issued a directive to continue the extension for one or more sections of the *OHSR*, an OHS Guideline has been issued for the relevant sections.

Conditions and restrictions of directives

The following conditions and restrictions apply to the authority of prevention officers of WorkSafeBC to make orders under those directives in addition to any specific conditions or restrictions named in the guideline:

1. Prevention officers will not issue an order for a violation of a section of the *OHSR* that is the subject of a directive to extend the implementation period.
2. Orders may be issued for violations under other sections of the *OHSR* which may apply – including the other sections noted in some of the directives – and under the OHS provisions of the *Act* - including the general duties of employers, workers, supervisors, prime contractors, owners, and suppliers.
3. These conditions and restrictions apply to all WorkSafeBC occupational health and safety related officers conducting inspections or investigations as well as to prevention officers and management personnel considering orders and administrative penalties made pursuant to inspections or accident investigations.

G-P2-85-2 Approvals, acceptances, authorizations, or permissions under the *OHS Regulation*

Issued June 1, 2006; Revised January 20, 2012; Revised January 1, 2016; Revised February 1, 2016; Editorial Revision April 6, 2020; Revised September 18, 2020; Editorial Revision consequential to September 1 and December 1, 2021 Regulatory Amendments

Regulatory excerpt

The *Workers Compensation Act* ("Act") states as follows:

324

- (1) The board of directors may delegate in writing a power or duty of the board of directors to the president of the Board or another officer of the Board, and may impose limitations or conditions on the delegate's exercise of a power or performance of a duty.
- (2) The president may delegate in writing any of the president's powers and duties to another officer of the Board or another person, and may impose limitations or conditions on the delegate's exercise of a power or performance of a duty.

85

- (1) An officer of the Board may exercise the authority of the Board to make orders under the OHS provisions, subject to any restrictions or conditions established by the Board.

Purpose of guideline

The purpose of this guideline is to describe the assignment of duties and authorities under the *OHS Regulation* ("*Regulation*") to designated positions within the Prevention Services Division ("*Prevention Services*"), in particular those relating to approvals, acceptances, authorizations, or permissions required in the *Regulation*.

Introduction

There are many provisions of the OHS provisions of the *Act* and the *Regulation* that provide for actions to be carried out or decisions to be made by WorkSafeBC or by prevention officers of WorkSafeBC. These include specific types of decisions mandated by the *Act*, such as deciding on applications for variances from the *Regulation*, or deciding issues relating to prohibited action, and also include decisions required in the *Regulation* where something must be approved, accepted, authorized, or permitted by WorkSafeBC.

The Board of Directors has provided the President and Chief Executive Officer (CEO) the authority to exercise the powers and responsibilities described in the OHS provisions (other than those reserved to the Board of Directors), and has also provided the President and CEO the authority to assign these powers and responsibilities to other divisions, departments, categories of officers, or individual officers of WorkSafeBC. The President and CEO in turn has delegated a number of these powers and responsibilities to the Head of Prevention Services.

The Head of Prevention Services has in turn issued a Delegation of Authority which sets out who within Prevention Services may exercise a number of those authorities. The Delegation of Authority also sets out how decisions to approve, accept, authorize, or permit things on behalf of WorkSafeBC are to be made.

Where this document refers to an "officer," that term means persons appointed as officers whose functions primarily involve conducting inquiries, investigations, or inspections, or making decisions or exercising powers under Part 2 of the *Act*. "Officers" include Head of Prevention Services, as well as Prevention Services' directors, senior managers, and managers.

Decisions in the OHS provisions of the *Act*:

The following table sets out the delegation of decision-making authorities under the OHS provisions of the *Act*, in accordance with the President and CEO's Delegation of Authority and the Head of Prevention Services' Delegation of Authority:

Section of <i>Act</i>	Decision	By whom
20(2)	Varying or cancelling orders	The person who made the order, or a person authorized to make that type of decision or order
107	Charging of costs	President and CEO or in accordance with existing WorkSafeBC policy
18(1)	Interjurisdictional Agreements	Head of Prevention Services
47–50	Prohibited Actions	Head of Law and Policy or delegate
52	Health and Safety Summaries	Head of Prevention Services or delegate
53(3)	Disclosure in Public Interest	Head of Prevention Services, Head of Law and Policy or Head of Stakeholder Experience, Marketing & Corporate Communications
55, 59, 96	Establishing fees	President and CEO
55,59, 96	Certification, other than establishing fees	Director, OHS Practice and Engineering Support or delegate
60–66	Variances	Director, OHS Practice and Engineering Support or delegate
77	Issuing Officer Credentials	President and CEO
85(1)	Restrictions on an officer's authority to issue orders	Head of Prevention Services
91(1) and 92(2)	Confirmation of Stop Work Order and approval of "Stop Operations" Order	Head of Prevention Services or delegate
56,94, 95, 251	Special Rates of Assessment, Administrative Penalties, OHS Citations, and Claims Costs Levies	Any officer
97	Approval of Application for Court Injunctions	President and CEO

The *Act* provides direct authority to conduct inspections, investigations, and enquiries, and to undertake a number of enforcement actions to "officers." Which officers may exercise that authority in specific contexts is subject to management direction in accordance with section 85(1) of the *Act*.

Decisions in the *Regulation*:

In addition to the decisions under the *Act* above, there are numerous provisions in the *Regulation* which require "WorkSafeBC" approve, accept, authorize, or permit something.

The ability to make those decisions rests with WorkSafeBC officers. However, the ability of an officer to make a decision approving, accepting, authorizing, or permitting something is restricted by the Delegation of Authority by the Head of Prevention Services, issued under the authority of section 85(1) of the *Act*. This document sets out which officer may make which types of decisions.

There are five basic categories of "officers" who may make decisions with respect to approvals, acceptances, authorizations, or permissions under the *Regulation*. These are:

1. Director of OHS Practice and Engineering Support or designated alternate
2. Director of OHS Practice and Engineering Support, who has described compliance in a guideline, and compliance may then be evaluated by a WorkSafeBC prevention officer

3. Prevention Field Services managers and prevention officers
4. Director of the Risk Analysis Unit or designated alternate
5. Director of OHS Practice and Engineering Support or Manager of Certification Services, or their respective designated alternates

These are further described below.

1. Authority under the *Regulation* that may be exercised only by the Director of OHS Practice and Engineering Support or their designated alternate

The Director of OHS Practice and Engineering Support has designated the position of Senior Prevention Advisor, OHS Practice and Engineering Support, to exercise authority in the areas listed below. The decision will be issued in a decision letter. Workplace parties must request and obtain a decision letter for the following decisions before proceeding:

General	Grant approval, acceptance, authorization, or permission except as otherwise specified in this guideline
4.4(2)	Determine alternative publications, codes, standards, practices, procedures, or rules acceptable to WorkSafeBC except as otherwise specified in this guideline
7.18(2)	Apply Division 3 (or parts thereof) to medical or dental radiation received by a patient, or to natural background radiation
7.22	Exempt an employer from the requirements of monitoring exposure to ionizing radiation (providing and ensuring workers' proper use of personal dosimeters)
9.1	Determine excluded confined spaces (in conjunction with WorkSafeBC exclusions committee)
14.14(h)	Specify other hoisting equipment requiring records of inspection and maintenance

This authority is in addition to the authority to issue variance decisions under sections [60 through 66](#), as described above.

As noted under "General," unless this guideline sets out otherwise, all decisions relating to approvals, acceptances, authorizations, or permissions must be decided in advance by the Director of OHS Practice and Engineering Support, or designated alternate.

2. Authority under the *Regulation* that may be exercised by the Director of OHS Practice and Engineering Support, who has described compliance in a guideline

In some situations, the Director of OHS Practice and Engineering Support will have determined that issuing specific decisions relating to approvals, acceptances, authorizations, or permissions is not required by that department. In such situations, the Director of OHS Practice and Engineering Support may issue a guideline setting out what is acceptable, and what workplace parties must do in order to be compliant. A prevention officer may then evaluate compliance with the elements set out in the guideline during a routine workplace inspection.

For example, a guideline may specify, "what elements safe work procedures must have in order to be "acceptable to WorkSafeBC." That is, WorkSafeBC accepts the alternative safe work procedures if they meet the criteria described in the guideline, and an employer that implements safe work procedures in accordance with the terms of the guideline may proceed without getting prior permission from WorkSafeBC. However, if criteria other than specified or referenced in a guideline are to be used, a request and submission to the Director of OHS Practice and Engineering Support will be necessary.

This scenario only relates to where the *Regulation* requires that something be acceptable, approved, or determined (or other similar language) by WorkSafeBC, and does not relate to situations where guidelines are simply issued as guidance documents to assist in evaluating compliance.

The Director of OHS Practice and Engineering Support has issued guidelines describing acceptable compliance for the following sections:

5.53(4)	Accept occupational hygiene methods for workplace exposure monitoring and assessment (refer to G5.53-4)
6.8(2)	Accept procedures for control, handling, or use of asbestos (refer to G6.8)
6.27	Accept means of asbestos cleanup (refer to G6.27)
6.67	Accept manner of implementation of an effective health protection program in the handling of lead (refer to G6.67)
6.68(b)	Accept manner of maintenance of health monitoring records in the handling of lead (refer to G6.68)
6.79	Accept manner of maintenance of health monitoring records in the handling of pesticides (refer to G6.79)
6.113	Accept a dust suppression system for a rock drill (refer to G6.113)
7.22	Accept a personal dosimeter for monitoring exposure to ionizing radiation (refer to G7.22)
7.29(1)(a)	Accept measures and methods for heat stress assessment (refer to G7.29-2 , G7.29-3 , and G7.29.4)
7.30(2)(a)	Accept heat stress administrative controls (refer to G7.30-2)
7.34(a)	Accept measures and methods for cold stress assessment (refer to G7.34-1)

- 10.4(6) Approve effective means of lockout (refer to [G10.4\(6\)](#))
- 11.2(5) Where a fall arrest system is not practicable, accept work procedures (refer to [G11.2\(5\)-1](#))
- 11.7(c) Accept manner of design, installation, and use of temporary horizontal lifeline system (refer to [G11.7](#))
- 12.11(2) Accept standard for operating controls for mobile equipment (refer to [G12.11](#))
- 12.78 Accept manner of testing and inspection of automotive lifts (refer to [G12.78](#))
- 13.29(2.1) Accept work procedures when lower limit travel devices are not practicable (refer to [G13.29](#))
- 14.48(2) Accept standards of design, installation, operation, and maintenance of audio and video communication systems used in a hoisting operation (refer to [G14.48\(2\)](#))
- 17.10(1)(a) Accept design and construction of vehicles (refer to [G17.10](#))
- 19.16(2)(a) Accept written safe work procedures if it is not practicable to completely isolate high voltage electrical equipment (refer to [G19.16-1](#))
- 19.27(1)(b) Determine whether re-routing, de-energizing, or guarding is practicable when working close to energized high voltage equipment and conductors (refer to [G19.27](#))
- 19.34(5) Accept insulated tools when tree pruning or falling near energized conductors (refer to [G19.34\(5\)](#))
- 20.13(3.1) Accept control measures re loads on thrust-out crane loading platforms (refer to [G20.13\(3.1\)](#))
- 26.16(4)(b) Accept written safe work procedures re use of logging equipment on steep slopes (refer to [G26.16](#))
- 26.41(1)(b) Accept manner of positioning guylines for a mobile yarder (refer to [G26.41](#))

3. Authority under *Regulation* that may be exercised by Prevention Field Services managers and prevention officers

Prevention Field Services managers and prevention officers may exercise authority for determinations under the following sections. The prevention officer will consult with other subject matter experts as necessary and will consult any guidelines and other WorkSafeBC publications necessary for assistance with the decision-making process. The prevention officer will record the decision in the inspection text of an inspection report.

- 9.22(1) Accept alternative measures under section 9.22(1) for municipal sewage systems (refer to [G9.22-2](#))
- 9.29(2) Prescribe any additional precautions regarding inerting a confined space (refer to [G9.29](#))

This authority is in addition to the authority connected to undertaking inspections and investigations and undertaking enforcement actions under sections 75, 84, 89, 90, 91, and 92, and related sections of the *Act*.

In the event that the Prevention Field Services manager or prevention officer is unable to exercise the authority due to extraordinary circumstances (because the issue has province-wide implications or the matter is unusually complex), the Director of OHS Practice and Engineering Support or designate will exercise the authority.

4. Authority under the *Regulation* that may be exercised only by the Director Risk Analysis Unit, or their designated alternate

- 7.3(2)(a) Determine acceptable alternative standards for noise exposure measurement
- 7.7(1)(c) Determine acceptable alternative types or standards of hearing protection
- 7.8(2) Determine who is authorized to conduct hearing tests

5. Authority under the *Regulation* that may be exercised only by the Director of OHS Practice and Engineering Support or the Manager of Certification Services, or their respective designated alternates

- General Determine the courses or programs of instruction, education, or training (or training standards) that are acceptable to, or approved by, WorkSafeBC where exercise of such authority is referenced in the *Regulation*
- 3.16(1.1) Determine ambulance service acceptable to WorkSafeBC under [Schedule 3-A](#)
- 14.34.1(a) Determine who is a person acceptable to WorkSafeBC to issue crane operator's certificates
- 21.69(2), (3) Determine appropriate circumstances and acceptable alternative procedures (alternative warning procedures in blasting)
- 21.85(1) Accept work procedures for placing charges
- 21.85(4) Approve changes to blasting procedures
- 22.73(1) Approve the underground storage of explosives
- 22.75(b) Provide approval for the use of explosives (if not Fume Class 1 rating) in underground workings
- 24.26(3)(b) Provide written authorization to use mixed gases other than nitrox in diving operations

The Manager of Certification Services may communicate acceptable training by including his/her decision in a guideline. For example, OHS Guideline [G26.21/26.22](#) describes the acceptable training standard for fallers and OHS Guideline [G24.26](#) describes training courses to achieve nitrox diving training to an acceptable standard.

This authority is in addition to the authority to issue decisions under sections 55, 59, and 96 of the *Act*, as described above.

G-P2-89 Order to stop using or supplying unsafe equipment

Issued June 26, 2003; Editorial Revision June Editorial Revision April 9, 2009; Revised March 18, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Section 89 of the *Workers Compensation Act* ("*Act*") states:

- (1) If the Board has reasonable grounds for believing that a thing that is being used or that may be used by a worker
 - (a) is not in safe operating condition, or
 - (b) does not comply with the OHS provisions or the regulations,the Board may order that the thing is not to be used until the order is cancelled by the Board.
- (2) If the Board has reasonable grounds for believing that a supplier is supplying a thing that
 - (a) is not in safe operating condition, or
 - (b) does not comply with the OHS provisions or the regulations,the Board may order that supplier to stop supplying the thing until the order is cancelled by the Board.
- (3) Despite section 85(2) [*orders may be made orally or in writing*], an order under this section may only be made in writing.
- (4) The Board may cancel an order under this section only if it is satisfied that the thing in respect of which the order was made is safe and complies with the OHS provisions and the regulations.

Purpose of guideline

The purpose of this guideline is to discuss when WorkSafeBC will issue orders under sections 89(1) and 89(2) of the *Act*, referred to as "stop use" and "stop supply" orders respectively.

Application

Stop use and stop supply orders each apply to a "thing" that is either unsafe or does not comply with the *Act* or the *OHS Regulation* ("*Regulation*"). This includes tools, equipment, machinery, personal protective equipment, rigging, mobile equipment, or any other physical item that is used in a workplace.

Stop use orders

Stop use orders under section 89(1) may be written where an item that is being used in a workplace is not in safe operating condition or is not in compliance with the *Act* or the *Regulation*.

In many situations, non-compliance involving an item in the workplace will be addressed through compliance orders written under an applicable section of the *Regulation*. For example, where a required guardrail, while providing some protection, is only 100 cm above the workspace rather than the required minimum of 102 cm, a compliance order under section 4.55 of the *Regulation* may be sufficient to address the safety concern. In that scenario, a stop use order would be unnecessary.

In other situations, a compliance order alone will be insufficient to address the safety issue posed by the condition or non-compliance of the item.

This would be the case where the continued use of the item would present a high risk of serious injury, illness, or death to a worker, meaning a compliance order alone would be insufficient to ensure that workers are not exposed to such risks. For example, equipment such as a table saw lacking a point of operation guard would pose a high risk of serious injury, illness, or death if used. In this situation, a stop use order may be necessary to ensure that the equipment is removed from use until a guard is installed.

For further information on when a violation is high risk, refer to Policy Item [P2-95-2](#) RE: High Risk Violations.

A stop use order may also be appropriate where past efforts to correct the non-compliance or unsafe condition have proven ineffective. This may arise where an employer has received repeated compliance orders for a particular item or type of item, and the employer's past efforts to correct the non-compliance have proven temporary or ineffective. In that case, a stop use order may be appropriate to ensure the particular item is removed from use until a more permanent solution is implemented.

A stop use order may have the effect of shutting down work at a worksite. Where this is the case, a WorkSafeBC prevention officer will consider issuing the order as a stop work order under section 90 rather than a stop use order under section 89.

Stop supply orders

Like stop use orders an order to stop supply under section 89(2) may be written where a particular item that is not in safe operating condition or is not in compliance with the *Act* or the *Regulation*. Unlike stop use orders, a stop supply order can apply to things that are not yet in the possession of the end-user. This includes items that are currently being manufactured, distributed, leased, installed, or erected.

Stop supply orders prevent unsafe and non-conforming items from being introduced into workplaces. Accordingly, stop supply orders may be issued to a supplier even where safety concerns associated with the particular item do not amount to a high risk of serious injury. This ensures that items that will cause ongoing safety and compliance issues are not permitted to be supplied to workplaces.

Cancelling stop use/supply orders

Unlike a stop work order issued under section 90, stop use and stop supply orders do not require a written confirmation to prevent expiry after 72 hours. Instead, stop use and stop supply orders remain in effect until cancelled by WorkSafeBC in accordance with section 89(4).

A stop use or stop supply order will only be cancelled if WorkSafeBC is satisfied that the item that was subject to the order is safe and complies with the *Act* and the *Regulation*. The decision to cancel such an order must be made by a prevention officer once the prevention officer has determined these conditions have been met.

G-P2-94-1 OHS Citations

Issued February 1, 2016; Editorial Revision April 6, 2020; Editorial Revision January 1, 2021; Editorial Revision consequential to September 1, 2021 Regulatory Amendment; Editorial Revision January 1, 2022

Regulatory excerpt

Section 94 of the *Workers Compensation Act* ("*Act*") states:

94 Administrative penalties — OHS citations

- (1) The Board may, by order, impose on an employer an administrative penalty prescribed under section 112 [*Board regulations in relation to OHS citations*] if the Board is satisfied on a balance of probabilities that the employer has failed to comply with an OHS provision or regulation provision prescribed under that section.
- (2) An administrative penalty under this section must not be greater than \$1 142.98.
- (3) If an employer files a request under section 270 [*request for review of Board decision*] for review of a decision under this section, the employer must
 - (a) post a copy of the request for review at the workplace to which the administrative penalty relates,
 - (b) provide a copy of the request for review to the joint committee or worker health and safety representative, as applicable, and
 - (c) if the workers at the workplace to which the administrative penalty relates are represented by a union, provide a copy of the request for review to the union.
- (4) An employer who has been ordered to pay an administrative penalty under this section must pay the amount of the penalty to the Board for deposit into the accident fund.
- (5) If an administrative penalty under this section is reduced or cancelled by a Board decision or on a review under Part 6 [*Review of Board Decisions*], the Board must refund the required amount to the employer.

The *OHS Citations Regulation* states:

1 Definition

In this regulation, "**Act**" means the *Workers Compensation Act*.

2 Administrative penalties

(1) In this section:

"*comply*" means comply with a provision of the OHS provisions of the Act, or the regulations, as specified in section 3 of this regulation;

"*non-compliance date*" means the date the Board, under section 94(1) of the Act, is satisfied an employer has failed to comply;

"*penalty date*" means the date of the order by which the Board imposes an administrative penalty under section 94(1) of the Act.

(2) The following administrative penalties are prescribed for the purposes of section 94(1) of the Act:

- (a) a penalty that is half of the maximum amount allowable for an administrative penalty under section 94(1) of the Act, if, under that section, the Board is satisfied that an employer has failed to comply;

(b) a penalty that is the maximum amount allowable for an administrative penalty under section 94(1) of the Act, if, respecting an employer,

(i) the Board is satisfied the employer has failed to comply,

(ii) the non-compliance date of the failure to comply referred to in subparagraph (i) is within 3 years after the non-compliance date of a previous failure to comply by the employer, and

(iii) the penalty date of the previous failure to comply referred to in subparagraph (ii) is earlier than the penalty date of the failure to comply referred to in subparagraph (i).

3 Specified provisions

The following provisions are specified for the purposes of section 94(1) of the Act:

(a) section 21(1)(b) of the Act, as it pertains to orders;

(b) section 88(2), (3) or (4) of the Act if

(i) as set out in subsection (1) of that section, an order includes a requirement for compliance reports, and

(ii) in the case of subsection (4)(d) of that section, the Board requires the employer to send a copy of the compliance reports to the Board;

(c) section 2.4 of the Occupational Health and Safety Regulation, as it pertains to orders.

Section 21(1)(b) of the *Act* states:

(1) Every employer must

(b) comply with this Part, the regulations and any applicable orders.

Section 88 of the *Act* states:

(1) An order may include a requirement for compliance reports in accordance with this section.

(2) The employer or other person directed by an order under subsection (1) must prepare a compliance report that specifies

(a) what has been done to comply with the order, and

(b) if compliance has not been achieved at the time of the report, a plan of what will be done to comply and when compliance will be achieved.

(3) If a compliance report includes a plan under subsection (2)(b), the employer or other person must also prepare a follow-up compliance report when compliance is achieved.

(4) In the case of compliance reports prepared by an employer, the employer must

(a) post a copy of the original report and any follow-up compliance reports at the workplace in the places where the order to which it relates are posted,

(b) provide a copy of the reports to the joint committee or worker health and safety representative, as applicable,

(c) if the reports relate to a workplace where workers of the employer are represented by a union, send a copy to the union, and

(d) if required by the Board, send a copy of the reports to the Board.

Section 2.4 of the *OHS Regulation* ("*Regulation*") states:

Every person to whom an order or directive is issued by the Board must comply promptly or by the time set out in the order or directive.

Purpose of guideline

The purpose of this guideline is to provide guidance on the issuance of OHS citations pursuant to section 94 of the *Act* and the *OHS Citations Regulation*.

About OHS citations

Employers are required to comply with the *Act* and *Regulation* at all times. WorkSafeBC conducts inspections to verify compliance and issues orders to address any violations of the *Act* or *Regulation*. Orders must be complied with promptly, or within any time specified in the order.

Compliance with orders is essential to ensure that workplaces are safe.

While most employers do comply promptly, when there is a failure to comply, WorkSafeBC will follow up to ensure compliance is achieved. An OHS citation is a tool a prevention officer may use to address an employer's non-compliance with an order. It may also be used where there has been a failure to prepare, send, or distribute a compliance report. As an OHS citation is only available in these circumstances, employers will never be issued an OHS citation if they comply with orders in a timely manner.

An OHS citation is issued in the form of an order under section 94 of the *Act* and follows different rules than an administrative penalty ("OHS penalty") issued under section 95 of the *Act*. Like OHS penalties, OHS citations may only be issued on employers (not workers or independent operators).

When an OHS citation may be issued

Unlike OHS penalties imposed pursuant to section 95 of the *Act*, OHS citations may only be issued in circumstances that are not high risk (refer to Policy [P2-95-2](#) for information on how to determine whether violations are high risk). An OHS citation may be issued as an alternative to an OHS penalty when an employer has failed to comply. This includes the following circumstances:

- Failure to comply with an order as required by section 21(1)(b) of the *Act*
- Failure to prepare or send a compliance report to WorkSafeBC, or meet other requirements under section 88(2), 88(3), or 88(4) of the *Act*
- Failure to comply promptly with any order or directive issued by WorkSafeBC, as required by section 2.4 of the *Regulation*

In this guideline, this will be referred to collectively as failure to comply.

When an OHS citation will not be issued

OHS citations will not be issued in circumstances that are high risk, or when an OHS penalty or an OHS penalty warning letter has already been imposed either for the same failure to comply or for the underlying violation.

Citation warning

Prior to issuing an OHS citation, WorkSafeBC will warn the employer in writing that further failure to comply may result in an OHS citation or OHS penalty. Except in exceptional circumstances, if the employer fails to comply following the written warning, WorkSafeBC will issue an OHS citation or OHS penalty. An example of an exceptional circumstance may be where the employer has decided to discontinue the part of the business or decommission the piece of equipment in question, thus eliminating the risk.

OHS citation amount

For a first instance of non-compliance, the OHS citation is \$571.49 (half the statutory maximum for 2022). For any subsequent instance of non-compliance within three years relating to any provision of the *Act* or *Regulation*, the OHS citation is \$1,142.98 (the statutory maximum for 2022). Both amounts are current as of January 1, 2022 and will be adjusted annually pursuant to the consumer price index.

If an OHS citation has been issued at half the statutory maximum and the employer continues to not comply with the original order, then an OHS citation at the statutory maximum may be issued. If the employer continues to not comply after an OHS citation at the statutory maximum has been issued, and further enforcement is required, an OHS penalty or other enforcement will be considered.

Example 1: subsequent instance of non-compliance within three years

On March 1, 2017, a prevention officer issues an order to an employer under section 16.43(2) of the *Regulation* as the workers authorized to operate lift trucks have not been trained to the applicable standard.

On April 5, 2017, the prevention officer conducts a follow-up inspection and finds that the employer has not made any arrangements to have the required training provided for the workers that are authorized to operate lift trucks. The prevention officer then issues a follow-up inspection report citing the employer for continued non-compliance and providing a written OHS citation/penalty warning.

On April 26, 2017, the prevention officer conducts a second follow-up inspection and finds that the employer has not yet complied with the order. The prevention officer then issues a second follow-up inspection report issuing an OHS citation for \$505.16 (1/2 the statutory amount for 2017) and warning the employer that failure to comply could result in further enforcement action. The employer pays the \$505.16 OHS citation.

On May 6, 2017, the prevention officer receives confirmation that the employer has complied with the order.

On January 1, 2019, a prevention officer conducts an inspection of a different workplace of the same employer and observes that ready access to an electrical breaker panel is blocked by materials stored directly in front of it. An order is issued under section 19.7(1) of the *Regulation*.

On February 4, 2019, the prevention officer conducts a follow-up inspection and finds that the electrical panel continues to be blocked. The prevention officer then issues a follow-up inspection report citing the employer for continued non-compliance and providing a written OHS citation/penalty warning.

On February 25, 2019, the prevention officer conducts a second follow-up inspection and finds that the employer has not yet complied with the order. The prevention officer then issues a second follow-up inspection report issuing an OHS citation for \$1065.14 (full statutory amount for 2019) (second instance of non-compliance within three years). The prevention officer also includes a written warning to the employer that failure to comply could result in further enforcement action. The employer pays the \$1065.14 OHS citation.

On March 6, 2019, the prevention officer receives confirmation that the employer has complied with the order.

		Inspection cycle #1				Inspection cycle #2	
		Non-compliance date				Second non-compliance date within three years of the previous failure to comply	
Date	March 1, 2017	April 5, 2017	April 26, 2017	May 6, 2017	January 1, 2019	February 4, 2019	February 25, 2019
Violation	Order for non-compliance	Failure to comply	Continued non-compliance	Employer complies with the order	Order for non-compliance	Failure to comply	Continued non-compliance
Enforcement activity	Order	OHS citation and OHS penalty warning	\$505.16 OHS citation (1/2 of statutory amount for 2017)		Order	OHS citation and OHS penalty warning	\$1065.14 OHS citation (full statutory amount for 2019)

Example 2: continued failure to comply despite multiple warnings

On June 1, 2019, a prevention officer issues an order to an employer under section 3.16(1)(a) of the *Regulation* for a failure to provide a complete first aid kit at the workplace.

On July 6, 2019, the prevention officer conducts a follow-up inspection and finds that the employer has not complied with the order. The prevention officer then issues a follow-up inspection report citing the employer for continued non-compliance and providing a written OHS citation/penalty warning.

On July 27, 2019, the prevention officer conducts a second follow-up inspection and finds that the employer has not yet complied with the order. The prevention officer then issues a second follow-up inspection report issuing an OHS citation for \$532.57 (1/2 of the statutory amount for 2019) and warning the employer that failure to comply could result in further enforcement action. The employer pays the \$532.57 OHS citation.

On August 6, 2019, the prevention officer conducts a third follow-up inspection and finds that the employer has not yet complied with the order. The prevention officer then issues a third follow-up inspection report issuing an OHS citation for \$1065.14 (full statutory amount for 2019) and warning the employer that failure to comply could result in further enforcement action. The employer pays the \$1065.14 OHS citation.

On August 16, 2019, the prevention officer conducts a fourth follow-up inspection and finds that the employer has not yet complied with the order. The prevention officer then issues a fourth follow-up inspection report and considers whether an OHS penalty under section 196 of the *Act* is appropriate.

		Inspection cycle #1			
		Non-compliance date			
Date	June 1, 2019	July 6, 2019	July 27, 2019	August 6, 2019	August 16, 2019
Violation	Order for non-compliance	Failure to comply	Continued non-compliance	Continued non-compliance	Continued non-compliance
Enforcement activity	Order	OHS citation and penalty warning	\$532.27 OHS citation	\$1065.14 OHS citation	Consideration of OHS penalty

Multiple OHS citations

Because OHS citations are issued for each violation (order cited) in an inspection report, multiple OHS citations may be issued if more than one violation is observed during a single inspection. For example, if an employer fails to comply with three orders in a single inspection report, three OHS citations may be issued.

Review of OHS citations

If an employer requests a review of a decision respecting an OHS citation, a copy of the request for review must be posted in the workplace, provided to the joint committee or worker health and safety representative, and provided to any union represented workers at the workplace. An OHS citation and an OHS penalty cannot be substituted for each other on review or appeal.

G-P2-95-2 High risk violations

Issued December 1, 2014; Editorial Revision consequential to August 4, 2015 Regulatory Amendment; Editorial Revision March 18, 2016; Editorial Revision April 6, 2020

Regulatory excerpt

Section 95(1) of the *Workers Compensation Act* ("*Act*") states:

- (1) The Board may, by order, impose on an employer an administrative penalty under this section if the Board is satisfied on a balance of probabilities that any of the following circumstances apply:

- (a) the employer has failed to take sufficient precautions for the prevention of work related injuries or illnesses;
- (b) the employer has not complied with an OHS provision, the regulations or an applicable order;
- (c) the employer's workplace or working conditions are not safe.

Prevention Policy P2-95-2 states:

For ease of reference, in this policy:

- 1. "high risk" refers to high risk of serious injury, serious illness or death; and
- 2. "Regulation" refers to the Occupational Health and Safety Regulation.

This policy sets out how high risk is determined for the policies regarding occupational health and safety related penalties and warning letters. Violations in the six circumstances on the list of Designated High Risk Violations (A) are high risk. Determining whether other violations are high risk will depend on the High Risk Criteria (B).

A. Designated High Risk Violations

Violations of the *Act* or Regulation relating to the following circumstances are high risk:

- 1. Entry into an excavation over 1.2 m (4 feet) deep contrary to the requirements of the Regulation.
 - 2. Work at over 3m (10 feet) without an effective fall protection system.
 - 3. Entry into a confined space without pre-entry testing and inspection to verify that the required precautions have been effective at controlling the identified hazards.
 - 4. Causing work disturbing material containing asbestos, or potentially containing asbestos, to be performed without necessary precautions to protect workers.
 - 5. Hand falling or bucking without necessary precautions to protect workers from the tree that is being felled or bucked, or other affected trees.
- Explanatory note: OHS Guideline G-P2-95-2 includes examples of circumstances where this would apply.*
- 6. Work in the vicinity of potentially combustible dust without the necessary precautions to protect workers.

B. High Risk Criteria

When violations have occurred in circumstances that are not listed in A above, WorkSafeBC will determine whether the circumstances are high risk in each case on the basis of the available evidence concerning:

- 1. the likelihood of an incident or exposure occurring; and
- 2. the likely seriousness of any injury or illness that could result if that incident or exposure occurs.

Explanatory note: OHS Guideline G-P2-95-2 provides a list of violations that are likely to be high risk when applying the high risk criteria. Even though a violation is on that list, it must still be analyzed using the High Risk Criteria (B) in this policy, since not every instance will be high risk.

Purpose of guideline

The purpose of this guideline is to provide information on the application of the Prevention Policy P2-95-2 ("Policy") and specific examples to assist in clarifying WorkSafeBC's approach to determining whether a violation is high risk.

Background

High risk violations are those violations of the *Act* or *OHS Regulation* ("*Regulation*") which present a high risk of serious injury, serious illness, or death. The Policy provides for two categories of high risk violations. The first category contains six "designated high risk violations". These high risk violations are those that regularly result in fatalities, serious injuries, or serious illness and give a worker little or no opportunity to avoid or minimize severe injury, death, or occupational disease. The second category comprises other violations that are not on the list of designated high risk violations but may also present a high risk of serious injury, serious illness, or death based on criteria set out in the Policy.

Applying the high risk policy

To determine whether a violation is considered high risk, first determine whether it is on the list of designated high risk violations (A) in the Policy.

If the violation is not a designated high risk violation, then apply the high risk criteria in (B) to determine whether the violation would be considered high risk.

Designated high risk violations (A): Hand falling or bucking

The six designated high risk violations are listed in the Policy excerpt above. Item 5 in that list is hand falling or bucking practices without necessary precautions to protect workers from the tree that is being felled or bucked, or other affected trees. The following are examples of hand falling and bucking violations which would be considered to be high risk violations (the applicable section of the *Regulation* is provided in brackets):

- (a) Failing to prepare a safe escape route before falling or bucking begins [section [26.24\(2\)](#)]
- (b) Failing to move to a predetermined position, at least 3 m (10 feet) away from the base of the tree where possible, and take cover, when the tree starts to fall [section [26.24\(7\)](#)]
- (c) Failing to use the following proper falling procedures [section [26.24\(5\)](#)]
 - (i) Sufficient undercut
 - (ii) Undercut must be complete and cleaned out
 - (iii) Sufficient holding wood
 - (iv) Backcut must be higher than undercut to provide step on the stump
 - (v) Wedging tools must be immediately available and unless the tree has a pronounced favourable lean, wedges must be set
- (d) Failing to fall dangerous trees before performing work in the area made hazardous by the dangerous tree [section [26.11](#), section [26.26\(4\)](#)]
- (e) Using a tree to cause another partially cut tree to fall in succession, except to overcome a specific falling difficulty and done in accordance with the *Regulation* [section [26.24\(6\)](#)]
- (f) Leaving partially cut trees, unless done in accordance with the *Regulation* [section [26.25](#)]
- (g) Brushing of standing trees where brushing can be avoided [section [26.24\(5.1\)](#)]

Section 26.23(1) of the *Regulation* states, in part:

"brushing" means the striking of a standing tree by a tree being felled if the strike is a direct blow or a glancing blow of sufficient force to cause one or more branches to break at or near the stem of the standing tree

- (h) Working within a 2 tree-length radius of a tree being felled [section [26.24\(1\)](#)]

The above list is not exhaustive and there may be additional hand falling and bucking violations, not listed, that are also high risk violations.

The [BC Faller Training Standard](#) provides additional information on best practices for complying with several of the requirements listed above.

Applying the high risk criteria (B)

Where a violation is not on the list of designated high risk violations (A), the Policy sets out two criteria for determining whether a violation is high risk, as follows:

1. The likelihood of an incident or exposure occurring; and
2. The likely seriousness of any injury or illness that could result if the incident or exposure occurs

When considering the *likelihood of an incident or exposure occurring*, some of the factors that may be considered are

- The number of workers exposed
- The potential hazards that are present in the particular work or task being performed
- Whether the hazard has been effectively controlled (ineffective controls usually result in one or more violation orders under the *Regulation* or *Act*)
- The circumstances that increase the likelihood of a worker coming into contact with the hazard

When considering the *likely seriousness of any injury or illness*, some of the factors that may be considered are

- Whether, in circumstances where an incident or exposure occurs, any resulting injury or illness is likely to be serious, or even fatal, due to the nature of the violation.
- Additional conditions or circumstances at the workplace that would increase the potential outcome of a serious injury, serious illness, or death once the worker is exposed to the hazard.

Examples of violations that would likely be determined high risk

The Policy refers to the following list which contains violations that will likely be considered to be high risk when applying the two high risk criteria in (B) set out above. Even though an item is on this list, it must be analyzed using the two high risk criteria in the Policy, as not every instance of the following violations will be high risk, depending on the circumstances. The list is provided to assist workers, employers, and WorkSafeBC prevention officers in identifying potential high risk violations but is not an exhaustive list.

- (a) Exposure to electrocution hazards (including violations related to the limits of approach)
- (b) Failure to adequately identify, assess, and control the risk of violence in the workplace where the failure presents a high likelihood of serious

injury or death

- (c) Unsafe use, handling, or storage of flammable or combustible, oxidizing substances
- (d) Unsafe explosives handling and blasting practices
- (e) Ineffective de-energization, lockout, or safeguarding
- (f) Exposure, without effective protection, to:
 - (i) substances designated as ACGIH A1 or A2 carcinogen, or IARC 1 or 2A carcinogen
 - (ii) biohazards and infectious diseases (hazardous substances Risk Group 3 and 4 ([section 5.1.1](#) of the *Regulation*))
 - (iii) ACGIH reproductive toxins and ACGIH sensitizers
 - (iv) ionizing radiation (e.g., x-rays) and Class 4 lasers
- (v) the following items classified under the Workplace Hazardous Materials Information System (WHMIS) as:
 - (1) Acute Toxicity (Categories 1, 2 and 3 -- Inhalation)
 - (2) Specific Target Organ Toxicity -- Single Exposure (Category 1)
 - (3) Specific Target Organ Toxicity -- Repeated Exposure (Category 1)
 - (4) Reproductive Toxicity (Category 1)
 - (5) Carcinogenicity (Category 1)
 - (6) Germ cell mutagenicity (Category 1)
 - (7) Respiratory sensitization (Category 1)
 - (8) Corrosive to Metal
 - (9) Skin Corrosion/Irritation (Category 1)
 - (10) Serious Eye Damage/Irritation (Category 1)

For any of items i to v above, where IDLH (Immediately Dangerous to Life or Health) concentrations have been established, "exposure" refers to exposure at or above the IDLH concentration. Where ALARA (As Low as Reasonably Achievable) principles apply, "exposure" refers to exposure at or above the exposure limit provided for by the *Regulation*.

- (g) Lack of operator protective structures on mobile equipment (e.g., ROPS and FOPS)
- (h) Exposure to the risk of being struck by or crushed by material, objects, or mobile equipment
- (i) Unsafe transportation of workers

Contents

- G34.1 [Definitions – Boatswain's \(Bosun's\) chair](#)
- G34.4(1)(a) [Training and certification](#)
- G34.4(1)(b) [Certification for Climbing Gym Instructors](#)
- G34.5 [Safe work practices](#)
- G34.6(3) [Two-rope system – Independent connections](#)
- G34.8 [Rescue – Prompt rescue](#)
- G34.9 [Equipment – Standards](#)
- G34.12 [Permanent anchors – Inspection and testing](#)

Guidelines Part 34 - Rope Access

G34.1 Definitions – Boatswain's (Bosun's) chair

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt
Section 34.1 of the *OHS Regulation* ("*Regulation*") states, in part:

"rope access system" means a system consisting of

(a) a sit harness or full body harness,

(b) rope, lanyards and other connecting equipment,

(c) anchors, and

(d) other components such as ascenders, descenders, belay devices, backup devices and fall arresters,

that usually employs 2 separately secured subsystems, one as a means of access and the other as a safety, secondary, belay or backup system, but does not include a boatswain's chair, also known as a bosun's chair, or a zipline;

Purpose of guideline

The regulatory requirements in Part 34 for a rope access system do not apply to a bosun's chair. This guideline provides information to help distinguish between rope access comfort work seats used in rope access systems and bosun's chairs.

Boatswain's (bosun's) chairs and comfort work seats

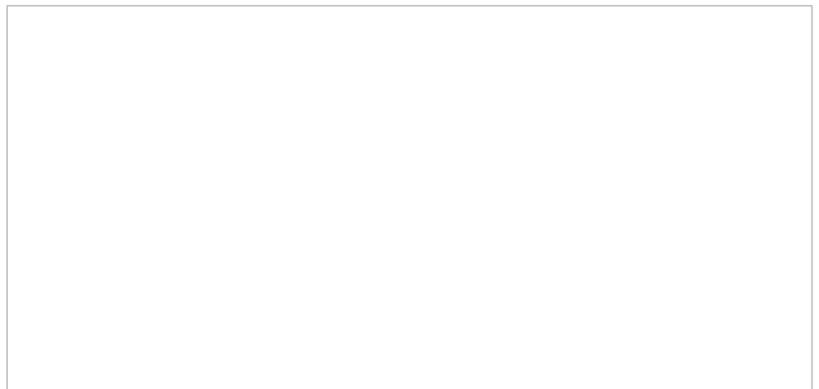
A *bosun's chair* is a single-person worker support system, generally composed of the following:

- A seat
- Ropes or webbing which support the seat
- D-ring(s) at the ends of the ropes or webbing (refer to Figure 1)

Under the *Regulation*, it is considered as a work platform, and is defined in Part 13 as "a seat attached to a suspended rope designed to accommodate one person in a sitting position." The ropes or webbing typically terminate at the worker's chest level. In order to prevent the worker from falling from the seat, a body support strap or straps may be incorporated into the design. The D-ring(s) may be attached to a means of ascent and/or descent, (e.g., a winch or a block-and tackle system). The means of ascent/descent is also connected to the working line.

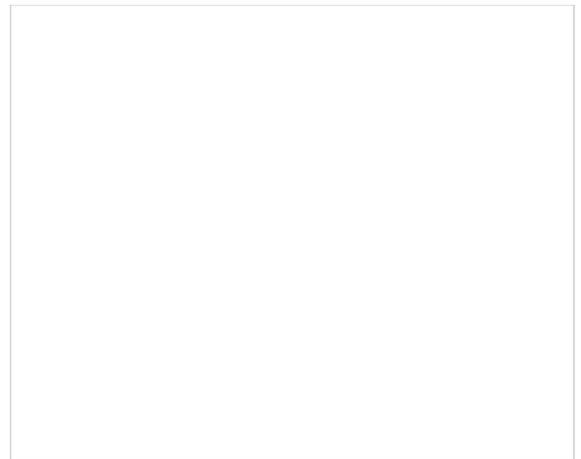
A bosun's chair supports the worker, and is the worker's connection to the means of ascent and/or descent and the working line. The bosun's chair is therefore integral to the work positioning system. If the worker were to lose contact with the bosun's chair, the worker's connection to the means of ascent and/or descent would be compromised, as would the worker's connection to the working line.

Figure 1 Bosun's chair



Although similar in appearance to a bosun's chair, a *comfort work seat* (refer to an example in Figure 2) used in rope access is fundamentally different. The only point of connection for the comfort work seat is the worker's harness. It is not connected to the means of ascent/descent or to the working line. In contrast, a bosun's chair is integral to a work positioning system. A comfort work seat is an accessory to a rope access system. Therefore, the worker could remove the comfort work seat without affecting the connection to the working line.

Figure 2 Rope access comfort work seat



G34.4(1)(a) Training and certification

Issued consequential to February 1, 2015 Regulatory Amendment; Revised July 22, 2020

Regulatory excerpt

Section 34.4(1)(a) of the *OHS Regulation* ("*Regulation*") states:

(1) Before allowing a person to perform rope access, the employer must ensure and document that the person

(a) has received training in the safe use of a rope access system, including, as appropriate to the work being done, the safe work practices, skills and practical experience hours described in one of the following groups of publications:

- (i) *International Code of Practice* (2013) and *General requirements for certification of personnel engaged in industrial rope access methods*, Edition 6 (June 2009), published by the International Rope Access Trade Association;
- (ii) *Safe Practices for Rope Access Work* (August 2012) and *Certification Requirements for Rope Access Work* (November 2012), published by the Society of Professional Rope Access Technicians;
- (iii) *Scope of Practice* (2012), *Technical Handbook for Professional Mountain Guides* (1999) and *Climbing Gym Instructor Technical Manual* (2003), published by the Association of Canadian Mountain Guides;
- (iv) *Cave Guiding Standards for British Columbia and Alberta* (January 2004), published by the Canadian Cave Conservancy, and *Companion Rescue Workshop* (2011), published by British Columbia Cave Rescue

Purpose of guideline

This guideline clarifies how rope access training relates to different disciplines of work. It also accepts an alternative code for certification of rope access technicians.

Rope access training and certification

Part 34 applies to activities in industrial operations, professional mountain guides, climbing gym instructors, and cave guides. Although these disciplines are all addressed in Part 34, they are not equivalent when it comes to required worker training and use of safe work practices.

The techniques and practices required for each discipline are different and are not interchangeable between disciplines. Training and certification in one discipline does not apply to work being done in another discipline. For example, training as a cave guide is not appropriate for industrial rope access work (e.g., building maintenance or bridge inspection), and certification as a climbing gym instructor is not appropriate for mountain guiding.

Rope access certification – alternative codes

Section 34.4(1)(a)(i) of the *Regulation* – WorkSafeBC has determined that the Industrial Rope Access Trade Association ("*IRATA*") *Training, Assessment and Certification Scheme ("TACS")* for personnel engaged in industrial rope access methods (August 2014) is an acceptable alternative to the *IRATA General requirements for certification of personnel engaged in industrial rope access methods*, Edition 6 (June 2009).

Section 34.4(1)(a)(ii) of the *Regulation* – WorkSafeBC has determined that the Society of Professional Rope Access Technicians (SPRAT) *Safe Practices for Rope Access Work* (September 2019 and May 2020) and *Certification Requirements for Rope Access Work* (November 2019 and May 2020) are acceptable alternatives to the *Safe Practices for Rope Access Work* (August 2012) and *Certification Requirements for Rope Access Work* (November 2012).

G34.4(1)(b) Certification for Climbing Gym Instructors

Issued April 30, 2015; Revised July 15, 2019

Regulatory excerpt

Section 34.4(1) of the *OHS Regulation* ("Regulation") states:

- (1) Before allowing a person to perform rope access, the employer must ensure and document that the person
- (a) has received training in the safe use of a rope access system, including, as appropriate to the work being done, the safe work practices, skills and practical experience hours described in one of the following groups of publications:
 - (i) *International Code of Practice* (2013) and *General requirements for certification of personnel engaged in industrial rope access methods*, Edition 6 (June 2009), published by the International Rope Access Trade Association;
 - (ii) *Safe Practices for Rope Access Work* (August 2012) and *Certification Requirements for Rope Access Work* (November 2012), published by the Society of Professional Rope Access Technicians;
 - (iii) *Scope of Practice* (2012), *Technical Handbook for Professional Mountain Guides* (1999) and *Climbing Gym Instructor Technical Manual* (2003), published by the Association of Canadian Mountain Guides;
 - (iv) *Cave Guiding Standards for British Columbia and Alberta* (January 2004), published by the Canadian Cave Conservancy, and *Companion Rescue Workshop* (2011), published by British Columbia Cave Rescue, and
 - (b) holds a valid certificate of the training referred to in paragraph (a) issued by a body or association referred to in subparagraphs (i) to (iv) of that paragraph.

Section 4.4(2) of the *Regulation* states:

- (2) When this Regulation requires a person to comply with
- (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board...

Purpose of guideline

The purpose of this guideline is to identify an alternate publication that is acceptable for the training and certification of climbing gym instructors.

Section 34.4(1)(b) of the *Regulation* requires that rope access workers working as climbing gym instructors hold a valid certificate issued by the Association of Canadian Mountain Guides (ACMG). ACMG is the professional body which issues certification to qualified mountaineers and climbing gym instructors. To comply with section 34.4(1)(b) of the *Regulation*, workers conducting rope access work described in the *Technical Handbook for Professional Mountain Guides* (1999) and *Climbing Gym Instructor Technical Manual* (2003) must possess ACMG certification.

Alternate publication and certification

The training and certification provided by the Climbing Wall Association, Inc. (CWA) "Climbing Wall Instructor Certification Program" for indoor climbing gym instructors is an acceptable alternative to meet the requirements of section 34.4(1)(a)(iii) of the *Regulation*.

G34.5 Safe work practices

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 34.5 of the *OHS Regulation* ("Regulation") states:

A person performing rope access must comply with, as appropriate to the work being done, the safe work practices described in one of the groups of publications set out in section 34.4(1)(a)(i) to (iv).

Purpose of guideline

This guideline clarifies how safe work practices relate to different types of rope access work.

Safe work practices

Part 34 applies to industrial rope access (e.g., construction, building maintenance, bridge inspection, rope work at dams), professional mountain guiding, climbing gym instruction, and cave guiding activities, and training in these disciplines. Although these disciplines are all addressed in Part 34, the work practices for the disciplines are not interchangeable. Safe work practices in one discipline do not apply to work being done in another discipline. These practices are usually an integrated set of requirements and recommendations which rely on this integration to provide the necessary level of safety. Use of the integrated set of safe work practices is mandatory under the *Regulation*.

In addition, safe work practices prescribed by different societies or associations dedicated to the same discipline are not interchangeable. For example, a technician certified by the Industrial Rope Access Trade Association ("IRATA") or the Society of Professional Rope Access Technicians ("SPRAT") must abide by the practices prescribed by that organization. Under the *Regulation*, the technician certified by one rope access professional body may not instead follow the practices prescribed by the other rope access professional body, or practices specified for a different discipline. This does not prevent a SPRAT technician from using techniques and practices from the IRATA *International Code of Practice for Industrial Rope Access* (2013) (or vice versa) where doing so does not cause a conflict and is still consistent with the intent of the SPRAT *Safe Practices for Rope Access Work* document.

Note that [section 2.3](#) of the *Regulation* specifies that regulatory requirements take precedence over the safe work practices of a certifying organization. For example, required minimum load capacities for permanent and temporary anchors are specified in the *Regulation* and these requirements supersede any minimum load capacities specified in safe work practice documents of the certifying organizations.

G34.6(3) Two-rope system – Independent connections

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 34.6(3) of the *OHS Regulation* ("*Regulation*") states:

- (3) In a two-rope system, the working line and the safety, secondary, belay or backup line must
- (a) have independent connection points to the system's anchor or anchorage, and
 - (b) be independently connected to the harness of the person performing rope access.

Purpose of guideline

This guideline clarifies what constitutes an appropriate connection to an anchorage for the two-rope system.

The two-rope system

A key concept in industrial rope access is the use of two separately secured subsystems. Subject to sections [34.6\(2\)](#) and [34.6\(4\)](#) of the *Regulation*, at no point may the failure of any single component in either subsystem result in a failure of the overall system. The system needs to provide redundancy. For example, if the rope access technician's working line were to fail at the point of anchor, the worker must be protected by a properly connected and anchored fall-arrest device on a safety line. Two anchors need to be used, one for each subsystem.

Subject to the requirements of the *Regulation*, purpose-built, multi-point anchors may be used in accordance with the manufacturer's instructions. Multiple anchors may be used with a single anchorage if the anchorage is reliable and capable of safely withstanding any forces the rope access system may apply to it.

G34.8 Rescue – Prompt rescue

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 34.8 of the *OHS Regulation* ("*Regulation*") states:

The employer must ensure that a person performing rope access can be promptly rescued, in accordance with the procedures described in the rope access plan referred to in section 34.3(1), in the event of an equipment malfunction, fall or injury or the person's incapacity to self-rescue.

Purpose of guideline

This guideline clarifies requirements for the prompt rescue of workers after a rope access incident.

Prompt rescue

Prompt rescue includes immediate activation of the rescue plan following equipment malfunction, fall or injury, or a person's inability to self-rescue. A worker may be unable to self-rescue due to a medical event or other factors. In order to provide prompt rescue, the employer should ensure the following prior to the commencement of rope access work:

- The rope access plan includes rescue procedures specific to the work situation
- All workers are trained and able to provide self-rescue
- The rope access team members have sufficient training to competently perform partner rescue and retrieval
- The supervisor is capable of managing a rescue event
- The appropriate equipment is available to provide rescue
- Rescue plans are practiced by team members at regular intervals
- Provision of first aid services

Suspension intolerance

Annex G of the Industrial Rope Access Trade Association ("*IRATA*") *International Code of Practice for Industrial Rope Access* (2013) states that suspension intolerance is a condition in which a suspended person, e.g., in a harness, can experience certain symptoms related to restricted blood flow, which can lead to unconsciousness and eventually death. The reason for this is that the body is not tolerant of being in an upright position and motionless at the same time. Persons most likely to be affected are those who are suspended in a generally upright position and who are motionless, for example, when seriously injured or unconscious, or when fastened vertically in a stretcher.

Suspension intolerance is also known by the following names:

- Suspension trauma

- Harness hang syndrome
- Harness-induced pathology
- Suspension pathology
- Suspension syncope
- Orthostatic intolerance

Workers who are suspended vertically in a safety harness and undergo limited motion are at risk of developing suspension intolerance. Safety harnesses, when engaged, place direct pressure on both the femoral artery and femoral vein. Studies show people suspended in a safety harness and motionless can develop signs and symptoms of suspension intolerance within minutes.

G34.9 Equipment – Standards

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 34.9 of the *OHS Regulation* ("Regulation") states:

- (1) Equipment used for a rope access system must
 - (a) consist of components that are compatible and suitable for the intended use, and
 - (b) be suitable for the environment in which the equipment is used.
- (2) Unless otherwise provided for under section 34.12(1) or 34.13(2), equipment of a type set out in Column 1 of Schedule 34-A must meet the requirements of, and be used in accordance with, one of the applicable standards set out opposite that type of equipment in Column 2.

Purpose of guideline

The purpose of this guideline is to clarify how the standards listed in Schedule 34-A apply to work involving rope access.

Equipment standards

Part 34 applies to equipment used by rope access technicians, professional mountain guides, climbing gym instructors, and cave guides. Equipment standards for the disciplines are not interchangeable. For example, although a connector may be certified to a mountaineering and climbing equipment standard, it is not appropriate for use in an industrial setting e.g., construction or building maintenance, unless it is also certified to an applicable industrial rope access or fall arrest standard.

There may be instances where a person finds it impracticable to comply with the equipment standards referenced in Schedule 34-A, and wishes to use equipment that meets a different recognized standard. In this case, application should be made to WorkSafeBC OHS Practice and Engineering Support for acceptance of the alternative standard.

G34.12 Permanent anchors – Inspection and testing

Issued consequential to February 1, 2015 Regulatory Amendment

Regulatory excerpt

Section 34.12 of the *OHS Regulation* ("Regulation") states:

- (1) A permanent anchor for a rope access system must have an ultimate load capacity, in any direction in which the load may be applied, of at least 22.2 kN (5 000 lbf) for each person connected to the permanent anchor.
- (2) In addition to the requirement under section 34.10(b) and in accordance with sections 7.3.2, 7.3.3 and 7.4, as applicable, of *CSA Standard Z91-02 (R2013) Health and Safety Code for Suspended Equipment Operations*,
 - (a) a permanent anchor for a rope access system must be inspected, at least once a year, and tested, and
 - (b) the results of the inspection and testing must be documented.
- (3) A permanent anchor for a rope access system, and its installation, must be certified by a professional engineer.
- (4) Subsections (2) and (3) do not apply to a permanent anchor for a rope access system used in the course of mountaineering or caving.

Purpose of guideline

This guideline clarifies the regulatory requirements for the inspection and testing of permanent anchors (anchors are also called anchorage connectors) used as part of a rope access system.

Anchor inspections

[Section 34.10\(a\)](#) of the *Regulation* specifies that equipment used for a rope access system, including anchors, must be inspected for defects by a

person intending to use the rope access system before the system is first used on each work shift.

Section 34.10(b) of the *Regulation* specifies that the equipment must also be inspected in the manner and at the frequency required by the manufacturer of the equipment. The manufacturer may require daily, periodic, and regular inspections; these inspections are also a requirement under the *Regulation*. Note that section 9 of *CSA Standard Z259.15-12 Anchorage Connectors* specifies that each anchorage connector offered for sale include recommended frequencies and procedures for inspection and maintenance.

CSA requirements for inspection and testing of permanent anchors

Section 34.12(2) of the *Regulation* refers to *CSA Standard Z91-02 (R2013) Health and Safety Code for Suspended Equipment Operations ("Standard")*, sections 7.3.2, 7.3.3, and 7.4. These sections of the *Standard* address the scope and frequency for anchor system inspections. They also describe reporting requirements and a special case where testing is required. The details of clauses 7.3.2, 7.3.3, and 7.4 are to be found in the *Standard*. In summary, the *Standard* specifies the following:

- Anchor systems need to be inspected every 12 months, if not more frequently
A professional engineer, or a qualified person who is supervised by the professional engineer, must conduct anchor inspections. Items to be inspected include the following:
 - a) compliance of the design to current applicable standards and regulations
 - b) adherence of the anchor system itself to the design requirements i.e., engineered drawings
 - c) signs of distress in the exposed, visible, and accessible anchor system components
 - d) all adhesive and expansion fasteners
- A professional engineer must ensure the following:
 - a) prepare a report on inspections, findings, and recommendations
 - b) provide the building/equipment owner with signed and sealed inspection reports
- The equipment log must show the results of all inspection, testing, and servicing; all reports prepared by a professional engineer must also be filed with the equipment log
- If the anchor system uses adhesive or expansion fasteners, then each anchor requires load testing at least every five years in accordance with specifications outlined in the *Standard*. This test must be witnessed and documented by a professional engineer or a qualified person under his/her direct supervision

Guidelines - Part 3 - Joint Health and Safety Committees

G3.26 Evaluation of joint committees

Issued consequential to April 3, 2017 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Sections 3.26(2) and (3) of the *OHS Regulation ("Regulation")* state:

- (2) An employer must ensure that, with respect to each of the employer's joint committees, a written evaluation is conducted annually by
- (a) the co-chairs of the joint committee or, with respect to each co-chair, the member or members of the joint committee designated by the co-chair, or
 - (b) the employer or a person retained by the employer.
- (3) The evaluation must contain, but is not limited to, the following information:
- (a) whether or not, throughout the period of time that is the subject of the evaluation,
 - (i) the joint committee met the membership requirements under section 33(a) to (d) of the *Workers Compensation Act*,
 - (ii) worker representatives on the joint committee were selected in accordance with section 34 of the *Workers Compensation Act*,
 - (iii) employer representatives on the joint committee were selected in accordance with section 35 of the *Workers Compensation Act*,
 - (iv) the joint committee fulfilled each of its duties and functions under section 36 of the *Workers Compensation Act*,
 - (v) the joint committee met regularly as required under section 37(2) of the *Workers Compensation Act*,

- (vi) the employer met the requirements under section 39 of the *Workers Compensation Act* in respect of the written recommendations sent to the employer by the joint committee with a written request for a response from the employer, if any,
 - (vii) each member of the joint committee received the time off from work the member was entitled to receive under section 40 of the *Workers Compensation Act*,
 - (viii) each member of the joint committee attended the occupational health and safety training courses the member was entitled to attend under section 41 of the *Workers Compensation Act*,
 - (ix) the employer provided to the joint committee the equipment, premises, clerical personnel and information the employer was required to provide under section 42 of the *Workers Compensation Act*,
 - (x) the joint committee prepared reports of its meetings and provided copies to the employer as required under section 43(1) of the *Workers Compensation Act*,
 - (xi) the employer met the requirements of posting and keeping posted committee information as set out in section 44 of the *Workers Compensation Act*, and
 - (xii) each member of the joint committee received the instruction and training the employer was required to ensure was provided to the member under section 3.27 of this regulation;
- (b) an assessment of the effectiveness of the joint committee's rules of procedure as established under section 37(1) of the *Workers Compensation Act*;
- (c) an assessment of the overall effectiveness of the joint committee.

Section 36 of the *Workers Compensation Act* ("Act") states:

A joint committee has the following duties and functions in relation to its workplace:

- (a) to identify situations that may be unhealthy or unsafe for workers and advise on effective systems for responding to those situations;
- (b) to consider and expeditiously deal with complaints relating to the health and safety of workers;
- (c) to consult with workers and the employer on issues related to occupational health and safety and occupational environment;
- (d) to make recommendations to the employer and the workers for the improvement of the occupational health and safety and occupational environment of workers;
- (e) to make recommendations to the employer on educational programs promoting the health and safety of workers and compliance with the OHS provisions and the regulations and to monitor their effectiveness;
- (f) to advise the employer on programs and policies required under the regulations for the workplace and to monitor their effectiveness;
- (g) to advise the employer on proposed changes to the workplace, including significant proposed changes to equipment and machinery, or the work processes that may affect the health or safety of workers;
- (h) to ensure that accident investigations and regular inspections are carried out as required by the OHS provisions and the regulations;
- (i) to participate in inspections, investigations and inquiries as provided in the OHS provisions and the regulations;
- (j) to carry out any other duties and functions prescribed by regulation.

Purpose of guideline

The purpose of this guideline is to provide direction in choosing an evaluation tool to meet the requirement for a written evaluation of the effectiveness of a joint committee.

Background

The joint committee is a key element of the internal responsibility system. Its purpose is to act as a forum for the employer and workers to work together to improve health and safety in the workplace. A well functioning committee permits health and safety issues to be brought forward and acted upon quickly and effectively, and will contribute significantly to health and safety in the workplace.

Section 3.26 requires a written evaluation to be conducted annually to determine the effectiveness of the joint committee. The intent of the evaluation is to determine whether the joint committee is generally in compliance with the *Act* and *Regulation*, and to assess whether the joint committee has been effective in fulfilling its role so that improvements can be considered and implemented.

Written evaluation

The obligation is on the employer to ensure a written evaluation is carried out. In accordance with section 3.26(2), the evaluation itself may be undertaken by the co-chairs of the committee or by a person retained by the employer.

The minimum topics that the evaluation must include are set out in section 3.26(3) of the *Regulation*. Section 3.26 requires the evaluation to review a number of procedural elements, such as whether membership requirements were met, reports were prepared and posted, etc. Section 3.26 also requires that the evaluation include an assessment of the overall effectiveness of the joint committee. The purpose of the evaluation is to allow a joint committee, after a year of operation, to examine its effectiveness and implement improvements in following years.

In looking at overall effectiveness, those undertaking the review should be particularly mindful of the duties and functions of the joint committee contained in section 36 of the *Act*, as required by section 3.26(3)(a)(iv) of the *Regulation*. The evaluation should consider how well the committee has functioned to fulfill each of those duties and functions and should identify specific areas where improvements can be made and how those improvements can be implemented.

Evaluation tool

In order to assist those persons conducting the evaluation, WorkSafeBC has developed an evaluation tool that includes all of the required elements of the evaluation. It can be found online at: <https://www.worksafebc.com/en/health-safety/create-manage/joint-health-safety-committees>.

Use of this specific tool is not mandatory; other tools can be used as long as they meet or exceed all the requirements for an evaluation as specified in section 3.26(3) of the *Regulation*. Employers may want to review Certificate of Recognition (COR) audit tools for joint committees, or create a customized tool for their committee capturing all the required elements.

G3.27 Minimum training requirements for new joint committee members or worker health and safety representatives

Issued consequential to April 3, 2017 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Sections 3.27(2) to (5) of the *OHS Regulation* ("*Regulation*") state:

- (2) The employer must ensure that each member of the employer's joint committees who was selected on or after April 3, 2017 to be a member receives, as soon as practicable but no more than 6 months after becoming a member, a total of at least 8 hours of instruction and training, as set out in subsection (4).
- (3) The employer must ensure that the worker health and safety representative at each of the employer's workplaces who was selected on or after April 3, 2017 to be a representative receives, as soon as practicable but no more than 6 months after becoming a representative, a total of at least 4 hours of instruction and training, as set out in subsection (5).
- (4) The instruction and training referred to in subsection (2) must include the following topics:
 - (a) the duties and functions of a joint committee under section 36 of the *Workers Compensation Act*;
 - (b) the rules of procedure of the joint committee as established under or set out in section 37 of the *Workers Compensation Act*;
 - (c) the requirements respecting investigations under sections 69 to 72 of the *Workers Compensation Act*;
 - (d) the requirements respecting inspections under sections 3.5, 3.7 and 3.8 of this regulation and how to make regular inspections under section 3.5 of this regulation
 - (e) the requirements respecting refusal of unsafe work under section 3.12 of this regulation;
 - (f) the requirements respecting the evaluation of joint committees under section 3.26 of this regulation.
- (5) The instruction and training referred to in subsection (3) must include the topics described in subsection (4)(a), (c), (d) and (e).

Purpose of guideline

The purpose of this guideline is to clarify the time frame requirements for training of new joint committee members and to outline training options to meet the minimum training requirements.

Time frame for training

Training for new joint committee members and worker health and safety representatives must be provided as soon as practicable, but no more than six months after becoming a member. Section 1.1 of the *Regulation* defines "practicable" as something that is "reasonably capable of being done." Therefore the training must be done as soon as it is reasonably capable of being done. Six months is an outer time limit that should only be reached in limited circumstances.

Training options

Worker health and safety representatives

Worker health and safety representatives are required in every workplace with more than nine but fewer than 20 workers regularly employed.

New representatives require a minimum of four hours of training that encompasses the topics outlined in sections 3.27(4)(a), (c), (d), and (e) of the

Regulation. WorkSafeBC has developed a four-hour online training program that is available to all workers at: <https://www.worksafebc.com/en/health-safety/education-training-certification/joint-health-safety-committee-member>.

This training may be completed at the worker's convenience and pace; a record of successful completion will be available for printing and/or emailing.

Employers may choose other formats for training including using external providers who offer training that meets the requirements listed above or internal training designed to meet the requirements.

The instruction and training provided to worker representatives should include the following learning outcomes:

- (a) Explain the purposes of the *Act*, *Regulation*, and OHS Guidelines
- (b) Summarize the duties and functions of a worker representative
- (c) Explain the role of the worker representative in accident investigations, regular inspections, and the work refusal process
- (d) Summarize educational requirements for worker representatives (section 41 of the *Act* and section 3.27 of the *Regulation*)
- (e) Explain worker protection in relation to prohibited action (section 47 of the *Act*)
- (f) Identify when an employer is required to consult with the worker representative

Joint committee members

Joint committee members are required in every workplace with 20 or more workers regularly employed.

New committee members require a minimum of eight hours of training that encompasses all of the topics outlined in section 3.27(4) of the *Regulation*. WorkSafeBC has developed a course that can be delivered in a variety of formats, including blended learning (independent e-learning and in-class facilitated), traditional classroom, or facilitator-led webinar.

The materials for this course (facilitator guide, student guide, and tools) are available for downloading at: <https://www.worksafebc.com/en/health-safety/education-training-certification/joint-health-safety-committee-member>.

Employers may choose other formats for training including using external providers who offer training that meets the requirements listed above or internal training designed to meet the requirements.

The requirements allow flexibility regarding delivery methods and do not require the training to occur in one session.

The instruction and training provided to the Joint Health and Safety Committee members should include the following learning outcomes:

- (a) Explain the purposes of the *Act*, *Regulation*, and OHS Guidelines
- (b) Summarize the duties and functions of the joint committee
- (c) Explain the role of the joint committee in accident investigations, regular inspections, and the work refusal process
- (d) Summarize educational requirements for joint committee members (section 41 of the *Act* and section 3.27 of the *Regulation*)
- (e) Conduct an individual needs assessment for the purposes of selecting training in accordance with section 41
- (f) Explain worker protection in relation to prohibited action (section 47 of the *Act*)
- (g) Identify when an employer is required to consult with the joint committee
- (h) Differentiate between the roles of the committee co-chairs and joint committee members
- (i) Explain the purpose of a joint committee's Terms of Reference (or Rules of Procedure)
- (j) Apply the policies and procedures outlined in the joint committee's Terms of Reference
- (k) List the traits of an effective joint committee and explain the purpose of conducting an evaluation of the joint committee's effectiveness

Mandatory training

Section 3.27 requires employers to ensure training is provided for new members of a joint committee, or new worker health and safety representatives, selected on or after April 3, 2017.

Under employment standards legislation (administered by the Employment Standards Branch of B.C.), employers are required to pay for the training employees need in order to learn how to do their job at the employer's business, and the time spent in that training is considered work. Training on how to perform the role of a joint committee member or worker health and safety representative is considered training employees need to perform their job.

Educational leave entitlement

Under section 41 of the *Act*, each member of a joint committee and each worker health and safety representative is entitled to eight hours of annual educational leave for the purposes of attending occupational health and safety training courses. This educational leave is an entitlement, and in accordance with section 3.27(10), is in addition to the mandatory minimum training for new members of a joint committee and new worker health and safety representatives.

Guidelines - Part 3 - Participation in Investigations

G3.28 Participation in employer incident investigations

Issued consequential to April 3, 2017 Regulatory Amendment; Editorial Revision April 6, 2020

Regulatory excerpt

Section 3.28 of the *OHS Regulation* ("*Regulation*") states:

For the purposes of section 70(2) of the *Workers Compensation Act*, the following activities are prescribed:

- (a) assisting the persons carrying out the investigation with gathering information relating to the investigation;
- (b) assisting the persons carrying out the investigation with analyzing the information gathered during the investigation;
- (c) assisting the persons carrying out the investigation with identifying any corrective actions necessary to prevent recurrence of similar incidents.

Section 70 of the *Workers Compensation Act* ("*Act*") states:

- (1) An investigation required under this Division must be carried out by persons knowledgeable about the type of work involved and, if they are reasonably available, with the participation of the employer or a representative of the employer and a worker representative.
- (2) For the purposes of subsection (1), the participation of the employer or a representative of the employer and a worker representative includes, but is not limited to, the following activities:
 - (a) viewing the scene of the incident with the persons carrying out the investigation;
 - (b) providing advice to the persons carrying out the investigation respecting the methods used to carry out the investigation, the scope of the investigation, or any other aspect of the investigation;
 - (c) other activities, as prescribed by the Board.
- (3) The employer must make every reasonable effort to have available for interview by a person conducting the investigation, or by an officer, all witnesses to the incident and any other persons whose presence might be necessary for a proper investigation of the incident.
- (4) The employer must record the names, addresses and telephone numbers of persons referred to in subsection (3).

Purpose of guideline

The purpose of this guideline is to clarify the requirement for participation in employer incident investigations.

Participation in employer incident investigations

Section 69 of the *Act* specifies which incidents must be investigated by an employer, and requires that both a preliminary investigation (section 71) and a full investigation (section 72) be conducted. Section 70 of the *Act* specifies that these investigations must be carried out by persons knowledgeable about the type of work involved. It also requires the participation of the employer or employer representative, and a worker representative, if they are reasonably available.

Pursuant to section 70(2) of the *Act* and section 3.28 of the *Regulation*, the participation of a worker representative includes, but is not limited to, the following:

- Viewing the scene of the incident with the persons carrying out the investigation
- Providing advice respecting the methods used to carry out the investigation, the scope of the investigation, or any other aspect of the investigation
- Assisting the persons carrying out the investigation with:
 - Gathering information relating to the investigation
 - Analyzing the information gathered during the investigation
 - Identifying any corrective actions necessary to prevent recurrence of similar incidents

Ensuring participation

Employers are expected to ensure the participation of worker representatives in incident investigations as this plays an important part in maintaining healthy and safe workplaces. For more information on how this may be achieved, and concerns about inadequate participation, please refer to

Issued consequential to December 1, 2021 Regulatory Amendment

Regulatory excerpt

Section 18.6.2(1) of the *OHS Regulation* ("*Regulation*") states:

An employer must ensure that a traffic control person has completed a Board-approved traffic control training program.

Purpose of guideline

The purpose of this guideline is to provide information on what WorkSafeBC considers to be "a Board-approved traffic control training program."

Approved training programs

Traffic control persons (TCPs) play an important role in protecting workers by helping to ensure road safety at worksites. The Regulation requirement is that TCPs complete "a Board-approved traffic control training program."

Currently WorkSafeBC considers training programs provided by the [B.C. Construction Safety Alliance](#) and [Universal Health and Safety Inc.](#) to be Board-approved traffic control training programs for the purposes of section 18.6.2(1). WorkSafeBC will review training prepared and delivered by other agencies to ensure they constitute Board-approved traffic control training programs.

Note that it remains the employer's responsibility in all situations to instruct workers regarding specific risks at the workplace and to ensure the traffic control plan is adequate.

Out-of-province high-risk workplace TCPs

TCPs who possess a certificate as required by a regulatory authority in another province or territory in Canada may not need to undergo further training, testing, or assessment.

Applications to have an out-of-jurisdiction certificate recognized can be made to WorkSafeBC's [Certification Services](#).

Issued April 21, 2016; Retired consequential to December 1, 2021 Regulatory Amendment

The new OHS Regulation provides information on this so this guideline is no longer required.

Table of Contents: WCB Standards

[WCB Standard: G601 Heavy Duty Backstops for Logs and Rocks](#)

[WCB Standard: G602 Log Loader and Log Yarder Raised Cabs](#)

[WCB Standard: G603 Heavy Duty Guards for Windows](#)

[WCB Standard: G604 Light Duty Guards for Windows](#)

[WCB Standard: G605 Mobile Equipment Half-Doors](#)

[WCB Standard: G606 Boom Boat Operator Protective Structures](#)

[WCB Standard: G607 Medium Duty Screen Guard \(Front End Log Loader\)](#)

[WCB Standard: G608 Mobile Equipment Roof Structures — Heavy Duty](#)

[WCB Standard: G609 Mobile Equipment Roof Structures — Light Duty](#)

[Schedule 4-A WorkSafeBC Standard — Guardrails Using Rope or Other Non-rigid Material](#)

[WCB Standard: LDR 1-2004 Job Built Ladders](#)

[WCB Standard: PPE 1 — 1997 Leg Protective Devices](#)

* Only applies to leg protection devices manufactured prior to February 1, 2011.

[Schedule 8-A WorkSafeBC Standard — Leg Protective Devices](#)

Applies to leg protection devices manufactured after February 1, 2011.

[WCB Standard: PPE 2 High Visibility Garment — Personal Protective Equipment Standard 2](#)

[WorkSafeBC Standard 13.30 Work Platforms Supported by Lift Trucks](#)

[WCB Standard: A324 Forklift Mounted Work Platforms](#)

* Only applies to platforms built prior to April 1998

[Schedule 14-A WorkSafeBC Standard 14.116 Chimney Hoists](#)

Retired Standards

The following WCB standards have been retired:

WCB Standard: A321 Self-Propelled Elevating Work Platforms has been replaced by *CSA Standard CAN3-B354.3-M82, Self-Propelled Elevating Work Platforms for Use as "Off-Slab" Unit* and *CSA Standard CAN3-B354.2-M82, Self-Propelled Elevating Work Platforms for Use on Paved/Slab Surfaces*

WCB Standard: A322 Elevating Rolling Scaffolds has been replaced by *CSA Standard CAN3-B354.1-M82, Elevating Rolling Work Platforms*

WCB Standard: A323 Work Platforms Mounted on Industrial Lift Trucks has been replaced by *ANSI Standard ASME B56.1-1993, Safety Standard for Low Lift and High Lift Trucks*

WCB Standard: A326 Design, Construction and Use of Suspended Platforms

WCB Standard OFA1: Certification of Occupational First Aid Attendants has been replaced by OHS Guidelines [G3.15\(b\)-1 to G3.15\(c\)](#), [G3.17.1](#) and [G3.21\(2\)](#).

WCB Standard: PPE 14.1 Leg Protection For Chain Saw Users (Agricultural Operations only)

WCB Standard: G601 Heavy Duty Backstops for Logs and Rocks

See [Schedule 16-A](#) in Part 16 of the OHS Regulation.

WCB Standard: G602 Log Loader and Log Yarder Raised Cabs, March 1990

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1. General

1.1. Scope

This standard pertains to log loaders and log yarders, and other mobile equipment where the operator may be exposed to hazard caused by intruding or flying objects, such as whipping cables, loose debris, snags, tree trunks, limbs, etc. It is supplementary to [G601 Standard for Log Loader and Log Yarder Backstops](#), and is supplemented by [G603 Standard for Log Loader and Log Yarder Window Guards](#).

1.2. Purpose

This standard is intended to describe the minimum requirements for the design and selection of plates, framework and supports for raised cabs on equipment without a backstop. This will form and provide a protective structure for the operator inside the cab.

2. Design Principles and Assumptions

The following points are stated to clarify the underlying principles and assumptions of this Standard.

2.1.

A static force resistance design criteria is stipulated to ensure that intruding or flying objects will not deflect the cab beyond a certain limit.

2.2.

Also included is an energy design criterion, since in an actual situation involving flying objects, loading will be dynamic and possibly impact. Hence the adequacy of the structure is related more to energy absorption capability and details of weld design and welding procedure rather than static strength.

2.3.

The recommended design horizontal and vertical force will not necessarily duplicate the force imparted by an actual flying object such as trees, whipping cables, etc.

2.4.

As the cab elevation is increased, the vertical load requirement § 3.1.1 may be reduced accordingly.

2.5.

It is assumed that if the cab/structure can resist a force of W (Appendix A), then it will have adequate resistance to whipping cables. A magnification factor has been incorporated into the formulae to compensate for very small logs, because in such cases, other factors such as flying debris or cables may govern. In any case, W used for design purposes should not be less than 9000 N (2000 lb).

2.6.

Although cabs meeting these criteria may not deflect within the Deflection Limiting Volume (DLV See SAE J397a) under all circumstances, it is a minimum requirement for the Cab Protective Structure to have a "Crush Protection" design capability to withstand the force exerted on it by a hypothetical blunt log striking end-on at a velocity of 11 km/hr.

2.7.

Furthermore, there is an impact or strength requirement which is intended to ensure that all members of the cab will have adequate resistance to brittle fracture under cold temperatures.

2.8.

Finally, there is a visibility requirement which is to ensure that the operator's vision will not be seriously obstructed.

2.9.

The operator protective structure can be an integral part of a cab or can be a "cage" outside an existing cab. Hereinafter the term "Cab Protective Structure" shall mean any guard that envelopes the cab or any guard that forms part of a cab. (See Appendix D.)

3. Design Loads

3.1. Vertical Load Requirement

Force Resistance

$$F_v = \frac{2.5 \times W \times i}{H} \quad \text{units N, m}$$

$$F_v = \frac{8.25 \times W \times i}{H} \quad \text{units lb, ft}$$

H = distance from grade to top of Cab Protective Structure.

W = weight of log handled as defined in Appendix A.

F_v = vertical equivalent static force.

i = impact factor as defined in Appendix B or other acceptable method.

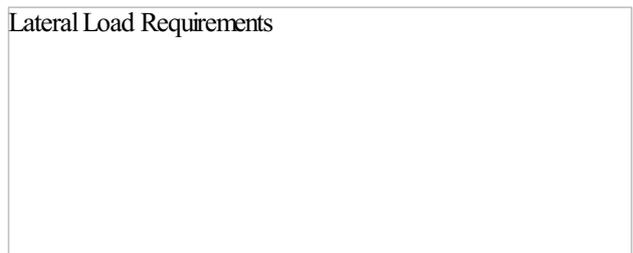
Energy Absorption

$$E_v = 0.152 W \quad \text{units N, J}$$

$$E_v = 6W \quad \text{units lb, lb-in}$$

E_v = ultimate energy to be absorbed by the frame at the point of impact. (J), (lb-in).

3.2. Lateral Load Requirement



F_L = equivalent lateral static force, where F_L is greater than the tipping force, then F_L may be reduced to that of the tipping force.

4. Design Requirements

4.1. Frame

4.1.1

All frame members of the Cab Protective Structure shall be designed to resist the applied load in accordance with Appendix C or with some other acceptable design criteria to the Board.

4.1.2

In addition, the frame shall be designed to absorb the impact energy as given by E_v and E_L of § 3.1.1 to § 3.1.2.

4.2. Cab Skin

All exposed unguarded sides of the cab should be protected with metal plates

or other suitable material. They shall be designed to resist the F_L as defined in § 3.1.2.

4.3. Supports

The cab protective structure shall be secured to the structural parts of the (carrier) main frame of the log loader or log yarder. Such structural parts shall be adequately reinforced if necessary to resist the loads imposed on them by the cab protective structure.

4.4. Fastenings

If bolts and nuts are used in the fabrication of the guard, they shall conform to or exceed the ASTM Designation A325 Requirements.

4.5. Visibility Requirements

The cab shall be equipped with adequate view areas. All such view areas shall be guarded in accordance with [WCB G603 Standard for Log Loader and Log Yarder Window Guards](#).

4.6. Impact Strength Requirement

All members of the guard shall be made of material with good impact absorbing properties. The following guideline may be used:

Examples of steel meeting or exceeding the above requirements:

- ASTM A36, CSA G40.21 33G, 44W - for plates, bars and angles.
- CSA G40.21 50W - for HSS. (Hollow Structural Sections)

4.7. Weldment

Weldments shall conform to applicable sections of General Specification for Welding of Steel Structures, CSA W59.1-1970 (or latest revision thereof) and shall be performed by licensed welders only.

4.8. Alternate Exit

The operator protective structure shall be provided with an alternate exit. Such exit shall have a minimum clear opening of 60 cm diameter (24").

4.9. Glazing

Only safety glass or other suitable material with similar shatter-resistant characteristics shall be used for window areas.

4.10. Sound Isolation and Absorption

The cab interior shall have a sound level reading of not more than 80 db under normal working conditions and with all openings closed. Flammable sound absorption material should be avoided.

APPENDIX "A"

Derivation of W.

The symbol "W" represents weight of the heaviest log expected to be handled by the log yarder or loader. For the purpose of this standard, g (density of logs) should be assigned a value of 560 kg/m³ (35 pcf) which is the arithmetic mean of the common species found in B.C. The following formula may be used to compute the expected weight of incoming logs:

$$W = \frac{\pi}{4} (D_B^2 + D_T^2) L g$$

D_B = butt end diameter m, ft.

D_T = top end diameter m, ft.

L = average length of logs handled, m, ft.

g = density of logs handled kg/m³, pcf.

APPENDIX "B"

Impact Factor* (i)

Formula for Impact Factor* (i)

v = velocity of approaching log.

Δ_{ST} = static deflection of guard member due to weight of approaching log.

g = acceleration due to gravity (32 ft/sec² or 9.8m/sec²).

* Other acceptable method may be used.

APPENDIX "C"

Diagram of Loading Conditions for Cab Frame Design (WCB-G602)

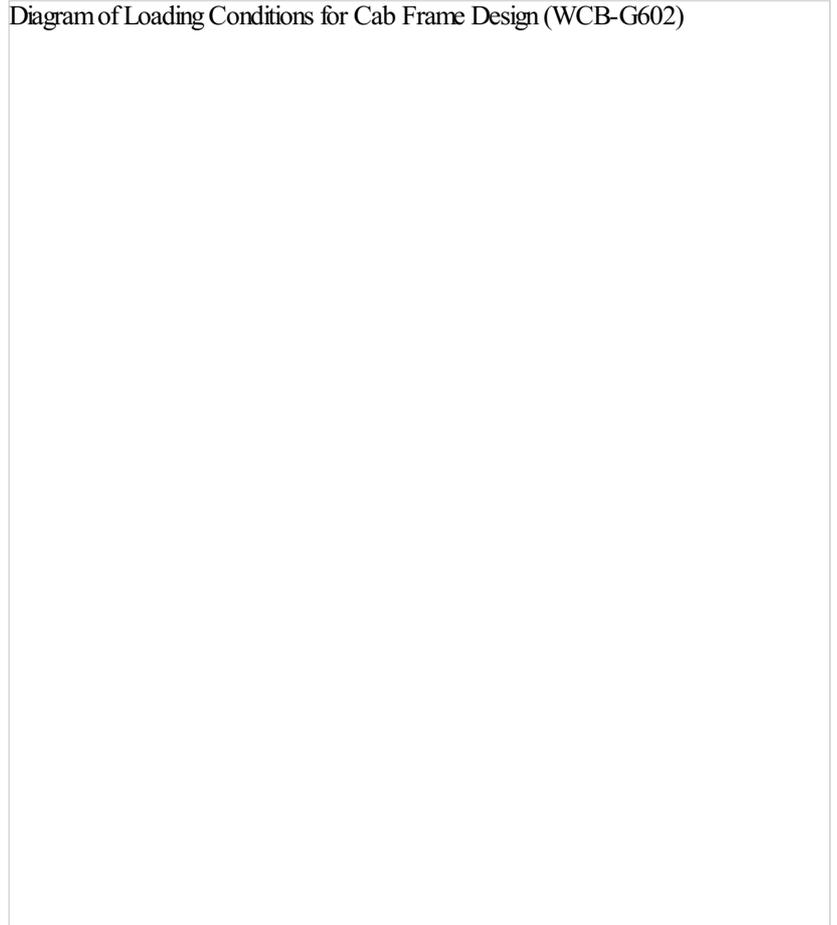
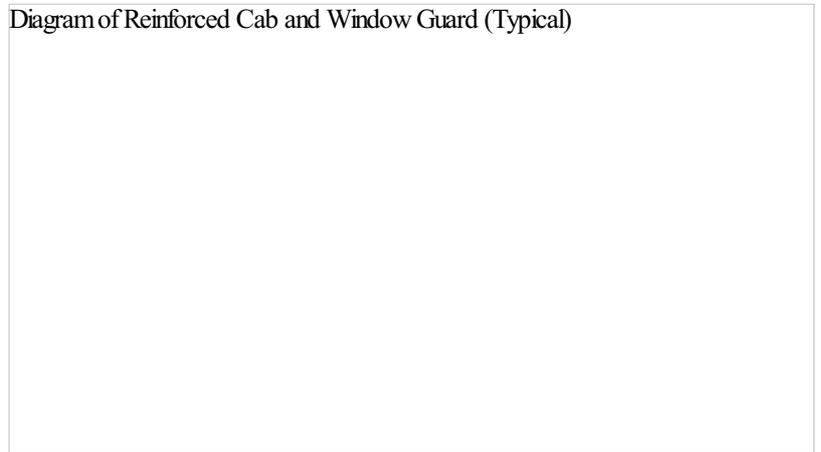


Diagram of Reinforced Cab and Window Guard (Typical)



WCB Standard: G603 Heavy Duty Guards for Windows

See [Schedule 16-B](#) in Part 16 of the OHS Regulation.

WCB Standard: G604 Light Duty Guards for Windows

See [Schedule 16-C](#) in Part 16 of the OHS Regulation.

WCB Standard: G605 Mobile Equipment Half-Doors, March 1990

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1. General

1.1. Scope

This standard pertains to any rubber-tired skidders employed in the skidding of logs or tree lengths where the operator may be exposed to flying or other intruding objects.

1.2. Supplementary References

This standard is supplemented by [G604 WCB Standard for Light-Duty Screens](#).

1.3. Purpose

This standard is intended to describe the minimum requirements for the design and selection of structural elements such as plates, stiffeners, sheer deflectors, spring latches or hinges for the half-door.

2. Design Requirements

2.1. General Location

A half-door shall be installed on both side entrances to the control area.

2.2. Dimensions

2.2.1

The entrance opening width shall be a minimum of 46 cm (18 inches). Recommended opening width is 70 cm (27 inches).

2.2.2

The door height shall be a minimum of 60 cm (25 inches) from the floor and having the top of the door at least 25 cm (10 inches) above the cab seat.

2.3. Character (Distinctive Qualities)

2.3.1

The half-door should not sweep the area of the platform or the steps on which the operator must stand to open the door. It shall sweep outward from the cab.

2.3.2

The half-door shall be equipped with a device to cause it to return to its closed position automatically. Also, a latch, preferably of pressure sensitive type should be used to lock the door.

2.3.3

There should be sufficient clearance between the maximum radius of door sweep and the rubber tires of the mobile equipment.

2.3.4

A sheer deflector or stiffener shall be installed on the exterior top edge of the door to act as a deflector/stopper for objects propelled upward.

2.4. Static Strength

2.4.1

The top edge of the door shall be reinforced by a ledge, (sheer deflector), a structural element capable of withstanding a concentrated force of 17800 N (4,000 lbs.) applied at 45° to the horizontal.

2.4.2

Any area of the door shall be designed to resist a 17800 N (4000 lb) static force applied over an area of 62 cm² (9.6 in²).

2.4.3

The hinges, stops and supports shall be adequately designed and fabricated to resist any loads that the door would likely impose upon them. The entire door assembly shall be designed to resist a static force of 17800 N (4,000 lbs.) without causing the door to spring open. On vehicles equipped with a ROPS (Rollover Protective Structure), the door-supporting elements may be attached to parts of the ROPS providing such attachment does not adversely affect the performance of the ROPS. This is contingent on approval by a registered professional engineer.

2.4.4

Weldments shall conform to applicable sections of General Specifications for Welding of Steel Structures CSA W59.1-1970 or most recent version and should be performed by qualified welders only.

2.5. Impact Strength Requirement

All members of the half-door shall be fabricated of material with good impact absorbing properties. The following guideline may be used:

- Low carbon content - maximum .28%
- High manganese-carbon ratio
- Low phosphorus content
- Fine grain size
- Heat treated
- High ultimate energy resistance (Notch tough steel possessing acceptable impact properties)

Examples of steel meeting or exceeding the above requirements:

- ASTM A36 or CSA G40.21-38W - for bars, angles and plate
- CSA G40.21 42W, 55W - for HSS (Hollow Structural Sections) (CSA G40.16 and G40.17)

The following recommendations may be used in lieu of clause 2.4.1 and clause 2.4.2

3.1.

Minimum ledge beam size shall be 2 x 2 x .188 HSS, CSA G40.21 42W.

3.2.

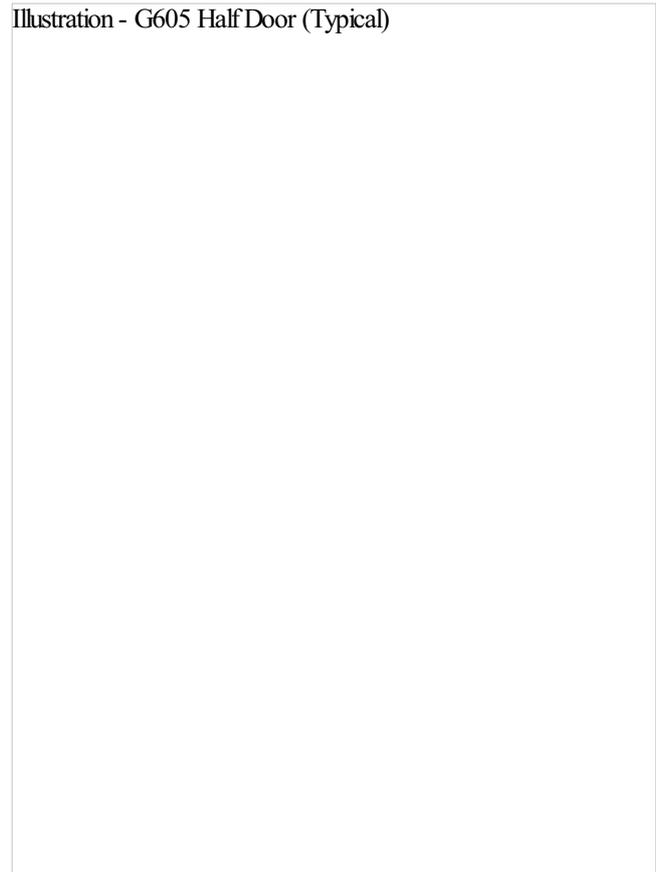
Door - steel plate 5 mm (3/16") minimum

3.3.

Minimum intermediate stiffener size shall be L 2 x 2 x 3/16 CSA G40.21 33W.

3.4.

Maximum spacing of stiffeners is six inches, when L 2 x 2 x 3/16 is used.



WCB Standard: G606 Boom Boat Operator Protective Structures, March 1990

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1. General

1.1. Scope

This standard pertains to any vessel used to push or pull logs, booms, bundles or bags in booming ground operation where the operator may be exposed to collision with water-borne logs. Examples of such vessels are dozers, side winders, boom scooters and tugs.

1.2. Purpose

This standard is intended to describe the minimum requirements for the design and selection of window guards, plates, framework and supports for a cab which will form and provide a protective structure for the operator occupying same.

2. Design Principles and Assumptions

The following points are stated to clarify the underlying principles and assumptions of this standard.

2.1.

The stiffness of the vessel is assumed to be in direct proportion to $W \times GM \times \sin q$ where W is the weight of vessel, GM is the metacentric height, and q is the angle of heel.

2.2.

The stiffness of the operator protective structure is assumed to be very much higher than the vessel's heeling resistance. Hence the stiffness of the entire system is approximately equal to the heeling resistance of the vessel.

2.3.

It is assumed that the elements of the operator protective structure would be arranged in such a way to elastically deflect the projectile rather than arresting its motion.

2.4.

The derivation of the peak collision force is based on linear elastic collisions.

2.5.

It is a minimum requirement for the protective structure to have a "crush protection design capability" to withstand the force exerted on it by a hypothetical blunt log 1 m x 12 m (3 feet x 40 feet) striking end-on at a velocity of 1.5 m/s (5 fps).

Furthermore, there is an impact or strength requirement which is intended to ensure that all members of the cab will have adequate resistance to brittle fracture under cold temperatures.

2.6.

Finally, there is a visibility requirement which is to ensure that the operator's vision will not be seriously obstructed.

2.7.

The operator protective structure can be an integral part of a cab or it can be a "cage" outside an existing structure.

3. Design Loads

3.1.

Imperial Units



3.2.

Metric Units



W = weight of vessel, lbs. or N.

CM = distance from metacentric to hypothetic point of impact, ft. or meters, CM must not be less than 2.1 m (7 ft.).

F = dynamic design load, lbs. or N, less than or equal to the capsizing force.

4. Design Requirements

4.1. Frame

All frame members of the cab protective structure shall be designed to resist the applied load in accordance with clause 3.0 or with some other design criteria acceptable to the Board.

4.2. Cab Skin

All exposed unguarded sides of the cab shall be protected with metal plates or other suitable material. They shall be designed to resist the force as defined in clause 3.0.

4.3. Supports

The cab protective structure shall be secured to the structural parts of the vessel. Such structural parts shall be adequately reinforced to resist the loads imposed on them by the cab protective structure.

4.4. Fastenings

If bolts and nuts are used in the fabrication of the guard, they shall conform to or exceed the ASTM designation A325 requirements.

4.5. Visibility Requirements

The cab shall be equipped with adequate view areas. All such view areas shall be guarded by vertical members spaced at intervals of not more than 6 inches. These vertical members shall be designed to assist the force as defined in clause 3.1.

If flat bars are used as vertical elements, they should be in a radiating pattern to minimize interference with the operator's line of sight.

4.6. Impact Strength Requirement

All members of the half-door shall be fabricated of material with good impact absorbing properties. The following guideline may be used:

- low carbon content - maximum .28%
- high manganese - carbon ratio
- low phosphorous content
- fine grain size
- heat treated
- high ultimate energy resistance (Note: tough steel possessing acceptable impact properties)

Examples of steel meeting or exceeding the above requirements:

- ASTM A36 or CSA G40.21 - 38W for bars, angles and plate
- CSA G40.21 42W, 55W for HSS (Hollow Structural Sections) (CSA G40.16 and G40.17)

4.7. Weldment

Weldments shall conform to the applicable sections of general specifications for welding of steel structures, CSA W59.1-1970(or latest revision thereof) and shall be performed by licensed welders only.

4.8. Alternate Exit

The operator protective structure shall be provided with an alternate exit. Such exit shall have a minimum clear opening of 60 cm (24 inch) diameter.

4.9. Glazing (optional)

Only safety glass or other suitable material with similar shatter-resistant characteristics shall be used for window areas and such glazing materials shall be positioned at least 20 cm (4 inches) away from the window guard.

5. Minimum Sizes

The following recommended sizes and dimensions may be used in lieu of the design load criteria, clause 3.0.

5.1.

Minimum grid element size shall be 3/4" diameter steel rods or equivalent where a 1 1/4 x 1 1/4 x 0.10 HSS intermediate stiffener is used.

5.2.

Grid element size shall be proportionately increased as the dimension of the guard increases.

5.3.

Minimum column size shall be 3 x 3 x 0.125 HSS depending on the slope and length of the columns. 3 x 3 x 0.25 HSS is strongly recommended.

5.4.

Minimum roof beam size shall be 3 x 3 x 0.125 HSS.

5.5.

Minimum "cab skin" plate size shall be 11 ga to 16 ga depending on the size of intermediate stiffeners used.

5.6.

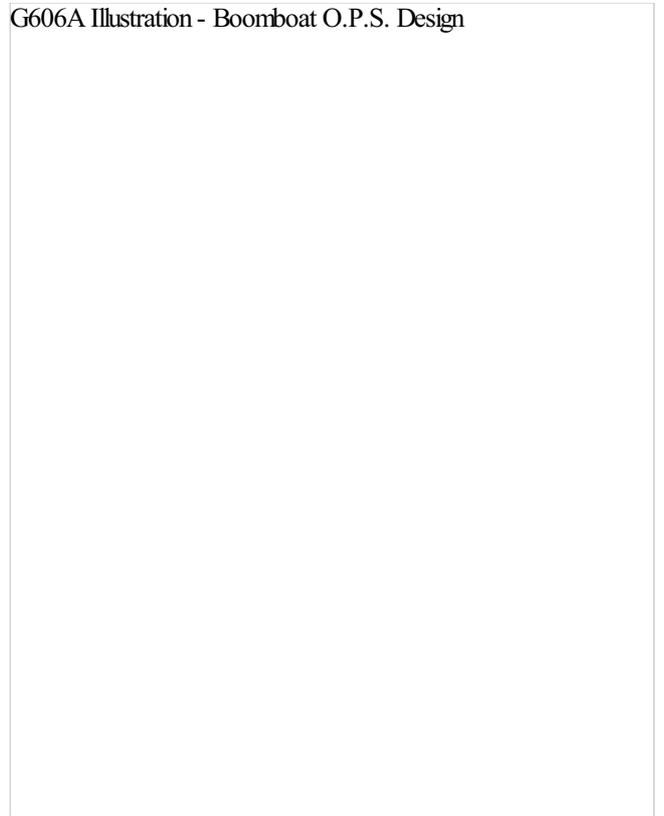
Gusset plates shall be incorporated where necessary.

5.7.

Materials with equal or better properties may be used in place of those stipulated in this Standard.

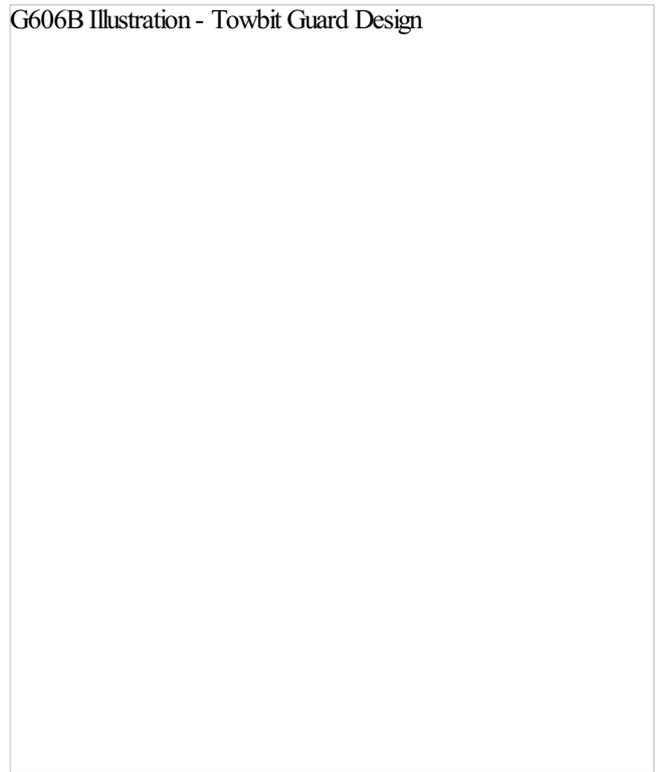
G606A BOOMBOAT O.P.S.

G606A Illustration - Boomboat O.P.S. Design



G606B TOWBIT GUARD

G606B Illustration - Towbit Guard Design



[Back to Top](#)

WCB Standard: G607 Medium Duty Screen Guard (Front End Log Loader), March 1990

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1. General

1.1. Scope

This standard pertains to front end log loaders - mobile machines mounted on a wheeled or tracked chassis, equipped with a front mounted grapple, tusk, or fork-lift device and employed in the loading, unloading, stacking, sorting or handling of logs, used only in dry land sorting areas.

For other applications, please refer to [G603 Standards for Log Loader and Log Yarder Window Guards](#).

1.2. Purpose

This standard is intended to describe the minimum requirements for the design and selection of rod-size, framework and supports for guards over window areas of operator's cab.

2. Location of screen guards

2.1.

Front screen guard shall be provided in the area in front of the operator and shall at least extend the full height of all glazing surfaces.

2.2.

Rear screen guard, where necessary and applicable, shall be provided in the area behind the operator.

2.3.

All guards shall be positioned at least four inches away from the glazed windows.

3. Design Requirements

3.1. Strength Requirements

3.1.1 Grid Element

Each vertical element shall be designed to withstand a minimum concentrated point load of 300 lbs. being applied at a location producing the greatest critical stresses. There should be at least three vertical elements.

3.1.2 Perimeter Frame

The outer frame shall consist of sections with the following section modulus:



S = edge beam section modulus (cm^3) (in^3)

W = dimension of guard (cm) (in)

f = allowable working stress MPa (psi)

3.1.3 Supports

The perimeter frame shall be secured to the structural parts of the cab. Such structural parts shall be adequately designed and constructed to resist all loads imposed on them by the guards.

On the front end loaders equipped with a rollover protective structure (ROPS), the screen guards may be attached to parts of the ROPS, provided that such attachment does not adversely affect the performance of the ROPS. All such attachments shall be clamped unless welding is permitted by the ROPS manufacturer or a registered professional engineer.

3.1.4 Fastenings

If nuts and bolts are used in the fabrication of the guard, they shall conform to or exceed the ASTM Designation A325 requirements.

3.2. Impact Strength Requirement

All members of the guard shall be made of material with good impact absorbing properties. The following guideline may be used:

- Low carbon content (less than 0.28%)
- High ratio of manganese to carbon
- Low phosphorous content
- Fine grain size
- Heat treated
- High ultimate energy resistance

Examples of steel meeting or exceeding the above requirements:

- ASTM A36, CSA G40.21 33G, 44W - for plates, bars and angles.
- CSA 40.21 50W - for HSS (Hollow Structural Sections)

4. Visibility Requirement

Minimum interference with operator's visibility shall be one of the governing criteria in the design and positioning of the vertical members of the guard. If flat bars are used as grid elements, they should be in a radiating pattern in line with the operator's line of sight. The clearance between vertical elements shall not be greater than eight inches.

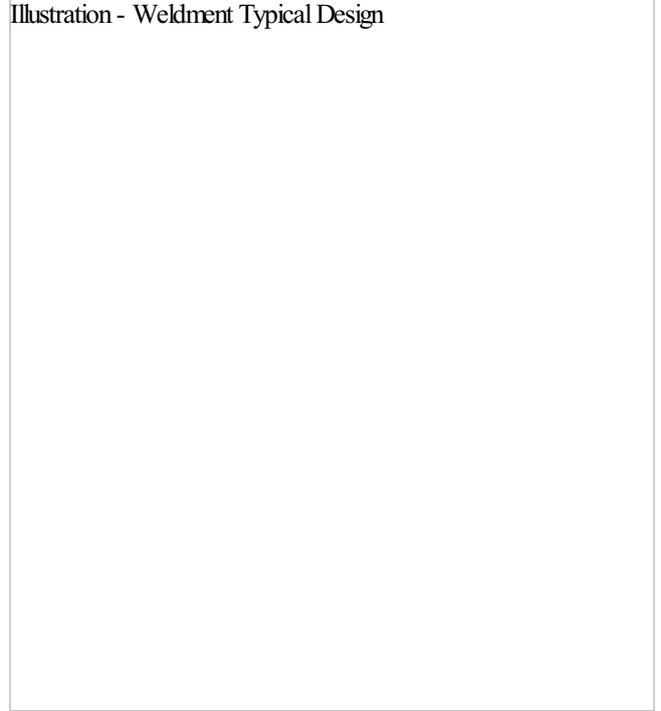
5. Minimum Recommended Sizes

- Vertical elements cross-section size should not be less than 19 mm (3/4") diameter mild steel rod or 16 mm (5/8") square rod.
- The openings between adjacent vertical members should not be greater than eight inches.
- The perimeter frame cross-section size should not be less than 2 x 2 x .150 square hollow structural section (HSS) 50,000 psi yield or 3 x 3 x 5/16 square angle, 36,000 psi yield.

6. Weldment

Weldments shall conform to applicable sections of General Specification for Welding of Steel Structures, CSA W59.1-1970 (or latest revision thereof) and shall be performed by licensed welders only.

Illustration - Weldment Typical Design



Typical Design
For Illustration Only

WCB Standard: G608 Mobile Equipment Roof Structures - Heavy Duty, March 1990

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1. General

1.1. Scope

This standard pertains to mobile industrial or logging equipment where the operator may be exposed to hazards caused by falling objects such as tree trunks, snags, limbs, rocks, etc. It is also supplementary to [G602 Standard for Log Loader and Log Yarder Raised Cabs](#).

1.2. Purpose

This standard is intended to describe the minimum requirements for the design and selection of plates and stiffeners for roof construction. Refer to the aforementioned [G602 Standard](#) for details on substructure construction.

2. Design Criteria

2.1. Option One - Testing Method

The roof shall be designed to meet the Minimum Performance Criteria for Falling Object Protective Structure (FOPS) - SAE J231.

2.2. Option Two - Analytical Methods

The roof shall be designed to absorb 11500 J (8,500 ft-lb) of impact energy without allowing a projectile measuring 20 cm (8 in) in diameter to penetrate into the DLV as defined in SAE J397a.

2.3. Option Three - Minimum Recommended Size

The roof shall be designed in accordance with the minimum recommended size as outlined in §4.0.

3. Design Requirements

3.1. Superstructure of Roof

The superstructure shall be designed in accordance with the design criteria as outlined in §2.0.

3.2. Substructure of Roof

All frame members and supports of the Cab Protective Structure shall be designed to resist the applied load in accordance with G602. This applies to all mobile equipment covered by G602. Equipment covered by SAE J1040 shall be designed in accordance with SAE J1040 or its equivalent.

3.3. Alternate Exit

The operator protective structure shall be provided with an alternate exit. Such exit shall have a minimum clear opening of 60 cm (24 in) diameter.

3.4. Impact Strength Requirement

All members of the guard shall be made of material with good impact absorbing properties. The following guideline may be used:

- Low carbon content (less than 0.28%)
- High ratio of manganese to carbon
- Low phosphorous content
- Fine grain size
- Heat treated
- High ultimate energy resistance

Examples of steel meeting or exceeding the above requirements:

- CSA G40.21 33G, 44W - for plates, bars and angles
- CSA G40.21 50W - for HSS (Hollow Structural Sections)

3.5. Weldments

Weldments shall conform to applicable sections of General Specification for welding of Steel Structures, CSA W59.1-1970 (or latest revision thereof) and shall be performed by licensed welders only.

4. Minimum Recommended Sizes

4.1. Option One - Plate Method

The following are designed on the assumption that stiffeners will be used to limit the unstiffened areas not to exceed 700 sq. in. (4516 sq. cm)

4.1.1

Minimum thickness of roof plate shall be 3/16 in. (4.76 mm)

4.1.2

Minimum section modulus of stiffeners used shall be 0.19 in³, (3.11 cm³) i.e. L 2 x 2 x 3/16

4.2. Option Two - Grid Method

Minimum rod size shall be 3/4 inch round bars or 5/8 inch square bars. Each grid opening shall not be greater than 413 cm² (64 square inches.) A light gauge roof plate is recommended in conjunction with the grid.

WCB Standard: G609 Mobile Equipment Roof Structures - Light Duty, March 1990

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1. General

1.1. Scope

This Standard pertains to mobile industrial equipment exposed to hazards from falling objects such as bricks, concrete blocks, and hand tools that may fall from relatively low heights encountered in operations such as highway maintenance or landscaping and other services on construction sites.

1.2. Purpose

This standard is intended to describe the minimum requirement for the design and selection of plates for roof construction.

2. Design Criteria

2.1. Option One - Testing Method

The roof shall be designed to the Minimum Performance Criteria for Falling Object Protective Structure (FOPS) for Industrial Equipment - SAE J1043.

2.2. Option Two - Minimum Recommended Size

The roof shall be designed in accordance with the minimum recommended size as outlined in §4.0.

3. Design Requirements

3.1.

The roof plate shall be designed in accordance with the design criteria as outlined in 2.0.

3.2.

All frame members and supports of the Cab Protective Structure shall be designed to resist the applied load. Equipment covered by SAE J1040 shall be designed in accordance with SAE J1040 or its equivalent.

3.3. Weldments

Weldments shall conform to applicable sections of General Specifications for welding of Steel Structures, CSA W59.1-1970 (or latest revision thereof) and shall be performed by licensed welders only.

4. Minimum Recommended Sizes

Minimum thickness of roof plate shall be 10 ga, equivalent to 3.4 mm (0.1345 in).

The above is designed on the assumption that stiffeners will be used to limit the unstiffened areas not to exceed 7740 cm² (1200 in²).

[Back to Top](#)

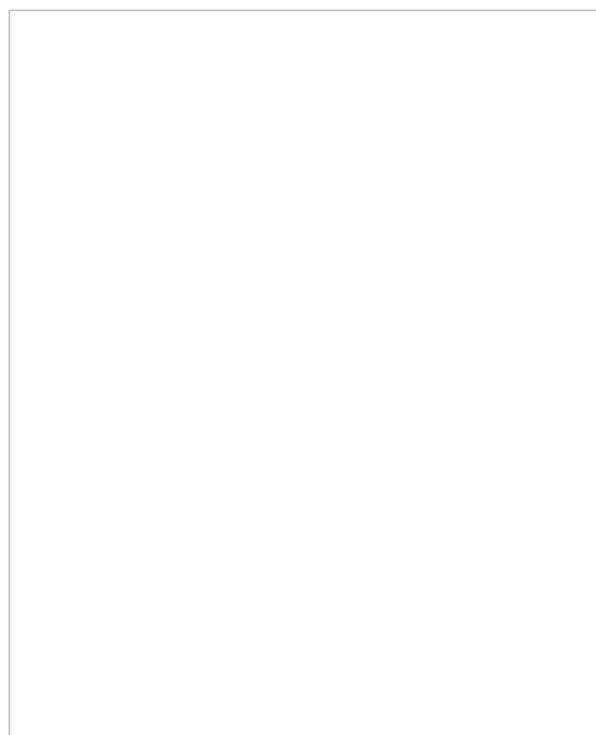
WCB Standard: LDR 1-2004 Job Built Ladders

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1. Scope

This Standard only applies to portable wooden ladders built for use by workers at a job site. This Standard does not apply to ladders which change ownership through sale or otherwise.

Figure 1: Job Built Ladder up to 5 m (16 ft.) Long



2. Design

A portable wooden ladder made at the job site must meet the following minimum requirements.

2.1 Side rails

(c) must not be notched, dapped, tapered or spliced. (2) The distance between the inner faces of the side rails must not be less than 38 cm (15 in) nor more than 50 cm (20 in). **2.2 Rungs**

(1) Rungs must be at least

(a) 19 mm x 64 mm (1 in x 3 in nominal) for ladder lengths up to 5 m (16 ft), and

(b) 19 mm x 89 mm (1 in x 4 in nominal) for ladder lengths from 5 m to 7.3 m (16 ft to 24 ft).

(2) Rungs must be

- (a) spaced at 30 cm (12 in) centres, and
(b) nailed directly onto the smaller surfaces of the side rails, using three 57 mm (2¼ in) wire nails on each end of the 89 mm (4 in) rungs, and two nails on each end of the 64 mm (3 in) rungs.
- (3) The spaces on the side rails between the rungs must be filled with close fitting and well secured filler pieces that are the same thickness as the rungs.
- (4) A double rung ladder must have 3 rails evenly spaced, and be 107 cm to 127 cm (42 in to 50 in) wide, and have continuous rungs which extend the full width of the ladder.

3. Ladder components and coating

- (1) Ladder components made from timber materials must be
(a) from lumber graded Number 2 or better and species to be limited to Douglas fir-larch, hemlock-fir, spruce-pine-fir, or coast Sitka spruce; and
(b) graded to National Lumber Grades Authority *Standard Grading Rules for Canadian Lumber*, or other grading rules acceptable to the board.
- (2) A protective coating applied to a wooden ladder, other than a small amount for identification purposes, must be transparent to allow any defects to be discovered by inspection.

[Back to Top](#)

WCB Standard: PPE 1 - 1997 Leg Protective Devices (Amended January 2008)

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1. Scope

This standard provides specifications and performance criteria for leg protection for a worker using a chainsaw.

2. Definitions

Leg protection means personal protective equipment worn for protection from leg injury due to contact with a moving saw chain.

3. Types

Pant type - the protection material is secured to and held in position by the trousers.

Apron type - the protection material is secured to an apron style garment normally worn outside the trousers and secured around the worker's legs and waist.

Chap type - the protection material is secured to a chap style garment normally worn outside the trousers and secured around the worker's legs.

4. General Requirements

4.1

Leg protection must be of materials suitable for the intended application. The use of the leg protection must not unduly restrict the manoeuvrability of the worker. Leg protection must not shrink more than 10% when cleaned in accordance with the manufacturer's instructions during its service life.

4.2

The protective material of leg protection must be at least 711 mm (28 in) long and a width covering 180° in the front of both legs from inseam to outseam plus 100 mm (4 in) on the left side of both legs.

If the 28" length requirement results in a tripping hazard, the protective pad can be shorter, as long as it covers an area extending from the crotch to within 75 mm (3 in) of the centre of the ankle. (*As amended August 2002*).

4.3

When leg protection is worn by a worker, the protective material must extend at minimum from the crotch to within 75 mm (3 in) of the ankle. The protective material must be effectively secured in this position.

4.4

Effective measures must be taken to prevent unravelling or fraying of material along any edges or other area where unravelling or fraying is likely to occur.

NOTE: When a "heat seal" is used to control unravelling or fraying of synthetic fibres, the "heat seal" must be effective over the life of the product. A heat seal subject to cracking must be covered to prevent abrasion of the wearer's skin.

5.1

Leg protection must meet the requirements of the "Threshold Chain Speed" Test. Tests must be done on leg protection samples assembled in the manner which the leg protection will be produced for distribution.

5.2 "Threshold Chain Speed" Test

NOTE: The threshold chain speed is the chain speed at which rapid cut-through occurs and below which cut-through consistently requires 1.01 seconds or more.

5.2.1

When tested, as described in clause 5.2.2, leg protection must have a threshold chain speed of 1098 m/min (3,600 ft/min) or more.

5.2.2 Test Method

5.2.2.1

The test apparatus must have

- (a) a simulated "leg" made of wood approximately 150 mm (6 in) in diameter with a 20 mm (¾ in) layer of resilient covering (Ensolite or similar material) attached to simulate the resilience of flesh, and designed to allow the leg protection to be mounted and tested similar to the configuration the leg protection will take when worn by a worker while his leg is "straight",
- (b) the "leg" must be mounted to allow rotation about the longitudinal axis of up to 75 mm (3 in) at the outer circumference, against an applied torque. (See Figure 1). The torque applied must be at least 1.7 Newton-metres (15 inch-pounds) and may increase as the leg rotates,
- (c) a chainsaw with Oregon 72 LP chisel chain and capable of a chain speed of at least 1,220 meter/min (4,000 ft/min). The chainsaw must pivot in a vertical plane to contact the "leg" (see Figure 1) with a downward force of 50 ± 1 Newtons (11 ± 0.1 lb), and
- (d) instrumentation to measure and record chain speed and cut-through time.

5.2.2.2

The test procedure is

- (a) start the saw and set the chain speed to the constant level selected for the test cut.
- (b) the bottom of the running saw chain must freefall 6 mm (¼ in) onto the test specimen mounted on the "leg",
- (c) the time from contact of the saw chain with the test specimen must be recorded to the nearest 0.01 second. The chain speed during each test must also be recorded,
- (d) successive trials must be done on the same material until the maximum chain speed (± 15 metres/min or ± 50 ft/min) at which cut-through does not occur for at least 1.01 seconds or more is determined. This will be the threshold chain speed for the tested material.
- (e) the chainsaw must be maintained in good repair and the saw cutters kept sharp in accordance with the saw chain manufacturer's recommendations.

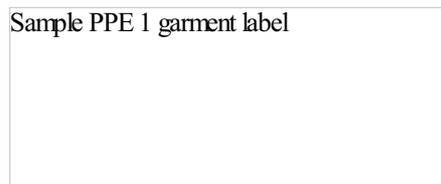
6. Identification

Leg protection must be permanently marked on the exterior of the leg protection with characters at least 6 mm (¼ in) high to show the manufacturer's name or recognized trademark, the design specification standard, and the performance standard and level met by the protective material. The year of manufacture must be included on a label or be otherwise marked on the garment.

NOTE: The label must include garment level of performance. Some sample wording is "Meets WCB of BC PPE 1, 1997[3600]" or "Meets WCB of BC PPE 1, 1997-ASTM F1414-04[CS50-3300]" or "Meets WCB of BC PPE 1, 1997-ISO 11393-2 Class 2" or "Meets WCB of BC PPE 1, 1997-EN 381-5 (1995)[Class 2]" or similar wording.

For example, a garment that is manufactured to the design specification of the WCB PPE 1 standard and meets the performance requirements for Class 2 garments in the ISO 11393-2 standard could incorporate a garment label as follows:

Sample PPE 1 garment label



7. Care and Maintenance

7.1

Instructions on the proper care, maintenance and repair of leg protection must be provided by the manufacturer.

Leg protection which shows damage which will affect its performance must be removed from service.

NOTE: Test procedures and ratings for threshold chain speed may differ depending on the standard referenced; however performance in the field may be similar. Comparisons of performance are best made by comparison of threshold chain speed numbers obtained using the same test method. Under these circumstances, the higher the chain speed the greater the cut protection.

WCB Standard: PPE 2 High Visibility Garment - Personal Protective Equipment Standard 2

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This following standard outlines minimum requirements for three types of high visibility garments acceptable to the Workers' Compensation Board of British Columbia.

In this standard, the following definitions apply:

Background: The part of the garment visible either from the front or the back of the garment when the fully assembled garment is laid flat for inspection, not including the area of the VE trim.

Coefficient of Retroreflection: The fraction of incident light reflected by a retroreflective surface per unit area. The unit of measurement is candelas per foot candle per square foot as measured at 0.2 degrees observation angle and -4.0 degrees entrance angle measured in accordance with ASTM E809 - "Standard Practice for Measuring Photometric Characteristics of Retroreflectors".

Fluorescent Material: A material that absorbs ultraviolet radiation in daylight and emits it in the visible light region. This property allows the material to radiate more visible light than is incident on it. Therefore, it looks and is brighter than a non-fluorescent material which, at best, can reflect all the visible light that falls on it.

Retroreflective Material: A material that reflects light back to the same direction as the source of the light.

- Type 1: Vest, shirt or other similar garment worn on the torso with a fluorescent background and attached VE trim.
- Type 2: Jacket, coat, coverall or other garment with a bright colored background and attached VE trim.
- Type 3: A harness type garment worn on the torso, fabricated from parallel strips of contrasting colors. The harness has fluorescent and retroreflective properties.

VE Trim: Visibility enhancing trim attached to the garment. The trim has fluorescent and retroreflective properties.

Application

This standard does not apply to firefighters. High visibility garments for firefighters is provided for in the standard NFPA 1971, "Standard on Protective Clothing for Structural Firefighters".

Requirements Applying To All Types of High Visibility Garments

The background material in fluorescent or bright color in yellow, orange or red must meet the chromaticity coordinates and minimum luminance factor specified in Table 1.

No part of the garment may melt, separate or ignite when subjected to 500 degrees Fahrenheit air temperature for 5 minutes for high visibility garment used in environments where exposure to elevated temperatures or open flames is possible.

Where a worker is engaged in welding or burning operations, the high visibility garment must be made from flame retardant materials.

In an environment where loose fitting clothing may be caught by moving equipment or other stationary objects, high visibility garments must have "tear away" properties. An example of this is the use of Velcro™ strips for the fastening of the garment.

Where high visibility garments are used in potentially explosive environments, Velcro™ strips must not be used due to static electricity concerns.

All high visibility garments must be worn outside of all other clothing and must be fully fastened closed.

If the background material is of open weave construction the largest dimension in the openings of the background material must not exceed 3.2 mm (1/8 inch).

VE trim must not be of open weave construction.

VE trim must:

1. Have a smooth flat exterior finish.
2. Be securely attached to the garment.
3. Be applied so that it is visible on the side of the garment when worn.

- There must be a minimum of 77 square centimeters (12 square inches) of VE trim within a defined area below the arm hole. The defined area below the arm hole consists of a 152 mm (6 inch) wide vertical strip centered about the center line of the arm hole.
 - In lieu of side VE trim, a band of 50 mm (2 inches) wide VE trim may be placed around the sleeve at the wrist or upper arm area of the garment.
4. Be applied to form one vertical stripe on either side on the front of the garment and an "X" pattern on the back of the garment.
 5. Be at least 50 mm (2 inches) wide.
 6. Be made either from; combined performance material that exhibits both fluorescent and retroreflective properties, or separate fluorescent and retroreflective materials.
 - The fluorescent portion of the trim must be fluorescent lime yellow if the background color is fluorescent orange, orange or red and must be fluorescent orange if the background color is fluorescent lime yellow, fluorescent yellow or bright yellow.
 - The retroreflective portion of the VE trim must be continuous along the entire length of the trim and have a minimum Coefficient of Retroreflection = 240 divided by the width in inches of the retroreflective portion of the VE trim. (e.g. if the width of the retroreflective portion is 1/2 inch, the minimum Coefficient of Retroreflection is 480)

Type 1 Garments

The garment background must be fluorescent lime yellow, fluorescent yellow, or fluorescent orange colored.

The minimum vertical length for both front and back of the garment is 0.61 metres (24 inches).

The minimum background area for either the front or the back of the garment is 0.13 square metres (200 square inches).

The fluorescent portion of the VE trim for either the front or the back of the garment must have a minimum area of 0.05 square metres (80 square inches).

Type 2 Garments

The background of the garment must be either fluorescent lime yellow, fluorescent yellow, bright yellow, fluorescent orange, bright orange or bright red.

The minimum vertical length for both front and back of the garment is 0.61 metres (24 inches).

The minimum background area for either the front or the back of the garment is 0.258 square metres (400 square inches).

The fluorescent portion of the VE trim for either the front or the back of the garment must have a minimum area of 0.05 square metres (80 square inches).

Type 3 Garments

The garment background must be fluorescent lime yellow, fluorescent yellow, or fluorescent orange colored.

The minimum background area for either the front or the back of the garment is 0.064 square metres (100 square inches).

The minimum vertical length for both front and back of the garment is 0.51 metres (20 inches).

The fluorescent portion of the VE trim for either the front or the back of the garment must have a minimum area of 0.064 square metres (100 square inches).

The garment must be designed so that there is color contrast along the entire length of at least one side of the VE trim.

Police Forces and Other Emergency Response Personnel

It is anticipated that police forces and other emergency response personnel may require greater protection in the hours after dark due to the nature of their job function. In lieu of requirements 4, 5 and 6 above on the pattern, width and color of the VE trim specified, the VE trim used by these personnel for all garment types must:

1. Have a minimum area of 0.05 square metres (80 square inches) for either the front or the back of the garment.
2. Be entirely retroreflective and at least 25 mm (1 inch) wide.
3. Have a minimum Coefficient of Retroreflection of 240.

Table 1. Color, background material and VE trim

Color	Chromaticity coordinates		Minimum luminance factor	
	x	y	Bright color	fluorescent color

Yellow	.36	.50	.5	.6
	.39	.61		
	.52	.48		
	.40	.45		
Orange	.49	.43	.3	.35
	.55	.45		
	.66	.34		
	.57	.34		
Red	.57	.34	.2	
	.66	.34		
	.69	.31		
	.60	.32		

[Back to Top](#)

WorkSafeBC Standard 13.30 Work Platforms Supported by Lift Trucks, February 2008

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1. Scope

1.1 This standard sets out the minimum requirements for the design and use of a work platform supported by a lift truck to elevate personnel.

1.2 This standard does not apply to an order picker or operator-up high lift truck designed to lift personnel.

2. Definitions

2.1 The definitions set out in Part 3 of *CSA Standard B335-04 Safety standard for lift trucks* apply to this standard.

3. Lift Truck Requirements

3.1 The lift truck used to support a work platform must meet the requirements of *CSA Standard B335-04 Safety standard for lift trucks*. (Note: *CSA Standard B335-04* incorporates the design and construction requirements of *ANSI/ASME B56.1 Safety Standard for Low Lift and High Lift Trucks* and *ANSI/ASME B56.6 Safety Standard for Rough Terrain Forklift Trucks*, so a lift truck manufactured to meet the applicable ANSI standard meets the requirements of *CSA Standard B335-04*.)

3.2 The lift truck must be in good working order with all controls and functions operating in accordance with the manufacturer's specification, the requirements of the applicable safety standard, and the *Occupational Health and Safety Regulation ("OHSR")*.

3.3 Forks must be secured against tilting and dislodgement.

3.4 If the lift truck uses a hydraulic or pneumatic system to raise the fork carriage the system must be equipped to prevent unintended descent of the carriage in excess of 0.6 metres per second in the event of hydraulic or pneumatic line failure.

4. Platform Requirements

4.1 The work platform must be built by the manufacturer to meet the requirements of the applicable lift truck safety standard or custom designed by a professional engineer in accordance with design criteria from the applicable lift truck safety standard. A custom designed work platform must be certified by a professional engineer as having been built in conformance with the engineer's design.

4.2 The work platform must be legibly marked to show

(a) The name of the manufacturer or the certifying engineer

(b) If a manufactured work platform, the part number or serial number to allow the design of the work platform to be linked to the manufacturer's documentation

- (c) If a custom built work platform, a unique identification number or code that links to the design and certification documentation from the engineer
 - (d) The safety standard the work platform was designed to meet
 - (e) The weight of the work platform when empty
 - (f) The rated load that may be placed on the work platform (the maximum combined weight of the people, tools, and materials permitted on the work platform)
 - (g) The minimum rated capacity of the lift truck needed to safely handle the work platform either by specifying the make and model of lift truck(s) that may be used with the platform or by specifying the minimum wheel track and lift truck capacity (Note clause 5.7 of this standard requires the lift truck must have a minimum rated capacity of at least two times the weight of the work platform plus the rated load for a high lift truck and at least three times the weight of the work platform plus the rated load for a rough terrain forklift truck.)

4.3 The means or method for securing the work platform to the forks or fork carriage must be specified by the manufacturer or a professional engineer.

4.4 There must be a means to prevent the work platform and carriage from rotating and pivoting.

4.5 The floor of the work platform must have a slip resistant surface located not more than 200 mm (8 inches) above the normal load supporting surface of the forks.

4.6 The work platform floor depth, measured from the front to the back, must not exceed two times the load centre distance specified on the lift truck data plate. The work platform width must not be greater than the overall width of the lift truck measured to the outside of the load bearing tires, or to the outside of the stabilizers if they are to be used, plus 250 mm (10 inches) on either side of the tires or stabilizers as applicable.

4.7 If a particular application requires a work platform with dimensions greater than specified in clause 4.6, a professional engineer must design the work platform and limit its maximum rated load to ensure the work platform and lift truck system will maintain stability at least equivalent to the stability performance a work platform meeting clause 4.6 would provide consistent with the factors specified in clause 5.7.

4.8 There must be guardrail or equivalent protection on all sides of the platform. Guardrails or equivalent protection must meet the requirements of Part 4 of the *OHSR*. If due to the nature of the work task to be done, guardrails or equivalent protection is not practicable for one or more sides of the work platform, there must be designated anchor points on the work platform for the securing of personal fall protection systems. There must be sufficient anchor capacity or individual anchors to allow for the maximum permitted number of work platform occupants to secure their personal fall protection systems. Personal fall protection systems must meet the requirements of Part 11 of the *OHSR*.

4.9 The work platform must be constructed so it does not cause a hazard to the occupants and so the occupants cannot reach any hazard created by movement of the lifting mechanism of the lift truck.

5. Use Requirements

5.1 The instructions from the manufacturer or designer relating to the safe use of the work platform must be available in the workplace.

5.2 The lift truck and work platform must be in good condition and in compliance with the *OHSR* prior to the use of the system to raise personnel.

5.3 The lift truck must be operated by a qualified operator authorized by the employer to use the lift truck to raise personnel in the work platform.

5.4 The work platform must be secured to the forks or fork carriage in the manner specified by the work platform manufacturer or a professional engineer.

5.5 If the carriage of the lift truck can rotate or pivot, these functions must be disabled to prevent the work platform and carriage from rotating and pivoting.

5.6 A trial lift must be performed at each task location immediately prior to raising personnel in the work platform to ensure the lift truck can be positioned on an appropriate supporting surface, there is sufficient reach to position the work platform to allow the task to be done, and the mast is vertical or the boom travels vertically. The tilt function for the mast may be used to assist with final positioning the work platform at the task location but the mast must travel in a vertical plane. The trial lift must ensure adequate clearance can be maintained between the work platform and the elevating mechanism of the lift truck and any surrounding object such as a structure, overhead obstruction, storage rack, or scaffold, and from any hazard such as energized electrical wires and equipment.

5.7 The weight of the work platform plus the maximum rated load for the work platform must not exceed one half the rated capacity of a high lift truck or one third the rated capacity of a rough terrain forklift truck for the reach and configuration being used.

5.8 A system for communication between the work platform occupants and the lift truck operator must be implemented to control work platform movement. If there is more than one occupant on the work platform, one person on the work platform must be designated to be the primary person to signal the lift truck operator regarding work platform movement requests. If hand and arm signals are not the main communication method, a system of hand and arm signals must be developed as an alternative in the event the primary voice or other electronic communication means becomes ineffective during work platform use.

5.9 The work platform must be lowered to floor or grade level before a person gets on or leaves the platform.

5.10 Personnel must not be transported in the work platform, including between task locations.

5.11 If the work platform does not have guardrail or equivalent protection on all sides, each work platform occupant must use an appropriate personal fall protection system secured to a designated anchor point on the work platform.

5.12 Platform occupants must work from the platform surface and must not stand on the guardrails or use other devices to increase the effective working height of the work platform.

5.13 Whenever the work platform is occupied, the lift truck operator must remain within 3 metres (10 feet) of the lift truck controls and in visual contact with the lift truck and work platform and in communication with the work platform occupants.

[Back to Top](#)

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1. Scope

This standard defines safety requirements for forklift mounted platforms which may be used to elevate personnel. The standard covers the following:

- a. work platforms intended only for personnel and hand tools with an attendant forklift operator,
- b. work platforms intended for personnel and materials with an attendant forklift operator and
 - i. with controls mounted on the platform without an attendant forklift operator.
 - ii.

Where forklift mounted work platforms are inappropriate for the job being performed, suitable elevating work platforms (scissor lifts, boom lifts, etc.) shall be used.

WCB Standard A324 is included in I.H.&S. Regulation 32.36(2)(f) "or other standards acceptable to the Board."

2. Definitions

2.1

The following definitions apply in this standard:

- **Free descent** means the uncontrolled and unintended descent of the platform.
- **Rated load** means the designed carrying capacity of the work platform.
- **Stability** means a condition of a work platform/forklift combination where the sum of the overturning moments, including the presence of personnel or their equipment, or both, is less than the sum of the moments tending to resist overturning.
- **Work platform** means a work platform that can be mounted on the forks of a lift truck to be elevated to overhead work locations.

3. Carrier Lift Truck Requirements

Forklifts used for elevating personnel shall be designed, fabricated, operated, inspected, tested and maintained in accordance with the following standards:

- a. ANSI B56.1 - 1983 "Safety Standard for Low Lift and High Lift Trucks",
- b. CSA B335.1-1977 - "Low Lift and High Lift Trucks" (Adopted ANSI B56.1-1975),
- c. ANSI B56.6 - 1987 "Rough Terrain Forklift Trucks",
- d. Other standards acceptable to the Board.

Modifications and adaptations to the forklift which will affect its operation, hydraulic system or structural integrity shall be approved by the forklift manufacturer or a registered Professional Engineer.

Forklifts shall be maintained in accordance with service manual requirements.

Forklifts used for elevating personnel shall have a level indicating device attached to the mast to indicate when the mast is vertical. Restraints must be provided to ensure the mast is maintained within five degrees of the vertical position when personnel are elevated.

Forks must be secured against dislodgement.

Where the elevation of the platform is accomplished by a hydraulic cylinder assembly, the system shall be equipped to prevent free descent of the platform in the event of hydraulic line failure.

4. Responsibilities of Users

4.1

The operator must be trained to operate the forklift and must demonstrate proficient machine operation to his supervisor prior to lifting personnel on a work platform.

4.2

Before lifting the platform:

- a. Ensure that the forklift is on level, stable ground and the area is clear of overhead hazards such as powerlines.
- b. Ensure that the load is centred laterally and is positioned as close to the mast as possible.
- c. Ensure that the mast is vertical.

4.3

Forklifts shall be immobilized against inadvertent movement while the platform is occupied.

4.4

For those platforms requiring an attendant forklift operator, the operator shall remain within 25 feet (7.6 m) of the machine controls on ground level with the machine and platform in his view and in communication with the workers on the platform.

4.5

The machine and platform shall be in good operating and structural condition and be maintained as required by the manufacturer.

4.6

Workers shall not climb the forklift mast.

4.7

Rated loads shall not be exceeded.

4.8

Replacement parts for the platform shall meet or exceed the requirements of the original parts.

4.9

The platform shall not be elevated higher than 30 ft. (9 m).

4.10

Workers shall not be transported on the platform.

4.11

Platform occupants shall not work from locations higher than the platform surface.

4.12

Occupants of work platforms shall wear safety belts secured to suitable and substantial anchor-points except while offloading materials from the platforms.

5. General Platform Requirements

All work platforms shall meet the following requirements.

5.1 Design and Manufacture

5.1.1 Basic Principles

Sound engineering and manufacturing principles shall be applied in the design and manufacture of work platforms considering they will be carrying personnel.

5.1.2 Material Requirements

Load carrying members subjected to tension or reversing stresses shall be of materials that do not become brittle at low temperatures.

Bolts, nuts and other fasteners whose failure would result in the free descent of the work platform must conform to or exceed the requirements of ASTM Standard A325, High-Strength Bolts for Structural Steel Joints. SAE Grade 5, the equivalent or better shall also be acceptable.

Wooden platform components shall be constructed from #2 grade or better; species to be limited to the following groups: - Douglas Fir-Larch; Hem-Fir; Spruce-Pine-Fir or Coast Sitka Spruce only. All lumber shall be graded according to the National Lumber Grades Authority Rules or other approved grading rules. All lumber shall be grade stamped by an approved agency.

5.1.3 Welding Standards

All welding shall conform to the following standards:

- a. CSA Standard W59, Welded Steel Construction, (Metal Arc Welding), or
- b. ANSI/AWS Standard D1.1, Structural Welding Code, or
- c. CSA Standard S244, Welded Aluminum Design and Workmanship (Inert Gas Shielded Arc Process).

5.1.4 General

The work platform shall be secured to the fork carriage to prevent forward, lateral or rotational movement. Self-latching mechanisms are acceptable.

The platform shall have suitable dimensions and/or be mounted such that the forks will support at least 75% of the platform dimension parallel to the fork arms but will not protrude beyond the edge of the platform.

The platform shall be constructed so as not to cause any hazard to its occupant(s).

The dangerous parts of all moving machinery including the shearing hazards created by the movement of the lifting mechanism shall be securely guarded against inadvertent contact by occupants of the platform.

The work platform shall have a slip resistant floor surface.

5.1.5 Guardrails

The platform shall have 42 in (1070 mm) high guardrails, intermediate rails and 4 in (100 mm) high toe boards on all sides or be enclosed to a height of 42 in (1070 mm). Guardrails must be capable of withstanding a horizontal force of 200 lbs. (890 N). Chains are not to be used for guardrails.

Guardrails may be removable or hinged for opening during loading and unloading. They shall be constructed to accomplish proper positioning and so that a secured condition is discernible. Where removable guardrails are installed the toe boards must also be removable.

5.1.6

All work platforms shall have an emergency stop button to enable personnel on the platform to shut off power to the lift truck.

5.1.7

Substantial anchor points shall be provided for securing safety belts.

5.2 Platform Identification

Work platforms must have permanent, legible identification providing the following information:

- a. Name and address of manufacturer
- b. Name of engineer (if engineering certification is required)
- c. Platform weight
- d. Platform rated load (carrying capacity)
- e. Minimum carrier forklift requirements:
 - o wheel track
 - o forklift rated capacity
 - o forklift weight

5.3

Any platform with the working surface greater than 12 inches (300 mm) above the level of the forks shall be certified by a registered Professional Engineer with consideration for the diminished fork lift capacity and system stability. The requirements of Section 6.2 apply.

5.4

Where a work platform is mounted on a forklift with side-shift or reaching capability the combination must be certified by a registered Professional Engineer as to its stability in the least stable configuration. The requirements of Section 6.2 apply.

6. Platform Requirements

6.1

Platforms Carrying Personnel and Handtools Only With an Attendant Forklift Operator

6.1.1 Size

These shall be restricted to maximum dimensions of 4 ft. x 4 ft. (1.2 m x 1.2 m). The platform must be positioned with the shorter axis parallel to the forks.

6.1.2 Capacity

The rated load of the platform shall conform to the manufacturer's instructions, however, in no case shall it exceed 500 lbs. (2.2 kN).

6.1.3 Carrier Forklift Requirements

Minimum carrier forklift requirements shall be as follows:

- a. Forklift weight 3000 lbs. (13.3 kN) or greater.
- b. At maximum extension the forklift capacity shall be 3000 lbs. (13.3 kN) or greater at 24 in. (0.6 m) load centre.
- c. Forklift wheel track 3 ft. (0.9 m) or greater.

6.1.4

All work platforms shall be structurally sound. Damaged or deteriorated platforms shall not be used.

6.1.5

No modifications shall be made to the work platform without the approval of the manufacturer.

6.2 Platforms Carrying Personnel and Materials

Work platforms intended for carrying personnel and materials or those with a capacity or size greater than allowed for in Subsection 6.1 shall be certified by a registered Professional Engineer and meet the following requirements:

6.2.1 Stability Requirements

- a. Level Surface Stability Requirements

The work platform/forklift combination shall maintain stability while supporting a minimum static load of two times the platform rated load in any working position on a level surface. The centre of gravity of the load shall be within 12 inches (300 mm) of the platform edge with the unit in the least stable configuration.

- b. Horizontal Stability Requirements

When carrying the platform rated load and raised to the maximum working height of the platform on a level surface, the work platform/forklift combination must be stable while sustaining a horizontal force equal to 150 pounds (670 Newtons) or 15% of the rated load, whichever is greater. This horizontal force shall be applied to the perimeter of the platform at the working surface elevation so as to create the most adverse loading condition while the unit is in its least stable configuration. The centre of gravity of the vertical load shall be within 12 inches (300 mm) of the platform edge with the unit in the least stable loading condition.

- c. Five Degree Slope Stability Requirements

The work platform/forklift combination shall be able to maintain stability, while sustaining a static load of 1-1/3 times the rated load of the platform, in every position in which the load can be placed, with the forklift on a slope of five degrees downward in the direction most likely to cause overturning. The centre of gravity of the load shall be within 12 inches (300 mm) of the platform perimeter.

6.2.2 Structural Factors of Safety

All load supporting elements shall be designed with a safety factor of not less than:

- a. 2 based on the yield strength for grades of steels or other materials having a minimum elongation at failure of 14% in a gauge length of 50 mm when tested in accordance with ASTM Standard E8, Tension Testing of Metallic Materials; or
- b. 5 based on the ultimate strength for cast irons, fibreglass reinforced plastics, or other materials having an elongation at failure of less than 14% in a gauge length of 50 mm when tested in accordance with ASTM Standard E8.

The design stress used in determining the structural safety factor shall be the maximum stress induced in the element with the device operating with its rated load.

6.2.3

Work platforms that have sustained damage such that the structural integrity is suspect shall be recertified by a registered Professional Engineer prior to use.

6.2.4

No modifications shall be made to a work platform without the approval of a registered Professional Engineer.

6.2.5

Control Requirements for Platforms Without an Attendant Forklift Operator

Work platforms may be used without an attendant forklift operator. These shall have both remote hoist and tilt controls mounted on the work platform. An operator is not required to attend the machine controls if the platform controls have been selected for use.

When the platform mounted hoist and tilt controls are in use, means shall be provided to render the hoist and tilt controls on the truck in-operative. Only one set of controls shall be capable of being operated at one time. Only trained operators shall operate the controls on the platform.

An emergency lowering system available at ground level shall be provided. This device shall be protected against inadvertent application, and shall be clearly marked.

WCB Standard OFA1: Certification of Occupational First Aid Attendants

Issued March 30, 2004; Revised November 1, 2004; Revised January 1, 2010; Retired September 6, 2018

This standard has been replaced by OHS Guidelines [G3.15\(b\)-1 to G3.15\(c\)](#), [G3.17.1](#) and [G3.21\(2\)](#).

WCB Standard: WPL 1-2004 Design, Construction and Use of Wood Frame Scaffolds

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1. Scope

This Standard applies to the design, construction, use, and maintenance of job constructed wood frame scaffolds.

This Standard does not cover shore or lean-to scaffolds.

2. Definitions

"building tie" means a connection between a standing scaffold and a permanent structure;

"double-pole scaffold" means a scaffold with both ends of the bearers supported by connections to posts or uprights;

"guardrail" means a guard consisting of a top rail 102 cm to 112 cm (40 in to 44 in) above the work surface, and an intermediate rail located approximately midway between the underside of the top rail and the top of the toeboard, if one is provided, or the work surface if no toeboard is provided;

"heavy duty" means intended to support both workers and stored or stacked materials, such as bricks and masonry;

"light duty" means intended to support workers, their personal hand tools and material for immediate use only;

"running scaffold" means a double-pole scaffold comprised of 2 or more bays;

"scaffold or scaffolding" means any temporary work platform and its supporting structure used for supporting workers, or materials, or both;

"single-pole scaffold" means a scaffold with the outer ends of the bearers supported on ledgers secured to a single row of posts or uprights, and the inner ends of the bearers supported on or in a wall;

"toeboard" means a guard with a top at least 10 cm (4 in) above the floor or platform, and the space between the bottom of the toeboard and the floor or platform not exceeding 13 mm (1/2 in);

"work platform" means an elevated or suspended temporary work base for workers.

3. Responsibilities

1. Employers must ensure that scaffolds used by their workers are in safe condition, regardless of who erected the scaffolds.
2. A scaffold must be erected, altered and dismantled by, or under the direct supervision of, qualified workers.
3. A scaffold must be inspected daily before use and after any modification.
4. A damaged scaffold component must not be used until it has been effectively repaired.

4. Lumber for structural components

1. Unless otherwise specified in this Standard, lumber used to construct scaffolding must be graded Number 2 or better Douglas fir-larch, hemlock-fir, spruce-pine-fir or coast-Sitka-spruce.
2. All lumber must be graded and marked to the National Lumber Grades Authority Standard Grading Rules for Canadian Lumber or other grading rules acceptable to the board.

5. Scaffold stability

1. A scaffold must be erected with vertical members plumb and ledgers and bearers level.
2. The lower end of the vertical support of a scaffold must be supported by firm and adequately sized foundations or sills.
3. The poles, legs and uprights of a scaffold must be securely and rigidly braced to prevent swaying and displacement.
4. A scaffold must be effectively guyed or secured to a building or structure if the height of the scaffold exceeds 3 times its minimum base dimension.
5. If building ties or guys are used
(a) the first level of ties or guys must be placed at a height not exceeding 3 times the scaffold minimum base dimension, and additional

building ties or guys placed at vertical intervals not exceeding 6 m (20 ft), and

- (b) building ties or guys must be placed at longitudinal intervals of every third bay or 6.4 m (21 ft), whichever is less, and at each end of the scaffold.
- Each building tie must be capable of resisting a working load of 4 kN (900 lbs), applied horizontally and perpendicular to the structure, or a proportionately equivalent load where ties are spaced closer together or guying is employed.
 - If a scaffold is enclosed by a tarp or other cover for protection against climatic conditions, bracing for the scaffold must be installed in accordance with the instructions of a professional engineer to meet design criteria for wind or other weather induced loads that may be imposed.

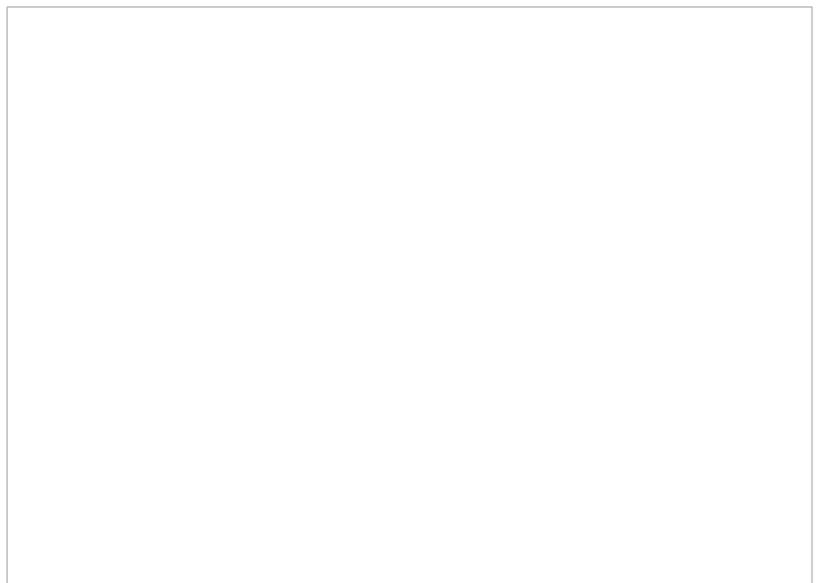
Note: For the purpose of compliance with subsection (2), if changing weather conditions may cause freezing or thawing of the ground or other surface supporting a scaffold, adequate precautions need to be taken to ensure the continued suitability of the supporting surface. For compliance with subsection (6), *CSA Standard CAN/CSA-S269.2-M87, Access Scaffolding for Construction Purposes*, provides some examples of typical details for building ties.

6. Guardrails and toeboards

- Except as provided by subsections (2) and (5), a work platform 3 m (10 ft) or more above grade or floor level must have guardrails on all open sides and ends.
- If an edge of the work platform is adjacent to a structure that provides equivalent protection to guardrails, then guardrails may be omitted on that edge and there may be an open space between the work platform and the structure of up to 30 cm (12 in).
- Toeboards must be provided if there is a danger from tools, materials, equipment and debris falling off the edge of the work surface, or there is a danger of slipping off the work surface due to the environment or work practices being used.
- If material is stacked or stored on a platform or walkway, or near a floor opening, toeboards must be increased in height or solid or mesh panels of appropriate height must be installed to prevent the material from falling.
- Subsections (1) and (3) do not apply to a walkway or a platform that is on a performance stage or scenic unit and will be visible to the audience during a rehearsal or performance, provided that effective measures are taken to protect performers and other workers from injury.

Dimensions for guardrails are shown in Tables 1 and 2. Sample guardrails are shown in Figure 1.

Figure 1 - Single Pole Wood Scaffold (Light Duty)



7. Lumber planks

- Except as provided elsewhere in this Standard, solid wood scaffold planks used as work platforms must be cut from Douglas fir-larch, hemlock-fir, spruce-pine-fir or coast-Sitka-spruce species, and
 - for a maximum span of 3 m (10 ft), must be
 - graded "Select Structural - Scaffold Plank" not less than 38 mm x 235 mm (2 in x 10 in nominal),
 - graded "Select Structural - Joists and Planks" not less than 38 mm x 235 mm (2 in x 10 in nominal),
 - graded "No. 2 and Better - Joists and Planks", not less than 48 mm x 251 mm (2 in x 10 in rough sawn), or
 - graded "No. 2 and Better - Joists and Planks", not less than 38 mm x 235 mm (2 in x 10 in nominal), provided the planks are doubled

(one on top of the other), or

- (b) for a maximum span of 1.8 m (6 ft) and light-duty work only, must be graded "No. 2 and Better - Joists and Planks", not less than 38 mm x 235 mm (2 in x 10 in nominal).
2. Any lumber graded in accordance with subsection (1)(a)(ii), (iii), (iv), or (b) must be hand picked for minimal knots and straight grain to ensure that it is suitable for use as a scaffold plank.
 3. Each lumber scaffold plank must
 - (a) be visually inspected for defects before each installation and not used if found to be defective,
 - (b) except as noted in subsection 1(b), be supported at intervals not exceeding 3 m (10 ft) for light duty activity and 2.1 m (7 ft) for heavy duty activity,
 - (c) have its ends extend not less than 15 cm (6 in) and not more than 30 cm (12 in) beyond the supporting member, and
 - (d) for light duty activity, support no more than one worker unless it is connected to the adjoining plank.
 4. (4) A work platform must
 - (a) consist of lumber or manufactured scaffold planks placed side by side to provide a work surface with a minimum nominal width of 50 cm (20 in), except that a nominal 30 cm (12 in) wide work platform is acceptable for use with ladder jacks, and
 - (b) as far as possible, completely cover the area between front and rear vertical supports or the rear guardrail, and in no case leave more than one opening in the work platform area, and the opening must be no greater than 25 cm (10 in) in width.

8. Manufactured planks

1. A manufactured scaffold plank must meet the requirements of
 - (a) *CSA Standard CAN/CSA S269.2-M87, Access Scaffolding for Construction Purposes,*
 - (b) *ANSI Standard A10.8-1988, American National Standard for Construction and Demolition Operations - Scaffolding - Safety Requirements,*
 - (c) *ANSI Standard A14.7-1991, Safety Requirements for Mobile Ladder Stands and Mobile Ladder Stand Platforms,*
 - (d) *CSA Standard CAN3-Z271-M84, Safety Code for Suspended Powered Platforms,* or
 - (e) the written requirements of a professional engineer.
2. A manufactured scaffold plank must be used in accordance with the manufacturer's instructions and limitations, except as provided in subsection (3).
3. A scaffold plank fabricated at the jobsite must be made to a design certified by a professional engineer to meet the requirements of *CSA Standard CAN/CSA-S269.2 M-87, Access Scaffolding for Construction Purposes,* and a copy of the design must be available on site.

9. Securing planks

Each lumber and manufactured scaffold plank installed for use must be secured against dislodgement.

10. Sloping platforms

A work platform which slopes from one end to the other must be

- (a) sloped not more than 1 vertical to 5 horizontal, and
- (b) fitted with cleats on its upper surface, at not more than 40 cm (16 in) intervals or other equally effective measures must be used to ensure adequate footing for workers using the platform.

11. Access to scaffolds

1. Access to otherwise inaccessible working levels of a scaffold up to 9 m (30 ft) above a floor or grade must be provided by a vertical or portable ladder, or stairway, attached to the scaffold.
2. Access to otherwise inaccessible working levels of a scaffold over 9 m (30 ft) above a floor or grade must be provided by
 - (a) a stairway erected for the full height of the scaffold,

(b) a temporary passenger hoist approved for use under the *Elevating Devices Safety Regulation*,

3. (c) an attached vertical ladder, with rest platforms at least every 9 m (30 ft) which are fully guarded except at the ladder location, or
A worker must not climb scaffold members between landings.

12. Vertical ladders

1. A vertical ladder providing access to working levels of a scaffold must
- (a) be adequately fastened to the scaffold,
 - (b) be configured so that its siderails extend approximately 1 m (3 ft) above the working level,
 - (c) have rungs spaced at 30 cm (12 in) on centre, and
 - (d) have a clear space of at least 15 cm (6 in) behind each rung.
2. A ladder attached to a scaffold must be positioned so that its use will not cause the scaffold to become unstable.

13. Spacing of components

The horizontal spacing between uprights, guardrail posts and bearers in a wood scaffold must not exceed

- (a) 3 m (10 ft) for a light duty scaffold, and
- (b) 2 m (7 ft) for a heavy duty scaffold.

14. Bracing of uprights

Adjacent uprights must be connected with horizontal runners (ledgers and bearers) to ensure that the unbraced vertical length of an upright does not exceed 2.4 m (8 ft).

15. Cross bracing

A scaffold must be adequately supported in two directions by a system of diagonal cross braces secured to the uprights as close to the ledgers as possible.

16. Single-pole components

Components of a light duty single-pole wood scaffold must have minimum nominal dimensions conforming to Table 1 and grade and species in accordance with section 4.

17. Double-pole components

Components of a double-pole wood scaffold must have minimum nominal dimensions conforming to Table 2 and grade and species in accordance with section 4.

A sample sketch of a light duty double pole scaffold is shown in Figure 2.

Table 1: Single-pole scaffolds		
Component		Nominal dimensions (inches) ¹
Uprights	- up to 6 m (20 ft)	2 x 4
	- 6 m to 15 m (20 ft to 50 ft)	4 x 4
Bearers	- 90 cm (3 ft) maximum span	1 x 6
	- 1.5 m (5 ft) maximum span	2 x 6
Ledgers		1 x 6 or 2 x 4
Braces		1 x 6 or 2 x 4
Wall scabs and bearer blocks		2 x 6
Guardrails (top rail)		2 x 4 (up to 2.4 m (8 ft) span) 2 x 6 (2.4 m - 3 m (8 ft - 10 ft) span)
Guardrails (intermediate rail)		2 x 4
Toeboards		1 x 4
Scaffold planks		As required by section 7 or 8

Table 2: Double-pole scaffolds			
		Nominal dimensions (inches) ¹	
Component		Light duty	Heavy duty
Uprights	- up to 6 m (20 ft)	2 x 4	2 x 6
	- 6 m to 15 m (20 ft to 50 ft)	4 x 4	4 x 6
Bearers	- 1.5 m (5 ft) max. span	2 - 1 x 6 or 1 - 2 x 6	2 - 2 x 6 or 1 - 2 x 10
Ledgers		1 x 6 or 2 x 4	1 x 6 or 2 x 4
Braces		1 x 6 or 2 x 4	1 x 6 or 2 x 4
Guardrails (top rail)		2 x 4 (up to 2.4 m (8 ft) span) 2 x 6 (2.4 m - 3 m (8 ft - 10 ft) span)	2 x 4
Guardrails (intermediate rail)		2 x 4	2 x 4
Toeboards		1 x 4	1 x 4
Scaffold planks		As required by section 7 or 8	As required by section 7 or 8

¹ In Tables 1 and 2 dimensions are nominal sizes for surfaced dry lumber and have actual dimensions in millimetres as follows: 2 x 4 is 38 mm x 89 mm, 4 x 4 is 89 mm x 89 mm, 4 x 6 is 89 mm x 140 mm, 1 x 6 is 19 mm x 140 mm, 2 x 6 is 38 mm x 140 mm and 2 x 10 is 38 mm x 235 mm

Figure 2 - Dimensions for light duty double-pole scaffold



18. Extension of uprights

1. A wood upright may only be extended using a butt joint, strengthened by two wooden splice plates not less than 1.2 m (4 ft) long.
2. The splice plates for wood uprights must have a minimum thickness of 38 mm (2 in nominal) and must have the same width as the spliced members.
3. The combined cross-sectional area of the splice plates must be at least that of the vertical upright member.

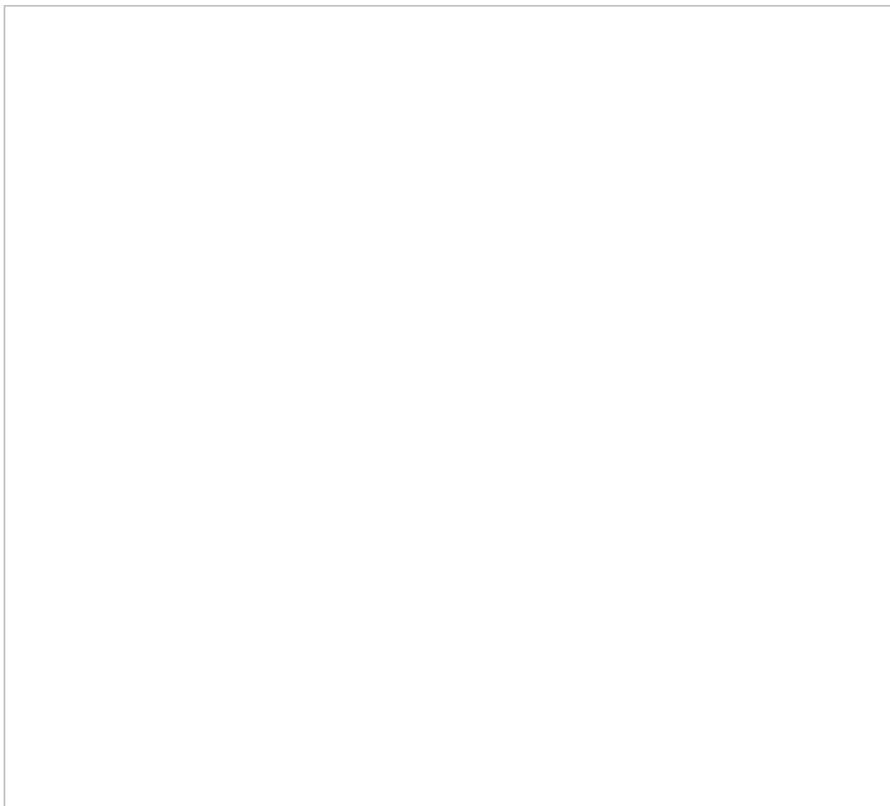
19. Laminated uprights

When wood uprights are fabricated by the lamination of two or more pieces of material to obtain the required cross-sectional dimensions, the distance between joints must be at least 1.2 m (4 ft). A sample laminated upright is shown in Figure 3.

1. The inner ends of bearers on single-pole scaffolds must be supported by bearer blocks, and securely fastened to wall scabs.
2. Manufactured bearer supports must be of a design acceptable to the board, and be secured to solid wall materials.
3. Bearer hooks which engage holes in the wall sheathing must be adequately supported by stiffeners secured to wood studs or blocking.

Note: Sample bearer connections are shown in Figure 3.

Figure 3 - Bearer Supports at Walls, Upright Extension and Laminated Upright



WCB Standard: WPL 2-2004 Design, Construction and Use of Crane Supported Work Platforms

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1. Scope

This Standard applies to the design, construction, use, and maintenance of work platforms suspended from or attached to cranes or hoists. These work platforms are intended to support personnel and limited materials. Generally, these cranes or hoists were not specifically designed for lifting persons.

This Standard is an update of former WCB Standard A326 *Design, Construction and Use of Suspended Platforms*.

2. Definitions

"brittle materials" means those materials that do not meet the requirement for ductile materials;

"crane supported work platform" means a personnel platform which is raised, lowered, and held in working position by the hoisting line of a crane or hoist, or is attached to a crane boom, (generally the occupants of platforms suspended from cranes or attached to crane booms do not have direct personal control over the movement of the platform);

"ductile materials" means materials having a minimum elongation of 14% in a gauge length of 50 mm;

"rigging" means fibre ropes, wire ropes, chains, slings, attachments, connecting fittings and associated components.

3. Exclusions

The following types of platforms are not governed by this Standard:

- platforms which are supported by hoists or cranes designed for the suspension of work platforms (such as swing stages, digester platforms, chimney hoists, vehicle-mounted aerial devices, digger derricks)

- cranes or hoists specifically rated by the manufacturer for lifting personnel
- fixed platforms suspended from structures by wire ropes or chains
- platforms intended solely for lifting materials
- platforms suspended under aircraft

4. Design of crane supported work platforms

Crane supported work platforms must be certified by a professional engineer or other qualified designer (i.e., an engineer registered in the jurisdiction in which the platform was designed). Drawings and specifications containing all information necessary to construct and rig the platform according to the design requirements must be provided and kept available for the duration of the service life of the platform.

The following information must be available on the drawings:

- (a) the geometry of the platform and the sizes and required properties of all components,
- (b) the type, quality and strength of materials,
- (c) the fabrication details, sizes and specifications, for all bolted and welded connections,
- (d) the rigging components, such as length and size of slings and the size of fittings, shackles, and any proprietary items, to permit accurate field identification for a crane supported platform or the details for attaching a platform to the boom,
- (e) the relevant data to be displayed on a data plate, as detailed in the appropriate section of the Occupational Health and Safety Regulation,
- (f) the professional engineer's dated seal and signature, and the names of the platform fabricator and the owner of the platform, and;
- (g) a statement by the professional engineer, or other qualified designer, indicating that the crane supported work platform design and fabrication meets this Standard.

5. Design loads and stresses

5.1 Design loads

A specified design live load of not less than 1.1 kN (250 lb.) per occupant must be used. The design live load must be calculated from the number of occupants and additional load due to tools, equipment, and materials carried on the work platform. The design live load must be applied to produce the most critical stresses on the platform structure and the rigging or the attachment to the boom.

A crane supported work platform designed for transporting injured workers must be designed for a minimum 3.5 kN (800 lb.) capacity to accommodate two occupants plus one occupied stretcher.

The guardrail must be able to withstand a concentrated force of 1000 N (225 lbf) in any direction at any point without sustaining permanent deformation.

5.2 Load factors

The design dead load and live load must be multiplied by a stress concentration factor f_1 and a dynamic loading factor f_2 . The values of f_1 and f_2 must not be less than 1.1 and 1.25, respectively.

5.3 Allowable stresses

The allowable stresses in structural components must not exceed 50% of the yield stress of ductile materials, or 20% of the ultimate stress of brittle materials.

6. Suspension system

6.1 Work platforms suspended by load lines

Work platforms may be suspended from the main line or auxiliary line of cranes or hoists that meet the requirements the *Occupational Health and Safety Regulation* and the *Workers Compensation Act*. The allowable load on rigging components must not exceed 10% of their breaking strength.

The suspension system must be designed to prevent the platform from tipping when personnel are occupying the platform move. Headroom must be provided to allow occupants to stand upright in the platform.

6.2 Platforms attached to crane booms

Work platforms may be attached to the boom tip of telescopic boom cranes that meet the requirements of the *Occupational Health and Safety*

Regulation and the Workers Compensation Act. The components and method of connecting a platform to a crane boom must be designed and certified by the crane manufacturer or a professional engineer. Platforms must be designed to remain level while occupied.

7. Guardrails

The perimeter of work platforms must have standard guardrails complete with an intermediate rail and toeboard, or be fully enclosed. Screen mesh to cover the area between the toeboard and the intermediate rail is recommended if full enclosure is not provided. The top rail must be 102 cm to 112 cm (40 in to 44 in) above the platform level. If an access door is provided, it must open inward, or have an equally effective latching mechanism to prevent the door from inadvertently opening. Guards around the perimeter of a platform used to transport injured personnel must consist of standard guardrails with mesh or solid enclosure at least up to the level of the midrail.

8. Construction

Crane supported platforms must be constructed accurately, according to the drawings and specifications required by section 4 of this Standard. The welding must be carried out by firms registered under CSA W47.1 or W47.2, for steel and aluminum welding, respectively, or alternatively welding must be inspected and certified by a professional engineer. All rough edges exposed to contact by workers must be surfaced or smoothed to prevent injury from punctures or lacerations.

9. Data plate

A data plate displaying the following information must be permanently affixed to the platform:

- (a) names of the engineer or other qualified person certifying the platform, and the fabricator of the platform,
- (b) identification which correlates the platform to the relevant design drawings,
- (c) date of manufacture,
- (d) rated capacity,
- (e) minimum rated capacity required for the crane or hoist,
- (f) number of occupants for which the platform was designed,
- (g) all-up weight (weight of platform and rigging plus rated capacity), and
- (h) a statement that the platform conforms to this Standard.

10. Rigging

When a fibre, wire rope or chain bridle sling is used to connect a crane supported platform to the hoisting line, each bridle leg must be connected to a master link or shackle in a manner that ensures the load is distributed amongst the bridle legs. The slings, shackles, rings, and master links must be designed with a safety factor of 10 on the breaking strength of the component, based on the all-up weight. The working load limit (WLL) of a bridle with more than 3 legs is limited to the WLL of any 3 legs of the bridle. All supporting hooks or shackles must be safety-wired, or must be a type that can be closed and locked, to prevent dislodgment. All eyes in fibre or wire rope slings must be fabricated with thimbles. The rigging slings and fittings must be permanent attachments to the platform and must not be used for other load lifting purposes.

No spreader bar(s) may be interposed between the load hook and the work platform.

11. Lifeline anchors and fall protection

11.1 Personal fall protection equipment and anchorages

Workers on a platform suspended from a crane or attached to a crane boom must wear personal fall protection equipment, including a full body harness and shock-absorbing lanyard, secured to a designated anchorage point. Single or multiple anchorages must have an ultimate breaking strength of at least 8 kN (1800 lb.) for each lanyard attached. The strength requirement applies only to the local attachment and not the overall lifting capacity of the crane or hoist.

11.2 Work platform suspended from a crane

Anchorages for workers on platforms suspended from cranes may be above the load hook or on the platform.

11.2.1 Anchorage above load hook

A lifeline anchorage above the load hook may consist of an appropriate eye welded to the load block of the crane providing the modification to the block is certified by a professional engineer or approved by the load block manufacturer. A wire rope sling may be connected to the eye on the load block, and lanyards may be snapped onto the lower eye of the sling. Where a single part line is used, lanyards may be snapped onto the

hoisting line above the load hook, or onto a sling connected to the hoisting line above the load hook. The anchorage strength requirement applies only to the local attachment, not the overall lifting capacity of the crane or hoist.

11.2.2 Anchorage on platform

If a platform is suspended from a crane or hoist and anchorages are provided on the platform, an additional safety sling, designed to a safety factor of 10 based on the all-up weight of the occupied platform, must be interposed between the platform (i.e. the master link) and an anchorage above the load hook that will prevent the platform from falling more than 15 cm (6 in.) if the platform becomes dislodged from the hook.

11.3 Work platform attached to a crane boom

Anchorage(s) must be provided on the crane boom when the work platform is attached to the boom.

12. Crane requirements

12.1 Load rating of crane or hoist

The all-up weight of the suspended platform must not exceed 50% of the manufacturer's rated capacity of the crane or hoist at the radius at which the lift will be made.

12.2 Types of cranes and hoists

Platforms must be suspended from cranes having telescoping or fixed booms and from hoisting gear only capable of lowering under power. Free running boom and hoisting winches, controlled only by brakes, must not be employed. Any dog-clutches in the hoisting winch drives must be secured against inadvertent disengagement.

12.3 Two-block prevention

A crane or hoist used to suspend a work platform on the load line must have a device to prevent two-blocking if the equipment has a telescoping boom, or a device to warn the operator of impending two-blocking if the crane has a fixed length boom.

13. Crane operation

13.1 Operator qualifications

A qualified operator, who must remain at the controls while workers occupy the crane supported work platform, must operate the crane or hoist. Platform movements must be controlled by the Standard code of hand signals published in the Occupational Health and Safety Regulation or by effective radio or telephone communications. The platform must not be moved except upon receipt of a clearly understood signal from the designated signaler upon the platform.

13.2 Footing

Cranes must be set on a firm footing, uniformly level within 1%. Cranes must not travel while supporting a platform occupied by workers, except for rail-mounted cranes.

13.3 Trial lift

A trial lift with the unloaded platform, from the location where workers enter the platform to all locations to which workers will be hoisted, must be done prior to placing workers on the platform. The trial lift is to determine that all work locations can be reached without contacting obstructions, that all controls function properly, and that the all-up weight indicated on the data plate remains within 50% of the crane or hoist rating throughout the range of intended operation.

14. Maintenance and inspection

A crane supported work platform and its rigging, must be inspected by a qualified person prior to each lift. A worker must not be hoisted in a work platform until all deficiencies have been corrected. If broken, bent, or heavily corroded structural members, or fractured welds or otherwise defective connections are found, the platform must be taken out of service for repair and must be re-certified by a professional engineer. A platform must be re-certified by a professional engineer if structural modifications are made, or components are welded to the structural members of the platform.

[Back to Top](#)

WCB Standard: WPL 3-2004 Safety Factor and Minimum Breaking Strength for Suspended Work Platforms and Associated Components

1. Scope

This Standard applies to suspended work platforms including the following: swing stages, portable power platforms, catenary scaffolds, needle beam scaffolds, outrigger or suspended mason's scaffold, work platform suspended from a crane and boatswain's chairs.

This Standard does not cover the following types of platforms: permanent powered platform, fixed platform suspended from structures by wire rope or chains, platforms intended solely for lifting material or platform suspended under aircraft.

The associated components include the platform, suspension lines, rigging and anchor system except for permanently mounted roof anchors.

2. Definitions

"Safety Factor" means the theoretical reserve capability of a product, determined by dividing the breaking strength by the rated working load unless otherwise noted.

3. Safety factor

- (1) Rigging and suspension lines except for a catenary line used to support work platforms must have a safety factor of at least 10.
- (2) A catenary line installed specifically to support a catenary scaffold must have a safety factor of at least 6.
- (3) A hanger or stirrup used for supporting a swing stage must have a safety factor of at least 10.
- (4) Cornice hook, parapet clamps, thrust out beams and other anchoring devices must have a safety factor of at least 4 based on the ultimate load carrying capacity to the static load.
- (5) A thrust out beam must be counter-balanced to support a load of at least 4 times the static load.
- (6) A suspended work platform must have a safety factor of at least 4 based on the ratio of the ultimate load carrying capacity of the work platform to the rated load.

4. Minimum breaking strength

- (1) The tiebacks for anchoring devices must have a minimum breaking strength of 22 kN (5,000 lbs)
- (2) A rope used to suspend a swing stage or similar equipment must be a wire rope or a synthetic rope that has a minimum breaking strength of 22 kN (5,000 lbs).
- (3) A rope used to suspend a boatswain's chair by block and tackle must be a wire rope or a synthetic rope that has a minimum breaking strength of 22 kN (5,000 lbs).
- (4) A rope used to suspend a boatswain's chair by other than a block and tackle must be a synthetic rope that has a minimum breaking strength of 27 kN (6,000 lbs).

[Back to Top](#)

Contents

APPLICATION

R2.2-1 [General Duty \("Undue Risk"\)](#)

Policies Part 2 - Application

R2.2-1
General Duty ("Undue Risk")

BACKGROUND

1. Explanatory Notes

Section 2.2 provides a general duty to carry out all work without undue risk.

2. The OHSR
Section 2.2:

Despite the absence of a specific requirement, all work must be carried out without undue risk of injury or occupational disease to any person.

POLICY

Section 2.2 allows an order to be issued requiring the elimination of undue risk to any worker from a hazardous work activity not covered by a specific section of the *OHSR*. Undue risk means a greater than normal probability continued exposure to the work, or working conditions, will result in injury or adverse health effect.

An order issued using section 2.2 must identify in the body of the order the condition causing undue risk.

If the requirements of a specific section of the *OHSR* applicable to another industry or the requirements of another regulatory agency could provide guidance for elimination of the undue risk, the order may quote and/or refer to the specific section or regulatory requirement.

Officers must promptly inform their manager when an order is issued using section 2.2.

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	Section 2.2 of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. Replaces Policy No. 2.04 of the Prevention Division <i>Policy and Procedure Manual</i> .
APPLICATION:	This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 2.04, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 2.04 was issued.

Contents

WORKPLACE CONDUCT

R4.25-1 [Workplace Conduct - Prohibition of Improper Activity or Behaviour](#)

VIOLENCE IN THE WORKPLACE

R4.27-1 [Violence in the Workplace - Definition](#)

R4.28-1 [Violence in the Workplace - Risk Assessment](#)

R4.29-1 [Violence in the Workplace - Procedures and Policies](#)

R4.29-2 [Violence in the Workplace - Workplace Violence Prevention Program](#)

R4.30-1 [Violence in the Workplace - Instruction of Workers](#)

R4.31-1 [Violence in the Workplace - Advice to Consult Physician](#)

Policies Part 4 - Workplace Conduct

R4.25-1
Workplace Conduct - Prohibition of Improper Activity or Behaviour

BACKGROUND

1. Explanatory Notes

Section 4.25 prohibits "improper activity or behaviour" in the workplace that may create an occupational health and safety hazard. Section 4.24 defines "improper activity or behaviour" for this purpose.

2. The OHSR
Section 4.25:

A person must not engage in any improper activity or behaviour at a workplace that might create or constitute a hazard to themselves or to any other person.

Section 4.24:

"improper activity or behaviour" includes

(a) the attempted or actual exercise by a worker towards another worker of any physical force so as to cause injury, and includes any threatening statement or behaviour which gives the worker reasonable cause to believe he or she is at risk of injury, and

(b) horseplay, practical jokes, unnecessary running or jumping or similar conduct.

POLICY

Section 4.25 may be violated in any situation where an act of violence is committed by one worker on another, whether or not the violence is covered by section 4.27.

EFFECTIVE DATE: December 1, 2000
AUTHORITY: Section 4.25 of the *OHSR*.
CROSS REFERENCES: Sections 4.24 and 4.27 of the *OHSR*;
Item R4.27-1, *General Conditions - Violence in the Workplace - Definition*, of the *Prevention Manual*.
HISTORY: April 6, 2020 - Housekeeping changes.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
Replaces part of Policy No. 8.88 of the Prevention Division *Policy and Procedure Manual*.
APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 8.88 as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 8.88 was issued.

Policies Part 4 - Violence in the Workplace

R4.27-1
Violence in the Workplace - Definition

BACKGROUND

1. Explanatory Notes

Section 4.27 defines "violence" for purpose of the violence in the workplace provisions.

2. The *OHSR*
Section 4.27:

In sections 4.28 to 4.31,

"*violence*" means the attempted or actual exercise by a person, other than a worker, of any physical force so as to cause injury to a worker, and includes any threatening statement or behaviour which gives a worker reasonable cause to believe that he or she is at risk of injury.

POLICY

Section 4.27 applies to all persons committing violence except where a worker of the same employer is the victim. Workers of the same employer are covered by section 4.25.

Verbal abuse or harassing behaviour is not included in the definition of violence for the purpose of section 4.27 unless it includes threats or behaviour which give the worker reasonable cause to believe that the worker is at risk of injury.

All workers working at a "multiple-employer" workplace within the meaning of section 24 of the OHS provisions of the *Act* are treated as fellow workers for the purpose of section 4.27. Violence or threats between these workers are not covered by the provision.

The definition of "violence" in section 4.27 covers the situation where a worker affected by a threat has reasonable cause to believe that the worker is at risk of injury. It does not apply where a person other than the worker has such a belief. If there is a dispute over whether the worker has reasonable cause, the worker may invoke the procedure under section 3.12.

All threats against a worker or the worker's family must be treated as serious matters. When the employer is made aware of the threat, the employer is required to notify the worker, if the worker is not already aware of the threat, and to notify the police or similar authority responsible for the protection of public safety. If the employer is unable to contact the worker, the employer should advise a family member so that appropriate precautions can be taken. The employer and any other persons involved are also required to cooperate in any investigations necessary to protect the worker or worker's family. The means of fulfilling these responsibilities should be included in the written Workplace Violence Protection Program.

A threat against a worker's family that is a result of the worker's employment is considered a threat against the worker for the purpose of section 4.27.

Where a threat is made against a worker's family, any person who becomes aware of the threat must report it to the person's supervisor or the employer.

EFFECTIVE DATE: December 1, 2000
AUTHORITY: Section 4.27 of the *OHSR*.
CROSS REFERENCES: Sections 3.12 and 4.25 of the *OHSR*;
Item R4.25-1, *General Conditions - Workplace Conduct - Prohibition of Improper Activity or Behaviour*;
Item R4.29-2, *General Conditions - Violence in the Workplace - Workplace Violence Prevention Program*, of the *Prevention Manual*.

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. Replaces part of Policy No. 8.88 of the Prevention Division *Policy and Procedure Manual*.

APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 8.88, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 8.88 was issued.

R4.28-1
Violence in the Workplace - Risk Assessment

BACKGROUND

1. Explanatory Notes

Section 4.28 requires a risk assessment to be performed where the risk of violence arising out of the employment may be present. It lists certain matters that must be included in any such assessment.

2. The OHSR Section 4.28:

- (1) A risk assessment must be performed in any workplace in which a risk of injury to workers from violence arising out of their employment may be present.
- (2) The risk assessment must include the consideration of
 - (a) previous experience in that workplace,
 - (b) occupational experience in similar workplaces, and
 - (c) the location and circumstances in which work will take place.

POLICY

Section 4.28(2) does not state the period in the past which must be considered in performing the risk assessment. This will depend on the location, nature and circumstances of the business and the industry in which the employer is engaged. However, the assessment should include consideration of the number and nature of incidents of violence over a sufficient period to obtain a good representation of past experience. The period should be at least one year.

The object of the risk assessment is to determine the nature and type of occurrences of violence anticipated in the place of employment and the likelihood of their occurring. The factors considered will be dictated by the circumstances of the workplace. The items listed in section 4.28(2) may involve consideration of the following but are not limited to these.

- number, location, nature, severity, timing and frequency of violent incidents;
- layout and condition of the place of work, including the decor, furniture placement, the existence of barriers and fences between workers and the public, internal and external lighting, methods of access and egress and the degree to which the premises would allow a potential assailant to hide;
- type of equipment, tools, utensils, etc. that are used or available for use;
- extent and nature of contact with persons other than fellow workers and their type and gender, including the use of alcohol and drugs by them;
- age, gender, experience, skills and training of the workers concerned;
- existing work procedures, for example, when interacting with the public or in having to enforce the employer's rules or policies with regard to the public;
- existing violence prevention initiatives or programs;
- communication methods by which, for example, information about risks, incidents or threats of violence or requests for assistance may be sent;
- existence of clearly marked exit signs and emergency procedures; and
- staff deployment and scheduling, including the extent to which persons work at night, work alone, are checked when working alone and the availability of backup assistance.

The risk assessment should involve the joint health and safety committee or worker health and safety representative, where one exists, and workers and management personnel in each area affected. Sources of information are first aid records, past injury reports, checklists and questionnaires completed by workers, reports of Board officers, expert advice or relevant publications. A visual inspection of the place of employment and the work being done should be carried out.

Employers required to carry out a risk assessment must do this at the start of operations and whenever there is a significant change in the nature of the business or the location of the workplace.

EFFECTIVE DATE: December 1, 2000
AUTHORITY: Section 4.28 of the *OHSR*.
CROSS REFERENCES:
HISTORY: April 6, 2020 - Housekeeping changes.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
Replaces Policy No. 8.90 of the Prevention Division *Policy and Procedure Manual*.
APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 8.90, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 8.90 was issued.

R4.29-1
Violence in the Workplace - Procedures and Policies

BACKGROUND

1. Explanatory Notes

Section 4.29 requires that an employer establish procedures, policies and work environment arrangements where a risk of injury to workers from violence is identified by the risk assessment performed under section 4.28.

2. The OHSR Section 4.29:

If a risk of injury to workers from violence is identified by an assessment performed under section 4.28 the employer must

- (a) establish procedures, policies and work environment arrangements to eliminate the risk to workers from violence, and
- (b) if elimination of the risk to workers is not possible, establish procedures, policies and work environment arrangements to minimize the risk to workers.

POLICY

In determining whether elimination of the risk is possible or what the employer should do to minimize the risk, primary regard will be had to the degree of risk in question. Other factors are:

- the state of knowledge of ways of eliminating the risk, and
- the availability and possibility of ways of eliminating the risk.

The policies, procedures and arrangements which an employer may have to implement will vary depending upon the nature of the work being carried out and the circumstances of the work. The factors which create a potential for violence in the place of employment should be shown by the results of the risk assessment. The assessment will guide the employer as to areas where action may be necessary.

As with the risk assessment, the employer should consult with the joint health and safety committee or worker health and safety representative, where one exists, and workers and management personnel in each area affected, in considering what action is necessary to eliminate or minimize any risk of violence. Where the employer has undergone a proper process of consultation of this nature and has taken reasonable measures to eliminate or minimize any risk shown by the assessment, the Board will generally assume that the regulation has been complied with. However, the Board always reserves the right to determine whether the measures taken by an employer are in fact sufficient to meet the obligation under section 4.29.

EFFECTIVE DATE: December 1, 2000
AUTHORITY: Section 4.29 of the *OHSR*.
CROSS REFERENCES: Item R4.29-2, *General Conditions - Violence in the Workplace - Workplace Violence Prevention Program*, of the *Prevention Manual*.
HISTORY: April 6, 2020 - Housekeeping changes.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
March 1, 2005 - Housekeeping changes to reflect the October 29, 2003 changes to the *OHSR*. This Item originally replaced Policy No. 8.92 of the former Prevention Division *Policy and Procedure Manual*.
October 29, 2003 - The reproduction of section 4.29(c) of the *OHSR* in this Item was deleted to reflect its repeal.
This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 8.92, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 8.92 was issued.
APPLICATION: This policy applies to procedures, policies and work environment arrangements aimed at eliminating or minimizing the risk of workplace violence on and after December 1, 2000.

BACKGROUND

1. Explanatory Notes

Employers affected by sections 4.27 to 4.31 should have a Workplace Violence Prevention Program as part of their general Occupational Health and Safety Program. This Item sets out guidelines summarizing what should be included in a Violence Prevention Program.

2. The OHSR

See [Items R4.27-1 to R4.31-1](#).

3. The Act

Section 69:

- (1) An employer must conduct a preliminary investigation under section 71 and a full investigation under section 72 respecting any accident or other incident that
 - (a) is required to be reported by section 68,
 - (b) resulted in injury to a worker requiring medical treatment,
 - (c) did not involve injury to a worker, or involved only minor injury not requiring medical treatment, but had a potential for causing serious injury to a worker, or
 - (d) was an incident required by regulation to be investigated.
- (2) Subsection (1) does not apply in the case of a vehicle accident occurring on a public street or highway.

Section 71:

- (1) An employer must, immediately after the occurrence of an incident described in section 69, undertake a preliminary investigation to, as far as possible,
 - (a) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (b) if unsafe conditions, acts or procedures are identified under paragraph (a) of this subsection, determine the corrective action necessary to prevent, during a full investigation under section 72, the recurrence of similar incidents.
- (2) The employer must ensure that a report of the preliminary investigation is
 - (a) prepared in accordance with the policies of the board of directors,
 - (b) completed within 48 hours of the occurrence of the incident,
 - (c) provided to the Board on request of the Board, and
 - (d) as soon as practicable after the report is completed, either
 - (i) provided to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, posted at the workplace.
- (3) Following the preliminary investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(b).
- (4) If the employer takes corrective action under subsection (3), the employer, as soon as practicable, must
 - (a) prepare a report of the action taken, and
 - (b) either
 - (i) provide the report to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

Section 72:

- (1) An employer must, immediately after completing a preliminary investigation under section 71, undertake a full investigation to, as far as possible,

- (a) determine the cause or causes of the incident investigated under section 71,
 - (b) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (c) if unsafe conditions, acts or procedures are identified under paragraph (b) of this subsection, determine the corrective action necessary to prevent the recurrence of similar incidents.
- (2) The employer must ensure that a report of the full investigation is
 - (a) prepared in accordance with the policies of the board of directors,
 - (b) submitted to the Board within 30 days of the occurrence of the incident, and
 - (c) within 30 days of the occurrence of the incident, either
 - (i) provided to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, posted at the workplace.
- (3) The Board may extend the time period, as the Board considers appropriate, for submitting a report under subsection (2)(b) or (c).
- (4) Following the full investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(c).
- (5) If the employer takes corrective action under subsection (4), the employer, as soon as practicable, must
 - (a) prepare a report of the action taken, and
 - (b) either
 - (i) provide the report to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

POLICY

The requirements in sections 4.27 to 4.31 for risk assessment, procedures and policies, the duty to advise to consult a physician and the duty to instruct workers are based on the recognition of violence in the workplace as an occupational hazard. This hazard is to be addressed by the Occupational Health and Safety Program following the same procedures required by Part 3 of the *OHSR* to address other workplace hazards.

Employers affected should have a Workplace Violence Prevention Program as part of their general Occupational Health and Safety Program. This program should be implemented in cooperation with the joint health and safety committee or worker health and safety representative, where one exists, and with persons knowledgeable of the type of work to be performed. Set out below are guidelines summarizing what should be included in the Workplace Violence Prevention Program:

(a) Policy

The policy statement should acknowledge any risk of injury from violence to which workers are subject. The policy should provide direction from senior management to develop and implement a Workplace Violence Prevention Program. It should identify the responsibilities of managers, supervisors and workers.

(b) Risk Assessment

This element should provide for periodic risk assessments to evaluate the nature and type of occurrences of violence in the workplace. Risk assessments shall be carried out in accordance with section 4.28 and associated policies. Provision should be made for documentation of the risk assessment.

(c) Written Supplementary Instructions

The employer must under sections 4.30(3) and 3.3(c) prepare supplementary instructions for workers who are at risk of injury from violence. These instructions must enable the worker to understand the work environment arrangements designed to minimize the risk of violence. The instructions must direct the worker and any violence response teams in safe response methods.

(d) Worker and Supervisor Training

This element should define the training to be provided to workers at risk and their supervisors in accordance with section 4.30 and associated policies. It should include the maintenance of training records.

(e) Incident Reporting and Investigation

This element of the program should include policies, procedures and documentation for:

- reporting to the employer incidents or threats of violence in the workplace;
- action by supervisors to address reported incidents as required by section 3.10;
- investigation of incidents of violence in accordance with section 69 of the OHS provisions of the *Act*;
- implementation of corrective action in response to incidents of violence under section 72 of the OHS provisions of the *Act*;
- advice to workers to see a physician for treatment; and
- advice to workers when to obtain critical incident/trauma counselling and where the counselling may be obtained.

(f) Incident Follow-up

Provision should be made for review of corrective action taken to address incidents or threats of violence to determine its effectiveness.

(g) Program Review

Provision should be made for an annual review to evaluate the program's performance in eliminating the risk of injury from violence in the workplace. The review should be documented and the program should be revised as necessary. This review should be carried out in consultation with the joint health and safety committee or worker health and safety representative, where one exists, and worker and management personnel where no committee or representative exists.

EFFECTIVE DATE:	October 29, 2003
AUTHORITY:	Sections 4.27, 4.28, 4.29, 4.30 and 4.31 of the <i>OHSR</i> ; Sections 69, 71, and 72 of the <i>Act</i> .
CROSS REFERENCES:	Sections 3.3 and 3.10 of the <i>OHSR</i> ; Item P2-71-1, <i>Preliminary Investigation, Report and Follow-Up Action</i> ; Item P2-72-1, <i>Full Investigation, Report and Follow-Up Action</i> ; Item R4.27-1, <i>General Conditions - Violence in the Workplace - Definition</i> ; Item R4.28-1, <i>General Conditions - Violence in the Workplace - Risk Assessment</i> ; Item R4.29-1, <i>General Conditions - Violence in the Workplace - Procedures and Policies</i> ; Item R4.30-1, <i>General Conditions - Violence in the Workplace - Instruction of Workers</i> ; Item R4.31-1, <i>General Conditions - Violence in the Workplace - Advice to Consult Physician</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the <i>Act</i> . September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. October 29, 2003 - A reference to the duty to "respond to incidents" in the policy was replaced with a reference to the duty to "advise to consult a physician" to reflect the revision of section 4.31 of the <i>OHSR</i> on that date. December 1, 2000 - This Item replaced Policy No. 8.92-1 of the former Prevention Division <i>Policy and Procedure Manual</i> .
APPLICATION:	This policy applies to all Workplace Violence Prevention Programs established on and after October 29, 2003.

R4.30-1
Violence in the Workplace - Instruction of Workers

BACKGROUND

1. Explanatory Notes

Section 4.30 sets out the information that employers are required to provide workers who may be exposed to the risk of violence in the workplace.

2. The OHSR
Section 4.30:

- (1) An employer must inform workers who may be exposed to the risk of violence of the nature and extent of the risk.
- (2) The duty to inform workers in subsection (1) includes a duty to provide information related to the risk of violence from persons who have a history of violent behaviour and whom workers are likely to encounter in the course of their work.
 - (3) The employer must instruct workers who may be exposed to the risk of violence in
 - (a) the means for recognition of the potential for violence,
 - (b) the procedures, policies and work environment arrangements which have been developed to minimize or effectively control the risk to workers from violence,

- (c) the appropriate response to incidents of violence, including how to obtain assistance, and
- (d) procedures for reporting, investigating and documenting incidents of violence.

POLICY

Section 4.30 includes a requirement for employers to advise workers of the results of the risk assessment under section 4.28 and to instruct workers in the measures they have taken under section 4.29 to eliminate or minimize any risk of violence. The training should be sufficient so that workers are aware of any risk of violence and the appropriate measures to be taken if violence occurs or is threatened. It should cover all the circumstances of the place of employment found to be material to the risk assessment.

Information provided to workers with respect to the nature and extent of the risk of violence in their place of employment must, where practicable, be conveyed to workers prior to their exposure to the risk. This requirement includes information such as:

- procedures providing for information obtained by workers ending a shift to be communicated to workers starting a following shift; and
- procedures for communicating the results of overall past experience such as the flagging on computer systems of individuals with past records of violence.

EFFECTIVE DATE:	December 1, 2000
AUTHORITY:	Section 4.30 of the <i>OHSR</i> .
CROSS REFERENCES:	Item R4.28-1, <i>General Conditions - Violence in the Workplace - Risk Assessment</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. Replaces Policy 8.94 of the <i>Prevention Division Policy and Procedure Manual</i> .
APPLICATION:	This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 8.94, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 8.94 was issued.

R4.31-1
Violence in the Workplace - Advice to Consult Physician

BACKGROUND

1. Explanatory Notes

Section 4.31(3) requires that an employer ensure that a worker is advised to consult a physician when violence takes place in the workplace.

2. The OHSR
Section 4.31(3):

The employer must ensure that a worker reporting an injury or adverse symptom as a result of an incident of violence is advised to consult a physician of the worker's choice for treatment or referral.

Critical incident/trauma counselling is desirable in some circumstances to prevent workers involved in incidents of violence from suffering ongoing adverse psychological effects for which disability compensation might have to be paid. Counselling may be obtained through the worker's physician. Alternatively, some employers may have ongoing programs which can provide appropriate counselling. The employer must advise the worker to consult with a physician where this is required by section 4.31(3) but should also advise the worker of the availability of other programs which can assist. The employer's Workplace Violence Prevention Program should contain policies and procedures on when advice to obtain counselling should be given and where appropriate counselling may be obtained, such as through a facility of the employer or another local health facility. The Board may pay the cost of counselling if a claim for a work injury is made.

EFFECTIVE DATE:	October 29, 2003
AUTHORITY:	Section 4.31(3) of the <i>OHSR</i> .
CROSS REFERENCES:	Section 3.10 of the <i>OHSR</i> ; Sections 69, 71, and 72 of the <i>Act</i> ; Item P2-71-1, <i>Preliminary Investigation, Report and Follow-Up Action</i> ; Item P2-72-1, <i>Full Investigation, Report and Follow-Up Action</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 27, 2015 - Housekeeping amendments to cross references. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. October 29, 2003 - The reproduction of, and references to, the requirements under section 4.31(1) and (2) of the <i>OHSR</i> were deleted to reflect their repeal. December 1, 2000 - This Item replaced Policy No. 8.96 of the former <i>Prevention Division Policy and Procedure Manual</i> .

CONTROLLING EXPOSURER5.48-1 [Controlling Exposure - Exposure Limits](#)R5.54-1 [Controlling Exposure - Exposure Control Plan](#)

Policies Part 5 - Controlling Exposure

R5.48-1
Controlling Exposure - Exposure Limits**BACKGROUND**

1. Explanatory Notes

Section 5.48 provides established limits for a worker's exposure to hazardous chemical substances. Generally, these exposure limits are established according to the Threshold Limit Values ("TLVs") adopted by the American Conference of Governmental Industrial Hygienists ("ACGIH"). However, the Board has authority to make exceptions and adopt exposure limits for specific chemical substances that are not consistent with the TLVs established by the ACGIH. This policy sets out those exceptions.

2. The OHSR
Section 5.48:

Except as otherwise determined by the Board, the employer must ensure that no worker is exposed to a substance that exceeds the ceiling limit, short-term exposure limit, or 8-hour TWA limit prescribed by ACGIH.

Section 5.57:

(1) If a substance identified as any of the following is present in the workplace, the employer must replace it, if practicable, with a material which reduces the risk to workers:

(a) ACGIH A1 or A2, or IARC 1, 2A or 2B carcinogen;

(b) ACGIH reproductive toxin;

(c) ACGIH sensitizer;

(d) ACGIH L endnote.

(2) If it is not practicable to substitute a material which reduces the risk to workers, in accordance with subsection (1), the employer must implement an exposure control plan to maintain workers' exposure as low as reasonably achievable below the exposure limit established under section 5.48.

(3) The exposure control plan must meet the requirements of section 5.54.

3. Preamble to Policy

The following is a preamble to be applied to those exposure limits developed by the Board as an exception to the TLVs established by the ACGIH:

An exposure limit is a maximum allowed airborne concentration and is not intended to represent a fine line between safe and harmful conditions. In determining an exposure limit, it is not possible to take into account all factors that could influence the effect that exposure to the substance may have on an individual worker. Therefore, for all hazardous substances, regardless of any assigned exposure limit, the guiding principle is elimination of exposure or reduction to the lowest level that is reasonably achievable below the exposure limit.

Due to a wide variation in individual susceptibility, some workers may experience discomfort from some substances at concentrations at or below the exposure limit. Others may be affected more seriously by aggravation of a pre-existing condition, or by development of an occupational disease. Furthermore, other workplace contaminants may affect an individual's response. The effects of combined chemical exposures are often unknown or poorly defined.

POLICY**1. Table of Exposure Limits for Excluded Substances**

As presented in the table below, the Board has determined exposure limits for the following specific substances that differ from the TLVs established by the ACGIH. For solid and liquid particulate matter, except where the terms inhalable, thoracic, or respirable particulate mass are used, the exposure limits listed in the table below are expressed in terms of "total particulate matter".

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Substance/Chemical Name	CAS No.	Unit	8-hour TWA Limit	Short-term exposure Limit, STEL	Ceiling Limit
ABATE (TEMEPHOS), TOTAL	3383-96-8	mg/m ³	10	20	
ACETAMIDE	60-35-5		No BC exposure limit		
ACETONE CYANOHYDRIN	75-86-5	ppm			1
ALDICARB	116-06-3		No BC exposure limit		
ALLYL AMINE	107-11-9	ppm	2		
ALLYL BROMIDE	106-95-6		No BC exposure limit		
ALLYL METHACRYLATE	96-05-9		No BC exposure limit		
ANTIMONY TRIOXIDE, INHALABLE	1309-64-4		No BC exposure limit		
ANTIMONY TRIOXIDE - PRODUCTION	1309-64-4		(L)		
ATRAZINE	1912-24-9	mg/m ³	5		
BENDIOCARB	22781-23-3		No BC exposure limit		
BENZYL CHLORIDE	100-44-7	ppm			1
BORON TRIBROMIDE	10294-33-4	ppm			1
BORON TRICHLORIDE	10294-34-5	ppm	No BC exposure limit		
BORON TRIFLUORIDE	7637-07-2	ppm	0.1		1
BORON TRIFLUORIDE ETHERS, as BF ₃	109-63-7, 353-42-4	ppm	0.1		
BROMOCHLOROMETHANE	74-97-5	ppm	200	250	
BUTENES, ALL ISOMERS, INCLUDING ISOBUTENE	106-98-9, 107-01-7, 590-18-1, 624-64-6, 25167-67-3, 115-11-7		No BC exposure limit		
n-BUTYL ALCOHOL (n-BUTANOL)	71-36-3	ppm	15		30
tert-BUTYL HYDROPEROXIDE	75-91-2		No BC exposure limit		
n-BUTYL METHACRYLATE	97-88-1	ppm	50		
4-tert-BUTYLBENZOIC ACID	98-73-7		No BC exposure limit		
CADUSAFOS	95465-99-9		No BC exposure limit		
CALCIUM CARBONATE (incl. LIMESTONE, MARBLE), TOTAL	1317-65-3	mg/m ³	10	20	
CALCIUM CHROMATE, as Cr, TOTAL	13765-19-0	mg/m ³	0.001		
CAPROLACTAM DUST	105-60-2	mg/m ³	1	3	
CAPTAFOL	2425-06-1	mg/m ³	0.1		
CARBARYL	63-25-2	mg/m ³	5		
CARBON DIOXIDE	124-38-9	ppm	5000	15000	
CARBON DISULFIDE	75-15-0	ppm	4	12	
CARBON MONOXIDE	630-08-0	ppm	25	100	
CARBON TETRACHLORIDE	56-23-5	ppm	2		
CARFENTRAZONE-ETHYL	128639-02-1		No BC exposure limit		
CHLORDANE	57-74-9	mg/m ³	0.5		
CHLORDANE, INHALABLE FRACTION & VAPOUR	57-74-9	mg/m ³	No BC exposure limit		
CHLORINE	7782-50-5	ppm	0.1	1	
CHLORINE DIOXIDE	10049-04-4	ppm	0.1	0.3	
CHLOROACETIC ACID	79-11-8	ppm	0.3		

o-CHLOROBENZYLIDENE MALONONITRILE	2698-41-1	ppm			0.05
CHLOROBROMOMETHANE (see BROMOCHLOROMETHANE)	74-97-5		(See individual exposure limits for BROMOCHLOROMETHANE)		
1-CHLORO-1,1-DIFLUOROETHANE	75-68-3	ppm	1000		
CHLORODIFLUOROMETHANE	75-45-6	ppm	500	1250	
CHLOROFORM	67-66-3	ppm	2		
β-CHLOROPRENE	126-99-8	ppm	10		
CHLOROTRIFLUOROMETHANE	75-72-9	ppm	1000		
CHROMIUM and INORGANIC COMPOUNDS:					
METALLIC CHROMIUM, as Cr(0), TOTAL	7440-47-3	mg/m ³	0.5		
METALLIC CHROMIUM, as Cr(0), INHALABLE	7440-47-3		No BC exposure limit		
TRIVALENT CHROMIUM COMPOUNDS, as Cr(III), TOTAL	7440-47-3	mg/m ³	0.5		
TRIVALENT CHROMIUM COMPOUNDS, as Cr(III), INHALABLE	7440-47-3		No BC exposure limit		
HEXVALENT CHROMIUM COMPOUNDS, as Cr(VI), TOTAL, INSOLUBLE	7440-47-3	mg/m ³	0.01		
HEXVALENT CHROMIUM COMPOUNDS, as Cr(VI), TOTAL, WATER-SOLUBLE	7440-47-3	mg/m ³	0.025		
HEXVALENT CHROMIUM COMPOUNDS, as Cr(VI), INHALABLE	7440-47-3		No BC exposure limit		
CHROMYL CHLORIDE, as Cr(VI), TOTAL	14977-61-8	ppm	0.025		
CHROMYL CHLORIDE, as Cr(VI), INHALABLE FRACTION & VAPOUR	14977-61-8		No BC exposure limit		
CHROMITE ORE PROCESSING			(See BC exposure limits for: TRIVALENT CHROMIUM COMPOUNDS, as Cr(III), TOTAL; and HEXVALENT CHROMIUM COMPOUNDS, as Cr(VI), TOTAL)		
CITRAL, INHALABLE	5392-40-5		No BC exposure limit		
CLOPIDOL	2971-90-6	mg/m ³	10		
COBALT and INORGANIC COMPOUNDS, as Co, TOTAL	7440-48-4	mg/m ³	0.02		
COBALT and INORGANIC COMPOUNDS, as Co, INHALABLE	7440-48-4		No BC exposure limit		
CRESOL, ALL ISOMERS	1319-77-3, 95-48-7, 108-39-4, 106-44-5	mg/m ³	10		
CUMENE	98-82-8	ppm	25	75	
CYANAZINE	21725-46-2		No BC exposure limit		
CYANOACRYLATES, ETHYL and METHYL	7085-85-0, 137-05-3	ppm	0.2		
CYANOGEN	460-19-5	ppm	10		
CYANOGEN BROMIDE	506-68-3		No BC exposure limit		

CYCLOHEXENE	110-83-8	ppm	300		
CYCLOPENTADIENE	542-92-7	ppm	75		
DIBUTYL PHOSPHATE	107-66-4	ppm	1	2	
DICHLOROMETHANE	75-09-2	ppm	25		
DICYCLOHEXYLMETHANE-4,4'-DIISOCYANATE	5124-30-1	ppm	0.005		0.01
DICYCLOPENTADIENE	77-73-6	ppm	5		
DICYCLOPENTADIENE, including CYCLOPENTADIENE	77-73-6, 542-92-7		(See individual exposure limits for CYCLOPENTADIENE and DICYCLOPENTADIENE)		
2,4-DICHLOROPHOENOXYACETIC ACID AND ITS ESTERS	94-75-7	mg/m ³	10	20	
DIELDRIN	60-57-1	mg/m ³	0.25		
DIETHANOLAMINE	111-42-2	mg/m ³	2		
DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5		No BC exposure limit		
N,N-DIETHYLHYDROXYLAMINE	3710-84-7		No BC exposure limit		
DIISOCYANATES, N.O.S.		ppm	0.005		0.01
DIMETHOXYMETHANE	109-87-5	ppm	1000	1250	
DIMETHYL ETHER	115-10-6	ppm	1000		
DIMETHYL SULFATE	77-78-1	ppm			0.1
DIMETHYLPHENOL, ALL ISOMERS	95-65-8; 95-87-4; 105-67-9; 108-68-9; 526-75-0; 576-26-1; 1300-71-6		No BC exposure limit		
DINITROBENZENE, ALL ISOMERS	99-65-0; 100-25-4; 528-29-0; 25154-54-5	ppm	0.15		
DINITRO-O-CRESOL	534-52-1	mg/m ³	0.2		
n-DIOCTYL PHTHALATE	117-84-0	mg/m ³	5		
ENDOSULFAN	115-29-7	mg/m ³	0.1		
ENFLURANE	13838-16-9	ppm	2		
EPOCHLOROHYDRIN	106-89-8	ppm	0.1		
EPN, INHALABLE	2104-64-5	mg/m ³	0.1		
EPN, INHALABLE FRACTION & VAPOUR	2104-64-5		No BC exposure limit		
ETHYL ACETATE	141-78-6	ppm	150		
ETHYL METHACRYLATE	97-63-2	ppm	50		
ETHYLENE DIBROMIDE	106-93-4	ppm	0.5		
ETHYLENE DICHLORIDE (1,2-DICHLOROETHANE)	107-06-2	ppm	1	2	
ETHYLENE GLYCOL, TOTAL, AEROSOL ONLY	107-21-1	mg/m ³	10	20	100
ETHYLENE GLYCOL, INHALABLE, AEROSOL ONLY	107-21-1		No BC exposure limit		
ETHYLENE GLYCOL, VAPOUR	107-21-1	ppm			50
ETHYLENEIMINE	151-56-4	ppm	0.5		
ETHYLENE OXIDE	75-21-8	ppm	0.1	1	
ETHYLIDENE NORBORNENE	16219-75-3	ppm			5
FLUDIOXONIL	131341-86-1		No BC exposure limit		
FLUORINE	7782-41-4	ppm	0.1		
FLUORINE, as F	7782-41-4	ppm	(See individual exposure limit for FLUORINE)		
FLUOROXENE	406-90-6	ppm	2		
FORMAMIDE	75-12-7	ppm	10		
FOLPET	133-07-3		No BC exposure limit		
FURFURYL ALCOHOL	98-00-0	ppm	5	10	

GLYCERIN MIST, TOTAL	56-81-5	mg/m ³	10		
GLYCERIN MIST, RESPIRABLE	56-81-5	mg/m ³	3		
GYPHUM, TOTAL	13397-24-5	mg/m ³	10	20	
HALOTHANE	151-67-7	ppm	2		
HEXAMETHYLENE DIISOCYANATE	822-06-0	ppm	0.005		0.01
HEXAMETHYLENETETRAMINE, INHALABLE FRACTION & VAPOUR	100-97-0		No BC exposure limit		
n-HEXANE	110-54-3	ppm	20		
HEXANE, ALL ISOMERS except n-HEXANE	75-83-2, 79-29-8, 96-14-0, 107-83-5	ppm	200		
HEXAZINONE	51235-04-2		No BC exposure limit		
sec-HEXYL ACETATE	108-84-9	ppm	50		
HEXYLENE GLYCOL	107-41-5	ppm			25
HEXYLENE GLYCOL, INHALABLE, AEROSOL ONLY	107-41-5		No BC exposure limit		
HEXYLENE GLYCOL, VAPOUR	107-41-5		No BC exposure limit		
HYDROGEN FLUORIDE, as F	7664-39-3	ppm			2
HYDROGEN SULFIDE	7783-06-4	ppm			10
INDENE	95-13-6	ppm	10		
INDIUM TIN OXIDE, as In	50926-11-9		No BC exposure limit		
IODIDES			No BC exposure limit		
IODINE	7553-56-2	ppm			0.1
IRON OXIDE, FUME	1309-37-1	mg/m ³	5	10	
IRON PENTACARBONYL	13463-40-6	ppm	0.01		
IRON SALTS, SOLUBLE, as Fe		mg/m ³	1	2	
ISOBUTYL NITRITE, INHALABLE FRACTION & VAPOUR	542-56-3	ppm			1
ISOPHORONE DIISOCYANATE	4098-71-9	ppm	0.005		0.01
ISOPROPYLAMINE	75-31-0	ppm	5	10	
ISOPROPYL GLYCIDYL ETHER (IGE)	4016-14-2	ppm			50
KETENE	463-51-4	ppm	0.5	1.5	
LEAD CHROMATE, as Cr(VI), TOTAL	7758-97-6		(See BC exposure limits for: HEXVALENT CHROMIUM COMPOUNDS, as Cr(VI), TOTAL)		
LEAD CHROMATE, as Cr(VI), INHALABLE	7758-97-6		No BC exposure limit		
LITHIUM HYDRIDE	7580-67-8	mg/m ³	0.025		
LITHIUM HYDROXIDE	1310-65-2	mg/m ³			1
MAGNESIUM OXIDE, RESPIRABLE DUST AND FUME, as Mg	1309-48-4	mg/m ³	3	10	
MALEIC ANHYDRIDE	108-31-6	ppm	0.1		
MANGANESE, ELEMENTAL AND INORGANIC COMPOUNDS, as Mn, TOTAL	7439-96-5	mg/m ³	0.2		
MANGANESE, ELEMENTAL AND INORGANIC COMPOUNDS, as Mn, INHALABLE	7439-96-5		No BC exposure limit		
MANGANESE, ELEMENTAL AND INORGANIC COMPOUNDS, as Mn, RESPIRABLE	7439-96-5	mg/m ³	0.02		

MERCURY, ARYL COMPOUNDS	7439-97-6	mg/m ³	0.05		0.1
MESITYL OXIDE	141-79-7	ppm	10	25	
METHOMYL	16752-77-5	mg/m ³	2.5		
METHOXYFLURANE	76-38-0	ppm	2		
2-METHOXY-1-PROPANOL	1589-47-5	ppm	20	40	
1-METHOXYPROPYL-2-ACETATE	108-65-6	ppm	50	75	
2-METHOXYPROPYL-1-ACETATE	70657-70-4	ppm	20	40	
o-METHYLCYCLOHEXANONE	583-60-8	ppm	50	75	
METHYLCYCLOHEXANONE, ALL ISOMERS	591-24-2, 589-92-4, 1331-22-2		No BC exposure limit		
METHYLENE BISPHENYL ISOCYANATE	101-68-8	ppm	0.005		0.01
METHYLENE bis (4-CYCLOHEXYL-ISOCYANATE)	5124-30-1	ppm	0.005		0.01
4,4'-METHYLENE BIS(2-CHLOROANILINE)	101-14-4	ppm	0.01		
4,4'-METHYLENEDIANILINE	101-77-9	ppm	0.01		
METHYL ETHYL KETONE (MEK)	78-93-3	ppm	50	100	
METHYL ISOBUTYL CARBINOL	108-11-2	ppm	25	40	
METHYL PARATHION	298-00-0	mg/m ³	0.2		
METHYL PROPYL KETONE (2-PENTANONE)	107-87-9	ppm	150	250	
METHYLTETRAHYDROPHTHALIC ANHYDRIDE ISOMERS	3425-89-6; 5333-84-6; 11070-44-3; 19438-63-2; 19438-64-3; 26590-20-5; 42498-58-8		No BC exposure limit		
METHYL VINYL KETONE	78-94-4	ppm			0.2
MICA, RESPIRABLE	12001-26-2	mg/m ³	3		
MONOMETHYLFORMAMIDE	123-39-7		No BC exposure limit		
1,5-NAPHTHYLENE DIISOCYANATE	3173-72-6	ppm	0.005		0.01
NATURAL RUBBER LATEX, AS TOTAL PROTEINS, INHALABLE	9006-04-6	mg/m ³	0.001		
NICKEL, ELEMENTAL, SOLUBLE INORGANIC COMPOUNDS (NOS)	7440-02-0	mg/m ³	0.05		
NICKEL, INSOLUBLE INORGANIC COMPOUNDS (NOS)	7440-02-0	mg/m ³	0.05		
NICKEL CARBONYL, as Ni	13463-39-3	ppm	0.001		0.05
NITRAPYRIN	1929-82-4	mg/m ³	10	20	
NITRAPYRIN, INHALABLE FRACTION & VAPOUR	1929-82-4		No BC exposure limit		
NITROGEN DIOXIDE	10102-44-0	ppm			1
5-NITRO-O-TOLUIDINE	99-55-8	mg/m ³	1		
5-NITRO-O-TOLUIDINE, INHALABLE FRACTION & VAPOUR	99-55-8		No BC exposure limit		
2-NITROPROPANE	79-46-9	ppm	5		
NITROUS OXIDE	10024-97-2	ppm	25		
OIL MIST, MINERAL, MILDLY REFINED		mg/m ³	0.2		
OIL MIST, MINERAL, SEVERELY REFINED		mg/m ³	1		
PARAQUAT, as the cation, INHALABLE	4685-14-7		No BC exposure limit		

PARAQUAT, as the cation, RESPIRABLE	4685-14-7	mg/m ³	0.1		
PARAQUAT, as the cation, TOTAL	4685-14-7	mg/m ³	0.5		
PENTACHLORONAPHTHALENE	1321-64-8	mg/m ³	0.5		
PENTACHLORONAPHTHALENE, INHALABLE FRACTION & VAPOUR	1321-64-8		No BC exposure limit		
PENTACHLOROPHENOL	87-86-5	mg/m ³	0.5		
2,4-PENTANEDIONE	123-54-6		No BC exposure limit		
PERACETIC ACID	79-21-0		No BC exposure limit		
PERCHLORYL FLUORIDE	7616-94-6	ppm	3	6	
PHENYL MERCAPTAN	108-98-5	ppm			0.1
PHOSPHINE	7803-51-2	ppm	0.3	1	
o-PHTHALALDEHYDE	643-79-8		No BC exposure limit		
PHTHALIC ANHYDRIDE	85-44-9	ppm	1		
o-PHTHALODINITRILE	91-15-6		No BC exposure limit		
PIPERAZINE AND ITS SALTS, as PIPERAZINE	110-85-0	mg/m ³	0.3	1	
PIPERIDINE	110-89-4	ppm	1		
PLASTER OF PARIS, TOTAL	26499-65-0	mg/m ³	10	20	
PROPOXUR	114-26-1	mg/m ³	0.5		
PROPYLENE GLYCOL ETHYL ETHER	1569-02-4		No BC exposure limit		
PROPYLENEIMINE	75-55-8	ppm	2		
RESIN ACIDS, as TOTAL RESIN ACIDS	8050-09-7		No BC exposure limit		
ROSIN CORE SOLDER THERMAL DECOMPOSITION PRODUCTS (COLOPHONY)	8050-09-7		(L)		
RHODIUM, METAL AND INSOLUBLE COMPOUNDS, as Rh	7440-16-6	mg/m ³	0.1	0.3	
RHODIUM, SOLUBLE COMPOUNDS, as Rh	7440-16-6	mg/m ³	0.001	0.003	
SELENIUM AND COMPOUNDS, as Se	7782-49-2	mg/m ³	0.1		
SILICA, AMORPHOUS:					
DIATOMACEOUS EARTH, UNCALCINED, TOTAL	61790-53-2	mg/m ³	4		
DIATOMACEOUS EARTH, UNCALCINED, RESPIRABLE	61790-53-2	mg/m ³	1.5		
PRECIPITATED SILICA and SILICA GEL, TOTAL	112926-00-8	mg/m ³	4		
PRECIPITATED SILICA and SILICA GEL, RESPIRABLE	112926-00-8	mg/m ³	1.5		
SILICA FUME, TOTAL	69012-64-2	mg/m ³	4		
SILICA FUME, RESPIRABLE	69012-64-2	mg/m ³	1.5		
SILICON TETRAHYDRIDE (SILANE)	7803-62-5	ppm	0.5	1	
SILVER AND COMPOUNDS, as Ag	7440-22-4	mg/m ³	0.01	0.03	
SIMAZINE	122-34-9		No BC exposure limit		
STODDARD SOLVENT (MINERAL SPIRITS)	8052-41-3	mg/m ³	290	580	
STRONTIUM CHROMATE, as Cr, TOTAL	7789-06-2	mg/m ³	0.0005		

STYRENE	100-42-5	ppm	20	40	
STYRENE OXIDE	96-09-3	ppm	No BC exposure limit		
SULFOMETURON METHYL	74222-97-2	mg/m ³	5		
SULFOMETURON METHYL, INHALABLE FRACTION & VAPOUR	74222-97-2		No BC exposure limit		
SULFOXAFLOR	946578-00-3		No BC exposure limit		
SULFUR DIOXIDE	7446-09-5	ppm	2	5	
SULFUR PENTAFLUORIDE	5714-22-7	ppm			0.01
SULPROFOS	35400-43-2	mg/m ³	1		
TANTALUM and TANTALUM OXIDE dusts, as Ta	7440-25-7	mg/m ³	5		
TEMEPHOS, TOTAL	3383-96-8		(See individual exposure limits for ABATE (TEMEPHOS), TOTAL)		
1,1,2,2-TETRABROMOETHANE, INHALABLE FRACTION & VAPOUR	79-27-6	ppm	0.1		
1,1,1,2-TETRACHLORO-2,2- DIFLUOROETHANE	76-11-9	ppm	500		
1,1,2,2-TETRACHLORO-1,2- DIFLUOROETHANE	76-12-0	ppm	200		
TETRAETHYL LEAD, as Pb	78-00-2	mg/m ³	0.075		
TETRAMETHYL LEAD, as Pb	75-74-1	mg/m ³	0.075		
TETRAMETHYL SUCCINONITRILE	3333-52-6	ppm	0.5		
THIACLOPRID	111988-49-9		No BC exposure limit		
THIODICARB	59669-26-0		No BC exposure limit		
THIOGLYCOLIC ACID	68-11-1	ppm	1		
THIOGLYCOLIC ACID and salts	68-11-1		No BC exposure limit		
THIONYL CHLORIDE	7719-09-7	ppm			1
THIRAM	137-26-8	mg/m ³	1		
TIN and INORGANIC COMPOUNDS, excluding TIN HYDRIDE and INDIUM TIN OXIDE, as Sn	7440-31-5; 18282-10-5; 21651-19-4		(See individual exposure limits for TIN and INORGANIC COMPOUNDS, excluding TIN HYDRIDE, as Sn, METAL; and for TIN and INORGANIC COMPOUNDS, excluding TIN HYDRIDE, as Sn, OXIDE and INORGANIC COMPOUNDS)		
TIN and INORGANIC COMPOUNDS, excluding TIN HYDRIDE, as Sn, METAL	7440-31-5	mg/m ³	2		
TIN and INORGANIC COMPOUNDS, excluding TIN HYDRIDE, as Sn, OXIDE and INORGANIC COMPOUNDS	7440-31-5	mg/m ³	2		
TITANIUM TETRACHLORIDE, as HCl	7550-45-0		No BC exposure limit		
2,4-TOLUENE DIISOCYANATE (TDI)	584-84-9	ppm	0.005		0.01
2,6-TOLUENE DIISOCYANATE (TDI)	91-08-7	ppm	0.005		0.01
2,4- and 2,6-TOLUENE DIISOCYANATE AS A MIXTURE	584-84-9 91-08-7		No BC exposure limit (see section 5.51, <i>OHSR</i>)		
TRIBUTYL PHOSPHATE	126-73-8	ppm	0.2		
TRICHLORFON, INHALABLE FRACTION & VAPOUR	52-68-6		No BC exposure limit		
1,2,3-TRICHLOROPROPANE	96-18-4	ppm	10		

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76-13-1	ppm	500	1250	
TRIFLUMIZOLE, INHALABLE	68694-11-1		No BC exposure limit		
TRIMELLITIC ANHYDRIDE	552-30-7	mg/m ³			0.04
TRIMETHYL HEXAMETHYLENE DIISOCYANATE	28679-16-5	ppm	0.005		0.01
2,4,6-TRINITROTOLUENE (TNT), TOTAL	118-96-7	mg/m ³	0.1		
2,4,6-TRINITROTOLUENE (TNT), INHALABLE FRACTION & VAPOUR	118-96-7		No BC exposure limit		
TRIORTHOCRESYL PHOSPHATE	78-30-8	mg/m ³	0.1		
TRI-n-BUTYL TIN COMPOUNDS	688-73-3	mg/m ³	0.05		
URANIUM COMPOUNDS, NATURAL, SOLUBLE, as U	7440-61-1	mg/m ³	0.05		
VEGETABLE OIL MIST, RESPIRABLE FRACTION, EXCEPT CASTOR, CASHEW NUT, OR SIMILAR IRRITATING OILS	8008-89-7	mg/m ³	3		
VINYLDENE CHLORIDE	75-35-4	ppm	1		
VINYL TOLUENE, ALL ISOMERS	25013-15-4	ppm	25	75	
WARFARIN	81-81-2	mg/m ³	0.1		
WOOD DUST:					
ALLERGENIC		mg/m ³	1		
NON-ALLERGENIC, HARDWOOD		mg/m ³	1		
NON-ALLERGENIC, SOFTWOOD		mg/m ³	2.5		
m-XYLENE ALPHA, ALPHA'-DIAMINE	1477-55-0	mg/m ³			0.1
ZINC CHROMATES, as Cr, TOTAL	11103-86-9, 13530-65-9, 37300-23-5	mg/m ³	0.01		

(E) = the value is for particulate matter containing no asbestos and less than 1% crystalline silica

(N) = the 8-hour TWA listed in the Table is for the total dust. The substance also has an 8-hour TWA of 3 mg/m³ for the respirable fraction

(L) = exposure by all routes should be carefully controlled to levels as low as possible

2. Dusts

The Board categorizes particulates that are insoluble or poorly soluble in water and do not cause toxic effects other than by inflammation or the mechanism of "lung overload", as "nuisance dusts".

A "nuisance dust" will have an exposure limit or TLV of 10 mg/m³ for total particulate. It is recognized that the respirable fraction of "nuisance dusts" may also be measured. The equivalent exposure limit for respirable particulate is 3 mg/m³. Respirable particulate refers to the fraction of inhaled dust that is capable of passing through the upper respiratory tract to the gas exchange region of the lung. Total particulate refers to a wide range of particle sizes capable of being deposited in the various regions of the respiratory tract.

PRACTICE

For any relevant PRACTICE information, readers should consult the associated OHS Guidelines available on the WorkSafeBC website at www.worksafebc.com. The B.C. exposure limits are also available on WorkSafeBC's E-Limit tool on the WorkSafeBC website at <https://elimit.online.worksafebc.com/>.

EFFECTIVE DATE: March 1, 2022

AUTHORITY: Section 5.48 of the OHSR.

CROSS REFERENCES:

HISTORY: History notes for this policy can be found on the WorkSafeBC Exposure Limit website at <https://www.worksafebc.com/en/law-policy/occupational-health-safety/regulating-chemical-exposure>

APPLICATION: Each amendment of this policy applies to incidents occurring on and after the effective date of the amendment. If a decision made before the amendment effective date is within the appeal period, at Review Division, or at WCAT, it remains subject to the policy in effect at the time of the incident.

BACKGROUND

1. Explanatory Notes

Section 5.54 sets out the requirement for an exposure control plan in certain circumstances and the necessary elements if an exposure control plan is required. Among those elements is health monitoring under section 5.54(2)(f).

2. The OHSR Section 5.54:

- (1) An exposure control plan must be implemented when
 - (a) exposure monitoring under section 5.53(3) indicates that a worker is or may be exposed to an air contaminant in excess of 50% of its exposure limit,
 - (b) measurement is not possible at 50% of the applicable exposure limit, or
 - (c) otherwise required by this Regulation.
- (2) The exposure control plan must incorporate the following elements:
 - (a) a statement of purpose and responsibilities;
 - (b) risk identification, assessment and control;
 - (c) education and training;
 - (d) written work procedures, when required;
 - (e) hygiene facilities and decontamination procedures, when required;
 - (f) health monitoring, when required;
 - (g) documentation, when required.
- (3) The plan must be reviewed at least annually and updated as necessary by the employer, in consultation with the joint committee or the worker health and safety representative, as applicable.

POLICY

At the request of persons outside the Board or Board staff, the Board may arrange for samples to be analyzed as part of a health monitoring program under section 5.54(2)(f). The Board will have the results organized into broad categories of body burden levels and reported to the person who made the request and to Board staff and industry representatives concerned with the particular program.

The actual body burden levels of individuals are confidential and will only be revealed to a worker if the worker inquires, and to anyone else with the worker's written authorization. Questions regarding specific analysis results should be referred to the Board staff concerned with the particular program.

EFFECTIVE DATE: April 1, 2001

AUTHORITY: Section 5.54(2)(f) of the *OHSR*.

CROSS REFERENCES:

HISTORY: April 6, 2020 - Housekeeping changes.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
Replaces Policy No. 13.01(6) of the Prevention Division *Policy and Procedure Manual*.

APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 13.01(6), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 13.01(6) was issued.

BACKGROUND

1. Explanatory Notes

Section 8.33 outlines the general requirements for the selection of respiratory protective equipment.

2. The OHSR

Section 8.33:

- (1) The employer, in consultation with the worker and the occupational health and safety committee, if any, or the worker health and safety representative, if any, must select an appropriate respirator in accordance with *CSA Standard CAN/CSA-Z94.4-93, Selection, Use and Care of Respirators*.
- (2) Only a respirator which meets the requirements of a standard acceptable to the Board may be used for protection against airborne contaminants in the workplace.

POLICY

Compressed air cylinders may be interchanged with different makes of self-contained breathing apparatus (SCBA) provided the cylinders are fully compatible with the SCBA on which they will be used. The cylinders must have the same pressure rating and fittings with the same type of thread and thread length.

When interchanging is being done, the user should be aware that using cylinders originally made for one make of SCBA on another make will void the NIOSH approval for that SCBA. This may affect the user's ability to successfully recover damages from the SCBA manufacturer in the event of an equipment problem or malfunction.

EFFECTIVE DATE:	August 1, 2001
AUTHORITY:	Section 8.33 of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes. February 1, 2011 - Housekeeping changes to reflect regulation changes effective on that date. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. March 1, 2005 - Housekeeping changes to reflect the October 29, 2003 changes to the <i>OHSR</i> . This Item originally replaced Policy No. 14.23(2)-1 of the former Prevention Division <i>Policy and Procedure Manual</i> . October 29, 2003 - The reproduction of section 8.33(1) of the <i>OHSR</i> in this Item was revised to reflect its amendment. This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 14.23(2)-1, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 14.23(2)-1 was issued.
APPLICATION:	This policy applies to interchanging compressed air cylinders on self-contained breathing apparatus on and after August 1, 2001.

BACKGROUND

1. Explanatory Notes

Section 8.33 outlines the general requirements for the selection of respiratory protective equipment.

2. The OHSR

Section 8.33:

- (1) The employer, in consultation with the worker and the occupational health and safety committee, if any, or the worker health and safety representative, if any, must select an appropriate respirator in accordance with *CSA Standard CAN/CSA-Z94.4-93, Selection, Use and Care of Respirators*.
- (2) Only a respirator which meets the requirements of a standard acceptable to the Board may be used for protection against airborne contaminants in the workplace.

POLICY

Air lines on respirators can generally be interchanged provided they:

- are NIOSH approved;
- are of the same inside diameter and length as recommended by the manufacturer; and
- have compatible end fittings.

When interchanging is being done, the user should be aware that using air lines originally made for one make of respirator on another make will void the NIOSH approval for that respirator. This may affect the user's ability to successfully recover damages from the respirator manufacturer in the event of an equipment problem or malfunction.

EFFECTIVE DATE:	August 1, 2001
AUTHORITY:	Section 8.33 of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	<p>April 6, 2020 - Housekeeping changes.</p> <p>February 1, 2011 - Housekeeping changes to reflect regulation changes effective on that date.</p> <p>September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.</p> <p>March 1, 2005 - Housekeeping changes to reflect the October 29, 2003 changes to the <i>OHSR</i>. This Item originally replaced Policy No. 14.23(2)-2 of the former Prevention Division <i>Policy and Procedure Manual</i>.</p> <p>October 29, 2003 - The reproduction of section 8.33(1) of the <i>OHSR</i> in this Item was revised to reflect its amendment.</p> <p>This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i>. The POLICY in this Item merely continues the substantive requirements of Policy No. 14.23(2)-2, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 14.23(2)-2 was issued. A caution has been added regarding the voiding of NIOSH approval in certain situations.</p>
APPLICATION:	This policy applies to interchanging air lines on respirators on and after August 1, 2001.

Contents

WHEN LOCKOUT REQUIRED

R10.3-1 [When Lockout Required - \(Automatic\) J-Bar Sorting Systems](#)

Policies Part 10 - When Lockout Required

R10.3-1
When Lockout Required - (Automatic) J-Bar Sorting Systems

BACKGROUND

1. Explanatory Notes

Section 10.3 sets out requirements for locking out machinery and equipment. Other requirements are found in sections 4.3 and 12.15.

2. The OHSR
Section 10.3:

- (1) If machinery or equipment is shut down for maintenance, no work may be done until
 - (a) all parts and attachments have been secured against inadvertent movement,
 - (b) where the work will expose workers to energy sources, the hazard has been effectively controlled, and
 - (c) the energy isolating devices have been locked out as required by this Part.

(2) If machinery or equipment is in use for normal production work, subsection (1) applies if a work activity creates a risk of injury to workers from the movement of the machinery or equipment, or exposure to an energy source, and the machinery or equipment is not effectively safeguarded to protect the workers from the risk.

Section 4.3:

- (1) The employer must ensure that each machine and piece of equipment in the workplace is
 - (a) capable of safely performing the functions for which it is used, and
 - (b) selected, used and operated in accordance with

(i) the manufacturer's recommendations and instructions, if available,

(ii) safe work practices, and

(iii) the requirements of this Regulation.

(2) Unless otherwise specified by this Regulation, the installation, inspection, testing, repair and maintenance of a tool, machine or piece of equipment must be carried out

(a) in accordance with the manufacturer's instructions and any standard the tool, machine or piece of equipment is required to meet, or

(b) as specified by a professional engineer.

(3) A tool, machine or piece of equipment determined to be unsafe for use must be identified in a manner which will ensure it is not inadvertently returned to service until it is made safe for use.

(4) Unless otherwise specified by this Regulation, any modification of a tool, machine or piece of equipment must be carried out in accordance with

(a) the manufacturer's recommendations and instructions, if available,

(b) safe work practices, and

(c) the requirements of this Regulation.

Section 12.15:

Effective means of restraint must be used

(a) on a connection of a hose or a pipe if inadvertent disconnection could be dangerous to a worker,

(b) if unplanned movement of an object or component could endanger a worker, or

(c) to secure an object from falling and endangering a worker.

POLICY

Entry into bin areas of automatic J-Bar sorting systems, either above or below the lifts, is prohibited unless the system is locked-out in accordance with section 10.3.

In addition to lock-out, the following is required:

(a) when maintenance, repair work, routine clean-up, or inspection requires entry into the bin area, the lifts must be lowered onto positive mechanical stops of adequate size, or onto the bin removal chains. Safety stops must not be depended on to withstand the impact of a falling lift; or

(b) when circumstances require entry of a worker into a bin to clear a lumber hang-up which prevents lowering of the lift onto a positive stop, the lift must be restrained in accordance with section 12.15.

Guarding of bin removal chain drives is not required as this is a restricted access area and the system must be locked out before entry is permitted.

It is the employer's responsibility to:

(a) obtain documentation (documentation from the equipment manufacturer is acceptable) that the blocking equipment or restraining devices are capable of performing the functions for which they are to be used under section 4.3(1)(a); and

(b) maintain the equipment as specified by the manufacturer as required by section 4.3(2).

EFFECTIVE DATE:

April 1, 2001

AUTHORITY:

Sections 4.3, 10.3, and 12.15 of the *OHSR*.

CROSS REFERENCES:

HISTORY:

April 6, 2020 - Housekeeping changes.
 September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
 March 1, 2005 - Housekeeping changes to reflect the October 29, 2003 changes to the *OHSR*. This Item originally replaced Policy No. 62.60 of the former Prevention Division *Policy and Procedure Manual*.
 October 29, 2003 - The reproduction of section 4.3 of the *OHSR* in this Item was revised to reflect its amendment.
 This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 62.60, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 62.60 was issued.

APPLICATION:

This policy applies to locking out Automatic J-Bar Sorting Systems on and after April 1, 2001.

Contents

DIVISION 2 - GENERAL MACHINE REQUIREMENTS

- R16.25-1 [Operation and Maintenance \(Fuel Tank Filler and Vent Outlet Locations\)](#) [deleted]
- R16.33-1 [Protective Structures \(Hydraulic Excavators\)](#) [deleted]
- R16.34-1 [Rollover Protective Structures \(Pipe Layers\)](#) [deleted]
- R16.36-1 [ROPS Certification \(Sweep Arms\)](#) [deleted]

Policies Part 16 - Division 2 - General Machine Requirements

R16.25-1
General Requirements - Operation and Maintenance (Fuel Tank Filler and Vent Outlet Locations)

February 1, 2022: Deleted consequential to September 1, 2021 amendments to the Occupational Health and Safety Regulation

R16.33-1
Guards - Protective Structures (Hydraulic Excavators)

February 1, 2022: Deleted consequential to September 1, 2021 amendments to the Occupational Health and Safety Regulation

R16.34-1
Guards - Rollover Protective Structures (Pipe Layers)

February 1, 2022: Deleted consequential to September 1, 2021 amendments to the Occupational Health and Safety Regulation

R16.36-1
Guards - ROPS Certification (Sweep Arms)

February 1, 2022: Deleted consequential to September 1, 2021 amendments to the Occupational Health and Safety Regulation

Contents

CREW CARS, BUSES AND CRUMMIES

- R17.12-1 [Crew Cars, Buses and Crummies - Seating Design](#)

Policies Part 17 - Crew Cars, Buses and Crummies

R17.12-1
Crew Cars, Buses and Crummies - Seating Design

BACKGROUND

1. Explanatory Notes

Section 17.12 sets out the seating design requirements for crew cars, buses and crummies used to transport workers.

2. The OHSR

Section 17.12:

A worker transportation vehicle must be equipped with seats that

- (a) are safely located and securely attached to the vehicle, with a width of at least 41 cm (16 in) for each passenger and an upholstered seat and seat back which provide normal and comfortable seating for passengers,

- (b) face to the front or rear of the vehicle, unless installed otherwise by the vehicle manufacturer, and
- (c) provide a spacing of at least 66 cm (26 in) measured between the face of the seat back at seat level and the back of the seat or other fixed object in front.

POLICY

Where seats are installed facing each other, each seat will be considered the "fixed object in front" for purposes of section 17.12(c) and the spacing of at least 66 cm (26 in) will be measured between the face of one seat back at seat level and the front edge of the facing seat.

EFFECTIVE DATE: April 1, 2001
 AUTHORITY: Section 17.12(c) of the *OHSR*.
 CROSS REFERENCES:
 HISTORY: April 6, 2020 - Housekeeping changes.
 September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
 Replaces part of Policy No. 28.12(1) of the Prevention Division *Policy and Procedure Manual*.
 APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 28.12(1), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 28.12(1) was issued.

Contents

WORKING CLOSE TO ENERGIZED HIGH VOLTAGE EQUIPMENT AND CONDUCTORS

R19.25-1 [Working Close to Energized High Voltage Equipment and Conductors](#)

TREE PRUNING AND FALLING NEAR ENERGIZED CONDUCTOR

R19.30-1 [Tree Pruning and Falling Near Energized Conductors - Preliminary Inspection](#)

Policies Part 19 - Working Close to Energized High Voltage Equipment and Conductors

R19.25-1
Working Close to Energized High Voltage Equipment and Conductors

BACKGROUND

1. Explanatory Notes

Section 19.24.1 requires, in part, that employers ensure that a specified minimum distance is maintained between high voltage electrical equipment and conductors and workplace equipment. If this specified minimum safe distance cannot be maintained, section 19.25 requires that an employer must obtain a written assurance of certain matters from a representative of the power system.

2. The OHSR
Section 19.24.1:

Subject to section 19.24.2, or unless otherwise permitted by this Part, if exposed electrical equipment or conductors at a workplace have a voltage within a range set out in Column 1 of Table 19-1A, the following must remain at least the distance from the exposed electrical equipment and conductors that is set out in Column 2 opposite that range of voltage:

- (a) a person working at the workplace;
- (b) a tool, a machine, material or equipment at the workplace.

Table 19-1A

Column 1 Voltage	Column 2 Minimum approach distance for working close to exposed electrical equipment or conductors	
	Metres	Feet
Phase to phase		
Over 750 V to 75 kV	3	10
Over 75 kV to 250 kV	4.5	15
Over 250 kV to 550 kV	6	20

- (1) If the minimum distance in Table 19-1A cannot be maintained because of the circumstances of work or the inadvertent movement of persons or equipment, an assurance in writing on a form acceptable to the Board and signed by a representative of the owner of the power system, must be obtained.
- (2) The assurance must state that while the work is being done the electrical equipment and conductors will be displaced or rerouted from the work area, if practicable.
- (3) If compliance with subsection (2) is not practicable the assurance must state that the electrical equipment will be isolated and grounded, but if isolation and grounding is not practicable the assurance must state that the electrical equipment will be visually identified and guarded.

...

POLICY

The minimum distances specified in section 19.24.1 and Table 19-1A must be taken into account when planning the operation of a crane or other equipment close to overhead electrical conductors. If the operation is planned with due regard to the environmental conditions, the condition of the equipment, the capability of the operators, and the movement of material, so that no part of the equipment, workers, or material come within the stipulated minimum distance, an assurance in writing under section 19.25(1) is not required.

For the purposes of section 19.24.1, if no other effective means is provided to assist the operator of a tower crane in maintaining the minimum distance:

- the crane must have a marker placed at an appropriate position on the jib; and
- the employer must specifically instruct the operator that, when the jib is in a position such that the load line could enter within the minimum applicable distance, the trolley must be positioned only on the mast side of the marker.

EFFECTIVE DATE:	October 29, 2003
AUTHORITY:	Sections 19.24.1 and 19.25 of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes. February 1, 2011 - Housekeeping changes to reflect regulation changes effective on that date. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. October 29, 2003 - The policy incorporated a paragraph from then Item R14.53-1 which was deleted in response to the duplication and redundancy package of regulatory amendments. April 1, 2001 - This Item replaced Policy No. 24.04(1) of the former Prevention Division <i>Policy and Procedure Manual</i> .
APPLICATION:	This policy applies to all instances where workplace equipment comes in close proximity to high voltage electrical equipment and conductors on and after October 29, 2003.

Policies Part 19 - Tree Pruning and Falling Near Energized Conductor

R19.30-1
Tree Pruning and Falling Near Energized Conductor - Preliminary Inspection

BACKGROUND

1. Explanatory Notes

Section 19.30 sets out requirements for preliminary inspections to identify hazardous areas prior to commencing tree-pruning and falling near energized conductors. Included in the inspection is whether any part of the tree to be pruned or felled is, or may be, within the minimum distance specified in Section 19.24.1 and Table 19-1A.

2. The OHSR Section 19.30:

- (1) Before commencing tree pruning or falling close to energized high voltage overhead conductors, the worksite must be inspected by a qualified person, authorized by the owner of the power system, to identify any hazardous areas, including situations where any part of a tree to be pruned or felled is within the applicable minimum distance from an energized conductor as specified in Table 19-1A, or may fall within that distance.
- (2) Immediately before commencing work, an inspection must be performed by a qualified person to verify the results of the initial inspection done under subsection (1) are still valid.

Section 19.24.1:

Subject to section 19.24.2, or unless otherwise permitted by this Part, if exposed electrical equipment or conductors at a workplace

have a voltage within a range set out in Column 1 of Table 19-1A, the following must remain at least the distance from the exposed electrical equipment and conductors that is set out in Column 2 opposite that range of voltage:

(a) a person working at the workplace;

(b) a tool, a machine, material or equipment at the workplace.

Table 19-1A

Column 1 Voltage	Column 2 Minimum approach distance for working close to exposed electrical equipment or conductors	
	Metres	Feet
Phase to phase		
Over 750 V to 75 kV	3	10
Over 75 kV to 250 kV	4.5	15
Over 250 kV to 550 kV	6	20

POLICY

Tree trimmers intending to work close to energized high voltage lines must call the utility to request a qualified person to perform the preliminary inspection under section 19.30(1). The following guidelines are to be used in determining if tree-trimming is close to energized high voltage overhead conductors:

- any part of the tree, as it stands near an energized line, is within the general limits of approach specified in section 19.24.1;
- any branches are above an energized line in such a way that any severed portion may fall within the general limits of approach of section 19.24.1; or
- any contemplated topping operation will produce a cut length capable of extending from the tree to within the limits of approach of section 19.24.1.

EFFECTIVE DATE: April 1, 2001
 AUTHORITY: Sections 19.24.1 and 19.30 of the *OHSR*.
 CROSS REFERENCES:
 HISTORY: April 6, 2020 - Housekeeping changes.
 February 1, 2011 - Housekeeping changes to reflect regulation changes effective on that date.
 September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
 Replaces Policy No. 24.08(1) of the Prevention Division *Policy and Procedure Manual*.
 APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 24.08(1), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 24.08(1) was issued.

Contents

CONCRETE FALSEWORK AND FORMWORK

R20.17-1 [Concrete Falsework and Formwork - Specifications and Plans](#)

OPEN WEB JOISTS AND TRUSSES

R20.72-1 [Open Web Joists and Trusses - Erection Instructions \(All-Wood Plate-Connected Open Web Trusses\)](#)

Policies Part 20 - Concrete Falsework and Formwork

R20.17-1
 Concrete Falsework and Formwork - Specifications and Plans

BACKGROUND

1. Explanatory Notes

Section 20.17 sets out the requirements for specifications and plans for concrete falsework and formwork.

2. The OHSR
 Section 20.17:

(1) The employer must ensure that worksite specific plans are prepared for the following types of formwork and any associated falsework or reshoring:

- (a) flyforms;
- (b) ganged forms;
- (c) jump forms;
- (d) vertical slip forms;
- (e) formwork over 4 m (13 ft.) in height;
- (f) suspended forms for beams, slabs, stairs and landings;
- (g) single sided, battered or inclined forms over 2 m (6.5 ft.) in height;
- (h) cantilever forms;
- (i) bridge deck forms;
- (j) shaft lining forms;
- (k) tunnel lining forms;
- (l) formwork onto which concrete will be pumped through an injection port below the upper concrete surface;
- (m) formwork over 3 m (10 ft.) in height into which self-consolidating concrete will be placed;
- (n) formwork designated by the designer of the structure.

(2) The employer must ensure that a professional engineer certifies the following in accordance with section 20.18:

- (a) worksite specific plans;

- (b) any changes to worksite specific plans.

(3) The employer must ensure that certified worksite specific plans are available at the worksite during erection, use and dismantling of the formwork, falsework and reshoring.

(4) The employer must ensure that any changes to the certified worksite specific plans are available at the worksite

- (a) as soon as practicable, and

- (b) before the inspection required for placement of concrete or other intended loading of the formwork, falsework and reshoring.

(5) The employer must ensure that the formwork, falsework and reshoring are erected, used and, if applicable, dismantled in accordance with up-to-date certified worksite specific plans.

POLICY

Occasionally a portion of concrete falsework and formwork may be designed as part of a sales or rental subcontract by a scaffold and shoring supplier, or designed as part of the permanent structure by the design engineer for the structure.

Generally, the "partial designs" supplied in such cases are certified by a professional engineer, but do not contain all the information and instructions required by section 20.20(1) of the *OHSR*. Typically, documents are deficient in the area of section views, packing, blocking, and form details. Reshoring, where required, is either not specified or not referenced. There may also be a statement in such documents indicating or implying the documents do not satisfy the requirements of the *OHSR* without further detailing.

These documents are not acceptable unless additional detailing and documentation, certified by a professional engineer, are available at the site for the portions of the design not covered by the "partial designs" referred to above.

Worksite specific plans must be complete and comply with the *OHSR*. Under section 20.20(2), if any information required by subsection (1) cannot be provided, the worksite specific plans must include special notation of the information that is incomplete and that will require field design.

An "inspection certificate" issued by an engineer prior to pour, based on incomplete worksite specific plans, is not valid.

Officers will order concrete placing stopped if the inspection certificate is not available at the site or is not valid.

EFFECTIVE DATE: April 1, 2001
 AUTHORITY: Section 20.17 of the *OHSR*.
 CROSS REFERENCES: Sections 20.18 to 20.26 of the *OHSR*.

HISTORY: April 6, 2020 - Housekeeping changes.
June 3, 2019 - Housekeeping changes to reflect the June 3, 2019 changes to the *OHSR*.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
March 1, 2005 - Housekeeping changes to reflect the October 29, 2003 changes to the *OHSR*. This Item originally replaced Policy No. 34.28(6) of the former Prevention Division *Policy and Procedure Manual*.
October 29, 2003 - The reproduction of section 20.17(1) of the *OHSR* in this Item was revised to reflect its amendment.
This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 34.28(6), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 34.28(6) was issued.

APPLICATION: This policy applies to certified plans and specifications for concrete falsework and formwork on and after April 1, 2001.

Policies Part 20 - Open Web Joists and Trusses

R20.72-1

Open Web Joists and Trusses - Erection Instructions (All-Wood Plate-Connected Open Web Trusses)

BACKGROUND

1. Explanatory Notes

Section 20.72 requires that written instructions from a professional engineer or the manufacturer be available at the worksite before work is undertaken on the erection of premanufactured open web joists and trusses.

2. The OHSR
Section 20.72:

- (1) Work must not be undertaken on the erection of premanufactured open web joists and trusses until clear and appropriate written instructions from a professional engineer or the manufacturer of the joists or trusses, detailing safe erection procedures, are available at the worksite.
- (2) Erection and temporary bracing of open web joists and trusses must be done in accordance with the written instructions required by subsection (1).

POLICY

This policy applies to all-wood plate-connected open web flat and pitched trusses. It does not apply to multi-member chord types or pin-connected, wood chord-metal tube web-type trusses (Trus Joists).

The employer responsible for the handling and installation of the trusses must have clear and appropriate written instructions from the truss manufacturer or a professional engineer, stipulating safe erection procedures. The truss manufacturer will normally provide some *General Recommended Erection and Bracing Instructions* with delivery of the trusses.

Officers will stop truss erection when:

- erection and bracing instructions are not available at the site or are obviously incomplete;
 - work is not being done in accordance with the erection and bracing instructions;
 - the side walls or skeletal structural building frame are inadequately braced (Typically, the recommended maximum spacing braces on walls is 30 feet or 10 metres.);
 - damaged trusses (including twisted webs, bent connector plates, cracked chords) are being or have been installed; or
 - heavy loads are being applied to trusses before all bracing, bridging and decking has been installed.
-

EFFECTIVE DATE: April 1, 2001

AUTHORITY: Section 20.72 of the *OHSR*

CROSS REFERENCES: Sections 90, 91, and 92 of the *Act*.

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
Replaces Policy No. 34.42-1 of the Prevention Division *Policy and Procedure Manual*.

APPLICATION: This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 34.42-1, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 34.42-1 was issued.

FISHING OPERATIONS

R24.87-1 [Fishing Operations - Equipment Control Devices](#)

Policies Part 24 - Fishing Operations

R24.87-1
Fishing Operations - Equipment Control Devices

BACKGROUND

1. Explanatory Notes

Section 24.87 sets out requirements for equipment control devices.

2. The OHSR
Section 24.87:

(1) Winches, drums, capstans, and similar equipment on board a fishing vessel must have at least one master on/off control that is readily accessible on deck.

(2) Drum pedals and other types of hold-to-run controls must not be bypassed or otherwise rendered ineffective.

POLICY

On a vessel operated by one person, section 24.87 is satisfied by the regular control switch on each piece of equipment. On vessels operated by more than one person, there must be another switch or switches away from the equipment at a central location on the deck.

Where another switch or switches are located away from the equipment, the "on" control should only be activated when the equipment can be seen and/or the operator has determined that the equipment is safe to be turned on.

EFFECTIVE DATE:	January 1, 2019
AUTHORITY:	Section 24.87 of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes, January 1, 2019 - Changes made to clarify the policy. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. Replaces Policy No. 85.21 of the Prevention Division <i>Policy and Procedure Manual</i> . This Item resulted from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item continued the substantive requirements of Policy No. 85.21, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 85.21 was issued.
APPLICATION:	This item applies to all inspections that occur on or after January 1, 2019.

GENERAL REQUIREMENTS

R26.11-1 [RE: Forestry Operations - General Requirements - Dangerous Trees \(Removal Prior to Silviculture Activities\)](#)

WATER OPERATIONS

R26.86-1 [RE: Forestry Operations - Water Operations - Boat Equipment \(Towline Guards and OPS for Boom Boats\)](#)

Policies Part 26 - General Requirements

R26.11-1
General Requirements - Dangerous Trees (Removal Prior to Silviculture Activities)

BACKGROUND

1. Explanatory Notes

Section 26.11 sets out the requirements for removal of dangerous trees where forestry operations are taking place.

2. The OHSR
Section 26.1:

"dangerous tree" means a tree that is a hazard to a worker due to

- (a) its location or lean,
- (b) its physical damage,
- (c) overhead conditions,
- (d) deterioration of its limbs, stem or root system, or
- (e) any combination of the conditions in paragraphs (a) to (d);

Section 26.11:

- (1) If it is known or reasonably foreseeable that work will expose a worker to a dangerous tree,
 - (a) the tree must be felled, or
 - (b) a risk assessment of the tree must be undertaken by a person who has completed a training program acceptable to the Board.
- (2) If a risk assessment under subsection (1) determines that a tree poses a risk to a worker, the recommendations made in the risk assessment for eliminating or minimizing the risk must be implemented before the work referred to in that subsection starts.
- (3) Despite subsections (1) and (2), if work in a forestry operation is to be carried out in an area that has more than 500 dangerous trees per hectare, the Board may approve a request to work without felling or assessing all the dangerous trees if, before the work starts,
 - (a) a person who has completed a training program acceptable to the Board conducts a risk assessment of a representative sample of the dangerous trees, and
 - (b) any recommendations made in the risk assessment for eliminating or minimizing the risks are implemented.

POLICY

Silviculture activities include tree planting, juvenile spacing, tree thinning, surveys, cone collecting, brush or weed control and chemical use in tree thinning practices.

Except where section 26.11 applies, the responsibility for ensuring that dangerous trees are removed rests with the B.C. Ministry of Forests, owner, licensee or contractor responsible for the work. The felling of dangerous trees is not to be carried out in conjunction with silviculture activities. Dangerous tree removal must be undertaken before silviculture workers are permitted into the hazard area. It is also the B.C. Ministry of Forests, owner, licensee or contractor's responsibility to ensure all falling activities are carried out by trained and competent fallers. Failure to comply with these requirements will result in orders being issued on the B.C. Ministry of Forests, owner, licensee, or contractor.

This policy does not relieve any sub-contractor of responsibility for compliance with the *OHSR*.

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	Section 26.11 of the <i>OHSR</i> .
CROSS REFERENCES:	Section 24 of the <i>Act</i> ; Sections 26.2 and 26.21 of the <i>OHSR</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to update <i>OHSR</i> provisions and consequential changes to text, delete practice reference and make formatting changes. Replaces Policy No. 60.14 of the Prevention Division <i>Policy and Procedure Manual</i> .
APPLICATION:	This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 60.14, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 60.14 was issued.

Policies Part 26 - Water Operations

R26.86-1
Water Operations - Boat Equipment (Towline Guards and OPS for Boom Boats)

BACKGROUND

1. Explanatory Notes
Section 26.86(1)(c) and (d) sets out requirements for suitable cabins, screens or guards in certain circumstances for operators of boats used in or about a forestry operation.

A boat must be equipped with

...

(c) suitable cabins, screens or guards to protect operators against injury from towline breakage if the boats are regularly required to pull logs, booms or barges,

(d) suitable cabins, screens or guards meeting the requirements of [WCB Standard G606, Boom Boat Operator Protective Structures](#) if operators are subject to injury from logs or limbs intruding into the control area,

...

POLICY

Towline guards are only required on boats used primarily for towing.

Operator Protective Structures (OPS) are only required on boats used to break "jackpots". Jackpots are piles of logs resulting from self-dumping barges.

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	Section 26.86(1)(c) and (d) of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. March 1, 2005 - Housekeeping changes to reflect the October 29, 2003 changes to the <i>OHSR</i> . This Item originally replaced Policy No. 60.260(6) and (7) of the former Prevention Division <i>Policy and Procedure Manual</i> . October 29, 2003 - The reproduction of section 26.86(1)(d) of the <i>OHSR</i> in this Item was revised to reflect its amendment. This Item results from the 2000/2001 "editorial" consolidation of all Prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 60.260(6)&(7), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 60.260(6)&(7) was issued.
APPLICATION:	This policy applies to towline guards and operator protective structures for boom boats on and after April 1, 2001.

Contents

GENERAL REQUIREMENTS

R30.8-1 [General Requirements - Fume Hoods \(Ventilation Systems\)](#)

Policies Part 30 - General Requirements

R30.8-1
General Requirements - Fume Hoods (Ventilation Systems)

BACKGROUND

1. Explanatory Notes

Section 30.8 sets out the general requirements relating to fume hoods in laboratories.

2. The OHSR
Section 30.8:

(1) A laboratory fume hood and its related ductwork must be designed, installed and maintained in accordance with the *Industrial Ventilation, A Manual of Recommended Practice*, published by the American Conference of Governmental Industrial Hygienists, as amended from time to time.

(2) A laboratory fume hood must

(a) be connected to a local exhaust ventilation system,

(b) provide average face velocities of 0.4 m/s (80 fpm) to 0.6 m/s (120 fpm) across the operational face opening,

(c) not have face velocities of less than 80% of the average face velocity required in paragraph (b) at any point across its operational face opening, and

(d) not have face velocities of more than 120% of the average face velocity required in paragraph (b) at any point across its operational face opening.

(2.1) A laboratory fume hood must have a sash that is positioned to protect the upper body and face of a worker working in the laboratory fume hood from accidental releases of the contents of the hood while allowing hand and arm access to equipment inside the hood.

(2.2) A laboratory fume hood with a movable sash must be clearly marked to identify the maximum size of the operational face opening that will maintain the average face velocities required in subsection (2)(b).

(2.3) The employer must ensure

(a) that before it is used, a commercially manufactured laboratory fume hood has been certified as being tested by the manufacturer, and

(b) following installation and before it is used, a custom built laboratory fume hood is tested on site by a qualified person.

(2.4) A laboratory fume hood tested under subsection (2.3) must demonstrate containment not greater than the control level of 0.05 ppm when tested under "as manufactured" test conditions in accordance with the methods described in *ANSI/ASHRAE Standard 110-1995, Method of Testing Performance of Laboratory Fume Hoods*.

(2.5) The installation of a laboratory fume hood must be certified by a professional engineer.

(3) A laboratory fume hood must be located to prevent cross drafts or other disruptive forces from lowering the air flow across the operational face opening to unacceptable levels.

(4) A laboratory fume hood and its ductwork must be constructed from materials compatible with its use.

(5) A laboratory fume hood that will be or is being used for working with

(a) radioactive material in amounts that exceed the exemption quantity specified by the Canadian Nuclear Safety Commission, or

(b) perchloric acid

must be clearly labelled with applicable restrictions on its use.

(6) A laboratory fume hood must not be used for storage of chemicals unless it is used exclusively for this purpose and is labelled with this limitation.

(7) Controls for the operation of a laboratory fume hood and its service fixtures must be

(a) located on the outside of the laboratory fume hood, and

(b) immediately accessible to the worker conducting work in the laboratory fume hood.

(8) Despite subsection (7), water taps may be located inside a laboratory fume hood if the main shutoff valve for the water is located outside the laboratory fume hood.

(9) Equipment being used in a laboratory fume hood must

(a) be kept at least 15 cm (6 in.) from the operational face opening of the laboratory fume hood, and

(b) not adversely affect airflow into the laboratory fume hood.

(10) Written procedures must be developed and implemented to ensure safe use and operation of a laboratory fume hood.

Section 30.9:

(1) Face velocities over the operational face opening of a laboratory fume hood must be quantitatively measured and recorded.

(2) The ability of a laboratory fume hood to

(a) maintain an inward flow of air across the operational face opening, and

(b) contain contaminants

must be assessed and recorded using a smoke tube or other suitable qualitative method.

- (3) The actions described in subsections (1) and (2) must be performed
- (a) after the laboratory fume hood is installed and before it is used,
 - (b) at least once in each 12 month period after installation, and
 - (c) after any repair or maintenance that could affect the air flow of the hood.
- (4) If a laboratory fume hood is found to be operating with an average face velocity of less than 90% of the average face velocity required in section 30.8 (2), the employer must immediately take corrective action to bring the average face velocity within the required range of velocities.
- (5) Airflow in a laboratory fume hood must be monitored continuously if loss of airflow will result in risk to a worker.
- (6) A laboratory fume hood that is being installed must have an alarm capable of indicating when the average face velocity falls below the minimum average face velocity level required in section 30.8 (2) when the hood is in use.

POLICY

Section 30.8(2) specifies fume hood exhaust ventilation rates in terms of air velocities measured over the operational face area of the hood. The operational face area is determined by the height of the sash and will vary with the work carried out in the fume hood.

The air velocity is the average of measurements made over 6 points at the operational face of the hood with the sash raised to its highest position. A calibrated anemometer must be used.

If the measured average velocity is less than specified in section 30.8(2), repeated measurements must be made with the sash lowered successively until the specified average air velocity is attained. The sash height where this is determined must be marked in accordance with section 30.8(2.2). The minimum sash height is 12 inches.

If the fume hood cannot be used at the height determined above, modification is required to improve the ventilation so the specified air velocities are maintained at the sash height required for the work performed in the fume hood.

Smoke tube tests must be done to determine whether conditions of air turbulence exist at the face of the hood. If conditions of severe turbulence exist so that air spills out past the hood face, the condition must be corrected.

When a sash height adjustment is necessary on a fume hood that is part of a manifolded system (several hoods serviced by a single exhaust fan), *all* fume hoods in the system must be rechecked at the completion of the adjustments to ensure face velocity compliance (this operation may have to be repeated several times before compliance is achieved).

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	Sections 30.8 and 30.9 of the <i>OHSR</i> .
CROSS REFERENCES:	
HISTORY:	<p>April 6, 2020 - Housekeeping changes.</p> <p>October 14, 2011 - Housekeeping changes to reflect a change in the <i>OHSR</i> to make alarms mandatory.</p> <p>September 15, 2010 - Housekeeping changes to update <i>OHSR</i> provisions and consequential changes to text, delete practice reference and make formatting changes.</p> <p>March 30, 2004 - A cross-reference correction to reflect regulatory amendments relating to occupational exposure limits, effective October 29, 2003.</p> <p>December 14, 2001- A housekeeping change.</p> <p>October 1, 2000 - This Item resulted from an editorial consolidation of prevention policies into the <i>Prevention Manual</i>. The Policy in this Item continued the substantive requirements that existed before the consolidation, with any wording changes necessary to reflect legislative and other changes that have occurred. Policy No. 76.05 in the former Prevention Division <i>Policy and Procedure Manual</i>.</p>
APPLICATION:	The application of this policy remains unchanged from its previous authority under Policy No. 76.05 of the former Prevention Division <i>Policy and Procedure Manual</i> .

Contents

Part 1 Division 2 – Scope of Act

Division 2 – About OHS Guidelines

Part 2 – Occupational Health and Safety

Division 1 – Interpretation and Purposes

P2-14-1 [Application of the Act and Policies](#)

Division 2 – Board Mandate

P2-17-1 [Assignment of Board Authority](#)

P2-17-2 [Board Approval](#)

P2-17-3 [Certificate of Recognition Program](#)

Division 3 – Board Jurisdiction

P2-20-1 [Varying or Cancelling Previous Decisions or Orders](#)

Division 4 – General Duties of Employers, Workers and Others

P2-21-1 [Employer Duty Towards Other Workers](#)

P2-21-2 [Employer Duties – Workplace Bullying and Harassment](#)

P2-21-3 [Employer Duties – Wood Dust Mitigation and Control](#)

P2-22-1 [Worker Duties – Workplace Bullying and Harassment](#)

P2-22-2 [Worker Duties – Wood Dust Mitigation and Control](#)

P2-23-1 [General Duties – Supervisors](#)

P2-23-2 [Supervisor Duties – Workplace Bullying and Harassment](#)

P2-23-3 [Supervisor Duties – Wood Dust Mitigation and Control](#)

P2-24-1 [General Duties – Multiple-Employer Workplaces](#)

P2-25-1 [General Duties – Owners](#)

P2-27-1 [General Duties – Directors and Officers of a Corporation](#)

P2-29/30-1 [General Duties – Overlapping Obligations](#)

Division 5 – Joint Committees and Worker Representatives

P2-31-1 [Joint Committees – When a Committee is Required](#)

P2-38/39-1 [Joint Committees – Procedures and Resolving Disagreements](#)

P2-40-1 [Joint Committees – Time Off Work](#)

P2-41-1 [Joint Committees – Educational Leave](#)

P2-45-1 [Joint Committees – Worker Health and Safety Representative](#)

P2-46-1 [Joint Committees – Participation of Worker Representative in Inspections](#)

Division 6 – Worker Protection in Relation to Prohibited Actions

P2-47/48/49-1 [Prohibited Actions/Failure to Pay Wages – Scope](#)

P2-50-1 [Prohibited Actions/Failure to Pay Wages – Investigation of Complaint](#)

P2-50-2 [Prohibited Actions/Failure to Pay Wages – Remedies](#)

Division 9 – Variance Orders

P2-62-1 [Variance Orders – Information Required](#)

P2-64-1 [Variance Orders – Consultation on Application](#)

Division 10 – Employer Accident Reporting and Investigation

P2-68-1 [Major Release of Hazardous Substance](#)

P2-71-1 [Preliminary Incident Investigation, Report and Follow-Up Action](#)

P2-72-1 [Full Incident Investigation, Report and Follow-Up Action](#)

Division 12 – Enforcement

P2-83-1 [OHS Compliance Agreements](#)

P2-84-1 [OHS Compliance Orders](#)

P2-85-1 [Orders – Other General Matters](#)

P2-90/91/92-1 [Stop Work Orders](#)

P2-94-1 [OHS Citations](#)

- P2-95-1 [Criteria for Imposing OHS Penalties](#)
- P2-95-2 [High Risk Violations](#)
- P2-95-3 [Transfer of OHS History](#)
- P2-95-4 [Non-Exclusive Ways to Impose Financial Penalties](#)
- P2-95-5 [OHS Penalty Amounts](#)
- P2-95-6 [OHS Penalties & Claims Cost Levies – Effect of Application for Stay at Review Division](#)
- P2-95-7 [Administrative Penalties – Payment of Interest on Successful Appeal](#)
- P2-95-8 [Administrative Penalties – Prosecution Following Penalty](#)
- P2-95-9 [OHS Penalties – Due Diligence](#)
- P2-95-10 [OHS Penalty Warning Letters](#)
- P2-96-1 [Orders – Cancellation and Suspension of Certificates](#)
- P2-97-1 [OHS Injunctions](#)

Miscellaneous Provisions Relating to Other Parts of the Act

- P1-4-1 [Imposition of Levies – Independent Operators](#)
- P5-251-1 [Claims Cost Levies](#)

Policies Workers Compensation Act Part 1 Division 2 - Scope of OHS Provisions

Policy Item P1-2-1
Application of the OHS Provisions of the Act - Where Jurisdictional Limits Exist

BACKGROUND

1. Explanatory Notes

The Canadian Constitution, the *Act* and other federal and provincial legislation place certain limits on the Board's authority to take measures to prevent workplace injuries and illnesses.

In some cases, the Board may be totally excluded from inspecting certain types of operations. These include operations covered by Part II of the federal *Canada Labour Code*, mines covered by the provincial *Mines Act*, and railways covered by the provincial *Railways Act*.

In other cases, the Board may not be excluded from a particular type of operations, but certain equipment or activities may be covered by a statute or regulation administered by another agency.

These limits are largely matters of general law over which the Board has no control. They are also too complex to state in this Item.

The purpose of this Item is to provide general guidance on how Board officers will exercise their powers in situations where it has been established that there are jurisdictional limits on those powers.

2. The Act Section 2:

Subject to section 3, the OHS provisions apply to

- (a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,
- (b) the government of British Columbia and every agency of that government, and
- (c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

Section 3:

(1) The OHS provisions and the regulations under those provisions do not apply in respect of the following:

- (a) mines to which the *Mines Act* applies;
 - (b) unless a regulation under subsection (2) applies, the operation of industrial camps to the extent their operation is subject to regulations under the *Public Health Act*.
- (2) The Lieutenant Governor in Council may, by regulation, provide that all aspects of the OHS provisions and the regulations under those provisions apply to camps referred to in subsection (1)(b), in which case those provisions and regulations prevail over the regulations under the *Public Health Act* to the extent of any conflict.

[Note - As of the date of this policy, the federal government had not submitted to the application of the OHS provisions of the *Act* under section 2(c). Nor had the Lieutenant Governor in Council made regulations relating to camps under section 3(2).]

(1) Without limiting section 335 [*interjurisdictional agreements and arrangements*], the Board may enter into agreements or make arrangements respecting cooperation, coordination and assistance related to occupational health and safety and occupational environment matters with the following:

- (a) the government of British Columbia, the government of Canada or the government of another province or territory;
- (b) an agency of a government referred to in paragraph (a);
- (c) another appropriate authority.

(2) In relation to an agreement or arrangement under subsection (1), the Board may

- (a) authorize Board officers to act on behalf of the other party to the agreement or arrangement, and
- (b) authorize persons appointed by the other party to the agreement or arrangement to act as an officer under this Act, subject to any conditions or restrictions established by the Board.

POLICY

(a) Where, for jurisdictional reasons, the Board is totally excluded from inspecting an operation

Board officers will not knowingly issue an order or exercise another Board power under the OHS provisions of the *Act* with respect to an operation in this situation.

If Board officers observe what they believe to be a violation of a statute or a regulation administered by another agency, they will:

- notify the other agency of the observation; and
- cooperate with that agency in dealing with the situation to the extent this is consistent with the Board's mandate and the officers' duties under the *Act*.

(b) Where the Board is not totally excluded from inspecting an operation, but certain equipment or activities included in the operation are covered by a statute or regulation administered by another agency

Board officers will not issue an order or exercise another power to directly enforce a statute or regulation of another agency in this situation.

Board officers may issue an order or exercise another power under the *Act* where:

- the situation violates the *Act* or a regulation under that *Act*; and
- the order or exercise of another power is not in conflict with an applicable statute or regulation administered by the other agency.

If the order or exercise of another power appears to be in conflict with an applicable statute or regulation administered by the other agency, Board officers will seek direction from their managers before proceeding.

If Board officers observe what they believe to be a violation of a statute or a regulation administered by another agency, they will:

- notify the other agency of the observation; and
- cooperate with that agency in dealing with the situation to the extent this is consistent with the Board's mandate and the officers' duties under the *Act*.

(c) Authority under another statute or regulation or an agreement under Section 18

In some situations, the specific terms of another statute or regulation or an agreement with another agency under section 18 of the *Act* may authorize Board officers to exercise authority under other statutes or regulations that would not generally be permitted.

EFFECTIVE DATE:	October 1, 2001
AUTHORITY:	Sections 2 and 3 of the <i>Act</i> .
CROSS REFERENCES:	Section 18 of the <i>Act</i>
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. April 15, 2016 - Housekeeping changes to update <i>Act</i> reference in background information. September 15, 2010 - Housekeeping changes to remove outdated background information, delete practice reference and make formatting changes. December 14, 2001 - A housekeeping change.
APPLICATION:	This Item applies to situations arising on and after October 1, 2001.

BACKGROUND

1. Explanatory Notes

Decision-making at the Workers' Compensation Board is governed by the *Act*.

Section 319 of the *Act* authorizes the Board of Directors to set and revise the Board's policies. These policies are of broad general application and provide further direction to the Board in dealing with individual matters.

Section 339 of the *Act* requires the Board to make decisions based on the merits and justice of the case, but in doing this the Board must apply the policies of the Board of Directors that are applicable in that case.

The purpose of the POLICY in this Item is to provide direction regarding the interaction between the application of the *Act* and the policies made under the *Act* and the consideration of the individual circumstances of the case.

The POLICY does not comment on documents issued under the authority of the President/Chief Executive Officer of the Board. That is a matter for the President/Chief Executive Officer to address.

2. The Act Section 319:

The board of directors must set and revise as necessary the policies of the board of directors, including policies respecting occupational health and safety, compensation, rehabilitation and assessment.

Section 339(2):

The Board must make its decision based on the merits and justice of the case, but in doing this the Board must apply the policies of the board of directors that are applicable in that case.

POLICY

In making decisions, the Board must take into consideration:

1. the relevant provision or provisions of the *Act*;
2. the relevant policy or policies in this *Prevention Manual*; and
3. all facts and circumstances relevant to the case.

By considering the relevant provisions of the *Act*, the relevant policies, and the relevant facts and circumstances, the Board ensures that:

1. similar cases are adjudicated in a similar manner;
2. each participant in the system is treated fairly; and
3. the decision-making process is consistent and reliable.

Section 339(2) of the *Act* provides that:

The Board must make its decision based on the merits and justice of the case, but in doing this the Board must apply the policies of the board of directors that are applicable in that case.

Section 339(2) requires the Board to make all its decisions based on the merits and justice of the case. In making decisions, the Board must take into account all relevant facts and circumstances relating to the case before it, including the worker's individual circumstances. This is required, among other reasons, in order to comply with section 339(2) of the *Act*. In doing this, the Board must consider the relevant provisions of the *Act*.

If there are specific directions in the *Act* that are relevant to those facts and circumstances, the Board is legally bound to follow them.

Section 339(2) also requires the Board to apply the policies of the Board of Directors that are applicable to the case before it. The policies reflect the obligations and discretion delegated to the Board under the *Act*. Each policy creates a framework that assists and directs the Board in its decision-making role when certain facts and circumstances come before it. If such facts and circumstances arise and there is an applicable policy, the policy must be applied. Where the *Act* and policy provide for Board discretion, the Board is also required to exercise the discretion based upon the merits and justice of the case, in accordance with the *Act* and applicable policies.

All substantive and associated practice components in the policies in this *Prevention Manual* are applicable under section 339(2) of the *Act* and must be applied in decision-making. The term "associated practice components" for this purpose refers to the steps outlined in the policies that must be taken to determine the substance of decisions. Without these steps being taken, the substantive decision required by the *Act* and policies could not be made.

References to business processes that appear in policies are only applicable under section 339(2) of the *Act* in decision-making to the extent that

they are necessary to comply with the rules of natural justice and procedural fairness. The term "business processes" for this purpose refers to the manner in which the Board conducts its operations. These business processes are not intrinsic to the substantive decisions required by the *Act* and the policies.

If a policy requires the Board to notify an employer, worker, or other workplace party before making a decision or taking an action, the Board is required to notify the party if practicable. "If practicable" for this purpose means that the Board will take all reasonable steps to notify, or communicate with, the party.

This policy is not intended to comment on the application of practice directives, guidelines and other documents issued under the authority of the President/Chief Executive Officer of the Board. The application of those documents is a matter for the President/Chief Executive Officer to address.

EFFECTIVE DATE:	July 1, 2019
AUTHORITY:	Sections 319 and 339(2) of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. July 1, 2019 - Amendments to emphasize the obligation of the Board to base its decisions upon the merits and justice of the case and delete references to Board officers. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	This policy applies to decisions on or after July 1, 2019.

Policies Workers Compensation Act Part 2 Division 2 - Board Mandate

Policy Item P2-17-1
Assignment of Board Authority

BACKGROUND

1. Explanatory Notes

Section 17 sets out the Board's duties, functions and powers in matters relating to occupational health and safety. The "Board" for this purpose is the corporation known as the Workers' Compensation Board.

The Board of Directors determines what persons should exercise the Board's authority in various areas or the mechanism for making that determination through policy under sections 319 and 320 of the *Act*.

2. The Act

Section 17:

(1) In accordance with the purposes of the OHS provisions, the Board has the mandate to be concerned with occupational health and safety generally, and with the maintenance of reasonable standards for the protection of the health and safety of workers in British Columbia and the occupational environment in which they work.

(2) In carrying out its mandate, the Board has the following duties, functions and powers:

- (a) to exercise the Board's authority to make regulations to establish standards and requirements for the protection of the health and safety of workers and the occupational environment in which they work;
- (b) to undertake inspections, investigations and inquiries on matters of occupational health and safety and occupational environment;
- (c) to provide services to assist joint committees, worker health and safety representatives, employers and workers in maintaining reasonable standards for occupational health and safety and occupational environment;
- (d) to ensure that persons concerned with the purposes of the OHS provisions are provided with information and advice relating to the Board's administration and to occupational health and safety and occupational environment generally;
- (e) to encourage, develop and conduct or participate in conducting programs for promoting occupational health and safety and for improving the qualifications of persons concerned with occupational health and safety and occupational environment;
- (f) to promote public awareness of matters related to occupational health and safety and occupational environment;
- (g) to prepare and maintain statistics relating to occupational health and safety and occupational environment, either by the Board acting alone or acting in conjunction with any other agency;

(h) to undertake or support research and the publication of research on matters relating to the Board's responsibilities under this Act;

- (i) to establish programs of grants and awards in relation to the Board's responsibilities under this Act;
- (j) to provide assistance to persons concerned with occupational health and safety and occupational environment;
- (k) to cooperate and enter into arrangements and agreements with governments and other agencies and persons on matters relating to the Board's responsibilities under the OHS provisions;
- (l) to make recommendations to the minister respecting amendments to this Act, the regulations under the OHS provisions or the compensation provisions, or to other legislation that affects occupational health and safety or occupational environment;
- (m) to inquire into and report to the minister on any matter referred to it by the minister, within the time specified by the minister;
- (n) to fulfill the Board's mandate under the OHS provisions in a financially responsible manner;
- (o) to do other things in relation to occupational health and safety or occupational environment that the minister or Lieutenant Governor in Council may direct.

Section 19(1):

Subject to sections 288 and 289 [*matters that may be appealed to the appeal tribunal*], the Board has exclusive jurisdiction to inquire into, hear and determine all matters and questions of fact and law arising or required to be determined under the OHS provisions, and the action or decision of the Board on those matters and questions is final and conclusive and is not open to question or review in any court.

Section 319:

The board of directors must set and revise as necessary the policies of the board of directors, including policies respecting occupational health and safety, compensation, rehabilitation and assessment.

Section 320(1):

(1) The board of directors must set and supervise the direction of the Board.

POLICY

The Board of Directors will exercise the following powers and responsibilities as set out in the OHS provisions of the *Act*:

- make recommendations to the minister under section 17(2)(l);
- make inquiries into matters referred by the minister under section 17(2)(m);
- comply with directions of the Lieutenant Governor in Council under section 17(2)(o);
- enter into formal agreements and arrangements with other agencies and governments covered by section 18(2);
- make and amend Board regulations;
- grant exemptions from the application of the OHS provisions of the *Act* under section 13; and
- approve policies under the OHS provisions of the *Act* (section 319).

The President/Chief Executive Officer (CEO) has the authority to exercise the remaining powers and responsibilities described in the OHS provisions of the *Act* and authority over claims cost levies (section 251). The President/CEO also has the authority to assign these powers and responsibilities to divisions, departments, categories of officers or individual officers of the Workers' Compensation Board.

President/CEO assignments will state whether the assignee has the authority to further assign the power or responsibility or whether it must be exercised personally.

The powers and responsibilities described in the OHS provisions of the *Act* and section 251 must be exercised in accordance with the policies of the Board of Directors.

PRACTICE

The assignments of the President/CEO will be in writing and publicly available.

EFFECTIVE DATE: October 21, 2020
 AUTHORITY: Sections 17, 19, 319, 320 of the *Act*.
 CROSS REFERENCES:

HISTORY:

October 21, 2020 – Amended to remove assignment of authority to approve prosecutions to the President/CEO, because of repeal of obligation in the *Act* by the *Workers Compensation Amendment Act, 2020* (Bill 23 of 2020), in effect August 14, 2020.
April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
March 24, 2010 - Amended to address authority over claims cost levies and make other minor wording changes.
March 3, 2003 - Consequential changes subsequently made to restatement of then section 113(1) to implement the *Workers Compensation Amendment Act (No. 2)*, 2002.
February 11, 2003 - References to Panel of Administrators replaced by references to Board of Directors, to reflect the *Workers Compensation Amendment Act, 2002*.
October 1, 1999 - Item developed to implement the *Workers Compensation (Occupational Health and Safety) Amendment Act, 1998*.

APPLICATION: Applies on or after October 21, 2020.

Policy Item P2-17-2
Board Approval

BACKGROUND

1. Explanatory Notes

Section 17 sets out the Board's mandate in accordance with the purposes of the OHS provisions of the *Act*.

2. The Act
Section 17(1):

In accordance with the purposes of the OHS provisions, the Board has the mandate to be concerned with occupational health and safety generally, and with the maintenance of reasonable standards for the protection of the health and safety of workers in British Columbia and the occupational environment in which they work.

Section 17(2), in part:

In carrying out its mandate, the Board has the following duties, functions and powers:

...

- (c) to provide services to assist ... employers and workers in maintaining reasonable standards for occupational health and safety and occupational environment;
- (d) to ensure that persons concerned with the purposes of the OHS provisions are provided with information and advice relating to the Board's administration and to occupational health and safety and occupational environment generally;

POLICY

A submission may be made to have a program, product, machine, equipment or work process evaluated by the Board to determine if it is in compliance with current provisions of the OHS provisions of the *Act* and the OHS regulations.

The Board will review submissions from an employer, worker, union, or from industry in general and will indicate acceptability or unacceptability under the current OHS provisions of the *Act* and the current provisions of the OHS regulations. The review of submissions to the Board will be limited to an assessment of those factors covered by the OHS provisions of the *Act* and the provisions of the OHS regulations that affect the health and safety of workers.

An acceptance will be conditional upon the use of the product, machinery or equipment for its designed purpose, subject to such conditions as may be specified by the Board. Any indication of compliance with the current OHS provisions of the *Act* and the current provisions of the OHS regulations will not be an assurance of continued acceptability.

An acceptance, as described above, is not a general endorsement or certification by the Board of that program, product, machinery, equipment, or work process.

EFFECTIVE DATE: December 15, 2011
AUTHORITY: Section 17(1), and (2)(c) and (d) of the *Act*.
CROSS REFERENCES:

HISTORY:

April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
December 15, 2011 - Policy amended to remove the introductory sentence and amend the concluding paragraph.
September 15, 2010 - Housekeeping changes to remove reference to the Prevention Division, delete practice reference and make formatting changes.
Replaces Policy No. 1.2.1 of the Prevention Division *Policy and Procedure Manual*.

APPLICATION:

This Item results from the 2000/2001/2002 "editorial" consolidation of all Prevention policies into the *Prevention Manual*. The POLICY in this Item continues the substantive requirements of Policy No. 1.2.1, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 1.2.1 was issued.

Policy Item P2-17-3
Certificate of Recognition Program

BACKGROUND

1. Explanatory Notes

The Certificate of Recognition Program is a voluntary employer certification program intended to motivate employers to take a proactive role in occupational health and safety.

2. The Act

Section 14, in part:

(1) The purpose of the OHS provisions is to benefit all citizens of British Columbia by promoting occupational health and safety and protecting workers and other persons present at workplaces from work-related risks to their health and safety.

(2) Without limiting subsection (1), the following are the specific purposes of the OHS provisions:

...

(f) to foster cooperative and consultative relationships between employers, workers and others regarding occupational health and safety, and to promote worker participation in occupational health and safety programs and occupational health and safety processes;

...

Section 17, in part:

(1) In accordance with the purposes of the OHS provisions, the Board has the mandate to be concerned with occupational health and safety generally, and with the maintenance of reasonable standards for the protection of the health and safety of workers in British Columbia and the occupational environment in which they work.

(2) In carrying out its mandate, the Board has the following duties, functions and powers:

...

(c) to provide services to assist joint committees, worker health and safety representatives, employers and workers in maintaining reasonable standards for occupational health and safety and occupational environment;

...

(e) to encourage, develop and conduct or participate in conducting programs for promoting occupational health and safety and for improving the qualifications of persons concerned with occupational health and safety and occupational environment;

...

(k) to cooperate and enter into arrangements and agreements with governments and other agencies and persons on matters relating to the Board's responsibilities under the OHS provisions;

Section 107:

(1) The Board may charge a class or subclass with the cost of investigations, inspections and other services provided to the class or subclass for the prevention of injuries and illnesses.

(2) A charge under subsection (1) may be levied on the class or subclass by way of an assessment.

Section 239, in part:

(1) The Board must continue and maintain the accident fund

- (a) for payment of the compensation, outlays and expenses under the compensation provisions,
- (b) for payment of expenses incurred in the Board's administration of this *Act*.

...

Section 247, in part:

- (1) The Board must establish subclassifications, differentials and proportions in the rates as between the different kinds of employment in the same class, as the Board considers just.
- (2) If the Board considers that a particular industry or plant is circumstanced or conducted such that the hazard or cost of compensation differs from the average of the class or subclass to which the industry or plant is assigned, the Board
 - (a) must establish a special rate, differential or assessment for that industry or plant to correspond with the relative hazard or cost of compensation of the industry or plant, and
 - (b) for the purpose referred to in paragraph (a), may also adopt a system of experience rating.

...

POLICY

See Item AP5-247-4 of the [Assessment Manual](#) for the policy.

EFFECTIVE DATE:	January 1, 2019
AUTHORITY:	Sections 14, 17, 107, 239, and 247 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-95-1, <i>Criteria for Imposing OHS Penalties</i> , of the <i>Prevention Manual</i> ; Item AP5-247-4, <i>Certificate of Recognition Program</i> , of the <i>Assessment Manual</i> .
HISTORY:	October 21, 2020 – Housekeeping amendments to the <i>Act</i> portion of the Background section to reflect amendments to the <i>Act</i> by the <i>Workers Compensation Amendment Act, 2020</i> (Bill 23 of 2020), in effect August 14, 2020. April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. January 1, 2019 - The revisions to the COR policy approved by Board Resolution No. 2018/11/22-01 on November 22, 2018 apply to all decisions made on or after January 1, 2019, except for financial incentive decisions relating to a violation of the <i>Act</i> or <i>OHSR</i> that occurred before January 1, 2019. The interim policies continue to apply to those financial incentive decisions relating to violations of the <i>Act</i> or <i>OHSR</i> occurring before January 1, 2019. November 22, 2017 - Interim policy extended to December 31, 2018. October 31, 2016 - Interim policy extended to December 31, 2017. February 15, 2016 - Interim policy in effect until October 31, 2016.
APPLICATION:	This policy applies to all decisions made on or after January 1, 2019, except for financial incentive decisions relating to a violation of the <i>Act</i> or <i>OHSR</i> that occurred before January 1, 2019. The interim policies continue to apply as if unexpired in respect of a financial incentive decision relating to a violation of the <i>Act</i> or <i>OHSR</i> that occurred before January 1, 2019.

Policies Workers Compensation Act Part 2 Division 3 - Board Jurisdiction

Policy Item P2-20-1
Varying or Cancelling Previous Decisions or Orders

BACKGROUND

1. Explanatory Notes

Section 20(1) sets out the Board's authority to make a new decision or order to vary or cancel a previous decision or order made under the OHS provisions of the *Act*. It is necessary to set out the grounds on which the Board will exercise that authority.

A subsidiary issue relates to the requirements for providing notice and posting that must be observed when the Board makes a new decision or order under section 20(1) to vary or cancel an order. In these cases, it must give notice to the employer or other person in relation to whom the order was made. If the person given notice was required by or under the OHS provisions of the *Act* to post a copy of the original order or to provide copies of it to a joint committee, worker representative or union, the person must post and provide copies of the notice in accordance with the same requirements under section 87. The general posting requirements in section 51 will apply where posting of the varying or cancelling of an order is required.

2. The Act

Section 20:

(1) Subject to subsection (2) of this section and sections 87(1) [*notice required if Board order varied or cancelled*] and 89(4) [*restriction on cancellation of order to stop use or supply of unsafe equipment*], the Board may at any time, on its own initiative, make a new decision or order varying or cancelling a previous decision or order of the Board or of an officer or employee of the Board respecting any matter that is within the jurisdiction of the Board under the OHS provisions.

(2) The Board may not make a decision or an order under subsection (1) if

(a) a review has been requested under section 270 [*request for review of Board decision*] in respect of the previous decision or order, or

(b) an appeal has been filed under section 289 [*other Board decisions that may be appealed*] in respect of the previous decision or order.

(3) The Board may review a decision or order made under the OHS provisions by the Board or an officer or employee of the Board, but only as specifically provided in Part 6 [*Review of Board Decisions*].

(4) The Board may at any time set aside a decision or order made under the OHS provisions by the Board or an officer or employee of the Board if that decision or order resulted from fraud or misrepresentation of the facts or circumstances on which the decision or order was based.

Section 87:

(1) If the Board varies or cancels an order, it must give notice to the employer or other person in relation to whom the order was made.

(2) If the person given notice under subsection (1) was required under the OHS provisions to post a copy of the original order or to provide copies of it to a joint committee, worker representative or union, that person must post and provide copies of the notice in accordance with the same requirements.

Section 268, in part:

(1) Subject to subsection (2), a person referred to in the applicable provision of section 269 may request a review officer to review the following in a specific case:

(a) a Board order respecting an occupational health or safety matter under the OHS provisions, a refusal to make such an order or a variation or cancellation of such an order;

...

(2) A review may not be requested under subsection (1) respecting the following:

(a) in relation to section 50 [*response to complaint respecting prohibited actions against a worker*], a determination, an order, a refusal to make an order or a cancellation of an order under that section;

(b) an assessment under section 108(1)(a) [*levy of amount owed by employer under the OHS provisions*];

...

POLICY

This policy addresses the Board's authority, on its own initiative, to make new decisions or orders varying or cancelling previous decisions or orders under section 20(1) of the *Act*.

(a) "On Its Own Initiative"

It is significant that section 20(1) only authorizes the Board to make a new decision or order varying or cancelling a previous decision or order under the OHS provisions of the *Act* "on its own initiative". This is to be contrasted with the Board's authority to reopen a matter under the compensation provisions of the *Act* "on its own initiative or on application" under section 125(1) of the *Act*. It is also to be contrasted with section 273 and section 310, which authorize a review officer and the Appeal Tribunal, respectively, to reconsider decisions on application in certain circumstances.

The use of the words "on its own initiative" in section 20(1), with no mention of "on application", and the availability of a review mechanism under Part 6, indicate that the Board is not intended to set up a formal application process under section 20(1) to resolve disputes that parties may have with decisions or orders.

Rather, the Board's authority to vary or cancel is intended to provide a quality assurance mechanism for the Board. The Board is given an opportunity to correct, on its own initiative, any errors it may have made.

This does not, of course, preclude the Board from making a new decision or order varying or cancelling a previous decision or order on the basis of information that may be brought forward by an employer or other party to a decision or order.

(b) Grounds

The Board may make a new decision or order varying or cancelling a previous decision or order if there are grounds showing either an error of law or policy, or significant new evidence, and the Board determines that either of these grounds require that the previous decision or order be varied or cancelled.

(c) General Exercise of Authority

In considering whether to make a new decision that varies or cancels a previous decision or order, the Board will take into account the length of time that has elapsed since the decision or order was made. A delay since the previous decision or order was made, in the absence of a reasonable explanation for the delay, is a ground for the Board not to exercise its power to vary or cancel the previous decision or order without considering the merits of the previous decision or order.

Before varying or cancelling a decision or order, the Board will advise any person that may be affected by a new decision and provide an opportunity for these individuals to make comments.

(d) Authority to Vary or Cancel Reviews and Appeals

The *Act* gives the Board the authority to make final decisions on the matter before it. It also provides rights of review and appeal, but these are subject to time limits. The *Act* shows a general intention as to how disputes concerning decisions or orders should be resolved, and that there be finality in decision-making. This intention must be considered when deciding whether to exercise the discretion provided by section 20(1) to make a new decision varying or cancelling previous decisions or orders.

Subject to grounds being established as set out in (b) above, the Board may make a new decision varying or cancelling a decision or order under section 20(1) on which an available review or appeal was not commenced within the time allowed.

The Board will not, however, make a new decision or order under section 20(1) where the merits of the previous decision have been the subject of a decision on a review by the Review Division or an appeal by the Appeal Tribunal except in accordance with the decision by the Review Division or Appeal Tribunal.

Nor will the Board normally make a new decision or order under section 20(1) where:

- there is a right to a review of the previous decision or order or a right of appeal to the Appeal Tribunal; or
- the previous decision or order is being considered, or will be considered, for the purpose of considering an administrative penalty or similar levy.

EFFECTIVE DATE:	March 3, 2003
AUTHORITY:	Sections 20 and 268 of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. March 3, 2003 - Item developed to implement the <i>Workers Compensation Amendment Act (No. 2)</i> , 2002.
APPLICATION:	

Policies Workers Compensation Act Part 2 Division 4 - General Duties of Employers, Workers and Others

Policy Item P2-21-1
Employer Duty Towards Other Workers

BACKGROUND

1. Preamble

A purpose of the OHS provisions of the *Act* is "to ensure that employers, workers and others who are in a position to affect the occupational health and safety of workers share that responsibility to the extent of each party's authority and ability to do so."¹ [Footnote¹ [Section 14\(2\)\(e\) of the *Act*](#)]

Section 21(1)(a)(ii) reflects that purpose and ultimately requires an employer to ask "Have I done all that I can reasonably do to ensure the health and safety of those other workers?"

This policy is to assist decision makers by providing a consistent approach to interpretation. The policy provides principles to guide decision makers since it is not possible to address every potential workplace arrangement.

Historically, interpretation of section 21(1)(a)(ii) has focused primarily on whether or not the duty applies in a particular situation. This policy simplifies that determination by adopting a broad interpretation as to when the duty applies. This policy then provides practical criteria to determine what the duty means in practice (the scope of the duty).

2. Explanatory Notes

This policy addresses an employer's duty towards other workers as set out in section 21(1)(a)(ii) of the *Act*. This states that an employer must ensure the health and safety of *other workers* present at a workplace at which that employer's work is being carried out.

That duty co-exists with the duty that the direct employer and other employers may have towards those workers. In addition, employers may also have distinct duties towards other workers as set out in sections 24, 25 and 26 of the *Act* and various sections of the *OHSR*.

3. The *Act*

Section 21(1), in part:

- (1) Every employer must
 - (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out,...

The Appendix to this policy contains other related sections of the *Act* and *OHSR*.

POLICY

Section 21(1)(a)(ii) gives every employer the duty to ensure the health and safety of any other workers present at a workplace at which that employer's work is being carried out.

Definition

"*other workers*" refers to workers other than those of the employer. This includes workers of other employers as well as persons deemed to be workers through signing up for Personal Optional Protection (POP).

When Does The Duty Apply?

The duty applies whenever *other workers* are present at a workplace at which that employer's work is being carried out.

The employer's work can be carried out in one of two ways:

- (a) *other workers* are present at a workplace where the employer's workers are working, or
- (b) *other workers* are doing work for the employer's benefit.

What Does the Duty Require? (Scope of the Duty)

Once the duty applies, section 21(1)(a)(ii) requires an employer to take all reasonable steps in the circumstances to ensure the health and safety of the *other workers*. Some of those reasonable steps are set out below in items 1 to 3. In each case, the following three factors below (A to C) will affect what must be done:

- A. the employer's degree of control,
- B. the employer's level of expertise in the work being performed, and
- C. the extent to which the employer is aware or ought to be aware of what is occurring in the workplace.

These reasonable steps for the employer include the following:

1. Making reasonable inquiries prior to a firm doing work on the employer's behalf;
 - (a) The employer's expertise in the area may affect the extent of inquiries:
 - (i) to determine whether the firm is capable of safely doing the work; and
 - (ii) about the firm's plans to safely conduct the work.
2. Preventing unsafe conditions or work that may affect the *other workers* and addressing those that arise; and
 - (a) The extent to which the employer is aware or ought to be aware of the unsafe conditions or work may affect what must be done.

The employer's familiarity with the worksite may affect the ability to identify unsafe conditions or work.

 - (b) The employer's level of expertise may affect the ability to identify the unsafe conditions or work.

For example, a roofing firm subcontracting to another, will have a good understanding of when fall protection is required. A

manufacturing employer that engages a roofing contractor to service its plant may not.

(c) The employer's degree of control over the other workers or the site, may affect:

(i) the processes implemented to address safety compliance; and

Where the employer exercises a high degree of control relating to a particular function or activity, the employer will have a higher level of responsibility relating to that activity. This could include stopping the work, if necessary.

(ii) the employer's response to unsafe conditions or work.

Where there is no control, the duty may be satisfied by reporting the situation to a supervisor of the other workers.

As with item (i) above, where the employer exercises a high degree of control relating to a particular function or activity, the employer will have a higher level of responsibility relating to that activity. This could include stopping the work, if necessary.

3. Ensuring that the employer's workers do not put the *other workers* at risk.

The employer must address any aspects of the employer's work that could create a hazard for other workers. This would include workers coming on to the site after the work day. For example, security guards patrolling in the evening risk injury if hazards are left at the end of the work day.

PRACTICE

The following scenarios provide basic examples of the application of the policy for illustration purposes. More than one scenario may apply to some cases.

The scenarios are not policy. Where they conflict with the policy or are less comprehensive than the policy, the policy should be relied upon.

Scenarios

(1) An employer brings in a sub-contractor to the employer's fixed workplace.

In this case, the employer will generally have greater awareness of the site hazards, physical control over the site and the ability to affect all employers in the workplace. The employer will have contractual control over the subcontractor as well as physical control over the worksite.

- The employer must make reasonable inquiries to determine that the subcontractor is able to safely perform the work.
 - This could involve questions for the subcontractor as well as checking references.
- The employer must make reasonable inquiries about the subcontractor's plan to safely conduct the work.
 - This would involve questions for the subcontractor, the extent of which would depend on the employer's level of expertise in the type of work performed by the subcontractor.
- The employer must provide information about hazards and preserve and maintain the safety of the workplace (see also [section 25](#) of the *Act*).
- The employer must ensure that its activities do not endanger the *other workers*, including workers who may be involved in work after hours or following completion of the employer's work.
- Where these are known to the employer, unsafe acts by *other workers* must be reported to their supervisor (see also [OSHR 3.10](#)).
- The employer must exercise its authority to stop work by the *other workers* in the case of significant hazards or where reports of unsafe acts or conditions are not being acted upon.

(2) An employer hires a subcontractor to do work at a third party's workplace, where a third party maintains overall control of the workplace. The employer is not given any level of authority over the workplace.

In this case, the employer will have the same responsibilities over the subcontractor as in scenario (1) with the exception that the employer will not have control over physical aspects of the workplace.

(3) An employer has control over the subcontractor and the workplace but is not on site or only briefly attending the workplace.

In this case, the employer will have the same responsibilities over the subcontractor as in scenario (1), however, the employer will have less awareness of what is occurring at the workplace.

(4) An employer is a franchisor.

- The employer's responsibility will depend on the degree of control it exercises over the franchisee's operation and facilities, the extent of awareness and degree of expertise it has about the operations.
- When the employer exercises significant control over the franchisee's facility in a manner that affects health and safety, the employer will have a greater obligation to take steps to protect the *other workers*.

(5) An employer is present at a workplace but does not have control over other employers or over the workplace. (For example, the employer's

workers work along with *other workers* at a shared site owned and controlled by a third party.)

- The employer's activities must not endanger *other workers*.
- Where these are known to the employer, unsafe acts by *other workers* must be reported to their supervisor (see also *OSHR* 3.10).
- Unsafe acts or conditions which are not remedied after an initial report must be pursued through the workplace hierarchy or reported to WorkSafeBC.

APPENDIX

1. Additional Act Provisions

Section 14:

- (1) The purpose of the OHS provisions is to benefit all citizens of British Columbia by promoting occupational health and safety and protecting workers and other persons present at workplaces from work-related risks to their health and safety.
 - (2) Without limiting subsection (1), the following are specific purposes of the OHS provisions:
 - (a) to promote a culture of commitment on the part of employers and workers to a high standard of occupational health and safety;
 - (b) to prevent work-related accidents, injuries and illnesses;
 - (c) to encourage the education of employers, workers and others regarding occupational health and safety;
 - (d) to ensure an occupational environment that provides for the health and safety of workers and others;
 - (e) to ensure that employers, workers and others who are in a position to affect the occupational health and safety of workers share that responsibility to the extent of each party's authority and ability to do so;
 - (f) to foster cooperative and consultative relationships between employers, workers and others regarding occupational health and safety, and to promote worker participation in occupational health and safety programs and occupational health and safety processes;
 - (g) to minimize the social and economic costs of work related accidents, injuries and illnesses, in order to enhance the quality of life for British Columbians and the competitiveness of British Columbia in the Canadian and world economies.

Section 21:

- (1) Every employer must
 - (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out, and
 - (b) comply with the OHS provisions, the regulations and any applicable orders.
- (2) Without limiting subsection (1), an employer must
 - (a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,
 - (b) ensure that the employer's workers
 - (i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,
 - (ii) comply with the OHS provisions, the regulations and any applicable orders, and
 - (iii) are made aware of their rights and duties under the OHS provisions and the regulations,
 - (c) establish occupational health and safety policies and programs in accordance with the regulations,
- (d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,
- (e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,
- (f) make a copy of this *Act* and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,
- (g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and

(h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

Section 30:

(1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.

(2) If one of the persons subject to the obligation complies with the applicable provision, the other persons subject to the obligation are relieved of that obligation only during the time when

(a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and

(b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

2. Additional OHSR Provisions

Section 3.10:

Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.

EFFECTIVE DATE:	May 1, 2013
AUTHORITY:	Section 21 of the <i>Act</i> .
CROSS REFERENCES:	Sections 14 and 30 of the <i>Act</i> ; Section 3.10 of the <i>OHSR</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-21-2
Employer Duties - Workplace Bullying and Harassment

BACKGROUND

1. Preamble

An employer has a duty to ensure the health and safety of its workers, and as a result, employers must take all reasonable steps to prevent where possible, or otherwise minimize, workplace bullying and harassment. Workplace bullying and harassment can lead to injury, illness or death.

This Policy provides a consistent legal framework for stakeholders, WorkSafeBC Officers and decision-makers identifying what WorkSafeBC considers to be reasonable steps for an employer to prevent where possible, or otherwise minimize, workplace bullying and harassment.

WorkSafeBC Officers will review whether the elements in this Policy have been developed, implemented and periodically reviewed.

2. Explanatory Notes

Section 21(1)(a) of the *Act* ("*Act*") requires an employer to take all reasonable steps in the circumstances to ensure the health and safety of its workers.

Section 21(2)(e) of the *Act* requires an employer to inform, instruct, train and supervise workers to ensure their safety and that of other workers.

This policy (P2-21-2), which flows from the above sections in the *Act*, discusses employer duties regarding bullying and harassment. It identifies what WorkSafeBC considers to be reasonable steps for an employer to take to address the hazards of workplace bullying and harassment.

There are two other related policies that address workplace bullying and harassment: [Items P2-22-1](#) and [Policy P2-23-2](#).

3. The Act

Section 21, in part:

(1) Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out,...

...

(2) Without limiting subsection (1), an employer must

...

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work...

...

POLICY

Definition

"bullying and harassment" (a) includes any inappropriate conduct or comment by a person towards a worker that the person knew or reasonably ought to have known would cause that worker to be humiliated or intimidated, but

(b) excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.

Reasonable Steps to Address the Hazard

WorkSafeBC considers that reasonable steps by an employer to prevent where possible, or otherwise minimize, workplace bullying and harassment include the following:

- (a) developing a policy statement with respect to workplace bullying and harassment not being acceptable or tolerated;
- (b) taking steps to prevent where possible, or otherwise minimize, workplace bullying and harassment;
- (c) developing and implementing procedures for workers to report incidents or complaints of workplace bullying and harassment including how, when and to whom a worker should report incidents or complaints. Included must be procedures for a worker to report if the employer, supervisor or person acting on behalf of the employer, is the alleged bully and harasser;
- (d) developing and implementing procedures for how the employer will deal with incidents or complaints of workplace bullying and harassment including:
 - i. how and when investigations will be conducted;
 - ii. what will be included in the investigation;
 - iii. roles and responsibilities of employers, supervisors, workers and others;
 - iv. follow-up to the investigation (description of corrective actions, timeframe, dealing with adverse symptoms, etc.); and
 - v. record keeping requirements;
- (e) informing workers of the policy statement in (a) and the steps taken in (b);
- (f) training supervisors and workers on:
 - i. recognizing the potential for bullying and harassment;
 - ii. responding to bullying and harassment; and
- iii. procedures for reporting, and how the employer will deal with incidents or complaints of bullying and harassment in (c) and (d) respectively;
- (g) annually reviewing (a), (b), (c), and (d);
- (h) not engaging in bullying and harassment of workers and supervisors; and
- (i) applying and complying with the employer's policies and procedures on bullying and harassment.

PRACTICE

The definition of bullying and harassment includes any inappropriate conduct or comment by a 'person' towards a worker that the 'person' knew or

reasonably ought to have known would cause that worker to be humiliated or intimidated.

A 'person' includes any individual, whether or not they are a workplace party. This means that a 'person' could be a workplace party such as an employer, supervisor, or co-worker, or a non workplace party such as a member of the public, a client, or anyone a worker comes into contact with at the workplace.

In order to determine what is reasonable in the policy, a definition below is included for a 'reasonable person'.

Black's Law Dictionary, Ninth Edition, defines a reasonable person as follows:

"...a person who exercises the degree of attention, knowledge, intelligence, and judgment that society requires of its members for the protection of their own and of others' interests. The reasonable person acts sensibly, does things without serious delay, and takes proper but not excessive precautions..."

EFFECTIVE DATE:	November 1, 2013
AUTHORITY:	Section 21(1)(a) and 21(2)(e) of the <i>Act</i> .
CROSS-REFERENCES:	Item P2-22-1, <i>Worker Duties - Workplace Bullying and Harassment</i> ; Item P2-23-2, <i>Supervisor Duties - Workplace Bullying and Harassment</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-21-3
Employer Duties - Wood Dust Mitigation and Control

BACKGROUND

1. Preamble

An employer has a duty to ensure the health and safety of its workers, and therefore must take all reasonable steps to address the hazards of combustible wood dust.

Combustible dusts are fine particles that present explosion hazards when suspended in air under certain conditions. Combustible wood dust has resulted in catastrophic explosions with loss of life and serious injuries.

This policy provides a consistent legal framework for stakeholders, WorkSafeBC officers, and decision-makers identifying what WorkSafeBC considers reasonable steps for an employer to take to address these hazards.

Controlling combustible wood dust hazards requires a systematic long term approach contained in a program, including audits that can provide an objective and comprehensive evaluation of a facility's wood dust management practices and their effectiveness.

2. Explanatory Notes

Section 21(1)(a) of the *Act* requires an employer to take all reasonable steps in the circumstances to ensure the health and safety of workers. In addition, the *Act* and *OHSR* also require an employer to:

- remedy any workplace conditions that are hazardous to the health or safety of workers (section 21(2)(a) of the *Act*).
- inform, instruct, train and supervise workers to ensure their safety and that of other workers (section 21(2)(e) of the *Act*).
- safely remove combustible dust before accumulation of the dust could cause a fire or explosion (section 5.81 of the *OHSR*).
- regularly inspect the workplace at intervals that will prevent the development of unsafe working conditions, and following an accident or equipment malfunction (sections 3.5 and 3.7 of the *OHSR*).
- investigate all reports of unsafe conditions or acts and ensure that necessary corrective action is taken immediately (section 3.10 of the *OHSR*).

This policy (P2-21-3) flows from the above sections of the *Act* and *OHSR* and addresses employer duties regarding wood dust mitigation and control. To be duly diligent with respect to combustible dust obligations, an employer must take all reasonable steps to comply with the *Act* and *OHSR*. This policy identifies what WorkSafeBC considers these reasonable steps to be.

This policy will initially apply to wood product manufacturers in eight specified classification units. WorkSafeBC assigns employers to classification units based on an employer's primary business activity.

Two other related policies address wood dust mitigation and control: Items [P2-22-2](#) and [P2-23-3](#).

3. The Act

Section 21, in part:

(1) Every employer must

(a) ensure the health and safety of

(i) all workers working for that employer, and

(ii) any other workers present at a workplace at which that employer's work is being carried out, ...

...

(2) Without limiting subsection (1), an employer must

(a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,

...

(e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work...

...

4. The OHSR

Section 3.5:

Every employer must ensure that regular inspections are made of all workplaces, including buildings, structures, grounds, excavations, tools, equipment, machinery and work methods and practices, at intervals that will prevent the development of unsafe working conditions.

Section 3.7:

A special inspection must be made when required by malfunction or accident.

Section 3.10:

Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.

Section 5.81:

If combustible dust collects in a building or structure or on machinery or equipment, it must be safely removed before accumulation of the dust could cause a fire or explosion.

POLICY

Application

This policy applies to employers within the following classification units:

Classification Unit Name	Classification Unit #
Sawmill	714022
Oriented Strand Board Manufacture	714012
Planing Mill	714015
Pressed Board Manufacture (not elsewhere specified) [includes pellet plants]	714019
Pulp and Paper Mill	714044
Shake and Shingle Mill	714023
Veneer or Plywood Manufacture	714027
Wooden Component Manufacture (not elsewhere specified)	714032

Reasonable Steps to Address the Hazard

WorkSafeBC considers that reasonable steps by an employer to address the hazards of combustible wood dust include the following:

(a) conducting a risk assessment to identify combustible wood dust hazards at the workplace;

(b) developing and implementing a combustible wood dust management program to effectively address combustible wood dust hazards;

- (c) educating and training workers and supervisors about the hazards and measures in the combustible wood dust management program to control the hazards;
- (d) ensuring that the combustible wood dust management program is fully implemented;
- (e) undergoing a wood dust mitigation and control audit as soon as reasonably possible after implementing the program, then
 - (i) promptly implementing recommendations from the audit, and
 - (ii) conducting a new audit if there is any material change to work processes or equipment;
- (f) reviewing the combustible wood dust management program
 - (i) annually, and
 - (ii) simultaneously with any material changes to work processes or equipment to ensure that these changes are addressed; and
- (g) complying with the employer's combustible wood dust management program.

PRACTICE

OHS [Guideline G5.81](#) and the [Mitigation and Control of Combustible Wood Dust Resource Tool Box](#) provide more detailed information and guidance regarding implementation of a wood dust mitigation and control program. The toolbox contains a comprehensive audit tool which can be used for a program audit and can also provide guidance to an employer developing a program.

EFFECTIVE DATE:	September 1, 2014
AUTHORITY:	Sections 21(1)(a), 21(2)(a), and 21(2)(e) of the <i>Act</i> ; Sections 3.5, 3.7, 3.10, and 5.81 of the <i>OHSR</i> .
CROSS REFERENCES:	Item P2-22-2, <i>Worker Duties - Wood Dust Mitigation and Control</i> ; Item P2-23-3, <i>Supervisor Duties - Wood Dust Mitigation and Control</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-22-1
Worker Duties - Workplace Bullying and Harassment

BACKGROUND

1. Preamble

A worker has a duty to take reasonable care to protect the health and safety of themselves and other persons, and as a result, a worker must take all reasonable steps to prevent where possible, or otherwise minimize, workplace bullying and harassment. Workplace bullying and harassment can lead to injury, illness or death.

This policy provides a consistent legal framework for stakeholders, WorkSafeBC Officers and decision-makers identifying what WorkSafeBC considers to be reasonable steps for a worker to prevent where possible, or otherwise minimize, workplace bullying and harassment.

2. Explanatory Notes

Section 22(1)(a) of the *Workers Compensation Act* ("*Act*") requires workers to take reasonable care to protect the health and safety of other persons who may be affected by the worker's acts or omissions at work.

This policy (P2-22-1), which flows from the above section in the *Act*, discusses worker duties regarding bullying and harassment.

There are two other related policies that address workplace bullying and harassment: Items [P2-21-2](#) and [P2-23-2](#).

3. The Act

Section 22(1), in part:

Every worker must

- (a) take reasonable care to protect the worker's health and safety and the health and safety of other persons who may be affected by the worker's acts or omissions at work, ...

...

"bullying and harassment" (a) includes any inappropriate conduct or comment by a person towards a worker that the person knew or reasonably ought to have known would cause that worker to be humiliated or intimidated, but

(b) excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.

A worker's obligation to take reasonable care to protect the health and safety of themselves or others includes:

- (a) not engaging in bullying and harassment of other workers, supervisors, the employer or persons acting on behalf of the employer;
- (b) reporting if bullying and harassment is observed or experienced in the workplace; and
- (c) applying and complying with the employer's policies and procedures on bullying and harassment.

PRACTICE

The definition of bullying and harassment includes any inappropriate conduct or comment by a 'person' towards a worker that the 'person' knew or reasonably ought to have known would cause that worker to be humiliated or intimidated.

A 'person' includes any individual, whether or not they are a workplace party. This means that a 'person' could be a workplace party such as an employer, supervisor, or co-worker, or a non workplace party such as a member of the public, a client, or anyone a worker comes into contact with at the workplace.

Black's Law Dictionary, Ninth Edition, defines a reasonable person as follows:

"...a person who exercises the degree of attention, knowledge, intelligence, and judgment that society requires of its members for the protection of their own and of others' interests. The reasonable person acts sensibly, does things without serious delay, and takes proper but not excessive precautions..."

EFFECTIVE DATE:	November 1, 2013
AUTHORITY:	Section 22(1)(a) of the <i>Act</i> .
CROSS-REFERENCES:	Item P2-21-2, <i>Employer Duties - Workplace Bullying and Harassment</i> ; Item P2-23-2, <i>Supervisor Duties - Workplace Bullying and Harassment, of the Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-22-2
Worker Duties - Wood Dust Mitigation and Control

BACKGROUND

1. Preamble

A worker has a duty to take reasonable care to protect the health and safety of themselves and other persons, and as a result, a worker has duties with regard to the hazards of combustible wood dust

Combustible dusts are fine particles that present an explosion hazard when suspended in air under certain conditions. Combustible wood dust has resulted in catastrophic explosions with loss of life and serious injuries.

This policy provides a consistent legal framework for stakeholders, WorkSafeBC officers, and decision-makers identifying what WorkSafeBC considers reasonable steps for a worker to meet his or her duties with respect to these hazards.

2. Explanatory Notes

Section 22(1)(a) of the *Act* requires workers to take reasonable care to protect the health and safety of other persons who may be affected by the worker's acts or omissions at work.

Section 3.10 of the *OHSR* requires a person who sees an unsafe condition or act to report it as soon as possible to a supervisor or to the employer.

This policy (P2-22-2) flows from the above sections of the *Act* and *OHSR* and addresses worker duties regarding combustible wood dust.

Two other related policies address combustible wood dust: Items [P2-21-3](#) and [P2-23-3](#).

3. The Act

Section 22(1), in part:

(1) Every worker must

(a) take reasonable care to protect the worker's health and safety and the health and safety of other persons who may be affected by the worker's acts or omissions at work, ...

...

4. The OHSR:

Section 3.10:

Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.

POLICY

A worker's obligation to take reasonable care to protect the health and safety of themselves or others includes:

(a) reporting unsafe conditions or actions relating to combustible wood dust in the workplace to a supervisor, or to the employer, as soon as possible; and

(b) complying with the employer's combustible wood dust management program.

EFFECTIVE DATE:	September 1, 2014
AUTHORITY:	Section 22(1)(a) of the <i>Act</i> Section 3.10 of the <i>OHSR</i> .
CROSS REFERENCES:	Item P2-21-3, <i>Employer Duties - Wood Dust Mitigation and Control</i> ; Item P2-23-3, <i>Supervisor Duties - Wood Dust Mitigation and Control</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-23-1
General Duties - Supervisors

BACKGROUND

1. Explanatory Notes

Section 23 sets out the general duties of supervisors under the OHS provisions of the *Act*.

2. The Act

Section 23:

(1) Every supervisor must

- (a) ensure the health and safety of all workers under the direct supervision of the supervisor,
- (b) be knowledgeable about the OHS provisions and those regulations applicable to the work being supervised, and
- (c) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), a supervisor must

- (a) ensure that the workers under the supervisor's direct supervision
 - (i) are made aware of all known or reasonably foreseeable health or safety hazards in the area where they work, and
 - (ii) comply with the OHS provisions, the regulations and any applicable orders,

- (b) consult and cooperate with the joint committee or worker health and safety representative for the workplace, and
- (c) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

POLICY

In determining whether Section 23 applies, the following guidelines will be considered:

- A supervisor is a person who instructs, directs and controls workers in the performance of their duties.
- A supervisor need not have the title "supervisor". He or she may have some other title or have no title at all.
- The supervisor will normally be appointed by an employer as such, but a person may be a supervisor without being specifically appointed by an employer if, as a matter of fact, he or she instructs, directs and controls workers in the performance of their duties. The employer himself or herself may be a supervisor.
- "Direct supervision" may take place even though a worker may be located in a different place than the supervisor or may travel to different places as part of his or her work. Directions may be given by any communications medium.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Section 23 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-24-1, <i>Multiple Employer Workplaces</i> ; Item P2-25-1, <i>Owners</i> ; Item P2-27-1, <i>Directors and Officers of a Corporation</i> ; P2-29/30-1, <i>Overlapping Obligations</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	

Policy Item P2-23-2
Supervisor Duties - Workplace Bullying and Harassment

BACKGROUND

1. Preamble

A supervisor has a duty to take all reasonable steps to ensure the health and safety of workers under their supervision, and as a result, a supervisor must take all reasonable steps to prevent where possible, or otherwise minimize, workplace bullying and harassment. Workplace bullying and harassment can lead to injury, illness or death.

This Policy provides a consistent legal framework for stakeholders, WorkSafeBC Officers and decision-makers identifying what WorkSafeBC considers to be reasonable steps for a supervisor to prevent where possible, or otherwise minimize, workplace bullying and harassment.

2. Explanatory Notes

Section 23(1)(a) of the *Act* requires supervisors to take all reasonable steps to ensure the health and safety of workers under their supervision.

This policy (P2-23-2), which flows from the above section in the *Act*, discusses supervisor duties regarding bullying and harassment.

There are two other related policies that address workplace bullying and harassment: Items [P2-21-2](#) and [P2-22-1](#).

3. The Act

Section 23(1), in part:

(1) Every supervisor must

(a) ensure the health and safety of all workers under the direct supervision of the supervisor, ...

...

POLICY

Definition

"bullying and harassment" (a) includes any inappropriate conduct or comment by a person towards a worker that the person knew or reasonably ought to have known would cause that worker to be humiliated or intimidated, but

(b) excludes any reasonable action taken by an employer or supervisor relating to the management and direction of workers or the place of employment.

A supervisor's obligation to ensure health and safety of workers includes:

- (a) not engaging in bullying and harassment of workers, other supervisors, the employer or persons acting on behalf of the employer; and
- (b) applying and complying with the employer's policies and procedures on bullying and harassment.

PRACTICE

The definition of bullying and harassment includes any inappropriate conduct or comment by a 'person' towards a worker that the 'person' knew or reasonably ought to have known would cause that worker to be humiliated or intimidated.

A 'person' includes any individual, whether or not they are a workplace party. This means that a 'person' could be a workplace party such as an employer, supervisor, or co-worker, or a non workplace party such as a member of the public, a client, or anyone a worker comes into contact with at the workplace.

Black's Law Dictionary, Ninth Edition, defines a reasonable person as follows:

"...a person who exercises the degree of attention, knowledge, intelligence, and judgment that society requires of its members for the protection of their own and of others' interests. The reasonable person acts sensibly, does things without serious delay, and takes proper but not excessive precautions..."

EFFECTIVE DATE:	November 1, 2013
AUTHORITY:	Section 23(1)(a) of the <i>Act</i> .
CROSS-REFERENCES:	Item P2-21-2, <i>Employer Duties - Workplace Bullying and Harassment</i> ; Item P2-22-1, <i>Worker Duties - Workplace Bullying and Harassment</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-23-3
Supervisor Duties - Wood Dust Mitigation and Control

BACKGROUND

1. Preamble

A supervisor has a duty to take all reasonable steps to ensure the health and safety of workers under their supervision, and as a result, a supervisor has duties with regard to the hazards of combustible wood dust.

Combustible dusts are fine particles that present an explosion hazard when suspended in air under certain conditions. Combustible wood dust has resulted in catastrophic explosions with loss of life and serious injuries.

This policy provides a consistent legal framework for stakeholders, WorkSafeBC officers, and decision-makers identifying what WorkSafeBC considers reasonable steps for a supervisor to meet his or her duties with respect to these hazards.

2. Explanatory Notes

Section 23(1)(a) of the *Workers Compensation Act* ("*Act*") requires supervisors to take all reasonable steps to ensure the health and safety of workers under their supervision.

Section 3.10 of the *OHSR* requires a supervisor who receives a report of an unsafe condition or act to investigate and ensure that necessary corrective action is taken immediately.

This policy (P2-23-3), flows from the above sections of the *Act* and *OHSR* and addresses supervisor duties regarding combustible wood dust.

Two other related policies address combustible wood dust: Items [P2-21-3](#) and [P2-22-2](#).

3. The Act

Section 23(2), in part

(1) Every supervisor must

(a) ensure the health and safety of all workers under the direct supervision of the supervisor, ...

...

4. The OHSR

Section 3.9:

Unsafe or harmful conditions found in the course of an inspection must be remedied without delay.

Section 3.10:

Whenever a person observes what appears to be an unsafe or harmful condition or act the person must report it as soon as possible to a supervisor or to the employer, and the person receiving the report must investigate the reported unsafe condition or act and must ensure that any necessary corrective action is taken without delay.

POLICY

In addition to a supervisor's duties as a worker or employer, a supervisor's obligation to ensure the health and safety of workers includes:

(a) investigating any reports received by the supervisor or inspection results identifying an unsafe condition or act relating to combustible wood dust and ensuring that necessary corrective action is taken immediately; and

(b) complying with the employer's combustible wood dust management program

EFFECTIVE DATE:	September 1, 2014
AUTHORITY:	Section 23(1)(a) of the <i>Act</i> Sections 3.9 and 3.10 of the <i>OHSR</i> .
CROSS REFERENCES:	Item P2-21-3, <i>Employer Duties - Wood Dust Mitigation and Control</i> ; Item P2-22-2, <i>Worker Duties - Wood Dust Mitigation and Control</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1.
APPLICATION:	

Policy Item P2-24-1
General Duties - Multiple-Employer Workplaces

BACKGROUND

1. Explanatory Notes

Section 24 sets out responsibilities at a "multiple employer workplace". It provides that the "prime contractor" is responsible for the coordination of activities at these workplaces.

2. The Act

Section 13, in part:

In the OHS provisions and the regulations under those provisions:

...

"multiple-employer workplace" means a workplace where workers of 2 or more employers are working at the same time;

...

"prime contractor", in relation to a multiple-employer workplace, means

(a) the directing contractor, employer or other person who enters into a written agreement with the owner of the workplace to be the prime contractor for the purposes of the OHS provisions, or

(b) if there is no written agreement referred to in paragraph (a), the owner of the workplace;

...

Section 24:

(1) The prime contractor of a multiple-employer workplace must

- (a) ensure that the activities of employers, workers and other persons at the workplace relating to occupational health and safety are coordinated, and
- (b) do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the OHS provisions and the regulations in respect of the workplace.

(2) Each employer of workers at a multiple-employer workplace must give to the prime contractor the name of the person the employer has designated to supervise the employer's workers at that workplace.

POLICY

For sake of clarity, the following apply in determining whether there is a "multiple-employer workplace" under section 24:

- Two or more adjacent workplaces do not constitute a "multiple-employer workplace", even though the activities at one workplace might affect the health and safety of workers at an adjacent workplace.
- It does not matter whether:
 - workers of different employers are present at the same time working on different projects; or
 - workers of different employers are present at the same time working on the same project.

In both cases, the workplace will generally be a "multiple-employer workplace"

- In determining whether "workers of 2 or more employers are working at the same time", the phrase "at the same time" will be given such fair, large and liberal construction as may best attain the objectives of section 24. "At the same time" does not mean that, at any precise point in time, there are workers of 2 or more employers present in the workplace. Rather, it means that, over an appropriate interval, there are workers of 2 or more employers present in the workplace, whether or not the 2 or more groups of workers are actually present together in the workplace at any precise point in time at all. The duration of the interval of time to be considered will depend upon the circumstances of the individual workplace.
- Whether the workers of the one employer come into actual contact with the workers of the other employer does not generally affect the determination of whether the workplace is a "multiple-employer workplace". An employer, the employer's workers and their activities could well affect the health and safety of another employer's workers who come into the workplace later in the day or on another day, even though there may be no actual contact between the two groups of workers.

However, the degree to which the activities of the first employer and its workers affect the health and safety of the second employer's workers will generally affect the determination of the responsibilities of the prime contractor and of the two employers under the OHS provisions of the *Act* and the OHS regulations.

- Virtually all workplaces will be visited by workers of other employers. For example, workers may deliver or pick up mail, goods or materials or enter to inspect the premises. Short term visits of this type, even if regular, do not make the workplace a "multiple-employer workplace" as defined in section 13.

The written agreement referred to in the definition of "prime contractor" must be made available within a reasonable time if requested by a Board officer.

There can be only one "prime contractor" at a workplace at any point in time. If an owner enters into more than one agreement purporting to create a "prime contractor" for the same period of time, the owner is considered to be the prime contractor.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Sections 13 and 24 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-23-1, <i>General Duties - Supervisors</i> ; Item P2-25-1, <i>General Duties - Owners</i> ; Item P2-27-1, <i>General Duties - Directors and Officers of a Corporation</i> ; Item P2-29/30-1, <i>General Duties - Overlapping Obligations</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	

Section 25 of the *Act* sets out the general duties of owners under the OHS provisions of the *Act*. This policy clarifies when these duties apply, and which owner(s) will be responsible for compliance, in multiple owner situations.

1. Explanatory Notes
2. The *Act*
Section 13, in part:

In the OHS provisions and the regulations under those provisions:

...

"owner" includes

- (a) a trustee, receiver, mortgagee in possession, tenant, lessee, licensee or occupier of any lands or premises used or to be used as a workplace, and
- (b) a person who acts for or on behalf of an owner as an agent or delegate;

...

Section 25:

Every owner of a workplace must

- (a) provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace,
- (b) give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace, and
- (c) comply with the OHS provisions, the regulations and any applicable orders.

POLICY

The purpose of this policy is to ensure that owners understand and fulfill their responsibilities under section 25 of the *Act*, especially in multiple owner situations.

The term "owner" is defined broadly under the *Act* to include several parties such as the person who holds the legal title to land or premises, a mortgagee in possession, a tenant, a lessee, a licensee, a trustee, and any other occupier of lands or premises used or to be used as a workplace.

Accordingly, more than one person may simultaneously meet the definition of the term "owner" in respect of a particular workplace. For example, both the entity that holds legal title to land and the entity that leases it for business purposes would qualify as owners under the *Act*. In such circumstances, referred to as multiple owner situations, all the owners of a particular workplace are responsible for fulfilling the duties set out in section 25 of the *Act*, the regulations, and any applicable orders, subject to the Limited Exemption under section 30 of the *Act*.

When the duties set out in section 25 of the *Act* have not been met by a party or parties, and the Limited Exemption does not apply, Board officers will determine which owner(s) should be held responsible for the violation. In making this determination, Board officers will consider who had or should have had knowledge of, and control over, the particular workplace. To assist in this consideration, a non-exhaustive list of factors is set out below. When these factors are present, an owner will likely be held responsible for or have to address an issue.

Category 1: Knowledge

1. The owner knew or should have known that:

- (a) persons would be at or near the land and premises that were being used as a workplace, and
- (b) the health and safety of such persons might be harmed by the condition or use of the workplace, and
- (c) the extent of the harm, if it occurred, would be more than minor or trivial.

Category 2: Control

2. The owner had some control or influence over the safety of the workplace in that the owner:

- (a) could practicably have taken measures necessary to eliminate or reduce either:
 - (i) the risk of the potential harm, or
 - (ii) the extent of the potential harm,
- to persons at or near the workplace; or

(b) possessed material information and either:

- (i) failed to communicate all this information to the persons at or near the workplace and thus, prevented them from taking measures to protect themselves, or
- (ii) communicated all this information to the persons at or near the workplace, but then unreasonably expected those persons to take the required precautions against a particular hazard.

EFFECTIVE DATE:	December 1, 2004
AUTHORITY:	Section 25 of the <i>Act</i> .
CROSS REFERENCES:	Sections 17 and 251 of the <i>Act</i> ; Part 2, Divisions 4, 12, and 13 of the <i>Act</i> ; Part 2, Divisions 4 and 12 of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. December 1, 2004 - Provisions of the <i>Act</i> with respect to multiple owner situations were clarified, and the list of factors which Board officers consider before holding an owner responsible for a compliance issue were rewritten in a more directive manner.
APPLICATION:	To all situations in which an owner has responsibilities under section 25 of the <i>Act</i> on or after December 1, 2004.

Policy Item P2-27-1
General Duties - Directors and Officers of a Corporation

BACKGROUND

1. Explanatory Notes

Section 27 sets out the duties of directors and officers of a corporation. The provision should be read in conjunction with Section 98(2).

2. The Act Section 27:

Every director and every officer of a corporation must ensure that the corporation complies with the OHS provisions, the regulations and any applicable orders.

Section 98

(1) A person who contravenes an OHS provision, a provision of the regulations or an order commits an offence.

(2) If a corporation commits an offence referred to in subsection (1), an officer, director or agent of the corporation who authorizes, permits or acquiesces in the commission of the offence also commits an offence.

(3) Subsection (2) applies whether or not the corporation is prosecuted for the offence.

POLICY

The Board will not automatically issue an order to officers, directors or agents of a corporation each time an order is written to the corporation.

The Board will, however, issue orders to officers, directors or agents where there is evidence that they were responsible for the failure by the corporation. Being "responsible" includes authorizing, permitting or acquiescing in the failure.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Sections 27 and 98 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-23-1, <i>General Duties - Supervisors</i> ; Item P2-24-1, <i>General Duties - Multiple-Employer Workplaces</i> ; Item P2-25-1, <i>General Duties - Owners</i> ; P2-29/30-1, <i>General Duties - Overlapping Obligations</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.

BACKGROUND

1. Explanatory Notes

Section 29 of the *Act* describes how persons may be subject to obligations in relation to more than one role. Section 30 of the *Act* explains what can happen when more than one person is responsible for fulfilling the same obligations. This policy provides guidance on when a party with obligations under the *Act* will be held responsible for a violation of these responsibilities despite the fact that one or more other parties share the same obligations.

2. The Act Section 29:

- (1) In this section, "**function**" means the function of employer, supplier, supervisor, owner, prime contractor or worker.
- (2) If a person has 2 or more functions under the OHS provisions in respect of one workplace, the person must meet the obligations of each function.

Section 30:

- (1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.
- (2) one of the persons subject to the obligation complies with the applicable provision, the other persons subject to the obligation are relieved of that obligation only during the time when
- (a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and
- (b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

POLICY

The purpose of this policy is to ensure that all of the duties under the *Act* are effectively fulfilled despite the fact that multiple parties may share the same responsibilities.

All parties with duties under the *Act* may be able to affect the health and safety of persons at or near a workplace. Any and all of these parties may be cited for violations of their statutory duties regardless of whether or not another person has fulfilled his or her statutory responsibilities.

Under section 30 of the *Act*, one person may be relieved of his or her obligations under the OHS provisions of the *Act* or the OHS regulations if:

- another person who is subject to the same obligations complies with those obligations, and
- simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and
- the health and safety of persons at the workplace would not be put at risk by the compliance of only one person.

The first requirement of this Limited Exemption means that persons who have the same duty under the *Act* or OHS regulations may agree amongst themselves as to who should perform it. The Board is neither bound by any agreements of this nature, nor by whether the terms of the agreement are complied with. The Board's primary concern is that the duty in question is fulfilled.

Further, even if the first requirement is satisfied, the Limited Exemption will only apply if the Board determines that the second and third requirements set out in section 30 are also satisfied. The third requirement of the Limited Exemption will not be met if performance of the occupational health and safety duty by one person leaves health and safety risks that would be eliminated by others performing their duty.

EFFECTIVE DATE:	December 1, 2004
AUTHORITY:	Sections 29 and 30 of the <i>Act</i> .
CROSS REFERENCES:	Sections 17 and 251 of the <i>Act</i> ; Part 2, Divisions 4, 12, and 13 of the <i>Act</i> ; Part 2, Divisions 4 and 12 of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. December 1, 2004 - Provisions of the <i>Act</i> with respect to overlapping obligations were clarified.

APPLICATION:

To all situations in which more than one party shares the same obligations under Part 3 of the *Act* or the regulations on or after December 1, 2004.

Policies Workers Compensation Act Part 2 Division 5 - Joint Committees and Worker Representatives

Policy Item P2-31-1
Joint Committees - When a Committee is Required

BACKGROUND

1. Explanatory Notes

Section 31 sets out the requirement for a joint committee in certain circumstances. Section 33 sets out membership requirements.

2. The Act
Section 31:

An employer must establish and maintain a joint health and safety committee

(a) in each workplace where 20 or more workers of the employer are regularly employed, and

(b) in any other workplace for which a joint committee is required by order.

Section 33:

A joint committee for a workplace must be established in accordance with the following:

(a) it must have at least 4 members or, if a greater number of members is required by regulation, that greater number;

(b) it must consist of worker representatives and employer representatives;

(c) at least half the members must be worker representatives;

(d) it must have 2 co-chairs, one selected by the worker representatives and the other selected by the employer representatives.

POLICY

A joint health and safety committee is an important prevention tool. People who work at a particular workplace and who are knowledgeable or trained in the operations of that workplace can make a positive contribution to preventing workplace injuries and illnesses.

Section 31 expands the requirement for joint committees significantly beyond what was required prior to the implementation of the *Workers Compensation (Occupational Health and Safety) Amendment Act, 1998*. In administering section 31, the Board will be mindful of the intent evidenced by this expansion.

(a) Section 31(a)

Section 31(a) requires a joint health and safety committee "in each workplace where 20 or more workers of the employer are regularly employed".

A workplace will fall within the terms of this provision if the employer has 20 or more workers who have been employed at the workplace for a period of not less than one month.

All workers are considered for this purpose regardless of how the employer or workers may define their status.

The 20 or more workers must be at one workplace before a committee is required under section 31(a). The fact that the employer may have 20 or more workers spread over several workplaces is not sufficient. However, the Board may order that a committee be established in such a case if warranted under the criteria set out below.

(b) Section 31(b)

Before an officer may order the establishment of a committee under section 31(b), the officer must be satisfied that a committee is required to deal with common health and safety issues arising at the workplace. The officer must consider:

- the nature of the hazards at the workplace;
- the extent and effectiveness of the employer's occupational health and safety program;
- the availability of alternative ways of dealing with the health and safety issues arising at the workplace;
- whether a worker health and safety representative has been appointed;
- the number of workers at the workplace; and
- any other relevant circumstances.

EFFECTIVE DATE:

October 1, 1999

AUTHORITY:

Section 31 of the *Act*.

CROSS REFERENCES:

Item P2-45-1, *Joint Committees - Worker Health and Safety Representative*, of the *Prevention Manual*.

HISTORY:

April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.

September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.

APPLICATION:

Policy Item P2-38/39-1
Joint Committees - Procedures and Resolving Disagreements

BACKGROUND

1. Explanatory Notes

A number of provisions in Division 5 provide the Board with discretion to resolve various disagreements. These provisions include:

- a dispute over the process for selecting worker representatives for the committee (s. 34);
- a dispute over joint committee rules of procedure, including rules respecting how it is to perform its duties and functions (ss.38 and 39);
- if a joint committee is unable to reach agreement on a matter relating to the health or safety of workers at the workplace (s.38);
- if the employer does not accept the joint committee's recommendations with respect to a particular matter (s.39(3)); and
- if the joint committee is not satisfied that the employer's explanation for a delay in responding to the committee's recommendations is reasonable in the circumstances (s.39(5) and (6)).

Policy is required as to when the Board will investigate a matter under these provisions.

2. The Act
Section 34:

(1) The worker representatives on a joint committee must be selected from workers at the workplace who do not exercise managerial functions at that workplace, as follows:

(a) if the workers are represented by one or more unions, the worker representatives are to be selected according to the procedures established or agreed on by the union or unions;

(b) if none of the workers are represented by a union, the worker representatives are to be elected by secret ballot;

(c) if some of the workers are represented by one or more unions and some are not represented by a union, the worker representatives are to be selected in accordance with paragraphs (a) and (b) in equitable proportion to their relative numbers and relative risks to health and safety;

(d) if the workers do not make their own selection after being given the opportunity under paragraphs (a) to (c), the employer must seek out and assign persons to act as worker representatives.

(2) The employer or a worker may request the Board to provide direction as to how an election under subsection (1)(b) is to be conducted.

(3) The employer, or a union or a worker at a workplace referred to in subsection (1) (c), may request the Board to provide direction as to how the requirements of that provision are to be applied in the workplace.

Section 37:

(1) Subject to the OHS provisions and the regulations, a joint committee must establish its own rules of procedure, including rules respecting how it is to perform its duties and functions.

(2) A joint committee must meet regularly at least once each month, unless another schedule is permitted or required by regulation or order.

Section 38:

(1) If a joint committee is unable to reach agreement on a matter relating to the health or safety of workers at the workplace, a co-chair of the committee may report this to the Board, which may investigate the matter and attempt to resolve the matter.

(2) If the Board considers that a joint committee is unable to reach agreement on a matter relating to the health or safety of workers at the workplace, the Board, on its own initiative, may investigate the matter and attempt to resolve the matter.

Section 39:

(1) This section applies if a joint committee sends a written recommendation to an employer with a written request for a response from the employer.

(2) Subject to subsections (4) and (5), the employer must respond in writing to the committee within 21 days of receiving the request,

either

(a) indicating acceptance of the recommendation, or

(b) giving the employer's reasons for not accepting the recommendation.

(3) If the employer does not accept the committee's recommendations, a co-chair of the committee may report the matter to the Board, which may investigate and attempt to resolve the matter.

(4) If it is not reasonably possible to provide a response before the end of the 21-day period, the employer must provide within that time a written explanation for the delay, together with an indication of when the response will be provided.

(5) If the joint committee is not satisfied that the explanation provided under subsection (4) is reasonable in the circumstances, a co-chair of the committee may report this to the Board.

(6) On receiving a report under subsection (5), the Board may investigate the matter and may, by order, establish a deadline by which the employer must respond.

(7) Nothing in this section relieves an employer of the obligation to comply with the OHS provisions and the regulations.

POLICY

In determining whether to investigate matters in order to resolve disagreements under Division 5, the Board will consider:

- the Board's statutory authority to investigate in the particular situation;
- whether there is an immediate hazard that needs to be resolved;
- whether the issue is significant in terms of preventing injuries and illnesses;
- whether there is an alternative method for resolving the issue; and
- whether the Board is likely to be able to resolve the issue.

Where the Board does investigate, the extent and nature of investigations will depend on the circumstances. Not all investigations will involve a visit to the workplace.

With regard to sections 38 and 39(3), the investigating officer will, where applicable, make relevant determinations as to whether the *Act* and regulations are being complied with or whether an unsafe situation exists. If the disagreement involves matters going beyond what is specifically required to comply with the regulations, the officer may discuss the issue with the parties and suggest options but will not decide the disagreement.

If the employer fails to make any response at all, or to meet a deadline set by the Board under section 39(6), the Board may order that a response be made under section 84 and/or take whatever other enforcement action may be appropriate.

Joint committees themselves have the authority to determine the constitution of the committee, to the extent that this is not covered by the *Act* or the regulations.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Sections 34, 37, 38, and 39 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-40-1, <i>Joint Committees - Time off Work</i> ; Item P2-41-1, <i>Joint Committees - Educational Leave</i> ; Item P2-45-1, <i>Joint Committees - Worker Health and Safety Representative</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. January 1, 2016 - Housekeeping changes to Background Section to reflect amendments to the <i>Act</i> . September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	

Policy Item P2-40-1
Joint Committees - Time Off Work

BACKGROUND

1. Explanatory Notes

Section 40 sets out the right of joint committee members to take time off from work for certain purposes and to be paid for that time.

2. The Act
Section 40:

(1) A member of a joint committee is entitled to time off from work for

- (a) the time required to attend meetings of the committee, and
- (b) other time that is reasonably necessary to prepare for meetings of the committee and to fulfill the other functions and duties of the committee.

(2) Time off under subsection (1) is deemed to be time worked for the employer, and the employer must pay the member for that time.

POLICY

Members of joint health and safety committees are entitled to take time off from work for the purposes set out in section 40. What constitutes "reasonably necessary" time in section 40(1)(b) will depend on the circumstances including:

- the role of the member on the committee; and
- the health and safety conditions at the workplace.

If the employer is concerned about the amount of time spent on committee activities, the employer should raise this issue with the committee through its representatives.

If a member of the committee considers that the employer is not allowing the member the time to which he or she is entitled under section 40, the member may, after raising the matter with the committee and the employer, complain to the Board. The Board will investigate the matter. Depending upon its findings, the Board may:

- decide that no further action is appropriate;
- attempt to resolve the dispute; or
- make an order under section 84 requiring the employer to comply with section 40.

If the employer does not pay the worker's wages for time properly taken under section 40, a complaint can be made to the Board under section 49.

The employer has the right to manage the workplace and determine how much time workers spend on different activities. However, the employer's right is subject to the *Act* and the regulations. In dealing with matters covered by section 40, the employer must exercise the right in a manner consistent with the purpose and intent of section 40.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Section 40 of the <i>Act</i> .
CROSS REFERENCES:	Section 152 of the <i>Act</i> . Item P2-38/39-1, <i>Joint Committees - Procedures and Resolving Disagreements</i> ; Item P2-47/48/49-1, <i>Prohibited Actions/Failure to Pay Wages - Scope of the Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	

Policy Item P2-41-1
Joint Committees - Educational Leave

BACKGROUND

Section 41 provides for educational leave for members of joint committees. Section 41(3) requires the employer to provide the leave without loss of pay or other benefits.

2. The Act
Section 41:

- (1) Each member of a joint committee is entitled to an annual educational leave totalling 8 hours, or a longer period if prescribed by regulation, for the purposes of attending occupational health and safety training courses conducted by or with the approval of the Board.
- (2) A member of the joint committee may designate another member as being entitled to take all or part of the member's educational leave.
- (3) The employer must provide the educational leave under this section without loss of pay or other benefits and must pay for, or reimburse the worker for, the costs of the training course and the reasonable costs of attending the course.

POLICY

Members of joint health and safety committees are entitled to take time off from work to attend occupational health and safety training courses conducted by or with the approval of the Board.

Decisions as to when members will attend courses, what courses they will attend and at what time and place will normally be made as follows:

- An individual member will bring his or her request to the committee.
- If the committee agrees, the committee will forward the request to the employer.
- If the committee does not agree, or is unable to come to a decision within a reasonable time, the individual member may forward the request to the employer.
- Upon receiving a request from either the committee or the individual member, the employer will make its decision within a reasonable time. The employer will give reasons in writing where required by section 39. In making its decision, the employer must act in a manner consistent with the purpose and intent of section 41. Permission must not be unreasonably denied.

If a member of the committee considers that the employer is not allowing the member the leave to which he or she is entitled under section 41, the member may, after following the above process, complain to the Board. The Board will investigate the matter. Depending upon its findings, the Board may:

- decide that no further action is appropriate;
- attempt to resolve the dispute; or
- make an order under section 84 requiring the employer to comply with section 41.

If the employer does not pay a worker's wages for leave taken under section 41, a complaint can be made to the Board under section 49.

EFFECTIVE DATE:	July 1, 2003
AUTHORITY:	Section 41 of the <i>Act</i> .
CROSS REFERENCES:	Section 49 of the <i>Act</i> ; Item P2-38/39-1, <i>Joint Committees - Procedures and Resolving Disagreements</i> ; Item P2-50-1, <i>Prohibited Actions/Failure to Pay Wages</i> ; Item P2-84-1, <i>OHS Compliance Orders</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. July 1, 2003 - Subsequent minor change made to correct an error in statutory citation; then section 133(3) was removed and replaced with section 133. October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Act, 1998</i> .
APPLICATION:	

Policy Item P2-45-1
Joint Committees - Worker Health and Safety Representative

BACKGROUND

1. Explanatory Notes

Section 45 sets out the requirement for a worker health and safety representative in certain workplaces. With respect to section 45(4), the matters covered by sections 39 to 42 include:

- time off work under section 40 that is "reasonably necessary" to fulfill the representative's duties and functions;
- eight hours annual educational leave under section 41;
- the obligation of the employer to respond to recommendations under section 39, and for the representative to apply to the Board if the employer delays the response or rejects the recommendation; and
- the obligation of the employer to provide other administrative support, and information, under section 42.

2. The Act
Section 45:

(1) A worker health and safety representative is required

- (a) in each workplace where there are more than 9 but fewer than 20 workers of the employer regularly employed, and
- (b) in any other workplace for which a worker health and safety representative is required by order of the Board.

(2) The worker health and safety representative must be selected in accordance with section 34 [*selection of worker representatives on joint committee*] from among the workers at the workplace who do not exercise managerial functions at that workplace.

(3) To the extent practicable, a worker health and safety representative has the same duties and functions as a joint committee.

(4) Sections 39 to 42 [rules respecting joint committees] apply in relation to a worker health and safety representative as if the representative were a joint committee or member of a joint committee.

POLICY

A worker health and safety representative is required in each workplace where "there are more than 9 but fewer than 20 workers of the employer regularly employed". A workplace will fall within the terms of this provision if it normally has more than 9 but fewer than 20 workers who have been employed at the workplace for a period of not less than one month.

In deciding whether to order a worker health and safety representative under section 45(1)(b), the Board will follow the same criteria as when deciding whether to order a joint committee under section 31(b). Where the Board orders a joint committee under section 31(b), a worker health and safety representative under section 45(1)(a) is not required.

In interpreting section 45(4), the right to take time off work to attend and prepare for joint committee meetings under section 40 does not apply to a sole worker health and safety representative.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Section 45 of the <i>Act</i> .
CROSS REFERENCES:	Section 31(b) of the <i>Act</i> ; Item P2-31-1, <i>Joint Committees - When a Committee is Required</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	

Policy Item P2-46-1
Joint Committees - Participation of Worker Representative in Inspections

BACKGROUND

1. Explanatory Notes

These sections provide for the participation of a worker member from the joint committee, the worker health and safety representative or another worker representative on inspections.

2. The Act

Section 13, in part:

In the OHS provisions and the regulations under those provisions:

...

"worker representative" means

(a) in relation to a workplace for which there is a joint committee, a worker representative on the committee, and

(b) in relation to a workplace for which there is a worker health and safety representative, that representative;

...

Section 46:

(1) This section applies if

(a) the OHS provisions or the regulations give a worker representative the right to be present for an inspection, investigation or inquiry at a workplace, and

(b) no worker representative is reasonably available.

(2) The right to be present may be exercised by another worker who has previously been designated as an alternate by the worker representative.

Section 78(1):

(1) Subject to this section, if an officer makes a physical inspection of a workplace under section 75, the following are entitled to accompany the officer on the inspection:

(a) the employer or a representative of the employer;

(b) a worker representative or, if there is no worker representative or the worker representative is not reasonably available, a reasonably available worker selected by the officer as a representative.

POLICY

There is no POLICY for this Item

PRACTICE

The Board will only exercise the authority under section 78 to select a worker representative if the actual worker representative fails to designate an alternate under section 46 or if the designated alternative is not available.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Sections 46 and 78 of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:	

Policies Workers Compensation Act Part 2 Division 6 - Worker Protection in Relation to Prohibited Actions

Policy Item P2-47/48/49-1
Prohibited Actions/Failure to Pay Wages - Scope

BACKGROUND

1. Explanatory Notes

Workers have a right to complain to the Board regarding:

- "prohibited action" by their employer or union; or
- the failure by their employer to pay wages required by the OHS provisions of the *Act* or the regulations made under the OHS provisions of the *Act*.

"Prohibited action" includes any act or omission by an employer or union, or a person acting on behalf of an employer or union, that adversely affects a worker with respect to any term or condition of employment, or of membership in a union.

The *Act* defines "prohibited action" by including within it certain matters. The phrase could also include other matters a worker might consider "prohibited". However, the *Act* only provides rights for a worker when the "prohibited action" relates to the matters outlined in section 48.

Section 49 describes how a worker, who considers that the worker's employer or union has taken, or threatened to take, prohibited action against the worker or has failed to pay the wages required by the OHS provisions of the *Act* or the OHS regulations, may make a complaint to the Board. It includes the time limits within which the complaint must be made.

2. The Act
Section 47:

(1) For the purposes of this Division, "**prohibited action**" includes any act or omission by an employer or union, or by a person acting on behalf of an employer or union, that adversely affects a worker with respect to

(a) any term or condition of employment, or

(b) any term or condition of membership in a union.

(2) Without restricting subsection (1), prohibited action includes any of the following:

(a) suspension, lay-off or dismissal;

(b) demotion or loss of opportunity for promotion;

(c) transfer of duties, change of location of workplace, reduction in wages or change in working hours;

(d) coercion or intimidation;

(e) imposition of any discipline, reprimand or other penalty;

(f) the discontinuation or elimination of the job of the worker.

An employer or union, or a person acting on behalf of an employer or union, must not take or threaten a prohibited action against a worker

- (a) for exercising any right or carrying out any duty in accordance with the OHS provisions, the regulations or an applicable order,
- (b) for the reason that the worker has testified or is about to testify in any matter, inquiry or proceeding under this Act or the *Coroners Act* on an issue related to occupational health and safety or occupational environment, or
- (c) for the reason that the worker has given any information regarding conditions affecting the occupational health or safety or occupational environment of that worker or any other worker to
 - (i) an employer or person acting on behalf of an employer,
 - (ii) another worker or a union representing a worker, or
 - (iii) an officer or any other person concerned with the administration of the OHS provisions.

Section 49:

- (1) This section applies to a worker who considers that
 - (a) an employer or union, or a person acting on behalf of an employer or union, has taken or threatened to take prohibited action against the worker contrary to section 48, or
 - (b) an employer has failed to pay wages to the worker as required by the OHS provisions or the regulations.
- (2) The worker may have a matter referred to in subsection (1) dealt with through the grievance procedure under a collective agreement, if any, or by complaint in accordance with this Division.
- (3) A complaint under subsection (2) must be made in writing to the Board,
 - (a) in the case of a complaint referred to in subsection (1)(a), within one year of the action considered to be prohibited, and
 - (b) in the case of a complaint referred to in subsection (1) (b), within 60 days after the wages became payable.
- (4) In relation to a matter referred to in subsection (1), whether dealt with under a collective agreement or by complaint to the Board, the burden of proving that there has been no such contravention is on the employer or the union, as applicable.

POLICY

Section 49 applies to a failure of the employer to pay wages to the worker as required by the OHS provisions of the *Act*.

Some sections do not use the term "wages", but require the worker to be paid for lost time, notably:

- 40(2) (time off work by members of joint committees);
- 41(3) (educational leave for committee members - section 49 only applies to the payment of wages, not other costs such as travel expenses);
- 78(4) (worker accompanying inspection); and
- 93(1) (lay off resulting from stop work order).

As the payments under these sections are in substances "wages", a failure to pay them may be remedied by a complaint under section 49.

EFFECTIVE DATE:	July 1, 2003
AUTHORITY:	Sections 47, 48, and 49 of the <i>Act</i>
CROSS REFERENCES:	
HISTORY:	<p>April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i>, R.S.B.C. 2019, c. 1.</p> <p>September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.</p> <p>July 1, 2003 - Minor changes made to strike out references to then sections 147 and 148, as these sections were never proclaimed into effect.</p> <p>October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Act, 1998</i>.</p>
APPLICATION:	

BACKGROUND

1. Explanatory Notes

Upon receipt of a complaint, the Board must immediately inquire into the matter.

In dealing with a matter regarding prohibited action, the burden of proving there has been no such contravention is on the employer or the union, as applicable.

2. The Act
Section 50(1):

If the Board receives a complaint under section 49(3), it must immediately inquire into the matter and, if the complaint is not settled or withdrawn, must

(a) determine whether the alleged contravention occurred, and

(b) deliver a written statement of the Board's determination to the worker and to the employer or union, as applicable.

POLICY

When the Board receives a complaint from a worker within the time frame allowed by section 49(3), the Board will, where further information is needed, carry out an initial inquiry to establish the basic facts alleged by the worker and to determine whether, if accurate, they fall within the terms of section 49. Inquiry will also be made as to what remedy the worker is seeking.

Copies of documents supplied by the worker, as well as the results of any Board inquiry, will be provided to the employer or union against whom the complaint is made. The employer or union will then be given time to meet its onus under section 49(4) of proving that no contravention of the *Act* or regulations took place and to comment on the remedy proposed by the worker. The worker will be provided with a copy of the Board's investigation as well as any response to the complaint by the employer or union, and given an opportunity to respond.

Further inquiries by the Board may then be made, as well as exchanges of submissions and information that may be required by the rules of natural justice. An oral hearing is not required, but may be held if the Board considers it necessary to properly decide a complaint.

The worker may withdraw a complaint at any time, settle the dispute privately with the employer or union, or pursue alternative remedies under a collective agreement.

The worker cannot pursue both a grievance under a collective agreement and a complaint to the Board regarding the same alleged prohibited action or failure to pay wages. The worker is required to elect between the two processes.

If the worker elects to pursue a grievance under a collective agreement, but the union decides not to pursue the grievance, the worker may revoke his or her election within 30 days of the union's decision and pursue a complaint to the Board. The complaint must, however, still be made within one year of the action considered to be prohibited or within 60 days after the wages became payable.

PRACTICE

The Board will consider granting an oral hearing when:

- there is a significant issue of credibility;
- there is evidence that must be presented orally;
- the decision to be reviewed raises an issue of general significance; or
- there are other grounds for having an oral hearing.

EFFECTIVE DATE:	October 1, 1999
AUTHORITY:	Section 50(1) of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to replace a reference to reviewing officer with the Board and make formatting changes.
APPLICATION:	

BACKGROUND

1. Explanatory Notes

Section 50(2) sets out the remedies that the Board may order if the Board, after investigation, determines that there has been prohibited action or a failure to pay wages.

2. The Act

If the Board determines that the contravention occurred, the Board may make an order requiring one or more of the following:

- (a) that the employer or union cease the prohibited action;
- (b) that the employer reinstate the worker to that worker's former employment under the same terms and conditions under which that worker was formerly employed;
- (c) that the employer pay, by a specified date, the wages required to be paid by the OHS provisions or the regulations;
- (d) that the union reinstate the membership of the worker in the union;
- (e) that any reprimand or other references to the matter in the employer's or union's records on the worker be removed;
- (f) that the employer or the union pay the reasonable out-of-pocket expenses incurred by the worker by reason of the prohibited action;
- (g) that the employer or the union do any other thing that the Board considers necessary to secure compliance with the OHS provisions and the regulations.

POLICY

(a) Object of awarding remedies

The Board's object in exercising these powers is, as far as is practicable, to put the worker in the same position as the worker would have been if the prohibited action or the failure to pay wages had not occurred. This may involve measuring not only the worker's actual loss, but determining whether there were any measures the worker could have reasonably taken to reduce or eliminate that loss.

(b) Factors considered in awarding remedies

The factors considered in determining the worker's loss include:

- whether the worker has tried to eliminate or reduce the loss and, if the worker has not done so, whether it would have been reasonable for the worker to have tried;
- any collateral benefits the worker has received from the employer (collateral benefits from a source other than the employer, such as employment insurance and private insurance benefits, are not to be considered); and
- other circumstances affecting the worker's loss that arise independently of the worker's conduct after the prohibited action or failure to pay wages has occurred, for example, the closure of the place of employment.

(c) Explanation of Specific Remedies

Reinstatement to employment

The Board may order reinstatement to employment retroactive to when the prohibited action occurred.

Payment of wages

The Board may make orders with respect to payment of wages in a variety of circumstances. These include:

- an order for reinstatement that requires the employer to pay back wages, reinstate benefits retroactively and perform other incidental acts. The authority to do this is found in section 50(2)(b);
- an order that requires the employer to pay, by a specified date, the wages required to be paid under the OHS provisions of the *Act* or the OHS regulations. The authority to do this is found in section 50(2)(c); and
- an order that requires an employer to reimburse the loss of pay where the prohibited action involved the employer reducing the worker's pay. The authority to do this is found in section 50(2)(g).

The wages, salaries and other employment benefits covered by these provisions are those falling within the definition of "wages" in the *Employment Standards Act*. This definition does not include every payment or benefit that workers receive as a result of their employment.

Expenses

The Board has discretion to order the employer or union to pay reasonable out-of-pocket expenses incurred by the worker by reason of the prohibited action.

Since the Board carries out the initial inquiry that is necessary to establish the basic facts of the worker's complaint, the worker does not need to incur costs in making a complaint. If the worker feels that a particular inquiry is needed, he or she can request the Board to do this.

The employer or union will meet their own costs of proving that no contravention of the *Act* took place and responding to any material supplied by the Board or arising out of the Board's inquiry.

Where a complaint is upheld, the Board will not normally make orders that the employer or union pay legal or other costs incurred by the worker in order to pursue the complaint. Similarly, where the complaint is not upheld, the Board will not normally order the worker to pay the legal and other costs of the employer or union. Such orders may be made under section 343 of the *Act* in exceptional situations. These include where there has been flagrant abuse by the employer, worker or union of their rights and responsibilities under the *Act* and regulations.

(d) Other action by the employer or union

The Board's authority to award remedies under section 50(2) extends only to prohibited action or failure to pay wages as defined by Division 6. It does not apply to other actions that may be taken by an employer or union.

(e) Other action by the Board

These remedies only apply when there has been a formal written complaint by the worker.

However, the Board may use its other enforcement powers, including an administrative penalty under section 95, to address prohibited actions or failures to pay wages, whether there has been a formal written complaint or not.

EFFECTIVE DATE: October 1, 1999
AUTHORITY: Section 50(2) of the *Act*.
CROSS REFERENCES: Sections 13 [definition of "wages"] and 343 of the *Act*.
HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:

Policies Workers Compensation Act Part 2 Division 9 - Variance Orders

Policy Item P2-62-1
Variance Orders - Information Required

BACKGROUND

1. Explanatory Notes

Section 62 sets out the information to be provided by an applicant for a variance. Section 62(3) requires the applicant to provide the technical and other information required by the Board.

2. The Act
Section 62:

- (1) Subject to the regulations and subsection (2), an application for a variance must be made in writing to the Board and must include
- (a) a description of the requested variance,
 - (b) a statement of why the variance is requested, and
- (c) information with respect to the benefits and drawbacks in relation to the matters addressed by the regulation that might reasonably be anticipated if the variance is allowed.
- (2) In the case of an application by a single worker for a variance order that would apply only to that worker, an application may be made as permitted by the Board.
- (3) The applicant must also provide the Board with the technical and any other information required by the Board to deal with the application.

POLICY

In the case of an application under section 62(1), the "other information" required by the Board from an employer under section 62(3) will generally include:

- the location of the workplace;
- the type and nature of the work process;
- the regulation(s) proposed for modification;
- a description of the proposed procedure or practice that would provide an equivalent level of health and safety to that provided for by the regulation(s);
- how workers will be trained and supervised; and
- confirmation that:
 - the variance application has been posted at the workplace, and a copy has been provided to the joint health and safety committee or the worker health and safety representative and to the union, if the workers at the workplace are represented by the union, or
 - if the workplace is not yet in existence, notice has been published where it would reasonably be expected to come to the attention of persons who may be affected.

EFFECTIVE DATE: April 1, 2002
AUTHORITY: Section 62 of the *Act*.
CROSS REFERENCES:

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
Replaces part of Policy No. 1.2.5 of the Prevention Division *Policy and Procedure Manual*.

APPLICATION: This Item results from the 2000/2001/2002 "editorial" consolidation of all Prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 1.2.5, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 1.2.5 was issued.

Policy Item P2-64-1
Variance Orders - Consultation on Application

BACKGROUND

1. Explanatory Notes

Section 64 requires the Board to give notice of an application for a variance and conduct the consultations on the application that the Board considers advisable.

2. The Act Section 64:

- (1) After receiving an application for variance, the Board may give notice of the application and conduct consultations respecting that application as the Board considers advisable.
- (2) Before making a decision on an application, the Board must provide an opportunity for persons who may be affected by the requested variance to submit to the Board information respecting their position on the requested variance.
- (3) A union representing workers who may be affected by the requested variance is considered a person who may be affected for the purposes of subsection (2).

POLICY

The persons whom the Board will notify and consult respecting the application for a variance include:

- the chairs of the joint health and safety committee or worker health and safety representative;
- the union, if workers in the workplace are represented by the union; and
- if there is no committee, worker health and safety representative or union at the workplace, a worker representative, if practicable.

The persons notified will be asked for comments, invited to participate in any hearing or other proceedings that may be held on the application, and advised of the decision.

EFFECTIVE DATE: April 1, 2002

AUTHORITY: Section 64 of the *Act*.

CROSS REFERENCES:

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
Replaces part of Policy No. 1.2.5 of the Prevention Division *Policy and Procedure Manual*.

APPLICATION: This Item results from the 2000/2001/2002 "editorial" consolidation of all Prevention policies into the *Prevention Manual*. The POLICY in this Item merely continues the substantive requirements of Policy No. 1.2.5, as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 1.2.5 was issued.

Policies Workers Compensation Act Part 2 Division 10 - Employer Accident Reporting and Investigation

Policy Item P2-68-1
Major Release of Hazardous Substance

BACKGROUND

1. Explanatory Notes

Section 68(1) sets out the situations where the employer must immediately notify the Board of the occurrence of any accident.

2. The Act

Section 68(1):

An employer must immediately notify the Board of the occurrence of any accident that

- (a) resulted in serious injury to or the death of a worker,
- (b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,
- (c) involved the major release of a hazardous substance,
- (d) involved a fire or explosion that had a potential for causing serious injury to a worker, or
- (e) was an incident required by regulation to be reported.

POLICY

Section 68(1)(c) requires the employer to notify the Board of any accident that involved the major release of a hazardous substance.

A major release does not only mean a considerable quantity, or the peculiar nature of the release, such as a gas or volatile liquid, but, more importantly, the seriousness of the risk to the health of workers. Factors that determine the seriousness of the risk include the degree of preparedness of the employer to respond to the release, the necessity of working in close proximity to the release, the atmospheric conditions at the time of the release and the nature of the substance.

As a general guideline, a report would be expected when:

- The incident resulted in an injury that required immediate medical attention beyond the level of service provided by a first aid attendant, or injuries to several workers that require first aid.
- The incident resulted in a situation of continuing danger to workers, such as when the release of a chemical cannot be readily or quickly cleaned up.

EFFECTIVE DATE:	April 1, 2001
AUTHORITY:	Section 68(1) of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. January 1, 2016 - Housekeeping change to Background section to reflect amendments to the <i>Act</i> . September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. Replaces Policy No. 6.02(c) of the Prevention Division <i>Policy and Procedure Manual</i> .
APPLICATION:	This Item results from the 2000/2001 "editorial" consolidation of all prevention policies into the <i>Prevention Manual</i> . The POLICY in this Item merely continues the substantive requirements of Policy No. 6.02(c), as they existed prior to the Effective Date, with any wording changes necessary to reflect legislative and regulatory changes since Policy No. 6.02(c) was issued.

Policy Item: P2-71-1
Preliminary Incident Investigation, Report and Follow-Up Action

BACKGROUND

1. Explanatory Notes

Section 71 of the *Act* sets out the requirements for an employer to conduct a preliminary investigation of a section 69 incident within 48 hours of the incident. Depending on the complexity of the investigation, it may be possible for an employer to complete its section 72 full investigation obligations within 48 hours of the incident. Direction on these situations is set out in Item P2-72-1.

Section 70 of the *Act* sets out how worker and employer representatives may participate in investigations.

Note: In some cases, the *OHSR* provides specific and exclusive direction to investigate and report accidents or incidents in accordance with Part 3 of the *OHSR*.

2. The Act

Section 33, in part:

A joint committee for a workplace must be established in accordance with the following:

...

- (b) it must consist of worker representatives and employer representatives;

...

Section 36, in part:

A joint committee has the following duties and functions in relation to its workplace:

...

(h) to ensure that accident investigations and regular inspections are carried out as required by the OHS provisions and the regulations;

(i) to participate in inspections, investigations and inquiries as provided in the OHS provisions and the regulations;

...

Section 68:

(1) An employer must immediately notify the Board of the occurrence of any accident that

(a) resulted in serious injury to or the death of a worker,

(b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,

(c) involved the major release of a hazardous substance, or

(d) involved a fire or explosion that had a potential for causing serious injury to a worker, or

(e) was an incident required by regulation to be reported.

(2) Except as otherwise directed by an officer of the Board or a peace officer, a person must not disturb the scene of an accident that is reportable under subsection (1) except so far as is necessary to

(a) attend to persons injured or killed,

(b) prevent further injuries or death, or

(c) protect property that is endangered as a result of the accident.

Section 69, *Act*:

(1) An employer must conduct a preliminary investigation under section 71 and a full investigation under section 72 respecting any accident or other incident that

(a) is required to be reported under section 68,

(b) resulted in injury to a worker requiring medical treatment,

(c) did not involve injury to a worker, or involved only minor injury not requiring medical treatment, but had a potential for causing serious injury to a worker, or

(d) was an incident required by regulation to be investigated.

(2) Subsection (1) does not apply in the case of a vehicle accident occurring on a public street or highway.

Section 70:

(1) An investigation required under this Division must be carried out by persons knowledgeable about the type of work involved and, if they are reasonably available, with the participation of the employer or a representative of the employer and a worker representative.

(2) For the purposes of subsection (1), the participation of the employer or a representative of the employer and a worker representative includes, but is not limited to, the following activities:

(a) viewing the scene of the incident with the persons carrying out the investigation;

(b) providing advice to the persons carrying out the investigation respecting the methods used to carry out the investigation, the scope of the investigation, or any other aspect of the investigation;

(c) other activities, as prescribed by the Board.

...

- (3) The employer must make every reasonable effort to have available for interview by a person conducting the investigation, or by an officer, all witnesses to the incident and any other persons whose presence might be necessary for a proper investigation of the incident.
- (4) The employer must record the names, addresses and telephone numbers of persons referred to in subsection (3).

Section 71:

- (1) An employer must, immediately after the occurrence of an incident described in section 69, undertake a preliminary investigation to, as far as possible,
 - (a) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (b) if unsafe conditions, acts or procedures are identified under paragraph (a) of this subsection, determine the corrective action necessary to prevent, during a full investigation under section 72, the recurrence of similar incidents.
- (2) The employer must ensure that a report of the preliminary investigation is
 - (a) prepared in accordance with the policies of the board of directors,
 - (b) completed within 48 hours of the occurrence of the incident,
 - (c) provided to the Board on request of the Board, and
 - (d) as soon as practicable after the report is completed, either
 - (i) provided to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, posted at the workplace.
- (3) Following the preliminary investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(b).
- (4) If the employer takes corrective action under subsection (3), the employer, as soon as practicable, must
 - (a) prepare a report of the action taken, and
 - (b) either
 - (i) provide the report to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

3. Interpretation Act

Section 25.5:

...

- (1) If a day that is specified for doing an act falls on a holiday, the day falls on the next day that is not a holiday.
- (2) If a day that is specified for doing an act in a business office falls on a day on which the office is not open during regular business hours, the day falls on the next day the office is open during its regular business hours.

Section 29, in part:

In an enactment:

...

"holiday" includes

- (a) Sunday, Christmas Day, Good Friday and Easter Monday,
- (b) Canada Day, Victoria Day, British Columbia Day, Labour Day, Remembrance Day, Family Day and New Year's Day,
- (c) December 26, and
- (d) a day set by the Parliament of Canada or by the Legislature, or appointed by proclamation of the Governor General or the

Lieutenant Governor, to be observed as a day of general prayer or mourning, a day of public rejoicing or thanksgiving, a day for celebrating the birthday of the reigning Sovereign, or as a public holiday;

...

POLICY

1. Investigation Participants

Section 70 requires a preliminary investigation to be carried out by persons knowledgeable about the type of work involved. It also requires the participation of the employer or employer representative, and a worker representative, if they are reasonably available.

2. Incidents Requiring a Preliminary Investigation

Unless the accident or incident is a vehicle accident occurring on a public street or highway, section 71(1) requires an employer to undertake a preliminary investigation immediately after the occurrence of any of the following:

- an accident that resulted in serious injury to or the death of a worker;
- an accident that involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation;
- an accident that involved the major release of a hazardous substance;
- an accident that involved a fire or explosion that had a potential for causing serious injury to a worker;
- a blasting accident that causes personal injury;
- a dangerous incident involving explosives other than a blasting accident, regardless of whether it caused personal injury;
- a diving incident, as defined in the Regulation;
- any accident or other incident that resulted in injury to a worker requiring medical treatment; and
- any accident or other incident that did not involve injury to a worker, or involved only minor injury not requiring medical treatment, but had a potential for causing serious injury to a worker.

3. Identifying Unsafe Conditions, Acts or Procedures

The *Act* requires employers to immediately undertake a preliminary investigation to identify any unsafe conditions, acts or procedures as far as possible, in order to ensure that work can be continued or resumed safely during the interim period between the incident and the conclusion of the full investigation.

What constitutes "as far as possible" during the preliminary investigation may be limited due to circumstances of the accident or incident that are outside of the employer's control.

It is not possible to list all the limitations on what may inhibit an employer's ability to identify unsafe conditions, acts or procedures. However, if an employer is

- only able to identify some, or
- only able to identify in broader or more general terms,

the unsafe conditions, acts or procedures that significantly contributed to the section 69 incident, the employer should include these limitations in its preliminary investigation report.

The following are some of the circumstances in which WorkSafeBC may consider that it is not possible for an employer to identify all the unsafe conditions, acts or procedures that significantly contributed to the section 69 incident. This is not an exhaustive list:

- the persons injured in the incident are not available (e.g. unconscious in hospital);
- there were no witnesses to the incident;
- the employer is prohibited from entering the workplace or part of the workplace, because WorkSafeBC, the police, or other agencies are attending at the scene of the incident and conducting their own investigations;
- WorkSafeBC has issued an order to stop use under section 89 or stop work under sections 90 or 91, and the exceptions for permitting a worker to enter the workplace or part of the workplace that is the subject of the order cannot be met; or
- WorkSafeBC has taken documents, equipment, or other items, which the employer also needs to investigate.

4. Determining Interim Corrective Action

As part of the preliminary investigation, the *Act* requires the employer to determine the corrective action necessary to prevent a recurrence of the section 69 incident during the period of the full investigation. This means the employer must identify interim corrective actions that can be undertaken between the time of the section 69 incident, and the deadline plus any extensions, for submitting the full investigation report under section 72 (see Policy P2-72-1).

Employers must take all actions reasonably necessary to prevent a recurrence during the interim period. If an employer is only able to identify some, or only able to identify in broader or more general terms, the unsafe conditions, acts or procedures that significantly contributed to the section 69 incident, the interim corrective action may include a full or partial shutdown of a worksite, removing equipment, or reassigning workers.

5. Elements of Preliminary Investigation Reports

An employer's preliminary investigation report of the section 69 incident must contain the following elements, as far as possible:

- (a) the place, date and time of the incident;
- (b) the names and job titles of persons injured or killed in the incident;
- (c) the names and job titles of witnesses;
- (d) the names and job titles of any other persons whose presence might be necessary for a proper investigation of the incident;
- (e) a statement of the sequence of events that preceded the incident;
- (f) identification of any unsafe conditions, acts or procedures that significantly contributed to the incident;
- (g) employer identification and contact information;
- (h) a brief description of the incident;
- (i) the names and job titles of all persons set out in section 70(1) of the *Act*, who carried out or participated in the preliminary investigation of the incident;
- (j) interim corrective actions the employer has determined to prevent the recurrence of similar incidents, for the interim period between the occurrence of the incident and the submission of the full investigation report;
- (k) information about what interim corrective action has been taken and when any corrective actions not yet implemented will be taken; and
- (l) the circumstances of the accident or incident that preclude the employer from addressing a particular element of the above-listed elements during the preliminary investigation period.

Blasting and diving have industry-specific reporting requirements under the Regulation, in addition to those under sections 71 and 72 of the *Act*. An employer may combine one or more reports as long as all the applicable requirements, including those regarding timing, are met.

Section 70(4) of the *Act* requires the employer to record the addresses and telephone numbers of witnesses and any other persons whose presence might be necessary for a proper investigation of the incident. This does not form part of the preliminary investigation report.

6. Producing the Preliminary Investigation Report

The *Act* requires an employer to provide its preliminary investigation report to WorkSafeBC upon request.

The *Act* also requires an employer to provide a copy of the incident investigation report to the joint committee or worker health and safety representative, as applicable, and if there is no joint committee or worker health and safety representative, to post the report at the workplace. The *Act* requires this be done as soon as practicable after the report is completed.

7. Implementing Corrective Action

While an employer is undertaking the full investigation report due under section 72 (see Item P2-72-1), the employer must also, without undue delay, take the corrective action it had determined was necessary to prevent a recurrence of similar section 69 incidents during the full investigation period. This interim corrective action must remain in place until the employer has:

- (a) undertaken any further corrective action identified in the full investigation as necessary to prevent the recurrence of similar incidents following the full investigation; or
- (b) determined that the interim corrective action is sufficient to prevent the recurrence of similar incidents following the full investigation.

The employer may modify the interim corrective action during the full investigation period, if it determines that the modified interim corrective action is more effective or as effective as the interim corrective action originally undertaken.

8. Interim Corrective Action Reporting

WorkSafeBC may request a copy of the interim corrective action report that the employer prepares following the preliminary investigation.

In the interim corrective action report, the employer must include:

- (a) the unsafe conditions, acts or procedures that made the interim corrective action necessary;
- (b) the interim corrective action taken to prevent the recurrence of similar incidents during the full investigation period;
- (c) employer identification information;
- (d) the names and job titles of the persons responsible for implementing the interim corrective action; and

(e) the date the interim corrective action was taken.

Where the employer completes the full investigation within 48 hours of the section 69 incident and determines the corrective action necessary to prevent the recurrence of similar incidents, the employer may prepare a single corrective action report to provide to the joint committee or worker health and safety representative, as applicable, or if there is no joint committee or worker health and safety representative, to post at the workplace. This would meet its corrective action reporting requirements for both sections 71 and 72 of the *Act*.

PRACTICE

See:

OHS Guideline [G-P2-68-1](#).

EFFECTIVE DATE:	January 1, 2016
AUTHORITY:	Section 71 of the <i>Act</i> .
CROSS REFERENCES:	Sections 74, 75(3)(f) and (g), and 84 of the <i>Act</i> ; Item P2-68-1 - <i>Major Release of Hazardous Substance</i> ; Item P2-72-1 - <i>Full Incident Investigation, Report and Follow-Up Action of the Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 1, 2017 - Housekeeping change to delete a reference to then section 173(3) under "Elements of Preliminary Investigation Reports" and replace it with a reference to then section 174(4). January 1, 2016 - Amended to reflect stakeholder consultation on interim polices and to implement changes resulting from the <i>Workers Compensation Amendment Act (No. 2), 2015</i> , which received Royal Assent on November 17, 2015. This Item was originally developed to implement the <i>Workers Compensation Amendment Act, 2015</i> , which received Royal Assent on May 14, 2015.
APPLICATION:	This policy applies to all accidents and incidents that occur on and after January 1, 2016.

Policy Item P2-72-1
Full Incident Investigation, Report and Follow-Up Action

BACKGROUND

1. Explanatory Notes

Section 72 of the *Act* sets out the requirements for an employer to conduct a full investigation immediately after completing a section 71 preliminary investigation of a section 69 incident. Depending on the complexity of the investigation, it may be possible for an employer to complete its section 72 full investigation obligations within 48 hours of the incident.

Section 70 of the *Act* sets out how worker and employer representatives may participate in investigations.

Note: In some cases, the *OHSR* provides specific and exclusive direction to investigate and report accidents or incidents in accordance with Part 3 of the *OHSR*.

2. The Act

Section 33, in part:

A joint committee for a workplace must be established in accordance with the following:

...

(b) it must consist of worker representatives and employer representatives;

Section 36, in part:

A joint committee has the following duties and functions in relation to its workplace:

...

(h) to ensure that accident investigations and regular inspections are carried out as required by the OHS provisions and the regulations;

(i) to participate in inspections, investigations and inquiries as provided in the OHS provisions and the regulations;

...

Section 68:

- (1) An employer must immediately notify the Board of the occurrence of any accident that
 - (a) resulted in serious injury to or the death of a worker,
 - (b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,
 - (c) involved the major release of a hazardous substance, or
 - (d) involved a fire or explosion that had a potential for causing serious injury to a worker, or
 - (e) was an incident required by regulation to be reported.
- (2) Except as otherwise directed by an officer of the Board or a peace officer, a person must not disturb the scene of an accident that is reportable under subsection (1) except so far as is necessary to
 - (a) attend to persons injured or killed,
 - (b) prevent further injuries or death, or
 - (c) protect property that is endangered as a result of the accident.

Section 69:

- (1) An employer must conduct a preliminary investigation under section 71 and a full investigation under section 72 respecting any accident or other incident that
 - (a) is required to be reported under section 68,
 - (b) resulted in injury to a worker requiring medical treatment,
 - (c) did not involve injury to a worker, or involved only minor injury not requiring medical treatment, but had a potential for causing serious injury to a worker, or
 - (d) was an incident required by regulation to be investigated.
- (2) Subsection (1) does not apply in the case of a vehicle accident occurring on a public street or highway.

Section 70:

- (1) An investigation required under this Division must be carried out by persons knowledgeable about the type of work involved and, if they are reasonably available, with the participation of the employer or a representative of the employer and a worker representative.
- (2) For the purposes of subsection (1), the participation of the employer or a representative of the employer and a worker representative includes, but is not limited to, the following activities:
 - (a) viewing the scene of the incident with the persons carrying out the investigation;
 - (b) providing advice to the persons carrying out the investigation respecting the methods used to carry out the investigation, the scope of the investigation, or any other aspect of the investigation;
 - (c) other activities, as prescribed by the Board.
- (3) The employer must make every reasonable effort to have available for interview by a person conducting the investigation, or by an officer, all witnesses to the incident and any other persons whose presence might be necessary for a proper investigation of the incident.
- (4) The employer must record the names, addresses and telephone numbers of persons referred to in subsection (3).

Section 72:

- (1) An employer must, immediately after completing a preliminary investigation under section 71, undertake a full investigation to, as far as possible,
 - (a) determine the cause or causes of the incident investigated under section 71,
 - (b) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and

(c) if unsafe conditions, acts or procedures are identified under paragraph (b) of this subsection, determine the corrective action necessary to prevent the recurrence of similar incidents.

(2) The employer must ensure that a report of the full investigation is

(a) prepared in accordance with the policies of the board of directors,

(b) submitted to the Board within 30 days of the occurrence of the incident, and

(c) within 30 days of the occurrence of the incident, either

(i) provided to the joint committee or worker health and safety representative, as applicable, or

(ii) if there is no joint committee or worker health and safety representative, posted at the workplace.

(3) The Board may extend the time period, as the Board considers appropriate, for submitting a report under subsection (2)(b) or (c).

(4) Following the full investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(c).

(5) If the employer takes corrective action under subsection (4), the employer, as soon as practicable, must

(a) prepare a report of the action taken, and

(b) either

(i) provide the report to the joint committee or worker health and safety representative, as applicable, or

(ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

POLICY

1. Determining the Cause or Causes of the Incident

Employers must determine the cause or causes of the section 69 incident. "Determining the cause or causes" means analyzing the facts and circumstances of the incident to identify the underlying factors that led to the incident. This includes identifying the underlying factors that made the unsafe conditions, acts or procedures possible, and identifying health and safety deficiencies.

2. Elements of Full Investigation Reports

An employer's full investigation report of the section 69 incident must contain the following elements, as far as possible:

(a) Elements (a) through (f) of Item P2-71-1, including any updates available following the preliminary investigation period;

(b) the employer's legal name, name it is doing business under, address, contact number, email address, and WorkSafeBC account number;

(c) the identification and contact information of other relevant workplace parties such as an owner, prime contractor, other persons actively involved in the accident or incident, or persons implementing the corrective action following the full investigation;

(d) determination of the cause or causes of the incident;

(e) a full description of the incident;

(f) the names and job titles of all persons set out in section 70(1) of the *Act*, who carried out or participated in the preliminary and full investigation of the incident;

(g) all corrective actions the employer has determined are necessary to prevent the recurrence of similar incidents; and

(h) information about what corrective action has been taken and when any corrective actions not yet implemented will be taken.

Depending on the complexity of the accident or incident investigation, an employer may complete its full investigation report within 48 hours. This would meet its requirements for section 72(1) of the *Act*. The full investigation report must then be submitted to the joint committee or worker health and safety representative, or if there is no joint committee or worker health and safety representative, posted at the workplace, as soon as practicable, to meet its requirements for section 71(2); and to WorkSafeBC within 30 days of the incident, to meet the full investigation reporting requirements of section 72. The corrective action reporting requirements are addressed in section 5 of this policy.

Blasting and diving have industry-specific reporting requirements under the Regulation, in addition to those under sections 71 and 72 of the *Act*. An employer may combine one or more reports as long as all the applicable requirements, including those regarding timing, are met.

Section 70(4) of the *Act* requires the employer to record the addresses and telephone numbers of witnesses and any other persons whose presence might be necessary for a proper investigation of the incident. This does not form part of the full investigation report.

3. Producing the Full Investigation Report

The *Act* requires an employer to submit its full investigation report to WorkSafeBC and to the joint committee or worker health and safety representative, as applicable or if there is no joint committee or worker health and safety representative, to post the report at the workplace.

4. Extensions for Submitting the Full Investigation Report

The *Act* requires employers to submit their full investigation reports within 30 days of the incident. Where an employer makes a request, WorkSafeBC may grant one or more extensions for submitting the full investigation report, if the employer identifies delays in its ability to complete its full investigation due to factors outside its control. Where WorkSafeBC grants an extension, employers should notify their joint committee or worker representative of the details of the extension.

It is not possible to list all of the situations where WorkSafeBC may consider it appropriate to grant extensions, but the following are some examples:

- where the remoteness of the location of the accident or incident requiring investigation creates delays in an employer's investigation;
- where the technical aspects of the investigation cannot be evaluated within 30 days of the accident or incident;
- where third party reports related to the full investigation are pending;
- if an investigation by WorkSafeBC, the police, or another agency restricts the employer's ability to investigate the cause or causes of the accident or incident;
- where an employer does not know about an accident or incident that resulted in injury to a worker, because there is a delay in the worker seeking the related medical treatment; and
- any other circumstances where WorkSafeBC considers it reasonable.

5. Corrective Action Reporting Following the Full Investigation

WorkSafeBC may request a copy of the corrective action report that the employer prepares following the full investigation.

In the corrective action report prepared following the full investigation, the employer must include:

- (a) the unsafe conditions, acts or procedures that made the corrective action necessary;
- (b) the corrective action taken to prevent the recurrence of similar incidents following the full investigation;
- (c) employer identification information;
- (d) the names and job titles of the persons responsible for implementing the corrective action following the full investigation; and
- (e) the date the corrective action was taken.

Where the employer completes the full investigation within 48 hours of the section 69 incident and determines the corrective action necessary to prevent the recurrence of similar incidents, the employer may prepare a single corrective action report to provide to the joint committee or worker health and safety representative, as applicable, or if there is no joint committee or worker health and safety representative, to post at the workplace. This would meet its corrective action reporting requirements for both sections 71 and 72 of the *Act*.

PRACTICE

See:

• OHS Guideline [G-P2-68-1](#).

EFFECTIVE DATE:	January 1, 2016
AUTHORITY:	Section 72 of the <i>Act</i> .
CROSS REFERENCES:	Section 84 of the <i>Act</i> ; Item P2-68-1, <i>Major Release of Hazardous Substance</i> ; Item P2-71-1, <i>Preliminary Incident Investigation, Report and Follow-Up Action</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 1, 2017 - Housekeeping change to delete a reference to then section 173(3) under "Elements of Preliminary Investigation Reports" and replace it with a reference to then section 174(4). January 1, 2016 - Amended to reflect stakeholder consultation on interim polices and to implement changes resulting from the <i>Workers Compensation Amendment Act (No. 2), 2015</i> , which received Royal Assent on November 17, 2015. This Item was originally developed to implement the <i>Workers Compensation Amendment Act, 2015</i> , which received Royal Assent on May 14, 2015.
APPLICATION:	This policy applies to all accidents and incidents that occur on and after January 1, 2016.

BACKGROUND**1. Explanatory Notes**

Instead of issuing an order, WorkSafeBC may, in certain circumstances, enter into a compliance agreement in which an employer voluntarily agrees to correct OHS violations and report back to WorkSafeBC by a specific date. This policy outlines when WorkSafeBC can enter into or cancel a compliance agreement.

Compliance agreements are offered at WorkSafeBC's discretion, within the limits of the *Act* and this policy. WorkSafeBC will only enter into a compliance agreement if WorkSafeBC believes that the employer will likely fulfill its obligations under the agreement.

Compliance agreements allow WorkSafeBC to engage with a responsive employer to correct non-high risk violations and improve workplace safety. While the compliance agreement is in effect, WorkSafeBC will not issue an order for any violations specifically described in the compliance agreement.

If a compliance agreement is rescinded (in other words, cancelled), WorkSafeBC will, except in exceptional circumstances, write orders for any outstanding OHS violations specifically described in the agreement.

For ease of reference, this policy incorporates the requirements of the *Act* along with the policy. All section references in this policy refer to the *Act*.

2. The Act

Section 83

(1) The Board may enter into an agreement with an employer if the Board considers that

- (a) the employer has contravened, or failed to comply with, a an OHS provision or a provision of the regulations,
- (b) the employer has not contravened, or not failed to comply with, the same provision described in paragraph (a) within the 12-month period immediately preceding the contravention or failure referred to in that paragraph,
- (c) the health or safety of workers, for which the employer has responsibilities under this Act, is not at immediate risk, and
- (d) entering into the agreement is appropriate in the circumstances.

(2) An agreement under subsection (1) must be in writing and must do the following:

- (a) describe one or more actions the employer agrees to take, which may include one or more expenditures the employer agrees to make, to remedy the employer's contravention or failure referred to in subsection (1)(a) or the adverse effects that resulted from that contravention or failure;
- (b) must set out the time frame within which the employer, with respect to each action described under paragraph (a) of this subsection, agrees to
 - (i) take the action, and
 - (ii) report to the Board on the action taken;
- (c) must specify the date the agreement ends;
- (d) must set out the required manner, form and content of the report referred to in paragraph (b)(ii) of this subsection.

(3) As soon as practicable after entering into an agreement under subsection (1), the employer must

- (a) provide a copy of the agreement to the joint committee or worker health and safety representative, as applicable, or
- (b) if there is no joint committee or worker health and safety representative, post a copy of the agreement at the workplace.

(4) As soon as practicable after reporting to the Board under subsection (2)(b)(ii), the employer must

- (a) provide a copy of the report to the joint committee or worker health and safety representative, as applicable, or
- (b) if there is no joint committee or worker health and safety representative, post a copy of the report at the workplace.

(5) Subject to subsection (6), an agreement under subsection (1) may be amended if agreed to by the Board and the employer.

(6) The Board must rescind an agreement under subsection (1) if the Board considers that any of the following apply:

- (a) the employer has failed to
 - (i) take any of the actions described under subsection (2)(a) within the time frame set out for the action in subsection (2)(b)(i), or
 - (ii) report to the Board within the time frame set out under subsection (2)(b)(ii);
- (b) the employer intentionally provided false or misleading information in relation to the agreement;
- (c) the health or safety of workers is at immediate risk, based on information received by the Board after the agreement was entered into.

(7) The Board may rescind an agreement under subsection (1) if the Board considers that the agreement no longer adequately protects the health or safety of workers.

(8) A rescission under subsection (6) or (7) takes effect immediately despite the employer not having received notice.

(9) As soon as practicable after rescinding an agreement under subsection (6) or (7), the Board must

- (a) make reasonable efforts to provide verbal notice of the rescission to the employer, and
- (b) send written notice of the rescission to the employer.

(10) Section 344 (4) to (6) [*issues related to sending or receipt of orders and other documents*] does not apply to the sending of written notice under subsection (9)(b) of this section.

(11) The employer must, as soon as practicable after receiving written notice under subsection (9),

- (a) provide a copy of the written notice to the joint committee or worker health and safety representative, as applicable, or
- (b) if there is no joint committee or worker health and safety representative, post a copy of the written notice at the workplace.

POLICY

1. Entering into a compliance agreement

WorkSafeBC enters into compliance agreements at its own discretion, after considering the likelihood of an incident or exposure occurring because of the violation and the likely seriousness of any injury or illness that could result.

WorkSafeBC will not enter into a compliance agreement regarding a violation if:

- (a) the violation puts worker health or safety at immediate risk (in other words, creates a likelihood of injury, illness or death if not immediately remedied) [section 83(1)(c)];
- (b) the violation is high risk as defined in Item P2-95-2;
- (c) the employer has contravened, within the last 12 months, the same provision of the *Act* or regulations [section 83(1)(b)]; or
- (d) a previous compliance agreement with the employer was cancelled in the last 3 years due to the fault of the employer.

WorkSafeBC will only enter into a compliance agreement if WorkSafeBC believes that the employer will likely fulfill its obligations under the agreement. WorkSafeBC will consider various factors to determine this, which will include:

- (e) the compliance history of the employer;
- (f) the effectiveness of the employer's overall approach to managing health and safety;
- (g) the employer's willingness to enter into the agreement; and
- (h) information provided by workers and union representatives.

While the compliance agreement is in effect, WorkSafeBC will not issue an order for any violation specifically described in the agreement. If a compliance agreement is satisfactorily completed by an employer, WorkSafeBC will not retroactively issue an order for any violation specifically described in the agreement.

2. Requirements of a compliance agreement

Employers enter into compliance agreements voluntarily. Compliance agreements require the signature of an appropriate employer representative who is authorized to enter into agreements on behalf of the employer.

Section 83(2) requires that a compliance agreement must:

- (a) be in writing;
- (b) describe the corrective actions the employer agrees to take; and
- (c) provide the date:
 - (i) when the employer must complete its corrective action ("action deadline");
 - (ii) when the employer must report back to WorkSafeBC ("report deadline"); and
 - (iii) when the agreement ends.

One compliance agreement may address multiple workplaces of an employer.

3. Amending an existing compliance agreement

A compliance agreement can be amended if WorkSafeBC and the employer agree to the amendments in writing. A compliance agreement cannot be amended after it has ended or been cancelled.

When considering whether to agree to amend an agreement, WorkSafeBC will consider the employer's progress towards correcting the violations set out in the compliance agreement, as well as the factors set out under 1(e) to (h) above.

4. Cancelling a compliance agreement

WorkSafeBC will cancel a compliance agreement if the agreement no longer adequately protects the health or safety of the workers.

Section 83(6) requires that a compliance agreement be cancelled if:

- (a) the employer fails to complete its required actions by the action deadline;
- (b) the employer fails to meet its reporting obligations by the report deadline;
- (c) the employer intentionally provides false or misleading information in relation to the agreement; or
- (d) the health or safety of workers is at immediate risk based on information received by WorkSafeBC after the agreement was entered into (in other words, there is a likelihood of injury, illness or death if the situation is not immediately remedied).

Section 83(9) requires WorkSafeBC to send written notice to the employer of a cancellation and make reasonable efforts to provide verbal notice.

However, section 83(8) states that the cancellation of a compliance agreement takes effect immediately, whether or not the employer receives written or verbal notice.

If a compliance agreement is cancelled, WorkSafeBC will, except in exceptional circumstances, write orders for any outstanding OHS violations specifically described in the agreement.

5. Posting requirements

All compliance agreements will include a term that requires employers to post in the workplace copies of:

- (a) compliance agreements;
- (b) amended compliance agreements;
- (c) compliance agreement reports; and
- (d) notices of cancellation of compliance agreements.

Compliance agreements will also include a term that requires the above documents to be provided to the joint committee or worker health and safety representative, if applicable, and to the union if the compliance agreement relates to a workplace where workers of the employer are represented by a union.

EFFECTIVE DATE:	January 1, 2016
AUTHORITY:	Section 83 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-84-1, OHS Compliance Orders, of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. January 1, 2016 - Amended to change posting requirements and remove factor (i) in section 1 and insert it at the beginning of the section instead. The paragraph order in the Explanatory Notes section was also changed.

APPLICATION:

This policy is effective January 1, 2016 and applies to all inspections occurring on and after January 1, 2016.

Policy Item P2-84-1
OHS Compliance Orders

BACKGROUND

1. Explanatory Notes

Section 84(1) provides a broad general authority for the Board to make orders for carrying out matters and things regulated, controlled or required by the OHS provisions of the *Act* or the OHS regulations. This includes authority to make orders in a variety of specific situations set out in section 84(2).

This policy addresses orders directed towards remedying an OHS violation. An OHS compliance order is WorkSafeBC's primary tool to remedy non-compliance with health and safety requirements in the *Act* and Regulation.

Powers to make orders are also found in other sections of the *Act*. For example, section 95 provides that administrative penalties may be imposed by order. This policy does not address those types of orders.

Failure to comply with an order may be addressed by administrative penalties, injunctions, or prosecution.

2. The Act

Section 84:

- (1) The Board may make orders for the carrying out of any matter or thing regulated, controlled or required by the OHS provisions or the regulations, and may require that the order be carried out immediately or within the time specified in the order.
 - (2) Without limiting subsection (1), the authority under that subsection includes authority to make orders as follows:
 - (a) establishing standards that must be met and means and requirements that must be adopted in any work or workplace for the prevention of work-related accidents, injuries and illnesses;
 - (b) requiring a person to take measures to ensure compliance with this *Act* and the regulations or specifying measures that a person must take in order to ensure compliance with this *Act* and the regulations;
 - (c) requiring an employer to provide in accordance with the order a medical monitoring program as referred to in section 57;
 - (d) requiring an employer, at the employer's expense, to obtain test or evaluation results respecting any thing or procedure in or about a workplace, in accordance with any requirements specified by the Board, and to provide that information to the Board;
 - (e) requiring an employer to install and maintain first aid equipment and service in accordance with the order;
 - (f) requiring a person to post or attach a copy of the order, or other information, as directed by the order or by an officer;
 - (g) establishing requirements respecting the form and use of reports, certificates, declarations and other records that may be authorized or required under the OHS provisions;
 - (h) doing anything that is contemplated by the OHS provisions to be done by order;
 - (i) doing any other thing that the Board considers necessary for the prevention of work-related accidents, injuries and illnesses.
- (3) An order may be made applicable to any person or category of persons and may include terms and conditions the Board considers appropriate.
- (4) The authority to make orders under this section does not limit and is not limited by the authority to make orders under another OHS provision.

Section 85:

- (1) An officer of the Board may exercise the authority of the Board to make orders under the OHS provisions, subject to any restrictions or conditions established by the Board.
- (2) An order may be made orally or in writing but, if made orally, it must be confirmed in writing as soon as is reasonably practicable.
- (3) If an order relates to a complaint made by a person to the Board or an officer, a copy of the order must be given to that person.

3. The OHSR
Section 2.4:

Every person to whom an order or directive is issued by the Board must comply promptly or by the time set out in the order or directive.

POLICY

Workplace parties must comply with the *Act* and OHSR. An OHS Compliance order does not initiate the obligation to comply with the *Act* and OHS regulations. It is not sufficient simply to obey a WorkSafeBC order after a violation, injury or disease has occurred.

When identifying violations at a workplace, WorkSafeBC will ordinarily write orders.

When a particular safety issue involves more than one employer or worker, WorkSafeBC will determine which workplace parties should be the recipients of orders.

In some cases, where there are a number of violations, WorkSafeBC may write orders to address the underlying health and safety issues without writing an order relating to each violation.

PRACTICE

When WorkSafeBC identifies a violation but does not write an order, the circumstances should be documented in the inspection notes of the inspection report and the relevant regulations referenced for future tracking.

EFFECTIVE DATE:	March 1, 2013
AUTHORITY:	Section 84 of the <i>Act</i> .
CROSS REFERENCES:	Section 85 of the <i>Act</i> ; Section 2.4 of the <i>OHSR</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. March 1, 2013 - Amended to confirm WorkSafeBC's discretion regarding writing orders and to align policy with the practice of WorkSafeBC. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. December 31, 2003 - This policy incorporates portions of Procedure No. 1.3.3-1 " <i>Issuing Inspection Reports</i> " of the former Prevention Division <i>Policy and Procedure Manual</i> . March 3, 2003 - Consequential changes subsequently made to the restatement of then section 187 to reflect the <i>Workers Compensation Amendment Act, 2002</i> and to the Explanatory Notes and the cross-references to reflect the <i>Workers Compensation Amendment Act (No. 2), 2002</i> . October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i> .
APPLICATION:	

Policy Item P2-85-1
Orders - Other General Matters

BACKGROUND

1. Explanatory Notes

Section 85 sets out other general matters related to orders. Subject to the terms of the relevant sections, these requirements apply to all the powers to issue orders under the OHS provisions of the *Act*.

2. The Act

Section 85:

- (1) An officer of the Board may exercise the authority of the Board to make orders under the OHS provisions, subject to any restrictions or conditions established by the Board.
- (2) An order may be made orally or in writing but, if made orally, it must be confirmed in writing as soon as is reasonably practicable.
- (3) If an order relates to a complaint made by a person to the Board or an officer, a copy of the order must be given to that person.

POLICY

After an inspection, the Board officer must complete a report, but its completion may be deferred until any required investigation is completed. This report may contain one or more orders, or no orders, depending on whether violations of the regulations were observed and the number and type of any observed violations. If an officer has observed no violations, this will be stated in the report.

Where possible, the officer will hold a post-inspection conference with management having responsibility and authority to comply with the orders.

The worker representative who accompanied the inspection will be invited to the conference. If the worker representative normally designated for

this purpose has been unable to attend the inspection, the designated worker representative will be invited as well, if now available. Other parties involved may also be invited at the discretion of the officer. The purpose of the conference is to ensure that the parties understand the orders.

EFFECTIVE DATE: October 1, 1999
AUTHORITY: Section 85 of the *Act*.
CROSS REFERENCES: Section 84 of the *Act*.
HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
APPLICATION:

Policy Item P2-90/91/92-1
Stop Work Orders

BACKGROUND

1. Explanatory Notes

WorkSafeBC issues stop work orders to protect the health and safety of workers when they will be at risk until the employer complies with the *Act* and *OHSR*. Stop work orders are a compliance tool, similar to OHS Compliance Orders.

WorkSafeBC has a number of tools to address non-compliance with the *OHSR* and the OHS provisions of the *Act*. If these tools effectively protect workers in the circumstances, then a stop work order will not be necessary.

The *Act* provides that a stop work order may be issued when:

- (a) there are reasonable grounds to believe that there is a high risk of serious injury, serious illness or death at a workplace, or
 - (b) an employer
 - (i) violates a section of the *Act* or Regulation;
 - (ii) within the last 12 months, had previously violated the same section and failed to comply with the resulting order; and
 - (iii) there are reasonable grounds to believe that there is a risk of serious injury, serious illness or death.

The *Act* also provides that, if a stop work order is issued, WorkSafeBC may also stop work at other or all workplaces of an employer (a "stop operations order") if WorkSafeBC has reasonable grounds to believe that:

- (a) the same or similar unsafe working or workplace conditions exist, or
 - (b) would exist,
at the other workplaces.

This policy provides guidance regarding:

- (a) when to consider a stop work order,
- (b) when a stop work order is appropriate,
- (c) the scope of a stop work order (area covered),
- (d) the use of a stop operations order, and
- (e) the duration of a stop work order.

2. The Act

Section 90:

(1) If subsection (2) or (3) applies, the Board may order that

- (a) work at a workplace or any part of a workplace stop until the order to stop work is cancelled by the Board, and
- (b) if the Board considers this is necessary, the workplace or any part of the workplace be cleared of persons and isolated by barricades, fencing or any other means suitable to prevent access to the area until the danger is removed.

(2) The Board may make an order under subsection (1) if the Board has reasonable grounds for believing there is a high risk of serious injury, serious illness or death to a worker at the workplace.

(3) The Board may make an order under subsection (1) if

(a) an employer

(i) has failed to comply with an OHS provision or a provision of the regulations, and

(ii) within the 12-month period immediately preceding the failure to comply as referred to in subparagraph (i),

(A) has failed to comply with the same provision, and

(B) has failed to comply with an order respecting the failure to comply with that provision, and

(b) the Board has reasonable grounds for believing there is a risk of serious injury, serious illness or death to a worker at the workplace.

(4) If an order is made under subsection (1)(b), an employer, supervisor or other person must not require or permit a worker to enter the workplace or part of the workplace that is the subject of the order, except for the purpose of doing work that is necessary or required to remove the danger or the hazard and only if the worker

(a) is protected from the danger or the hazard, or

(b) is qualified and properly instructed in how to remedy the unsafe condition with minimum risk to the worker's own health or safety.

Section 91, in part:

(1) If the Board makes an order under section 90, the Board may, in accordance with this section, make an order with respect to another workplace or any part of another workplace whose employer is the same as the employer at the workplace or any part of the workplace in respect of which the order under section 90 was made.

(2) If the Board has reasonable grounds for believing that, at the other workplace or any part of the other workplace, the same or similar unsafe working or workplace conditions exist as at the workplace or any part of the workplace in respect of which the order under section 90 was made, the Board may order that

(a) work at the other workplace or any part of the other workplace stop until the order to stop work is cancelled by the Board, and

(b) if the Board considers this is necessary, the other workplace or any part of the other workplace be cleared of persons and isolated by barricades, fencing or any other means suitable to prevent access to the area until the danger is removed.

(3) If the Board has reasonable grounds for believing that, at the other workplace or any part of the other workplace, the same or similar unsafe working or workplace conditions would exist as at the workplace or any part of the workplace in respect of which the order under section 90 was made, the Board may make an order prohibiting the employer from starting work at the other workplace or any part of the other workplace.

(4) In making an order under this section, the Board is not required to specify the address of the other workplace or any part of the other workplace in respect of which the order is made.

...

Section 92:

(1) Despite section 85(2) [*orders may be made orally or in writing*], an order under section 90 or 91

(a) may only be made in writing, and

(b) must be served on the employer, supervisor or other person having apparent supervision of the work or the workplace.

(2) An order referred to in subsection (1) expires 72 hours after it is made, unless the order has been confirmed in writing by the Board.

POLICY

A. When to Consider a Stop Work Order

The *Act* says that WorkSafeBC may consider a stop work order when:

(a) there are reasonable grounds to believe that there is a high risk of serious injury, serious illness or death at a workplace (high risk is defined in Item [P2-95-2](#)), or

(b) an employer

(i) violates a section of the *Act* or Regulation;

(ii) within the last 12 months, had previously violated the same section and failed to comply with the resulting order; and

(iii) there are reasonable grounds to believe that there is a risk of serious injury, serious illness or death.

An officer will determine whether there are reasonable grounds for a stop work order based on knowledge and experience along with any immediately available advice and assistance. An officer may make a decision on the spot to immediately protect workers and then make further inquiries afterwards.

When there are reasonable grounds for a stop work order, WorkSafeBC must then consider whether a stop work order is appropriate in the circumstances as set out in **B** below.

B. Appropriateness of a Stop Work Order

A stop work order is not necessary in every case where one is possible under the *Act*. WorkSafeBC will generally issue a stop work order when the safety concern cannot be quickly remedied and other measures are insufficient to protect the workers in that workplace. The following are some examples of the circumstances:

(a) The equipment needed to comply is not at the workplace.

Work cannot safely continue until the employer obtains the needed equipment.

(b) The employer has not trained the workers to perform the work safely.

Work cannot safely continue until the employer gives workers the necessary training.

(c) The employer does not have an effective system of supervision in place to ensure that work is performed safely.

Work cannot safely continue until the employer implements an effective system of supervision.

(d) The documentation necessary to determine whether the work is safe is unavailable.

This could include things such as a hazardous materials survey and confirmation in writing, instructions for an excavation, or confined space hazard assessment and entry procedures.

(e) The employer has a history of non-compliance with OHS Compliance Orders.

WorkSafeBC may not be able to rely on the employer to remedy the violation before resuming work and it may be necessary to stop work until the employer demonstrates that they have taken the required actions.

(f) The employer has expressed the intent not to comply with OHS Compliance Orders.

WorkSafeBC will be unable to rely on the employer to address the violation and work must be stopped until WorkSafeBC can verify that the employer has taken the required precautions.

(g) The employer cannot be reached or identified and work is pending that will pose a high risk to workers.

For example, a demolition site contaminated with asbestos would pose a high risk to untrained and unprotected workers. It may be necessary to issue a stop work order at the workplace until WorkSafeBC can verify that the employer has taken the required precautions.

If a stop work order is appropriate, WorkSafeBC must then consider:

(a) the scope of that stop work order as set out in **C**, and

(b) whether a multiple workplace stop work order is appropriate as set out in **D**.

C. Scope of a Stop Work Order (Area of Workplace Involved)

If WorkSafeBC decides to issue a stop work order, it must carefully consider the scope of the order.

The *Act* provides that a stop work order may apply to a workplace or any part of the workplace.

The scope of a stop work order must be sufficient to ensure that the work posing a risk to workers is halted. However, the stop work order should not impact work or those parts of the workplace where the risk underlying the stop work order is not evident and work is being done in a safe manner.

The following are two examples of situations where a limited scope order might be appropriate:

(1) *A large construction site may have a variety of work practices occurring simultaneously, including earth moving work in one section of the site, and assembly of formwork in another section of the site. If WorkSafeBC observes a failure to wear fall protection while assembling formwork, the stop work order should be restricted to that part of the workplace where formwork assembly is occurring.*

(2) *A warehouse may have an area where unsafe stacking of items may pose a significant hazard to workers in one area of the warehouse but other parts of the warehouse would be unaffected. In that case, a stop work order would be restricted to the area where the hazard exists.*

D. Stop Operations Order

The *Act* provides that WorkSafeBC may stop work or prohibit work from starting at other workplaces (or parts of those workplaces) of the same employer who was issued a stop work order. This is referred to in this policy as a stop operations order. The *Act* also provides that WorkSafeBC must have reasonable grounds for believing that the same or similar unsafe working or workplace conditions exist, or would exist, at the other workplaces.

WorkSafeBC will consider the following in relation to the *Act* requirements for a stop operations order:

(a) Same employer:

The employer must be the same employer at each workplace where the stop work order (or prohibition from starting work) will take effect. In multiple employer workplaces, WorkSafeBC must ensure that the stop work order applies only to the same employer or those parts of the workplace where the employer has (or would have) responsibility for unsafe working or workplace conditions.

(b) Same or similar unsafe working or workplace conditions

To determine whether there are reasonable grounds to believe that unsafe working or workplace conditions at other workplaces are, or would be, the same or similar in respect to the stop work order made on the employer, WorkSafeBC will consider the following factors:

- Whether the employer performs, or would perform, substantially the same or similar work at other workplaces.
- Whether the employer uses, or would use, the same or similar work practices or equipment at other workplaces.
- Whether the same or similar working or workplace conditions exist, or would exist, at other workplaces.

E. Duration of a Stop Work Order

Once a stop work order is imposed, the duration of the stop work order will vary depending on the circumstances. WorkSafeBC may cancel a stop work order as soon as the employer has remedied the unsafe working or workplace conditions and a stop work order is no longer required to protect workers. In some circumstances, a stop work order could be cancelled within minutes.

For example, WorkSafeBC may issue a stop work order to prohibit work in a stairway under construction, due to the risk of collapse. WorkSafeBC could then cancel the order later that day after the employer obtained an engineering report and took the remedial action recommended in the report.

In order for WorkSafeBC to cancel a stop operations order, the employer must demonstrate that the employer has remedied the unsafe working or workplace conditions at all workplaces to which the stop work order applies.

In order for WorkSafeBC to cancel a stop operations order prohibiting work from starting at another workplace, the employer must demonstrate that it has taken the appropriate actions to ensure that the unsafe working or workplace conditions will not arise at that other workplace.

PRACTICE

The *Act* requires that a stop work order must be in writing. In most cases, WorkSafeBC will initially post a handwritten stop work order placard at the site before providing an inspection report containing the stop work order.

The *Act* provides that a stop work order expires after 72 hours unless the order has been confirmed in writing by the Board. OHS Guideline [G-P2-85-2](#) states that the Senior Vice President, Operations and Vice President, Prevention Services have the authority to:

- (a) confirm a stop work order beyond 72 hours, and
- (b) approve a stop operations order.

EFFECTIVE DATE: January 1, 2016
AUTHORITY: Sections 90, 91, and 92 of the *Act*.
CROSS REFERENCES:

HISTORY:

April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.

January 1, 2016 - Amended to change the paragraph order in the Explanatory Notes and make wording changes to sections D (Stop Operations Orders), E (Duration of a Stop Work Order) and the Practice section.

May 27, 2015 - Interim policy applies to all inspections occurring on and after May 27, 2015 until the end of December 31, 2015.

May 27, 2015 - Amended following the amendments to then section 191 of the *Act* to address:

- (a) when to consider a stop work order,
- (b) when a stop work order is appropriate,
- (c) the scope of a stop work order,
- (d) the use of a stop operations order, and
- (e) the duration of a stop work order

September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.

APPLICATION:

This policy applies to all inspections that occur on and after January 1, 2016.

Policy Item P2-94-1
OHS Citations

BACKGROUND

1. Explanatory Notes

Employers are required to comply with the *Act* and *OHSR* at all times. WorkSafeBC conducts inspections and writes orders, known as OHS Compliance Orders, to address any violations. An order requires an employer to take action as soon as possible. Compliance with orders is essential to ensure that workplaces are safe.

When there is failure to comply with an order, or to prepare or send a compliance report, WorkSafeBC will expend unnecessary resources. High levels of compliance with orders allow WorkSafeBC officers to have a greater impact on health and safety.

An OHS Citation is a tool to address non-compliance with an order or failure to prepare or send a compliance report. It is an administrative penalty imposed on an employer by WorkSafeBC under section 94 of the *Act* and under the [OHS Citations Regulation](#). OHS Citations are limited to circumstances that are not high risk (as defined by Item [P2-95-2](#)).

An OHS Citation is different from an administrative penalty imposed on an employer under section 95 of the *Act* (OHS Penalty). Item [P2-95-1](#) sets out the criteria for an OHS Penalty.

Under the OHS Citations Regulation, an OHS Citation is \$571.49 (half the maximum) for a first offence. For a subsequent violation within three years, the OHS Citation is \$1,142.98 (the maximum). Both amounts are adjusted annually pursuant to the consumer price index.

Prior to issuing an OHS Citation, WorkSafeBC will first warn an employer that further failure to comply with the order may result in an OHS Citation or OHS Penalty. If the employer then fails to comply following the warning, WorkSafeBC may issue an OHS Citation or OHS Penalty.

2. The Act

Section 94:

(1) The Board may, by order, impose on an employer an administrative penalty prescribed under section 112 [*Board regulations in relation to OHS citations*] if the Board is satisfied on a balance of probabilities that the employer has failed to comply with an OHS provision or regulation provision prescribed under that section.

(2) An administrative penalty under this section must not be greater than \$1 142.98.

(3) If an employer files a request under section 270 [*request for review of Board decision*] for review of a decision under this section, the employer must

(a) post a copy of the request for review at the workplace to which the administrative penalty relates,

(b) provide a copy of the request for review to the joint committee or worker health and safety representative, as applicable, and

(c) if the workers at the workplace to which the administrative penalty relates are represented by a union, provide a copy of the request for review to the union.

(4) An employer who has been ordered to pay an administrative penalty under this section must pay the amount of the penalty to the Board for deposit into the accident fund.

(5) If an administrative penalty under this section is reduced or cancelled by a Board decision or on a review under Part 6 [*Review*]

of Board Decisions], the Board must refund the required amount to the employer.

Section 21(1), in part:

Every employer must

...

(b) comply with ...any applicable orders.

...

Section 88:

(1) An order may include a requirement for compliance reports in accordance with this section.

(2) The employer or other person directed by an order under subsection (1) must prepare a compliance report that specifies

(a) what has been done to comply with the order, and

(b) if compliance has not been achieved at the time of the report, a plan of what will be done to comply and when compliance will be achieved.

(3) If a compliance report includes a plan under subsection (2)(b), the employer or other person must also prepare a follow-up compliance report when compliance is achieved.

(4) In the case of compliance reports prepared by an employer, the employer must

(a) post a copy of the original report and any follow-up compliance reports at the workplace in the places where the order to which it relates are posted,

(b) provide a copy of the reports to the joint committee or worker health and safety representative, as applicable,

(c) if the reports relate to a workplace where workers of the employer are represented by a union, send a copy to the union, and

(d) if required by the Board, send a copy of the reports to the Board.

3. The OHSR

Section 2.4:

Every person to whom an order or directive is issued by the Board must comply promptly or by the time set out in the order or directive.

4. The OHS Citations Regulation

Section 1:

1 In this regulation, "Act" means the *Workers Compensation Act*.

Section 2:

2 (1) In this section:

"**comply**" means comply with an OHS provision of the Act, or the regulations, as specified in section 3 of this regulation;

"**non-compliance date**" means the date the Board, under section 94 of the Act, is satisfied an employer has failed to comply;

"**penalty date**" means the date of the order by which the Board imposes an administrative penalty under section 94 of the Act.

(2) The following administrative penalties are prescribed for the purposes of section 94 of the Act:

(a) a penalty that is half of the maximum amount allowable for an administrative penalty under section 94 of the Act, if, under that section, the Board is satisfied that an employer has failed to comply;

(b) a penalty that is the maximum amount allowable for an administrative penalty under section 94 of the Act, if, respecting an employer,

(i) the Board is satisfied the employer has failed to comply,

(ii) the non-compliance date of the failure to comply referred to in subparagraph (i) is within 3 years after the non-compliance date of a previous

- failure to comply by the employer, and
- (iii) the penalty date of the previous failure to comply referred to in subparagraph (ii) is earlier than the penalty date of the failure to comply referred to in subparagraph (i).

Section 3:

3 The following provisions are specified for the purposes of section 94 of the Act:

- (a) section 21(1)(b) of the Act, as it pertains to orders;
- (b) section 88(2), (3) or (4) of the Act if
- (i) as set out in subsection (1) of that section, an order includes a requirement for compliance reports, and
- (ii) in the case of subsection (4)(d) of that section, the Board requires the employer to send a copy of the compliance reports to the Board;
- (c) section 2.4 of the Occupational Health and Safety Regulation, as it pertains to orders.

POLICY

1. When an OHS Citation May Be Imposed

The OHS Citations Regulation provides that OHS Citations may be imposed for the following violations:

- failure to comply with an order as required by section 21(1)(b) of the *Act*;
- failure to prepare or send a compliance report to WorkSafeBC as required by WorkSafeBC, or meet other requirements pursuant to section 88(2), 88(3) or 88(4) of the *Act*; or
- failure to comply with section 2.4 of the OHSR.

(These are referred to in the policy as *Non-Compliance Violations*).

Under the OHS Citations Regulation, an OHS Citation is \$571.49 (half the maximum) for a first offence. For a subsequent violation within three years, the OHS Citation is \$1,142.98 (the maximum). Both amounts are adjusted annually pursuant to the consumer price index.

In this policy,

Inspection Cycle

means the time period that begins when WorkSafeBC first issues an order for a specific violation and ends with compliance with that order. Each order on an inspection report has its own inspection cycle

OHS Citation Warning

means a written warning that an OHS Citation may be issued for non-compliance with an order or failure to prepare or send a compliance report. This warning of an OHS Citation includes a warning that an OHS Penalty may be imposed but is not an OHS Penalty Warning Letter.

WorkSafeBC may impose an OHS Citation for a Non-Compliance Violation if all of the following requirements are met **on a specific Inspection Cycle**:

- (a) the Non-Compliance Violation is not in circumstances that are high risk;
Item P2-95-2 sets out how to determine whether violations are high risk.
- (b) the employer committed the Non-Compliance Violation after having received an OHS Citation Warning;
- (c) an OHS Penalty or OHS Penalty Warning Letter has not already been imposed for the same Non-Compliance Violation or underlying violation; and
OHS Penalties are discussed in [Item P2-95-1](#) (and related policies) and OHS Penalty Warning Letters are discussed in [Item P2-95-10](#).
- (d) an OHS Citation for the statutory maximum has not already been imposed.

2. Time Frame for Issuing an OHS Citation

When WorkSafeBC determines that an employer has failed to comply with a specific order and that an OHS Citation will be imposed, the OHS Citation will be imposed as soon as reasonably practicable, and ordinarily within 7 days.

3. Substitution

An OHS Citation and an OHS Penalty cannot be substituted for each other, on review or appeal.

EFFECTIVE DATE:	February 1, 2016
AUTHORITY:	Section 94 of the <i>Act</i> .
CROSS REFERENCES:	Item P2-95-1, <i>Criteria for Imposing OHS Penalties</i> ; Item P2-95-3, <i>Transfer of OHS History</i> , of the <i>Prevention Manual</i> .

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
March 1, 2016 - Housekeeping amendments to correct typographical error regarding the amount of the statutory maximum.

APPLICATION: This policy applies to all violations specified in section 3 of the *OHS Citations Regulation*, occurring on or after February 1, 2016.

Policy Item P2-95-1
Criteria for Imposing OHS Penalties

BACKGROUND

1. Explanatory Notes

The main purpose of an administrative penalty ("OHS Penalty") is to motivate the employer receiving the penalty and other employers to comply with the *Act* and *OHSR*.

Employers and other workplace parties are required to comply at all times with the *Act* and *OHSR* to ensure a safe workplace. WorkSafeBC inspects workplaces and investigates incidents to determine whether workplace parties are in compliance and issues orders to remedy non-compliance with the *Act* and *OHSR*. An order does not initiate the obligation to comply and it is not sufficient simply to comply with WorkSafeBC orders after a violation, injury or disease has occurred.

In order to comply with the *Act*, employers and other workplace parties must read the *Act* and *OHSR* and take all reasonable steps to ensure that they are aware of their responsibilities. Ignorance of the requirements of the *Act* and *OHSR* is not a defence to a penalty.

Section 95(1) contains the legal authority for imposing an OHS Penalty. An OHS Penalty is different from an OHS Citation imposed under section 94 of the *Act*. Item P2-94-1 addresses OHS Citations.

Section 95(3) states that an OHS Penalty must not be imposed if the employer establishes that it exercised "due diligence" to prevent the failure, non-compliance or conditions to which the penalty relates. Due diligence means taking all reasonable steps to comply. Item P2-95-9 contains more information about "due diligence".

This policy sets out the criteria that WorkSafeBC uses to determine whether to impose an OHS Penalty based on a violation. There are two parts to the policy:

A. Circumstances When WorkSafeBC Will Consider an OHS Penalty

The policy lists a set of circumstances in which WorkSafeBC must consider an OHS Penalty.

B. Considering the Appropriateness of an OHS Penalty

When the circumstances in A (above) have occurred, the policy sets out a number of factors to be considered to determine whether an OHS Penalty is appropriate in the circumstances. If an employer is duly diligent, WorkSafeBC cannot impose an OHS Penalty and these factors do not need to be considered.

2. The Act

Section 95(1):

The Board may, by order, impose on an employer an administrative penalty under this section if the Board is satisfied on a balance of probabilities that any of the following circumstances apply:

- (a) the employer has failed to take sufficient precautions for the prevention of work-related injuries or illnesses;
- (b) the employer has not complied with an OHS provision, the regulations or an applicable order;
- (c) the employer's workplace or working conditions are unsafe.

Section 95(3):

An administrative penalty under this section must not be imposed on an employer if the employer establishes that the employer exercised due diligence to prevent the circumstances described in subsection (1).

POLICY

In this policy, the term violation refers to a violation of the *OHSR* or the OHS provision of the *Act*.

The main purpose of OHS Penalties is to motivate the employer receiving the penalty and other employers to comply with the *Act* and *OHSR*.

Employers and other workplace parties must comply with any orders issued. However, compliance with orders will not relieve an employer from the consequences of a violation, including OHS Penalties.

A. Circumstances When WorkSafeBC Will Consider an OHS Penalty

WorkSafeBC must consider an OHS Penalty if an employer has committed a violation for which at least one of the following applies:

1. The violation resulted in a high risk of serious injury, serious illness or death;
Item P2-95-2 sets out how to determine whether violations are high risk.
2. The employer previously violated the same, or substantially similar, sections of the *Act* or *OHSR* (*repeat violations*) or the violation involves failure to comply with a previous order within a reasonable time;

WorkSafeBC will generally consider violations at different fixed locations of a multi-site employer together to determine whether there have been repeat violations. However if a violation is a *location violation*, WorkSafeBC will only consider violations at that location to determine whether it qualifies as a repeat violation.

A *location violation* is a violation by an employer with multiple fixed locations who, at the time of the violation, was doing all of the following:

- (a) effectively communicating with all locations regarding health and safety concerns;
- (b) providing adequate training to managers and others who implement site health and safety programs;
- (c) making local management accountable for health and safety; and
- (d) providing local management with sufficient resources for health and safety.

Item P2-95-3 sets out how prior violations are treated following sale or re-organization of a firm.

3. The employer intentionally committed the violation;
4. The employer violated section 73 of the *Act*;

Section 73 provides

An employer or supervisor must not, by agreement, threat, promise, inducement, persuasion or any other means, seek to discourage, impede or dissuade a worker of the employer, or a dependant of the worker, from reporting any of the following to the Board:

- (a) an injury or allegation of injury, whether or not the injury occurred or is compensable under the compensation provisions;
- (b) an illness, whether or not the illness exists or is an occupational disease compensable under the compensation provisions;
- (c) a death, whether or not the death is compensable under the compensation provisions;
- (d) a hazardous condition or allegation of a hazardous condition in any work to which the OHS provisions apply.

5. The employer violated section 79 of the *Act*;

Section 79 provides:

(1) A person must provide all reasonable means in that person's power to facilitate an inspection under the OHS provisions.

(2) A person must not do any of the following:

- (a) hinder, obstruct, molest or interfere with, or attempt to hinder, obstruct, molest or interfere with, an officer in the exercise of a power or the performance of a duty or function under the OHS provisions or the regulations;
- (b) knowingly provide an officer with false information, or neglect or refuse to provide information required by an officer in the exercise of the officer's powers or performance of the officer's duties or functions under the OHS provisions or the regulations;
- (c) interfere with any monitoring equipment or device in a workplace placed or ordered to be placed there by the Board.

6. The employer violated a stop work order (section 90 or 91 of the *Act*) or stop use order (section 89 of the *Act*); or

Section 89 gives WorkSafeBC the authority to order equipment out of service. Section 90 gives WorkSafeBC the authority to order work to stop at all or part of a workplace. Section 91 gives WorkSafeBC the authority to order work to stop at multiple workplaces.

7. WorkSafeBC considers that the circumstances warrant a penalty.

B. Considering the Appropriateness of an OHS Penalty

When considering the appropriateness of an OHS Penalty, WorkSafeBC must consider the following factors:

1. The potential for serious injury, illness or death in the circumstances, based on the available information at the time of the violation;
2. The likelihood that the penalty will motivate the employer (specific deterrence) and other employers (general deterrence) to comply in the future, taking into account one or more of the following:
 - (a) the extent to which the employer was or should have been aware of the hazard,
 - (b) the extent to which the employer was or should have been aware that the *Act* or *OHSR* were being violated,
 - (c) the compliance history of the employer,
 - (d) the effectiveness of the employer's overall approach to managing health and safety, and
 - (e) whether other enforcement tools would be more appropriate;
3. Any other relevant circumstances.

Section 95(3) of the *Act* says that a penalty cannot be imposed if the employer establishes that the employer exercised due diligence.

EFFECTIVE DATE:	March 1, 2016
AUTHORITY:	Section 95(1) of the <i>Act</i> .
CROSS REFERENCES:	Sections 56 and 95(3) of the <i>Act</i> ; Item P2-95-2 - <i>High Risk Violations</i> ; Item P2-95-3 - <i>Transfer of OHS History</i> ; Item P2-95-4 - <i>Non-Exclusive Ways to Impose Financial Penalties</i> ; Item P2-95-9 - <i>Due Diligence</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. March 1, 2016 - Policy amended to revise the circumstances when WorkSafeBC will consider a penalty and the factors considered to determine whether a penalty is appropriate. May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the <i>Act</i> . September 15, 2010 - Housekeeping changes effective to delete practice reference and make formatting changes. October 29, 2003 - An example in the policy that referenced section 20.11 of the <i>OHSR</i> was deleted to reflect the repeal of that section. July 1, 2003 - A minor change was made to the second bullet of the policy, for congruency with then Items D12-196-3 and D12-196-6. March 3, 2003 - Consequential changes were subsequently made to the restatement of then section 196 to reflect the <i>Workers Compensation Amendment Act, 2002</i> and to the Explanatory Notes, the restatement of then section 196 and the cross-references to reflect the <i>Workers Compensation Amendment Act (No. 2), 2002</i> . October 1, 1999 - This Item was originally developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i> .
APPLICATION:	This policy applies to all violations occurring on and after March 1, 2016.

Policy Item P2-95-2
High Risk Violations

BACKGROUND

1. Explanatory Notes

Items [P2-95-1](#), [P2-95-5](#), and [P2-95-10](#) require consideration of whether a violation involves high risk of serious injury, serious illness, or death ("high risk").

The *Act* states that OHS Penalties cannot be imposed if an employer establishes that it was duly diligent. Item [P2-95-10](#) confirms that OHS Warning Letters cannot be issued if an employer was duly diligent. Policy [P2-95-9](#) discusses due diligence.

This policy sets out how WorkSafeBC will categorize a violation as high risk. Violations may be classified as high risk in one of two ways:

A. Designated High Risk Violations

The first category are "designated high risk violations", ones that are automatically considered to be high risk because they regularly result in fatalities, serious injuries and serious illnesses. They generally give a worker little or no opportunity to avoid or minimize severe injury or death or occupational disease. The six items on the list are high risk violations.

B. High Risk Criteria

Many violations that are not on the list of designated high risk violations may also be high risk.

The policy sets out criteria to determine whether violations (other than designated high risk ones) are high risk.

POLICY

For ease of reference, in this policy "high risk" refers to high risk of serious injury, serious illness or death.

This policy sets out how high risk is determined for the policies regarding occupational health and safety related penalties and warning letters. Violations in the six circumstances on the list of Designated High Risk Violations (A) are high risk. Determining whether other violations are high risk will depend on the High Risk Criteria (B).

A. Designated High Risk Violations

Violations of the *Act* ("*Act*") or *OHSR* relating to the following circumstances are high risk:

1. Entry into an excavation over 1.2 m (4 feet) deep contrary to the requirements of the Regulation.
2. Work at over 3 m (10 feet) without an effective fall protection system.
3. Entry into a confined space without pre-entry testing and inspection to verify that the required precautions have been effective at controlling the identified hazards.
4. Causing work disturbing material containing asbestos, or potentially containing asbestos, to be performed without necessary precautions to protect workers.
5. Hand falling or bucking without necessary precautions to protect workers from the tree that is being felled or bucked, or other affected trees.

Explanatory note: OHS Guideline [G-P2-95-2](#) includes examples of circumstances where this would apply.

6. Work in the vicinity of potentially combustible dust without the necessary precautions to protect workers.

B. High Risk Criteria

When violations have occurred in circumstances that are not listed in A above, WorkSafeBC will determine whether the circumstances are high risk in each case on the basis of the available evidence concerning:

1. the likelihood of an incident or exposure occurring; and
2. the likely seriousness of any injury or illness that could result if that incident or exposure occurs.

Explanatory note: OHS Guideline [G-P2-95](#) provides a list of violations that are likely to be high risk when applying the high risk criteria. Even though a violation is on that list, it must still be analyzed using the High Risk Criteria (B) in this policy, since not every instance will be high risk.

PRACTICE

For practice information, please refer to OHS Guideline [G-P2-95-2](#).

EFFECTIVE DATE:	December 1, 2014
AUTHORITY:	Section 95(1) of the <i>Act</i> .
CROSS REFERENCES:	P2-95-1 - <i>Criteria for Imposing OHS Penalties</i> ; P2-95-5 - <i>OHS Penalty Amounts</i> ; P2-95-10 - <i>OHS Warning Letters</i> , of the <i>Prevention Manual</i> .

HISTORY:	<p>April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i>, R.S.B.C. 2019, c. 1.</p> <p>May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the <i>Workers Compensation Act</i>.</p> <p>December 1, 2014 - Amended to create six designated high risk violations and revise the high risk criteria.</p> <p>September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.</p> <p>July 1, 2003 - At number 7 of the policy, the term "snags" was removed, and replaced with "dangerous trees".</p> <p>October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Act</i>.</p>
APPLICATION:	<p>Policy change effective December 1, 2014 applies to all violations occurring on or after December 1, 2014.</p> <p>Policy change effective July 1, 2003 applies to all orders, including orders imposing administrative penalties under then section 196, issued on or after July 1, 2003.</p>

Policy Item P2-95-3
Transfer of OHS History

BACKGROUND
1. Explanatory Notes

This policy provides that when the experience rating of an employer is transferred to another firm, the Occupational Health and Safety (OHS) history is also transferred.

POLICY

When a firm is sold or reorganized, WorkSafeBC may transfer that firm's experience rating to the successor firm (see AP5-247-3 of the *Assessment Manual*).

For OHS purposes, if WorkSafeBC transfers the experience rating to the successor firm, WorkSafeBC will treat the original firm's OHS history, including prior violations and penalties, as part of the successor firm's history.

EFFECTIVE DATE:	March 1, 2016
AUTHORITY:	Section 95(1) of the <i>Act</i> .
CROSS REFERENCES:	<p>Item P2-95-1 - <i>Criteria for Imposing OHS Penalties</i>;</p> <p>Item P2-95-5 - <i>OHS Penalty Amounts</i>, of the <i>Prevention Manual</i>;</p> <p>Item AP5-247-3 - <i>Transfer of Experience Rating Between Firms</i>, of the <i>Assessment Manual</i>.</p>
HISTORY:	<p>April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i>, R.S.B.C. 2019, c. 1.</p> <p>March 1, 2016 - Changes to update discussion of transferring OHS History and to remove references to location violations, now contained in Item P2-95-1.</p> <p>September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.</p> <p>October 29, 2003 - An example referencing section 20.11 of the <i>OHSR</i> in the policy was deleted to reflect the repeal of that section.</p> <p>March 18, 2003 - References to policy items in the former <i>Assessment Policy Manual</i> were replaced with references to policy items in the <i>Assessment Manual</i>.</p>
APPLICATION:	This policy applies to all violations occurring on and after March 1, 2016.

Policy Item P2-95-4
Non-Exclusive Ways to Impose Financial Penalties

BACKGROUND
1. Explanatory Notes

This policy sets out the non-exclusive ways in which the Board may impose financial penalties if an employer does not comply with the occupational health and safety requirements in the *Act* and regulations.

2. The Act

Section 251, in part:

(1) This section applies if

- (a) an injury, death or disablement from occupational disease in respect of which compensation under Part 4 [*Compensation to Injured Workers and Their Dependants*] is payable occurs to a worker, and
 - (b) the Board considers that the injury, death or occupational disease was due substantially to
 - (i) the gross negligence of an employer,
 - (ii) the failure of an employer to adopt reasonable means for the prevention of injuries, deaths or occupational diseases, or
 - (iii) the failure of an employer to comply with the orders or directions of the Board, or with the regulations made under Part 2 [*Occupational Health and Safety*].
- (2) The Board may levy on and collect from that employer as a contribution to the accident fund all or part of the amount of the compensation payable in respect of the injury, death or occupational disease, to a maximum of \$62 208.07.

...

Section 56, in part:

If an employer fails, neglects or refuses to install or maintain first aid equipment or service required by regulation or order, the Board may do one or more of the following:

...

- (b) impose a special rate of assessment under Part 5 [*Accident Fund and Employer Assessment*];

...

Section 95(1):

The Board may, by order, impose on an employer an administrative penalty under this section if the Board is satisfied on a balance of probabilities that any of the following circumstances apply:

- (a) the employer has failed to take sufficient precautions for the prevention of work-related injuries or illnesses;
- (b) the employer has not complied with an OHS provision, the regulations or an applicable order;
- (c) the employer's workplace or working conditions are unsafe.

POLICY

The Board has authority under the *Act* to:

1. impose an administrative penalty under section 95(1),
2. levy and collect a contribution from an employer under section 251(2), and
3. impose a special rate of assessment under section 56(b).

EFFECTIVE DATE:	March 24, 2010
AUTHORITY:	Sections 56(b), 95(1), and 251(2) of the <i>Act</i> .
CROSS REFERENCES:	Item P2-17-1 - <i>Assignment of Board Authority</i> ; Item P2-95-1 - <i>Criteria for Imposing OHS Penalties</i> ; Item P2-251-1 - <i>Claim Cost Levies</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the <i>Act</i> . This policy incorporates portions of, and replaces, Policy No. 1.4.2 " <i>Penalty Assessments and Levies</i> " of the former Prevention Division <i>Policy and Procedure Manual</i> . March 24, 2010 - Amended to delete the reference to the Vice-President, Prevention Division, make minor wording changes and add a cross-reference to Policy P2-17-1 which had been amended to address authority over claims cost levies.
APPLICATION:	

WorkSafeBC may impose an administrative penalty ("OHS Penalty") on an employer for failure to comply with the OHS provisions of the *Act* and the *OHSR*, and under certain other conditions. Policy P2-95-1 and related policies identify when WorkSafeBC will consider an OHS Penalty.

Section 95(3) provides that WorkSafeBC must not impose an administrative penalty where the employer establishes that it exercised due diligence.

Section 95(2) sets out the maximum OHS Penalty, which is currently \$710,488.79. This maximum is adjusted under section 333 of the *Act* on January 1 of each year.

The *Act* does not specify how to calculate the amount of an OHS Penalty. This policy sets out how to calculate these amounts.

2. The Act

Section 95(2):

An administrative penalty under this section must not be greater than \$710 488.79.

POLICY

This policy determines the amounts of administrative penalties, referred to as OHS Penalties.

1. Payroll Used

For the purposes of this policy, the *penalty payroll* will ordinarily be determined as set out in (a) below. Item (b) below identifies circumstances in which WorkSafeBC will use less than the total payroll of the employer to determine the *penalty payroll*. The *penalty payroll* is used in Item 2(a) below as part of the calculation to determine the *basic amount* of the penalty.

(a) Penalty Payroll Calculation

(i) The *penalty payroll* is

- (A) the assessable payroll for the full calendar year immediately preceding the year in which the incident giving rise to the penalty occurred; or
- (B) WorkSafeBC's estimate of a value for the employer's assessable payroll for a full calendar year, based on the best information available at the time the penalty is imposed, if the preceding year's assessable payroll is:

- (1) non-existent or unknown,
- (2) not available due to the employer's use of a deposit account,
- (3) based on less than a full calendar year, or
- (4) a WorkSafeBC estimate of payroll.

The estimate must not be less than any estimate made previously by WorkSafeBC of the employer's assessable payroll for the calendar year. For certainty, any estimate cannot result in a penalty below the minimum amount.

(b) Multiple Fixed Locations and Divisional Registration

An employer may be divisionally registered (Item AP5-245-1), have one or more fixed locations or have one or more classification units (AP5-244-2). Divisions or classification units may themselves have multiple fixed locations.

Where a firm has more than one permanent location or is divisionally registered (AP5-245-1), WorkSafeBC will determine the penalty payroll based on the lowest applicable amount of the following where the violation occurred:

- (i) fixed location,
- (ii) division, or
- (iii) classification unit,

if the employer promptly provides:

(i) the necessary payroll information for that location, classification or division to WorkSafeBC (signed by a professional accountant, the President or a senior manager of the employer) and cooperates in any audit that WorkSafeBC considers necessary; and

(ii) sufficient evidence to establish that, at the time of the violation, the employer was doing all of the following at the applicable location, classification or divisional level:

- (A) effectively communicating with all locations regarding health and safety concerns,
- (B) providing adequate training to managers and others who implement site health and safety programs,

- (C) making local management accountable for health and safety, and
- (D) providing local management with sufficient resources for health and safety.

2. Calculating the *basic amount* of the penalty

The *basic amount* of an OHS penalty will be determined using the *penalty payroll* calculation in (a) and, as applicable, applying (b) multipliers or (c) variation factors or both.

(a) Calculation based on *penalty payroll*

WorkSafeBC will multiply the *penalty payroll* by 0.5%, with a minimum amount of \$1,250 and a maximum of half of the statutory maximum.

(b) Multipliers

If any of the circumstances on which the penalty is based:

- (i) are high risk (item 1 in P2-95-1, defined in P2-95-2)
- (ii) are intentional (item 3 in P2-95-1)
- (iii) involve section 79 obstruction (item 5 of P2-95-1)
- (iv) involve section 73 (item 4 of P2-95-1)
- (v) involve breaching a stop work or stop use order (item 6 of P2-95-1)

Multiply the amount from (a) by 2 for each one that applies and add the results together.

For example, if circumstances (i), (ii) and (v) all apply, WorkSafeBC will multiply the amount in (a) by 6.

(c) Variation factors

This policy is designed to ensure that employers of similar size generally receive similar penalty amounts in similar cases. In exceptional circumstances only, the resulting amount after having applied (a) and any applicable multiplier(s) in (b) may be reduced or increased by up to 30%. Circumstances that are adequately addressed by other parts of this policy are not exceptional circumstances.

3. Repeat penalties

(a) An OHS Penalty will be imposed as a "repeat penalty" where: there is a *prior similar penalty*.

(b) A *prior similar penalty* is any previous penalty which:

- (i) is for a violation that is the same as, or substantially similar to, one or more of the violation(s) that has initiated the penalty for which the amount is being calculated;
- (ii) the violations occurred within 3 years of one another; and
- (iii) at least 14 days prior to the date of the violation giving rise to the penalty for which the amount is being calculated, WorkSafeBC

(A) had imposed a penalty for the same or substantially similar violation referenced in (i), or

(B) provided notice to the employer that a penalty was being considered for the same or substantially similar violation referenced in (i),

(c) For paragraph (b), the date of a violation is the date of the incident.

(d) WorkSafeBC may provide notice under paragraph (b)(iii)(B) verbally or in writing, in person, by telephone, by mail, fax, email or other method.

4. Calculating the amount of a repeat penalty

(a) Where there are one or more *prior similar penalties*, WorkSafeBC will calculate the amount of a "repeat penalty" as follows:

(i) Calculate the *basic amount* of the penalty using Item 2 of this Policy.

(ii) Multiply the *basic amount* by 2^n , where n is the number of *prior similar penalties*. For example, an OHS Penalty with a *basic amount* of \$1,250 with three *prior similar penalties* (2^3) would be: $\$1,250 \times (2 \times 2 \times 2) = \$10,000$.

The following table further illustrates the repeat penalty calculations:

Number of <i>Prior Similar Penalties</i>	Multiply the <i>basic amount</i> by:
---	---

1	2
2	4
3	8
4	16
More than 4	Continue to use 2 ⁿ

(iii) Where there are at least two prior similar penalties and the employer's response to previous violations causes WorkSafeBC to believe that a higher level of motivation is required, WorkSafeBC may multiply the result of (ii) by 2.

5. Recovery of potential or actual financial benefits obtained from non-compliance

WorkSafeBC may make a reasonable estimate of the amount of any potential or actual financial benefit, such as cost saving or profit, obtained by the employer from committing the violation and add that amount to the penalty amount determined above. That amount forms part of the administrative penalty.

Potential financial benefits include those that would have occurred if the violation had not been discovered.

WorkSafeBC may consider adding these amounts when the penalty amount is insufficient to motivate the employer in light of the potential or actual financial benefits of non-compliance.

These amounts form part of the penalty and the total remains subject to the statutory maximum.

6. Discretionary Penalties

In some cases, where the circumstances warrant, WorkSafeBC may impose a discretionary penalty, which is a larger penalty than one calculated based on payroll. Unlike payroll based penalties, discretionary penalty amounts focus on reflecting the gravity of the circumstances and the need to motivate the employer and other employers to comply.

WorkSafeBC may impose a discretionary penalty up to the statutory maximum where:

- (i) the employer has committed a high risk violation (defined in P2-95-2);
- (ii) the employer committed the violation intentionally or with reckless disregard;
- (iii) a worker has died or suffered serious permanent impairment as a result of the violation; and
- (iv) the President or delegate(s) have granted authorization to impose a discretionary penalty.

A document signed by the President or delegate will be sufficient evidence that authorization was granted.

A discretionary penalty that is less than the penalty based on payroll may not be imposed.

Review Division or WCAT may vary the amount of a discretionary penalty or substitute a payroll based penalty in the review or appeal process.

Review Division may impose a discretionary penalty on review if the above conditions are met, but the approval of the President or delegate under item (iv) is not required.

7. Statutory maximum

WorkSafeBC will not impose an individual OHS penalty greater than the statutory maximum in effect at the time of the violation giving rise to the penalty.

8. Multiple Penalties

Ordinarily WorkSafeBC will impose only one penalty for violations arising out of the same incident or inspection. However, WorkSafeBC may impose separate penalties for distinct violations arising in the same circumstances as other violations that will result in a penalty. The criteria in Item P2-95-1 would apply to each.

PRACTICE

1. Examples of Penalty Multipliers

The following are examples of the penalty payroll calculation from Item 2(a) and the application of multipliers from Item 2(b). This table is for reference only. All amounts will be calculated according to the Policy.

Penalty Payroll	Calculation from Item 2(a)	Number of applicable circumstances from Item 2(b)

		One	Two	Three
Up to \$250,000	\$1,250	\$2,500	\$5,000	\$7,500
\$500,000	\$2,500	\$5,000	\$10,000	\$15,000
\$1,000,000	\$5,000	\$10,000	\$20,000	\$30,000
\$2,500,000	\$12,500	\$25,000	\$50,000	\$75,000
\$5,000,000	\$25,000	\$50,000	\$100,000	\$150,000
\$10,000,000	\$50,000	\$100,000	\$200,000	\$300,000
\$20,000,000	\$100,000	\$200,000	\$400,000	\$600,000
\$30,000,000	\$150,000	\$300,000	\$600,000	Stat Max
\$40,000,000	\$200,000	\$400,000	Stat Max	
\$50,000,000	\$250,000	\$500,000	Stat Max	
\$63,741,560 or more	\$355,244.40 (half statutory max)	Stat Max (\$710,488.79)		

2. Examples of Application of the Repeat Penalty Provisions

Example 1: You are calculating the penalty to be imposed for a violation that occurred less than 14 days after another similar violation that also resulted in a penalty. The employer has no other prior penalties for the same violation.

Calculate the *basic amount* of the penalty in accordance with Item 2 of this policy. After applying Item 3 of this policy, you determine that the current penalty is not a "repeat penalty". The penalty will therefore be imposed based on the table amount with variation plus any amounts added under Item 5 of this policy.

Example 2: You are calculating the penalty to be imposed for a violation that occurred less than 14 days after another similar violation that also resulted in a penalty. The employer has one other prior penalty for the same violation for which more than 14 days' notice was given before the current violation.

Calculate the *basic amount* of the penalty in accordance with Item 2 of this policy. After applying Item 3 of this policy, you determine that the current penalty is a "repeat penalty". There are two prior similar penalties; however, only one meets the requirements to be considered as a "prior similar penalty". Using Item 4, you determine that one prior similar penalty will result in the amount that you calculated for the penalty being multiplied by two.

Example 3: You are calculating the penalty to be imposed for a violation. The employer has three other prior penalties for the same violation for which more than 14 days' notice was given before the current violation.

Calculate the *basic amount* of the penalty in accordance with Item 2 of this policy. After applying Item 3 of this policy, you determine that the current penalty is a "repeat penalty". The three prior penalties each meet the requirements to be considered as a "prior similar penalty". Using Item 4, the basic amount will be successively doubled (multiplied by two) for each of the three prior similar penalties, resulting in a penalty of eight times the basic amount. For example, if the basic amount were \$2,500, the resulting penalty would be \$20,000.

The following table provides examples of the repeat penalty calculations from item 4. The table is for reference only. All amounts will be calculated according to the Policy.

Penalty Payroll	Calculation from Item 2 with no multipliers and no variation	Number of prior similar penalties		
		One (2x)	Two (4x)	Three (8x)
Up to \$250,000	\$1,250	\$2,500	\$5,000	\$10,000
\$500,000	\$2,500	\$5,000	\$10,000	\$20,000
\$1,000,000	\$5,000	\$10,000	\$20,000	\$40,000
\$2,500,000	\$12,500	\$25,000	\$50,000	\$100,000
\$5,000,000	\$25,000	\$50,000	\$100,000	\$200,000
\$10,000,000	\$50,000	\$100,000	\$200,000	\$400,000
\$20,000,000	\$100,000	\$200,000	\$400,000	Stat Max
\$30,000,000	\$150,000	\$300,000	\$600,000	Stat Max
\$40,000,000	\$200,000	\$400,000	Stat Max	
\$50,000,000	\$250,000	\$500,000	Stat Max	
\$63,741,560 or more	\$355,244.40 (half statutory max)	Stat Max (\$710,488.79)		

AUTHORITY:	Section 95(2) of the <i>Act</i>
CROSS REFERENCES:	Item P2-95-1 - <i>Criteria for Imposing OHS Penalties</i> ; Item P2-95-3 - <i>Transfer of OHS History</i> ; Item P2-95-9 - <i>Due Diligence, of the Prevention Manual</i> .
HISTORY:	<p>April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i>, R.S.B.C. 2019, c. 1.</p> <p>October 18, 2017 - The application statement was revised to clarify that the July 4, 2017 amendments do not apply to violations occurring before March 1, 2016 which have resulted in administrative penalties. Violations occurring before March 1, 2016 will still be considered as part of an employer's compliance history for the purposes of determining a repeat penalty amount.</p> <p>July 4, 2017 Amendments- to provide clarification on how to calculate a repeat penalty.</p> <p>April 15, 2016 - Housekeeping amendment to provide additional practice information regarding calculation of repeat penalty amounts.</p> <p>March 1, 2016 - Amendments including changes to penalty amount calculations, discretionary penalties, cost savings and profits and repeat penalties.</p> <p>September 15, 2010 - Housekeeping changes effective to correct paragraph reference in Item 4(4) and make formatting changes.</p> <p>January 2, 2010 - A change was made to</p> <ul style="list-style-type: none"> (a) Item 1 to correct a typographical error in the Category A penalty table, and (b) Item 4 so that an administrative penalty will be imposed as a "repeat penalty" where: <ul style="list-style-type: none"> (i) it is for a violation that is the same as, or substantially similar to, a prior violation for which a penalty has been imposed; (ii) the violations occurred within 3 years of one another; and (iii) at least 14 days prior to the date of the violation giving rise to the repeat penalty, WorkSafeBC <ul style="list-style-type: none"> (1) had imposed a penalty for the prior violation, or (2) provided notice of a potential penalty for the prior violation. <p>The amendments made effective January 2, 2010 applied to all penalties where a penalty was imposed on or after the effective date of the changes. Transitional provisions applied to penalties within the appeal period, before Review Division or before WCAT on the effective date.</p> <p>Transitional Provision for Repeat Penalty Calculation:</p> <p>Penalties within the appeal period or under review or appeal on the effective date of the policy change will be subject to the policy in effect when originally imposed, with the additional requirement that a prior penalty will only be used to increase the amount of a repeat penalty, if at least 14 days prior to the date of the violation giving rise to the repeat penalty, WorkSafeBC</p> <ul style="list-style-type: none"> (a) had imposed a penalty for the prior violation, or (b) provided notice of a potential penalty for the prior violation. <p>March 25, 2009 - A change was made to base the penalty calculation on the employer's assessable payroll for the full calendar year immediately preceding the year in which the incident that gave rise to the penalty occurred.</p> <p>March 25, 2009 - A change was made to allow WorkSafeBC to estimate payroll in certain situations. The amendments made effective March 25, 2009 applied to all decisions, including appellate decisions, made on or after the effective date of the changes.</p> <p>October 29, 2003 - An example referencing section 20.11 of the <i>OHSR</i> in the policy was deleted to reflect the repeal of that section.</p> <p>July 1, 2003 - A minor change was made at number four of the policy, to correct the reference of section 20.22 to section 20.11 of the <i>OHSR</i>.</p> <p>March 3, 2003 - Consequential changes were subsequently made throughout the Item to implement the <i>Workers Compensation Amendment Act (No. 2), 2002</i>.</p> <p>September 15, 2000 - This Item was originally developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i>.</p>
APPLICATION:	This policy applies to all administrative penalty decisions for violations occurring on or after March 1, 2016. This policy also applies to all appellate decisions made on or after July 4, 2017 with respect to violations occurring on or after March 1, 2016.

BACKGROUND
1. Explanatory Notes

This policy addresses administrative penalties imposed pursuant to section 95 of the *Act* and claims cost levies imposed pursuant to section 251(1) of the *Act*.

An administrative penalty or claims cost levy must be paid unless a stay is granted by the Chief Review Officer of the Review Division, or the

This policy sets out limits on collection while the decision on an application for a stay is pending at Review Division.

2. The Act

Section 108:

- (1) If a person fails to pay an amount owed to the Board under the OHS provisions, the Board may,
 - (a) if the person is an employer, direct that the amount be levied on the employer by way of an assessment, and
 - (b) in any case, issue a certificate for the amount owed and file that certificate in the Supreme Court.
- (2) An assessment under subsection (1)(a) is deemed to be an assessment under Part 5 [*Accident Fund and Employer Assessment*] and may be levied and collected under and in accordance with that Part.
- (3) A certificate filed under subsection (1)(b) has the same effect, and all proceedings may be taken on it by the Board, as if it were a judgment of the court for the recovery of a debt of the amount stated in the certificate against the person named in it.

Section 270, in part:

- (1) A request for a review must be filed as follows:
 - ...
 - (b) if a time period shorter than 90 days is prescribed by regulation of the Lieutenant Governor in Council with respect to the type of decision or order to be reviewed, within the shorter time period.
- (2) The chief review officer may extend the time to file a request for a review, including making an extension after the time to file has expired, if this is done on application and the chief review officer is satisfied that
 - (a) special circumstances existed that preclude or precluded the filing of a request for a review within the applicable time period required by subsection (1), and
 - (b) an injustice would otherwise result.
- (3) The filing of a request for a review under this section does not operate as a stay or suspend the operation of the decision or order under review unless, on application, the chief review officer orders otherwise.

Section 294

Unless the appeal tribunal orders otherwise, the filing of a notice of appeal under section 292 does not operate as a stay or affect the operation of the decision or order under appeal.

3. The Time Period Review Regulation

Section 2:

For the purposes of section 270(1) [*shorter time period for requesting review*] of the Act, the prescribed time period is 45 days for a review of the following:

- (a) a Board decision referred to in section 268(1)(c) [*occupational health and safety matters*] of the Act;
- (b) a Board decision referred to in section 268(1)(a) [*decisions in relation to employer obligations*] of the Act respecting a payment under section 251 [*levy of contribution from specific employer*] of the Act.

POLICY

If an employer has applied to the Chief Review Officer for a stay under section 270(3) relating to an administrative penalty or claims cost levy, WorkSafeBC will not collect the administrative penalty or claims cost levy by assessment, or take any additional steps to collect by garnishment, or writ of seizure and sale until the Chief Review Officer has decided the application or the review is concluded, whichever occurs first.

This does not apply to a stay request on a request for review filed after the time to file has expired unless the Chief Review Officer grants an application under section 270(2) to extend the time to file a request for review.

PRACTICE

This policy allows WorkSafeBC to register a certificate with the Court and register the debt against an employer's land while a stay request is pending. This would generally only occur when WorkSafeBC identifies a significant risk of loss.

EFFECTIVE DATE: March 1, 2013

AUTHORITY: Section 95(5) of the *Act*.

CROSS REFERENCES: Sections 108(1), 270(3), and 294 of the *Act*.

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
September 15, 2015 - Housekeeping changes to reflect that, as of that date, a request for review of a WorkSafeBC decision or order on an occupational health and safety or claims cost levy matter must be submitted to the Review Division within 45 days of the date the decision or order was made.
March 1, 2013 - Amended to specify the court proceedings affected by an application for a stay, to include claims cost levies and to address late requests for review.
September 15, 2010- Housekeeping changes to delete practice reference and make formatting changes.
March 3, 2003 - Consequential changes subsequently made to the statement of the *Act* and to the POLICY statement to reflect the *Workers Compensation Amendment Act (No. 2) 2002*.
October 1, 1999 - Item developed to implement the *Workers Compensation (Occupational Health and Safety) Amendment Act, 1998*.

APPLICATION: This policy applies to all applications for stay requests of penalties or claims cost levies made to Review Division on or after the effective date.
For stay requests on penalties made before the effective date, the policy in effect at that time applies, with two modifications to provide that the limits on collection:
- will end when the Chief Review Officer has decided the application, or the review is concluded, whichever occurs first, and
- will not apply to a stay request on a request for review filed after the time to file has expired unless the Chief Review Officer grants an application under then section 96.2(4) to extend the time to file a request for review.

Policy Item P2-95-7
Administrative Penalties – Payment of Interest on Successful Appeal

BACKGROUND
1. Explanatory Notes

Section 95(6) requires the payment of interest where an administrative penalty is reduced or cancelled on appeal.

2. The Act

Section 95(6):

If an administrative penalty under this section is reduced or cancelled by a Board decision, on a review requested under section 270 or on an appeal to the appeal tribunal under Part 7, the Board must

(a) refund the required amount to the employer, and

(b) pay interest on that amount calculated in accordance with the policies of the board of directors.

POLICY

The policies governing the payment of interest are set out in policy in Item AP5-243-1 of the *Assessment Manual*.

EFFECTIVE DATE: March 3, 2003

AUTHORITY: Section 95(6) of the *Act*.

CROSS REFERENCES:

HISTORY: April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.
May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the *Act*.
September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.
March 3, 2003 - Consequential changes subsequently made to the Explanatory Notes and to the restatement of then section 196(6) to reflect the *Workers Compensation Amendment Act (No. 2), 2002*.
October 1, 1999 - Item developed to implement the *Workers Compensation (Occupational Health and Safety) Amendment Act, 1998*.

APPLICATION:

BACKGROUND
1. Explanatory Notes

An employer may either be required to pay an administrative penalty in respect of a violation or prosecuted under the *Act* for the violation, but not both.

2. The Act

Section 95(7):

If an administrative penalty under this section is imposed on an employer, the employer must not be prosecuted under this Act in respect of the same facts and circumstances on which the Board based the administrative penalty.

POLICY

Once a prosecution under the *Act* has been commenced against an employer in respect of a violation, the Board will not impose an administrative penalty. A prosecution is "commenced" for this purpose, when an information is laid pursuant to the *Offence Act*.

An administrative penalty will not be imposed even if the prosecution does not proceed or is unsuccessful.

EFFECTIVE DATE:	March 3, 2003
AUTHORITY:	Section 95(7) of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the <i>Act</i> . September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. March 3, 2003 - Consequential changes subsequently made throughout the Item to reflect the <i>Workers Compensation Amendment Act (No. 2), 2002</i> . October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i> .
APPLICATION:	

BACKGROUND
1. Explanatory Notes

The Board is authorized to impose administrative penalties on employers for failure to comply with the OHS provisions of the *Act* and the OHS regulations, and under certain other conditions. Section 95(3) provides that an administrative penalty under this section must not be imposed if the employer establishes that it exercised due diligence to prevent the failure, non-compliance or conditions to which the penalty relates.

2. The Act

Section 95(3):

An administrative penalty under this section must not be imposed on an employer if the employer establishes that the employer exercised due diligence to prevent the circumstances described in subsection (1).

POLICY

The Board will consider that the employer exercised due diligence if the evidence shows on a balance of probabilities that the employer took all reasonable care. This involves consideration of what a reasonable person would have done in the circumstances. Due diligence will be found if the employer reasonably believed in a mistaken set of facts which, if true, would render the act or omission innocent, or if the employer took all reasonable steps to avoid the particular event.

In determining whether the employer has exercised due diligence under section 95(3), all the circumstances of the case must be considered.

EFFECTIVE DATE: March 3, 2003

AUTHORITY:	Section 95(3) of the <i>Act</i> . "Due diligence" is defined at common law by the courts. The standard set out in the POLICY section reflects the leading Supreme Court of Canada case - <i>R. v. Sault Ste. Marie</i> [1978] 85 DLR (3rd) 161. The requirements of the "due diligence" defence are open to re-interpretation by the courts. They may, therefore, be changed in future. Were this to happen, changes would be required to the Board's POLICY as well.
CROSS REFERENCES:	Item P2-23-1, <i>General Duties - Supervisors</i> ; Item P2-24-1, <i>General Duties - Multiple - Employer Workplaces</i> ; Item P2-25-1, <i>General Duties - Owners</i> ; Item P2-27-1, <i>General Duties - Directors and Officers of a Corporation</i> ; Item P2-29/30-1, <i>General Duties - Overlapping Obligations</i> ; Item P2-95-1, <i>Criteria for Imposing OHS Penalties</i> , of the <i>Prevention Manual</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the <i>Act</i> . September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. March 3, 2003 - Consequential changes subsequently made to various parts of the Item to reflect the <i>Workers Compensation Amendment Act (No. 2)</i> , 2002. October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i> .
APPLICATION:	This policy applies to all decisions to impose administrative penalties on and after March 3, 2003.

Policy Item P2-95-10
Occupational Health and Safety ("OHS") Penalty Warning Letters

BACKGROUND

1. Explanatory Notes

As an alternative to imposing an administrative penalty, the Board (operating as WorkSafeBC) may send the employer a letter warning that further similar violations of the *Act* or Regulation could result in an administrative penalty.

Both administrative penalties and warning letters are tools intended to motivate employers to comply with the *Act* and Regulation.

WorkSafeBC may send warning letters when the grounds for considering an administrative penalty are met and an employer has failed to exercise due diligence.

This policy provides factors for considering the appropriateness of a warning letter. A key factor is the likelihood that the warning letter will be sufficient to motivate the employer to comply in the future. Another is the potential for serious injury, illness, or death in the circumstances.

There is no requirement that a warning letter be sent prior to imposing a penalty.

The policy notes that ordinarily more than one warning letter will not be issued for the same or similar violations. This is because a warning letter is to motivate an employer to comply and non-compliance of a same or similar type suggests that a warning letter was not effective to do so. Similarly, a warning letter would not generally be appropriate for the same or similar violations following a penalty or prosecution. In both circumstances, WorkSafeBC would need to consider what other enforcement tools would be effective to motivate compliance.

2. The Act

Section 95(1):

The Board may, by order, impose on an employer an administrative penalty under this section if the Board is satisfied on a balance of probabilities that any of the following circumstances apply:

- (a) the employer has failed to take sufficient precautions for the prevention of work-related injuries or illnesses;
- (b) the employer has not complied with an OHS provision, the regulations or an applicable order;
- (c) the employer's workplace or working conditions are unsafe.

Section 17(1)

In accordance with the purposes of the OHS provisions, the Board has the mandate to be concerned with occupational health and safety generally, and with the maintenance of reasonable standards for the protection of the health and safety of workers in British Columbia and the occupational environment in which they work.

Section 17(2), in part:

In carrying out its mandate, the Board has the following duties, functions and powers:

...

- (d) to ensure that persons concerned with the purposes of the OHS provisions are provided with information and advice relating to the Board's administration and to occupational health and safety and occupational environment generally;

...

Section 82:

If an officer makes a written report to an employer relating to an inspection, whether or not the report includes an order, the employer must promptly

- (a) post the report at the workplace to which it relates, and
- (b) give a copy of the report to the joint committee or worker health and safety representative, as applicable.

POLICY

WorkSafeBC may send a warning letter when any of the criteria in Item P2-95-1 for considering an administrative penalty have been met, and an employer has failed to exercise due diligence.

The applicable criteria from Item P2-95-1 are as follows:

1. The violation resulted in a high risk of serious injury, serious illness or death;
Item P2-95-2 sets out how to determine whether violations are high risk.
2. The employer previously violated the same, or substantially similar, sections of the *Act* or OHSR (*repeat violations*) or the violation involves failure to comply with a previous order within a reasonable time;

WorkSafeBC will generally consider violations at different fixed locations of a multi-site employer together to determine whether there have been repeat violations. However if a violation is a *location violation*, WorkSafeBC will only consider violations at that location to determine whether it qualifies as a repeat violation.

A *location violation* is a violation by an employer with multiple fixed locations who, at the time of the violation, was doing all of the following:

- (a) effectively communicating with all locations regarding health and safety concerns;
- (b) providing adequate training to managers and others who implement site health and safety programs;
- (c) making local management accountable for health and safety; and
- (d) providing local management with sufficient resources for health and safety.

Item P2-95-3 sets out how prior violations are treated following sale or re-organization of a firm.

3. The employer intentionally committed the violation;
4. The employer violated section 73 of the *Act*;

Section 73 provides:

An employer or supervisor must not, by agreement, threat, promise, inducement, persuasion or any other means, seek to discourage, impede or dissuade a worker of the employer, or a dependant of the worker, from reporting any of the following to the Board:

- (a) an injury or allegation of an injury, whether or not the injury occurred or is compensable under the compensation provisions;
- (b) an illness, whether or not the illness exists or is an occupational disease compensable under the compensation provisions;
- (c) a death, whether or not the death is compensable under the compensation provisions;
- (d) a hazardous condition or allegation of a hazardous condition in any work to which the OHS provisions apply.

5. The employer violated section 79 of the *Act*;

Section 79 provides:

(1) A person must provide all reasonable means in that person's power to facilitate an inspection under the OHS provisions.

(2) A person must not do any of the following:

(a) hinder, obstruct, molest or interfere with, or attempt to hinder, obstruct, molest or interfere with, an officer in the exercise of a power or the performance of a duty or function under the OHS provisions or the regulations;

(b) knowingly provide an officer with false information, or neglect or refuse to provide information required by an officer in the exercise of the officer's powers or performance of the officer's duties or functions under the OHS provisions or the regulations;

(c) interfere with any monitoring equipment or device in a workplace placed or ordered to be placed there by the Board.

6. The employer violated a stop work order (section 90 or 91 of the *Act*) or stop use order (section 89 of the *Act*); or
Section 89 gives WorkSafeBC the authority to order equipment out of service. Section 90 gives WorkSafeBC the authority to order work to stop at all or part of a workplace. Section 91 gives WorkSafeBC the authority to order work to stop at multiple workplaces.

7. WorkSafeBC considers that the circumstances warrant a penalty.

When considering the appropriateness of a warning letter, some of the factors WorkSafeBC may consider are:

(a) the potential for serious injury, illness or death in the circumstances; and

(b) the likelihood that a warning letter will be sufficient to motivate the employer to comply in the future, taking into account:

(i) the extent to which the employer was or should have been aware of the hazard;

(ii) the extent to which the employer was or should have been aware that the *Act* or regulations were being violated;

(iii) the past compliance history of the employer; and

(iv) the effectiveness of the employer's overall program for compliance.

WorkSafeBC will, where practicable, send a copy of the letter to any union representing workers at the workplace.

WorkSafeBC will not ordinarily issue:

(a) more than one warning letter to an employer for the same or similar violations; or

(b) a warning letter to an employer that has received a penalty or has been prosecuted for the same or similar violations.

The issuance of a warning letter for a violation does not limit WorkSafeBC's ability to pursue administrative penalties, prosecution or other enforcement or compliance action for subsequent violations.

This policy relates solely to warning letters and does not affect or limit WorkSafeBC's ability to pursue administrative penalties, prosecution or other enforcement or compliance action.

PRACTICE

WorkSafeBC will advise the employer of the obligation to provide a copy of the warning letter to the joint committee and the obligation to post the warning letter in the workplace.

In the event that all the orders underlying a warning letter are cancelled, WorkSafeBC will code the warning letter as withdrawn, or the equivalent, in its systems.

EFFECTIVE DATE: May 1, 2013
AUTHORITY: Sections 17(1), 17(2)(d), and 95(1) of the *Act*
CROSS REFERENCES: Section 82 of the *Act*; Item P2-95-1, *Criteria for Imposing OHS Penalties of the Prevention Manual*.

HISTORY:

April 6, 2020 - Housekeeping changes consequential to implementing the *Workers Compensation Act*, R.S.B.C. 2019, c. 1.

March 1, 2016 - Housekeeping amendments to reflect changes to the Criteria for Imposing OHS Penalties (then Item D12-196-1) effective March 1, 2016 and formatting changes.

May 27, 2015 - Housekeeping amendments to Background Section to reflect changes to the *Act*.

May 1, 2013 - Policy amended to:

(a) clarify the criteria to issue an OHS warning letter;

(b) treat violations following a warning letter consistently with those following orders or penalties;

(c) confirm that WorkSafeBC will not ordinarily issue a warning letter to an employer after a prior warning letter, penalty, or prosecution for the same violation; and

(d) remove the requirement to mail a warning letter to the joint committee or worker representative.

September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes.

March 3, 2003 - Consequential changes subsequently made to various parts of the Item to reflect the *Workers Compensation Amendment Act (No. 2)*, 2002.

October 1, 1999 - Item developed to implement the *Workers Compensation (Occupational Health and Safety) Amendment Act*, 1998.

APPLICATION:

Policy Item P2-96-1
Orders – Cancellation and Suspension of Certificates

BACKGROUND

1. Explanatory Notes

Section 96(1) sets out circumstances in which the Board may cancel or suspend a certificate, or place conditions upon the use of a certificate issued under the OHS provisions of the *Act* or a provision of the OHS regulations.

2. The Act

Section 96:

(1) If the Board has reasonable grounds for believing that a person who holds a certificate issued under the OHS provisions or the regulations has breached a term or condition of the certificate or has otherwise contravened an OHS provision or a provision of the regulations, the Board may, by order,

(a) cancel or suspend the certificate, or

(b) place a condition on the use of that certificate that the Board considers necessary in the circumstances.

(2) An order under this section suspending a certificate must specify the length of time that the suspension is in effect or the condition that must be met before the suspension is no longer in effect.

POLICY

Section 96 applies to certificates issued by the Board to qualify persons to do a particular job, including:

- certificates issued to first aid attendants and instructors under section 55;
- certificates issued to blasters and instructors under section 59; and
- any similar certificate issued by the Board under the OHS provisions of the *Act* or the OHS regulations.

The section also applies to such certificates issued on behalf of the Board by another person, such as a training agency, under an arrangement with the Board.

(a) First Aid Certificates

A first aid certificate issued to a first aid attendant may be suspended, cancelled or have conditions placed upon its use where the first aid attendant engages in inappropriate conduct, including:

- smoking while assessing or treating an injured worker and/or while handling oxygen therapy equipment, or permitting others to do so;
 - failure to use the assessment and injury treatment techniques outlined in first aid training courses unless conditions precluded them;
 - conduct that poses an unreasonable threat to the safety and well-being of other workers or the public;
 - removing themselves from being able to see or hear any summons for first aid at a workplace;
 - abandonment of an injured worker after beginning assessment or treatment;
 - refusal to treat an injured worker when acting as a designated first aid attendant; or
 - treating or transporting an injured worker while impaired or under the influence of drugs or alcohol.
-

EFFECTIVE DATE:	March 30, 2004
AUTHORITY:	Section 96 of the <i>Act</i> .
CROSS REFERENCES:	Sections 55 and 59 of the <i>Act</i> .
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to delete practice reference and make formatting changes. March 30, 2004 - Policy revised to incorporate the parts of Policy No. 80.27 of the former Prevention Division <i>Policy and Procedure Manual</i> relating to circumstances when the WCB may suspend, cancel or place conditions on the certificate of a first aid attendant. October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act</i> , 1998.
APPLICATION:	This policy applies to events occurring on or after March 30, 2004 that leads to the consideration of a suspension, cancellation or placement of a condition on certificates issued under then Part 3 of the <i>Act</i> , or the regulations.

Policy Item P2-97-1
OHS Injunctions

BACKGROUND

1. Explanatory Notes

Section 97 of the *Act* provides that the Board (operating as WorkSafeBC) can apply to the Supreme Court of British Columbia (the "Court") for an injunction to: (a) restrain a person, including a corporation, from committing a violation; (b) require a person to comply with the *Act*, *OHSR* or an order; and (c) restrain a person from carrying on an industry, or an activity in an industry for an indefinite or limited period or until the occurrence of a specified event.

When WorkSafeBC applies to the Court for an injunction, a judge will decide whether or not to grant it.

If a person fails to comply with an injunction and is found to be in contempt of court, they may face a fine, jail sentence or other terms imposed by the Court.

2. The Act

Section 97:

- (1) On application of the Board and on being satisfied that there are reasonable grounds to believe that a person
 - (a) has contravened or is likely to contravene the OHS provisions, the regulations or an order, or
 - (b) has failed to comply with, or is likely to fail to comply with the OHS provisions, the regulations or an order,

the Supreme Court may grant an injunction,

 - (c) in the case of paragraph (a), restraining the person from continuing or committing the contravention,
 - (d) in the case of paragraph (b), requiring the person to comply, and
 - (e) in the case of paragraph (a) or (b), restraining the person from carrying on an industry, or an activity in an industry, within the scope of the compensation provisions for an indefinite or limited period or until the occurrence of a specified event.
- (2) If subsection (1)(e) applies and the person referred to in that provision is a company or corporation, an injunction under that provision may be made restraining the following persons:
 - (a) an individual who is a member of the board of directors of a company as a result of having been elected or appointed to that position;
 - (b) a person who is a member of the board of directors or other governing body of a corporation other than a company, regardless of the title by which that person is designated;
 - (c) the chair or any vice chair of the board of directors or other governing body of a corporation, if that chair or vice chair performs the functions of the office on a full-time basis, regardless of the title by which that person is designated;
 - (d) the president of a corporation, regardless of the title by which that person is designated;
 - (e) any vice president in charge of a principal business unit of a corporation, including sales, finance or production, regardless of the title by which that person is designated;

- (f) any officer of a corporation, whether or not the officer is also a director of the corporation, who performs a policy-making function in respect of the corporation and who has the capacity to influence the direction of the corporation, regardless of the title by which that person is designated;
- (g) a person who is not described in any of paragraphs (a) to (f) of this subsection but who performs the functions described in any of those paragraphs, and who participates in the management of a company or corporation, other than a person who
- (i) participates in the management of the company or corporation under the direction or control of a shareholder or a person described in any of paragraphs (a) to (f),
 - (ii) is a lawyer, accountant or other professional whose primary participation in the management of the company or corporation is the provision of professional services to the corporation,
 - (iii) is, if the company or corporation is bankrupt, a trustee in bankruptcy who participates in the management of the company or corporation or exercises control over its property, rights and interests primarily for the purposes of the administration of the bankrupt's estate, or
 - (iv) is a receiver, receiver manager or creditor who participates in the management of the company or corporation or exercises control over any of its property, rights and interests primarily for the purposes of enforcing a debt obligation of the company or corporation.
- (3) For the purposes of subsection (2), "**company**" and "**corporation**" have the same meaning as in the *Business Corporations Act*.
- (4) An injunction under subsection (1) may be granted without notice to others if it is necessary to do so in order to protect the health or safety of workers.
- (5) A contravention of the OHS provisions, the regulations or an order may be restrained under subsection (1) whether or not a penalty or other remedy has been provided by the OHS provisions.

POLICY

An injunction is a tool to achieve compliance with an order or an obligation under the *Act* or *OHSR*.

WorkSafeBC may use an injunction at the same time as other tools such as an administrative penalty or prosecution.

The following are some of the circumstances in which WorkSafeBC may consider an injunction:

- (a) failure to comply with a stop work order issued under section 90 or 91 of the *Act*,

**Explanatory Note: A stop work order, shutting down all or part of a workplace is issued in circumstances, when, among other things there is a risk of serious injury, serious illness, or death to a worker.*

- (b) failure to comply with an order to stop using or stop supplying unsafe equipment under section 89 of the *Act*,

**Explanatory Note: A stop use order provides that an item not be used or supplied if WorkSafeBC has reasonable grounds to believe that it is not in safe operating condition or is non-compliant.*

- (c) failure to comply with an order other than one in (a) or (b) above, and

- (d) repeated violation of the same, or similar, section of the *Act* or *OHSR*.

This does not limit WorkSafeBC's ability to pursue an injunction in other circumstances.

An injunction is an exceptional remedy to seek. WorkSafeBC may consider the following factors in determining the necessity and appropriateness of pursuing an injunction:

- (a) the level of risk that might result from further non-compliance,

**Explanatory Note: If non-compliance is exposing workers to a significant risk, this supports the use of an injunction. If the risk is very low, an injunction might not be appropriate, subject to consideration of items (b) and (c) below.*

- (b) the impact of the non-compliance on WorkSafeBC's ability to carry out its health and safety mandate, and

**Explanatory Note: In some cases, the risk may be low or unknown but non-compliance may make it difficult or impossible for WorkSafeBC to carry out its mandate. For example, if WorkSafeBC is repeatedly refused entry to a workplace, an injunction may be necessary to ensure that WorkSafeBC can inspect that workplace.*

- (c) the effectiveness of other tools to obtain compliance in the circumstances.

**Explanatory Note: This involves considering what tools, such as orders and penalties, would be effective to achieve compliance as well*

as looking at the effectiveness of the tools already used.

In some cases, follow up by WorkSafeBC may be sufficient to obtain compliance. An administrative penalty or prosecution, or the prospect of either may also be sufficient to do so. In most cases of non-compliance with an order, WorkSafeBC will likely use tools other than an OHS Injunction to obtain compliance.

Enforcement tools have their limitations, however. Administrative penalties can be imposed very quickly in urgent circumstances but apply only to employers. This may provide little deterrence to the principal of a corporation with minimal assets. Prosecutions can be used for both employers and workers but are slower due to the inherent time requirements of the process.

Injunctions have the advantage of timeliness and broad application. If necessary, an injunction can be obtained quickly and can apply both to individuals and to corporations. The injunction itself and the need to appear before the court may result in a higher level of compliance than from a Board order alone. A further advantage is that non-compliance with an injunction (contempt of court) can be dealt with fairly quickly and can result in significant consequences, including fines or jail.

* The explanatory notes are to provide additional explanation of the factors but are not themselves policy.

PRACTICE

The President's Delegation of Authority states the authority to approve injunction applications is delegated to WorkSafeBC's Head of Law and Policy. WorkSafeBC lawyers apply to the Court for the injunction. The Court then decides whether to grant an injunction.

Applications Without Notice

WorkSafeBC's normal practice is to provide notice whenever possible before the application is made.

Although the *Act* states that injunction applications may be made without notice, this will be done rarely and generally only in circumstances of extraordinary urgency. Court decisions state that there must be a very significant reason to proceed without notice to the other party.

EFFECTIVE DATE:	December 1, 2011
AUTHORITY:	Section 97 of the <i>Act</i> .
CROSS REFERENCES:	Sections 21(1)(b), 89, 90 and 91 of the <i>Act</i> Section 2.4 of the <i>OHSR</i> .
HISTORY:	September 1, 2021 - Practice Section updated to reflect delegation of authority to WorkSafeBC's Head of Law and Policy. October 21, 2020 - Housekeeping amendments to the Explanatory Notes and <i>Act</i> portion of the Background section to reflect amendments to the <i>Act</i> by the <i>Workers Compensation Amendment Act, 2020</i> (Bill 23 of 2020), in effect August 14, 2020. April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act, R.S.B.C. 2019, c. 1</i> . May 27, 2015 - Housekeeping amendments to Background Section effective to reflect changes to the <i>Act</i> . Policy in effect December 1, 2011.
APPLICATION:	This policy is applicable to all decisions to pursue an injunction made after the effective date.

Policies Workers Compensation Act - Miscellaneous Provisions Relating to Other Parts of the Act

Certain provisions from other parts of the *Workers Compensation Act* have occupational health and safety implications.

**Policy Item P1-4-1
Imposition of Levies - Independent Operators**

BACKGROUND

In directing that the compensation provisions apply to independent operators, the Board may specify the applicable health and safety obligations.

2. The *Act*
Section 4(2), in part:

The Board may direct that the compensation provisions apply on the terms specified in the Board's direction to

(a) an independent operator who is neither an employer nor a worker as if the independent operator were a worker ...

POLICY

If an independent operator to whom the compensation provisions apply under section 4(2) violates the occupational health and safety obligations set out in the Board's direction, the Board may levy an administrative penalty against the independent operator.

Where appropriate, the Board will apply the policies and practices set out in the following Items to an administrative penalty levied against an independent operator to whom the compensation provisions of the *Act* apply under Section 4(2):

- P2-95-1, -2, -3, -5;
- P2-95-7; and
- P2-95-9, -10.

EFFECTIVE DATE:	March 3, 2003
AUTHORITY:	Section 4(2) of the <i>Act</i> .
CROSS REFERENCES:	
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. September 15, 2010 - Housekeeping changes to remove reference to then Item D16-223-1, delete practice reference and make formatting changes. March 3, 2003 - Consequential changes subsequently made to the policy statement to reflect the <i>Workers Compensation Amendment Act (No. 2), 2002</i> . October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i> .
APPLICATION:	

**Policy Item P5-251-1
Claims Cost Levies**

BACKGROUND

1. Explanatory Notes

Section 251 authorizes WorkSafeBC to charge claims costs to the employer in certain circumstances. The maximum amount WorkSafeBC may levy is adjusted annually in accordance with the Consumer Price Index under section 333 of the *Act*. Starting January 1, 2022, the maximum amount is \$62,208.07.

2. The Act Section 251:

(1) This section applies if

(a) an injury, death or disablement from occupational disease in respect of which compensation under Part 4 [*Compensation to Injured Workers and Their Dependants*] is payable occurs to a worker, and

(b) the Board considers that the injury, death or occupational disease was due substantially to

(i) the gross negligence of an employer,

(ii) the failure of an employer to adopt reasonable means for the prevention of injuries, deaths or occupational diseases, or

(iii) the failure of an employer to comply with the orders or directions of the Board, or with the regulations made under Part 2 [*Occupational Health and Safety*].

(2) The Board may levy on and collect from that employer as a contribution to the accident fund all or part of the amount of the compensation payable in respect of the injury, death or occupational disease, to a maximum of \$62 208.07.

(3) The payment of an amount levied under this section may be enforced in the same manner as the payment of an assessment may be enforced.

POLICY

This section may be applied if:

(a) a worker dies, is seriously injured, or is disabled from occupational disease;

(b) this is substantially due to

(i) the gross negligence of an employer,

(ii) the failure of an employer to adopt reasonable means for the prevention of injuries, deaths or occupational diseases, or

(iii) the failure of an employer to comply with the orders or directions of WorkSafeBC, or with the *OHSR*;

(c) the grounds for an administrative penalty under Item P2-95-1 are met; and

(d) the employer has failed to establish that the employer exercised due diligence.

WorkSafeBC has discretion as to the amount charged under section 251(1) up to the maximum amount. A decision to charge claim costs may include the cost of future amounts of compensation that may be incurred after the decision if those future costs result from matters currently under consideration by WorkSafeBC, the Review Division or the Workers' Compensation Appeal Tribunal.

EFFECTIVE DATE:	March 1, 2016
AUTHORITY:	Section 251(1) of the <i>Act</i> .
CROSS REFERENCES:	Item P2-68-1, <i>Major Release of Hazardous Substance</i> ; Item P2-95-1 - <i>Criteria for Imposing OHS Penalties</i> , of the <i>Prevention Manual</i> ;
HISTORY:	April 6, 2020 - Housekeeping changes consequential to implementing the <i>Workers Compensation Act</i> , R.S.B.C. 2019, c. 1. March 1, 2016 - Changes to the criteria for a claims cost levy. September 15, 2010 - Housekeeping changes to remove reference to then Item D16-223-1, update maximum claims cost levy amount, replace Worker and Employer Services Division with the Board, delete practice reference and make formatting changes. July 1, 2008 - Item developed to align prevention policy with then section 251(1) of the <i>Act</i> so that the Board's discretion as to the amount of the claim cost levy is not fettered. This change applied to all decisions, including appellate decisions, to charge claim costs on and after July 1, 2008. March 3, 2003 - Consequential changes subsequently made to the policy statement to reflect the <i>Workers Compensation Amendment Act (No. 2), 2002</i> . December 31, 2003 - A consequential change was made to include a reference to then Item D12-196-4 and the maximum amount referenced in then section 251(1) was updated. October 1, 1999 - Item developed to implement the <i>Workers Compensation (Occupational Health and Safety) Amendment Act, 1998</i> .
APPLICATION:	This policy applies to all violations occurring on and after March 1, 2016.

Part 2 Division 14 - General Matters

106 Court orders for access

Without limiting the authority under the *Offence Act*, a justice may issue warrants for the purposes of this Act as follows:

- (a) on being satisfied on evidence on oath or affirmation that a place is used as a workplace, the justice may issue a warrant authorizing an officer or other person named in the warrant to enter the place and conduct an inspection, investigation or inquiry;
- (b) on being satisfied on evidence on oath or affirmation that there are in any place records or other things for which there are reasonable grounds to believe that they are relevant to a matter under the OHS provisions or the regulations, the justice may issue a warrant authorizing an officer or other person named in the warrant to enter the place and search for and seize any records or other things relevant to the matter in accordance with the warrant;
- (c) on being satisfied on evidence on oath or affirmation that access or review of a worker's medical records is reasonably required for the purposes of the OHS provisions or the regulations, the justice may issue a warrant authorizing an officer or other person named in the warrant to access and inspect the record in accordance with the warrant.

107 Costs of investigations, inspections and other services

- (1) The Board may charge a class or subclass with the cost of investigations, inspections and other services provided to the class or subclass for the prevention of injuries and illnesses.
 - (2) A charge under subsection (1) may be levied on the class or subclass by way of an assessment.

108 Collection by assessment or judgment

- (1) If a person fails to pay an amount owed to the Board under the OHS provisions, the Board may,
 - (a) if the person is an employer, direct that the amount be levied on the employer by way of an assessment, and
 - (b) in any case, issue a certificate for the amount owed and file that certificate in the Supreme Court.
- (2) An assessment under subsection (1)(a) is deemed to be an assessment under Part 5 [*Accident Fund and Employer Assessment*] and may be levied and collected under and in accordance with that Part.
- (3) A certificate filed under subsection (1)(b) has the same effect, and all proceedings may be taken on it by the Board, as if it were a judgment of the court for the recovery of a debt of the amount stated in the certificate against the person named in it.

Division 1 – Interpretation and Purposes

- 13 [Definitions in relation to OHS provisions](#)
- 14 [Purposes of OHS provisions](#)
- 15 [Review of OHS provisions and regulations](#)
- 16 [Relationship with compensation provisions](#)

Division 2 – Board Mandate

- 17 [Board mandate under OHS provisions](#)
- 18 [Cooperation agreements and arrangements](#)

Division 3 – Board Jurisdiction

- 19 [Exclusive jurisdiction of Board in relation to OHS provisions](#)
- 20 [Board authority to change previous decisions](#)

Division 4 – General Duties of Employers, Workers and Others

- 21 [General duties of employers](#)
- 22 [General duties of workers](#)
- 23 [General duties of supervisors](#)
- 24 [Coordination at multiple-employer workplaces](#)
- 25 [General duties of owners](#)
- 26 [General duties of suppliers](#)
- 27 [Duties of directors and officers of a corporation](#)
- 28 [General obligations are not limited by specific obligations](#)
- 29 [Person may be subject to obligations in relation to more than one role](#)
- 30 [Responsibility when obligations apply to more than one person](#)

Division 5 – Joint Committees and Worker Representatives

- 31 [General requirement for employer to establish joint committee](#)
- 32 [Variations in committee requirements](#)
- 33 [Membership of joint committee](#)
- 34 [Selection of worker representatives](#)
- 35 [Selection of employer representatives](#)
- 36 [Duties and functions of joint committee](#)
- 37 [Joint committee procedure](#)
- 38 [Board assistance in resolving disagreements within committee](#)
- 39 [Employer must respond to committee recommendations](#)
- 40 [Time from work for meetings and other committee functions](#)
- 41 [Educational leave for committee members](#)
- 42 [Other employer obligations to support committee](#)
- 43 [Committee reports](#)
- 44 [Employer must post committee information](#)
- 45 [Worker health and safety representative](#)
- 46 [Participation of alternate for worker representative](#)

Division 6 – Worker Protection in Relation to Prohibited Actions

- 47 [Prohibited action](#)
- 48 [Worker protection from prohibited action](#)
- 49 [Complaint by worker respecting prohibited action or failure to pay wages](#)
- 50 [Response to complaint](#)

Division 7 – Information Requirements

- 51 [Requirement to post information](#)
- 52 [Occupational health and safety information summary](#)
- 53 [Information that must be kept confidential](#)
- 54 [Information that must be provided in a medical emergency](#)

Division 8 – Certification and Other Specific Authorities

- 55 [Certification and training of first aid attendants and instructors](#)
- 56 [Installation and maintenance of required first aid equipment](#)
 - 57 [Medical monitoring programs](#)
 - 58 [Medical certification requirements](#)
- 59 [Certification and training of blasters](#)
- 59.01 [Certification and training related to asbestos abatement](#)

Division 9 – Variance Orders

- 60 [Board may authorize variances from regulations](#)
 - 61 [Effective period for variance order](#)
 - 62 [Application for variance](#)
 - 63 [Notice of application](#)
 - 64 [Consultation on application](#)
 - 65 [Decision on application](#)
 - 66 [Legal effect of variance](#)
- 67 [Board regulations review must consider variance history](#)

Division 10 – Employer Accident Reporting and Investigation

- 68 [Immediate notice of certain accidents](#)
- 69 [Incidents that must be investigated](#)
 - 70 [Investigation process](#)
- 71 [Preliminary investigation, report and follow-up action](#)
- 72 [Full investigation, report and follow-up action](#)
- 73 [Employer or supervisor must not attempt to prevent reporting](#)

Division 11 – Board Inspections, Investigations and Inquiries

- 74 [Application of Division](#)
- 75 [Authority to conduct inspections](#)
- 76 [Restrictions on access to private residences](#)
- 77 [Officer must produce credentials on request](#)
 - 78 [Representation on inspection](#)
 - 79 [Assistance on inspection](#)
- 80 [Person being questioned is entitled to have another person present](#)
- 81 [Limited authority to seize evidence without warrant](#)
 - 81.1 [Warrants - investigations](#)
- 82 [Employer must post inspection reports](#)

Division 12 – Enforcement

- 83 [Compliance agreements with employers](#)
 - 84 [General authority to make orders](#)
 - 85 [Other general matters relating to orders](#)
 - 86 [Posting of orders by officer](#)
 - 87 [Notice of variation or cancellation of order](#)
 - 88 [Order may require compliance reports](#)
- 89 [Order to stop using or supplying unsafe equipment](#)
 - 90 [Stop-work orders](#)
 - 91 [Related stop-operation orders](#)
 - 92 [Restrictions on stop-work orders and stop-operation orders](#)
- 93 [Effect of stop-work orders and stop-operation orders on workers](#)
 - 94 [Administrative penalties – OHS citations](#)
 - 95 [Administrative penalties – higher maximum amount](#)
 - 96 [Suspension or cancellation of certificates](#)
 - 97 [Court injunction on application of Board](#)

Division 13 – Offences

- 98 [Offence to contravene OHS provision, regulation or order](#)
 - 99 [Limits on prosecutions](#)

- 100 [Defence of due diligence](#)
- 101 [Additional defence for workers](#)
- 102 [General penalties](#)
- 103 [Additional penalty to reclaim monetary benefit](#)
- 104 [Additional powers on sentencing](#)
- 104.1 [Court may consider victim impact statements](#)
- 105 [Penalties to be paid into accident fund](#)

Division 14 – General Matters

- 106 [Court orders for access](#)
- 107 [Costs of investigations, inspections and other services](#)
- 108 [Collection by assessment or judgment](#)

Division 15 – Regulations for OHS and Other Purposes

- 109 [Lieutenant Governor in Council regulations](#)
- 110 [Board regulations generally](#)
- 111 [Board regulations in relation to hazardous and other substances](#)
- 112 [Board regulations in relation to OHS citations](#)
- 113 [Notice and consultation before Board makes regulation](#)
- 114 [When Board regulation comes into force](#)
- 115 [Ongoing review of Board regulations](#)
- 116 [Minister may direct Board to consider changes to its regulations](#)
- 117 [Authority and application of regulations generally](#)

Part 2 Division 1 - Interpretation and Purposes

13 Definitions in relation to OHS provisions

In the OHS provisions and the regulations under those provisions:

"collective agreement" has the same meaning as in the *Fishing Collective Bargaining Act*, the *Labour Relations Code* or the *Public Service Labour Relations Act*;

"employer" means

(a) an employer as defined in section 1,

(b) a person who is deemed to be an employer under the compensation provisions or the regulations under those provisions, and

(c) the owner and the master of a fishing vessel for which there is crew to whom the compensation provisions apply as if the crew were workers,

but does not include a person exempted from the application of the OHS provisions by order of the Board;

"hazardous substance" includes

(a) a hazardous product within the meaning of the *Hazardous Products Act* (Canada),

(b) a substance designated as a hazardous substance by regulation, and

(c) a biological, chemical or physical agent that, by reason of its properties, is hazardous to the health or safety of persons exposed to it;

"joint committee" means a joint health and safety committee under Division 5 [*Joint Committees and Worker Representatives*] of this Part;

"multiple-employer workplace" means a workplace where workers of 2 or more employers are working at the same time;

"officer", unless a contrary intention appears, means

(a) a person appointed as an officer under section 329(1) [*Board may appoint officers and other employees*], or

(b) a person authorized to act as an officer under section 18(2)(b) [*cooperation agreements and arrangements*] to act as an officer;

"order" means an order under the OHS provisions or the regulations;

"owner" includes

(a) a trustee, receiver, mortgagee in possession, tenant, lessee, licensee or occupier of any lands or premises used or to be used as a workplace, and

(b) a person who acts for or on behalf of an owner as an agent or delegate;

"prime contractor", in relation to a multiple-employer workplace, means

(a) the directing contractor, employer or other person who enters into a written agreement with the owner of the workplace to be the prime contractor for the purposes of the OHS provisions, or

(b) if there is no written agreement referred to in paragraph (a), the owner of the workplace;

"regulation" means a regulation under the OHS provisions made by the Board or by the Lieutenant Governor in Council;

"supplier" means a person who manufactures, supplies, sells, leases, distributes, erects or installs

(a) any tool, equipment, machine or device, or

(b) any biological, chemical or physical agent

to be used by a worker;

"union" means

(a) a trade union recognized under the *Labour Relations Code*, or

(b) another organization of workers formed for purposes that include the regulation of relations between workers and employers, if the organization has given notice to the employer and the Board that it is to be considered a union for the purposes of the OHS provisions;

"variance order" means an order under section 60 [*Board may authorize variances from regulations*];

"wages" has the same meaning as in the *Employment Standards Act*;

"worker" means

(a) a worker as defined in section 1, and

(b) a person who is deemed to be a worker under the compensation provisions or the regulations under those provisions, or to whom those provisions apply as if the person were a worker,

but does not include a person exempted from the application of the OHS provisions by order of the Board;

"worker health and safety representative" means a worker health and safety representative under section 45;

"worker representative" means,

(a) in relation to a workplace for which there is a joint committee, a worker representative on the committee, and

(b) in relation to a workplace for which there is a worker health and safety representative, that representative;

"workplace" means any place where a worker is or is likely to be engaged in any work and includes any vessel, vehicle or mobile equipment used by a worker in work;

"work-related" means arising from or in connection with work activities.

14 Purposes of OHS provisions

(1) The purpose of the OHS provisions is to benefit all citizens of British Columbia by promoting occupational health and safety and protecting workers and other persons present at workplaces from work-related risks to their health and safety.

(2) Without limiting subsection (1), the following are the specific purposes of the OHS provisions:

(a) to promote a culture of commitment on the part of employers and workers to a high standard of occupational health and safety;

(b) to prevent work-related accidents, injuries and illnesses;

(c) to encourage the education of employers, workers and others regarding occupational health and safety;

(d) to ensure an occupational environment that provides for the health and safety of workers and others;

(e) to ensure that employers, workers and others who are in a position to affect the occupational health and safety of workers share that responsibility to the extent of each party's authority and ability to do so;

(f) to foster cooperative and consultative relationships between employers, workers and others regarding occupational health and safety, and to promote worker participation in occupational health and safety programs and occupational health and safety processes;

(g) to minimize the social and economic costs of work-related accidents, injuries and illnesses, in order to enhance the quality of life for British Columbians and the competitiveness of British Columbia in the Canadian and world economies.

15 Review of OHS provisions and regulations

(1) The minister may appoint a committee to conduct a review of all or part of the OHS provisions and the regulations and to report to the minister concerning its recommendations.

(2) A review under this section must include a process of consultations with representatives of employers, workers and other persons affected by the OHS provisions and the regulations.

(3) For certainty, the costs of a review under this section are part of the costs of administering this Act.

16 Relationship with compensation provisions

(1) The failure to comply with an OHS provision or the regulations does not affect the right of a worker to compensation, if otherwise entitled, under the compensation provisions.

(2) The liabilities and obligations of a person under the compensation provisions are not decreased or removed by reason only of the person's compliance with the OHS provisions or the regulations.

Part 2 Division 2 - Board Mandate

17 Board mandate under OHS provisions

(1) In accordance with the purposes of the OHS provisions, the Board has the mandate to be concerned with occupational health and safety generally, and with the maintenance of reasonable standards for the protection of the health and safety of workers in British Columbia and the occupational environment in which they work.

(2) In carrying out its mandate, the Board has the following duties, functions and powers:

- (a) to exercise the Board's authority to make regulations to establish standards and requirements for the protection of the health and safety of workers and the occupational environment in which they work;
- (b) to undertake inspections, investigations and inquiries on matters of occupational health and safety and occupational environment;
- (c) to provide services to assist joint committees, worker health and safety representatives, employers and workers in maintaining reasonable standards for occupational health and safety and occupational environment;
- (d) to ensure that persons concerned with the purposes of the OHS provisions are provided with information and advice relating to the Board's administration and to occupational health and safety and occupational environment generally;
- (e) to encourage, develop and conduct or participate in conducting programs for promoting occupational health and safety and for improving the qualifications of persons concerned with occupational health and safety and occupational environment;
- (f) to promote public awareness of matters related to occupational health and safety and occupational environment;
- (g) to prepare and maintain statistics relating to occupational health and safety and occupational environment, either by the Board acting alone or acting in conjunction with any other agency;
- (h) to undertake or support research and the publication of research on matters relating to the Board's responsibilities under this Act;
- (i) to establish programs of grants and awards in relation to the Board's responsibilities under this Act;
- (j) to provide assistance to persons concerned with occupational health and safety and occupational environment;
- (k) to cooperate and enter into arrangements and agreements with governments and other agencies and persons on matters relating to the Board's responsibilities under the OHS provisions;
- (l) to make recommendations to the minister respecting amendments to this Act, the regulations under the OHS provisions or the compensation provisions or to other legislation that affects occupational health and safety or occupational environment;
- (m) to inquire into and report to the minister on any matter referred to it by the minister, within the time specified by the minister;
- (n) to fulfill the Board's mandate under the OHS provisions in a financially responsible manner;

(o) to do other things in relation to occupational health and safety or occupational environment that the minister or Lieutenant Governor in Council may direct.

18 Cooperation agreements and arrangements

(1) Without limiting section 335 [*interjurisdictional agreements and arrangements*], the Board may enter into agreements or make arrangements respecting cooperation, coordination and assistance related to occupational health and safety and occupational environment matters with the following:

- (a) the government of British Columbia, the government of Canada or the government of another province or territory;
- (b) an agency of a government referred to in paragraph (a);
- (c) another appropriate authority.

(2) In relation to an agreement or arrangement under subsection (1), the Board may

- (a) authorize Board officers to act on behalf of the other party to the agreement or arrangement, and
- (b) authorize persons appointed by the other party to the agreement or arrangement to act as an officer under this Act, subject to any conditions or restrictions established by the Board.

Part 2 Division 3 - Board Jurisdiction

19 Exclusive jurisdiction of Board in relation to OHS provisions

(1) Subject to sections 288 and 289 [*matters that may be appealed to appeal tribunal*], the Board has exclusive jurisdiction to inquire into, hear and determine all matters and questions of fact and law arising or required to be determined under the OHS provisions, and the action or decision of the Board on those matters and questions is final and conclusive and is not open to question or review in any court.

(2) Subsection (1) does not restrict the Board's authority under section 20.

20 Board authority to change previous decisions

(1) Subject to subsection (2) of this section and sections 87(1) [*notice required if Board order varied or cancelled*] and 89(4) [*restriction on cancellation of order to stop use or supply of unsafe equipment*], the Board may at any time, on its own initiative, make a new decision or order varying or cancelling a previous decision or order of the Board or of an officer or employee of the Board respecting any matter that is within the jurisdiction of the Board under the OHS provisions.

(2) The Board may not make a decision or an order under subsection (1) if

- (a) a review has been requested under section 270 [*request for review of Board decision*] in respect of the previous decision or order, or
 - (b) an appeal has been filed under section 289 [*other Board decisions that may be appealed*] in respect of the previous decision or order.
- (3) The Board may review a decision or order made under the OHS provisions by the Board or an officer or employee of the Board, but only as specifically provided in Part 6 [*Review of Board Decisions*].
- (4) The Board may at any time set aside a decision or order made under the OHS provisions by the Board or an officer or employee of the Board if that decision or order resulted from fraud or misrepresentation of the facts or circumstances on which the decision or order was based.

Part 2 Division 4 - General Duties of Employers, Workers and Others

21 General duties of employers

(1) Every employer must

- (a) ensure the health and safety of
 - (i) all workers working for that employer, and
 - (ii) any other workers present at a workplace at which that employer's work is being carried out, and
- (b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), an employer must

- (a) remedy any workplace conditions that are hazardous to the health or safety of the employer's workers,

- (b) ensure that the employer's workers
 - (i) are made aware of all known or reasonably foreseeable health or safety hazards to which they are likely to be exposed by their work,
 - (ii) comply with the OHS provisions, the regulations and any applicable orders, and
 - (iii) are made aware of their rights and duties under the OHS provisions and the regulations,
- (c) establish occupational health and safety policies and programs in accordance with the regulations,
- (d) provide and maintain in good condition protective equipment, devices and clothing as required by regulation and ensure that these are used by the employer's workers,
- (e) provide to the employer's workers the information, instruction, training and supervision necessary to ensure the health and safety of those workers in carrying out their work and to ensure the health and safety of other workers at the workplace,
- (f) make a copy of this Act and the regulations readily available for review by the employer's workers and, at each workplace where workers of the employer are regularly employed, post and keep posted a notice advising where the copy is available for review,
- (g) consult and cooperate with the joint committees and worker health and safety representatives for workplaces of the employer, and
- (h) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

22 General duties of workers

(1) Every worker must

- (a) take reasonable care to protect the worker's health and safety and the health and safety of other persons who may be affected by the worker's acts or omissions at work, and
 - (b) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), a worker must

- (a) carry out the worker's work in accordance with established safe work procedures as required by the OHS provisions and the regulations,
 - (b) use or wear protective equipment, devices and clothing as required by the regulations,
 - (c) not engage in horseplay or similar conduct that may endanger the worker or any other person,
- (d) ensure that the worker's ability to work without risk to that worker's health or safety, or to the health or safety of any other person, is not impaired by alcohol, drugs or other causes,
 - (e) report to the supervisor or employer
 - (i) any contravention of the OHS provisions, the regulations or an applicable order of which the worker is aware, and
- (ii) the absence of or defect in any protective equipment, device or clothing, or the existence of any other hazard, that the worker considers is likely to endanger the worker or any other person,
 - (f) cooperate with the joint committee or worker health and safety representative for the workplace, and
 - (g) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

23 General duties of supervisors

(1) Every supervisor must

- (a) ensure the health and safety of all workers under the direct supervision of the supervisor,
- (b) be knowledgeable about the OHS provisions and those regulations applicable to the work being supervised, and
- (c) comply with the OHS provisions, the regulations and any applicable orders.

(2) Without limiting subsection (1), a supervisor must

- (a) ensure that the workers under the supervisor's direct supervision
 - (i) are made aware of all known or reasonably foreseeable health or safety hazards in the area where they work, and

- (ii) comply with the OHS provisions, the regulations and any applicable orders,
- (b) consult and cooperate with the joint committee or worker health and safety representative for the workplace, and
- (c) cooperate with the Board, officers of the Board and any other person carrying out a duty under the OHS provisions or the regulations.

24 Coordination at multiple-employer workplaces

(1) The prime contractor of a multiple-employer workplace must

- (a) ensure that the activities of employers, workers and other persons at the workplace relating to occupational health and safety are coordinated, and
 - (b) do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the OHS provisions and the regulations in respect of the workplace.
- (2) Each employer of workers at a multiple-employer workplace must give to the prime contractor the name of the person the employer has designated to supervise the employer's workers at that workplace.

25 General duties of owners

Every owner of a workplace must

- (a) provide and maintain the owner's land and premises that are being used as a workplace in a manner that ensures the health and safety of persons at or near the workplace,
- (b) give to the employer or prime contractor at the workplace the information known to the owner that is necessary to identify and eliminate or control hazards to the health or safety of persons at the workplace, and
- (c) comply with the OHS provisions, the regulations and any applicable orders.

26 General duties of suppliers

Every supplier must

- (a) ensure that any tool, equipment, machine or device, or any biological, chemical or physical agent, supplied by the supplier is safe when used in accordance with the directions provided by the supplier and complies with the OHS provisions and the regulations,
- (b) provide directions respecting the safe use of any tool, equipment, machine or device, or any biological, chemical or physical agent, that is obtained from the supplier to be used at a workplace by workers,
- (c) ensure that any biological, chemical or physical agent supplied by the supplier is labelled in accordance with the applicable federal and provincial enactments,
- (d) if the supplier has responsibility under a leasing agreement to maintain any tool, equipment, machine, device or other thing, maintain it in safe condition and in compliance with the OHS provisions, the regulations and any applicable orders, and
- (e) comply with the OHS provisions, the regulations and any applicable orders.

27 Duties of directors and officers of a corporation

Every director and every officer of a corporation must ensure that the corporation complies with the OHS provisions, the regulations and any applicable orders.

28 General obligations are not limited by specific obligations

A specific obligation imposed by the OHS provisions or the regulations does not limit the generality of any other obligation imposed by those provisions or the regulations.

29 Person may be subject to obligations in relation to more than one role

- (1) In this section, "**function**" means the function of employer, supplier, supervisor, owner, prime contractor or worker.
- (2) If a person has 2 or more functions under the OHS provisions in respect of one workplace, the person must meet the obligations of each function.

30 Responsibility when obligations apply to more than one person

- (1) This section applies if one or more OHS provisions or provisions of the regulations impose the same obligation on more than one person.
- (2) If one of the persons subject to the obligation complies with the applicable provision, the other persons subject to the obligation are relieved of that obligation only during the time when
- (a) simultaneous compliance by more than one person would result in unnecessary duplication of effort and expense, and
 - (b) the health and safety of persons at the workplace is not put at risk by compliance by only one person.

Part 2 Division 5 - Joint Committees and Worker Representatives

31 General requirement for employer to establish joint committee

An employer must establish and maintain a joint health and safety committee

- (a) in each workplace where 20 or more workers of the employer are regularly employed, and
- (b) in any other workplace for which a joint committee is required by order.

32 Variations in committee requirements

(1) Despite section 31, the Board may, by order, require or permit an employer to establish and maintain

- (a) more than one joint committee for a single workplace of the employer,
- (b) one joint committee for more than one workplace or parts of more than one workplace of the employer, or
- (c) one joint committee for the workplace or parts of the workplaces of a number of employers, if the workplaces are the same, overlapping or adjoining.

(2) An order under subsection (1) may

- (a) specify the workplace, workplaces or parts for which a joint committee is required or permitted, and
- (b) provide for variations regarding the practice and procedure of a joint committee from the provisions otherwise applicable under the OHS provisions or the regulations.

33 Membership of joint committee

A joint committee for a workplace must be established in accordance with the following:

- (a) it must have at least 4 members or, if a greater number of members is required by regulation, that greater number;
- (b) it must consist of worker representatives and employer representatives;
- (c) at least half the members must be worker representatives;
- (d) it must have 2 co-chairs, one selected by the worker representatives and the other selected by the employer representatives.

34 Selection of worker representatives

- (1) The worker representatives on a joint committee must be selected from workers at the workplace who do not exercise managerial functions at that workplace, as follows:
- (a) if the workers are represented by one or more unions, the worker representatives are to be selected according to the procedures established or agreed on by the union or unions;
 - (b) if none of the workers are represented by a union, the worker representatives are to be elected by secret ballot;
 - (c) if some of the workers are represented by one or more unions and some are not represented by a union, the worker representatives are to be selected in accordance with paragraphs (a) and (b) in equitable proportion to their relative numbers and relative risks to health and safety;
 - (d) if the workers do not make their own selection after being given the opportunity under paragraphs (a) to (c), the employer must seek out and assign persons to act as worker representatives.
- (2) The employer or a worker may request the Board to provide direction as to how an election under subsection (1)(b) is to be conducted.
- (3) The employer, or a union or a worker at a workplace referred to in subsection (1)(c), may request the Board to provide direction as to how the requirements of that provision are to be applied in the workplace.

- (1) The employer representatives on a joint committee must be selected by the employer from among persons who exercise managerial functions for the employer and, to the extent possible, who do so at the workplace for which the joint committee is established.
 - (2) For certainty, an individual employer may act as an employer representative.

36 Duties and functions of joint committee

A joint committee has the following duties and functions in relation to its workplace:

- (a) to identify situations that may be unhealthy or unsafe for workers and advise on effective systems for responding to those situations;
- (b) to consider and expeditiously deal with complaints relating to the health and safety of workers;
- (c) to consult with workers and the employer on issues related to occupational health and safety and occupational environment;
- (d) to make recommendations to the employer and the workers for the improvement of the occupational health and safety and occupational environment of workers;
- (e) to make recommendations to the employer on educational programs promoting the health and safety of workers and compliance with the OHS provisions and the regulations and to monitor their effectiveness;
- (f) to advise the employer on programs and policies required under the regulations for the workplace and to monitor their effectiveness;
- (g) to advise the employer on proposed changes to the workplace, including significant proposed changes to equipment and machinery, or the work processes that may affect the health or safety of workers;
- (h) to ensure that accident investigations and regular inspections are carried out as required by the OHS provisions and the regulations;
 - (i) to participate in inspections, investigations and inquiries as provided in the OHS provisions and the regulations;
 - (j) to carry out any other duties and functions prescribed by regulation.

37 Joint committee procedure

- (1) Subject to the OHS provisions and the regulations, a joint committee must establish its own rules of procedure, including rules respecting how it is to perform its duties and functions.
 - (2) A joint committee must meet regularly at least once each month, unless another schedule is permitted or required by regulation or order.

38 Board assistance in resolving disagreements within committee

- (1) If a joint committee is unable to reach agreement on a matter relating to the health or safety of workers at the workplace, a co-chair of the committee may report this to the Board, which may investigate the matter and attempt to resolve the matter.
 - (2) If the Board considers that a joint committee is unable to reach agreement on a matter relating to the health or safety of workers at the workplace, the Board, on its own initiative, may investigate the matter and attempt to resolve the matter.

39 Employer must respond to committee recommendations

- (1) This section applies if a joint committee sends a written recommendation to an employer with a written request for a response from the employer.
 - (2) Subject to subsections (4) and (5), the employer must respond in writing to the committee within 21 days of receiving the request, either
 - (a) indicating acceptance of the recommendation, or
 - (b) giving the employer's reasons for not accepting the recommendation.
 - (3) If the employer does not accept the committee's recommendations, a co-chair of the committee may report the matter to the Board, which may investigate and attempt to resolve the matter.
 - (4) If it is not reasonably possible to provide a response before the end of the 21-day period, the employer must provide within that time a written explanation for the delay, together with an indication of when the response will be provided.
 - (5) If the joint committee is not satisfied that the explanation provided under subsection (4) is reasonable in the circumstances, a co-chair of the committee may report this to the Board.

(6) On receiving a report under subsection (5), the Board may investigate the matter and may, by order, establish a deadline by which the employer must respond.

(7) Nothing in this section relieves an employer of the obligation to comply with the OHS provisions and the regulations.

40 Time from work for meetings and other committee functions

(1) A member of a joint committee is entitled to time off from work for

(a) the time required to attend meetings of the committee, and

(b) other time that is reasonably necessary to prepare for meetings of the committee and to fulfill the other duties and functions of the committee.

(2) Time off under subsection (1) is deemed to be time worked for the employer, and the employer must pay the member for that time.

41 Educational leave for committee members

(1) Each member of a joint committee is entitled to an annual educational leave totalling 8 hours, or a longer period if prescribed by regulation, for the purposes of attending occupational health and safety training courses conducted by or with the approval of the Board.

(2) A member of the joint committee may designate another member as being entitled to take all or part of the member's educational leave.

(3) The employer must provide the educational leave under this section without loss of pay or other benefits and must pay for, or reimburse the worker for, the costs of the training course and the reasonable costs of attending the course.

42 Other employer obligations to support committee

(1) The employer must provide the joint committee with the equipment, premises and clerical personnel necessary for the carrying out of its duties and functions.

(2) On request of the joint committee, the employer must provide the committee with information respecting

(a) the identification of known or reasonably foreseeable health or safety hazards to which workers at the workplace are likely to be exposed,

(b) health and safety experience and work practices and standards in similar or other industries of which the employer has knowledge,

(c) orders, penalties and prosecutions under the OHS provisions or the regulations relating to health and safety at the workplace, and

(d) any other matter prescribed by regulation.

43 Committee reports

(1) After each joint committee meeting, the committee must prepare a report of the meeting and provide a copy to the employer.

(2) The employer must

(a) if so requested by a union representing workers at the workplace, send a copy of the reports under subsection (1) to the union,

(b) retain a copy of the reports for at least 2 years from the date of the joint committee meeting to which they relate, and

(c) ensure that the retained reports are readily accessible to the joint committee members, workers of the employer, officers and other persons authorized by the Board or the minister.

44 Employer must post committee information

At each workplace where workers of an employer are regularly employed, the employer must post and keep posted

(a) the names and work locations of the joint committee members,

(b) the reports of the 3 most recent joint committee meetings, and

(c) copies of any applicable orders under this Division for the preceding 12 months.

45 Worker health and safety representative

(1) A worker health and safety representative is required

(a) in each workplace where there are more than 9 but fewer than 20 workers of the employer regularly employed, and

(b) in any other workplace for which a worker health and safety representative is required by order of the Board.

(2) The worker health and safety representative must be selected in accordance with section 34 [*selection of worker representatives on joint committee*] from among the workers at the workplace who do not exercise managerial functions at that workplace.

(3) To the extent practicable, a worker health and safety representative has the same duties and functions as a joint committee.

(4) Sections 39 to 42 [*rules respecting joint committees*] apply in relation to a worker health and safety representative as if the representative were a joint committee or member of a joint committee.

46 Participation of alternate for worker representative

(1) This section applies if

(a) the OHS provisions or the regulations give a worker representative the right to be present for an inspection, investigation or inquiry at a workplace, and

(b) no worker representative is reasonably available.

(2) The right to be present may be exercised by another worker who has previously been designated as an alternate by the worker representative.

Part 2 Division 6 - Worker Protection in Relation to Prohibited Actions

47 Prohibited action

(1) For the purposes of this Division, "**prohibited action**" includes any act or omission by an employer or union, or by a person acting on behalf of an employer or union, that adversely affects a worker with respect to

(a) any term or condition of employment, or

(b) any term or condition of membership in a union.

(2) Without restricting subsection (1), prohibited action includes any of the following:

(a) suspension, layoff or dismissal;

(b) demotion or loss of opportunity for promotion;

(c) transfer of duties, change of location of workplace, reduction in wages or change in working hours;

(d) coercion or intimidation;

(e) imposition of any discipline, reprimand or other penalty;

(f) the discontinuation or elimination of the job of the worker.

48 Worker protection from prohibited action

An employer or union, or a person acting on behalf of an employer or union, must not take or threaten a prohibited action against a worker

(a) for exercising any right or carrying out any duty in accordance with the OHS provisions, the regulations or an applicable order,

(b) for the reason that the worker has testified or is about to testify in any matter, inquiry or proceeding under this Act or the *Coroners Act* on an issue related to occupational health and safety or occupational environment, or

(c) for the reason that the worker has given any information regarding conditions affecting the occupational health or safety or occupational environment of that worker or any other worker to

(i) an employer or person acting on behalf of an employer,

(ii) another worker or a union representing a worker, or

(iii) an officer or any other person concerned with the administration of the OHS provisions.

49 Complaint by worker respecting prohibited action or failure to pay wages

(1) This section applies to a worker who considers that

(a) an employer or union, or a person acting on behalf of an employer or union, has taken or threatened to take prohibited action against the

worker contrary to section 48, or

(b) an employer has failed to pay wages to the worker as required by the OHS provisions or the regulations.

(2) The worker may have a matter referred to in subsection (1) dealt with through the grievance procedure under a collective agreement, if any, or by complaint in accordance with this Division.

(3) A complaint under subsection (2) must be made in writing to the Board,

(a) in the case of a complaint respecting a matter referred to in subsection (1)(a), within one year of the action considered to be prohibited, and

(b) in the case of a complaint respecting a matter referred to in subsection (1)(b), within 60 days after the wages became payable.

(4) In relation to a matter referred to in subsection (1), whether dealt with under a collective agreement or by complaint to the Board, the burden of proving that there has been no such contravention is on the employer or the union, as applicable.

50 Response to complaint

(1) If the Board receives a complaint under section 49(3), it must immediately inquire into the matter and, if the complaint is not settled or withdrawn, must

(a) determine whether the alleged contravention occurred, and

(b) deliver a written statement of the Board's determination to the worker and to the employer or union, as applicable.

(2) If the Board determines that the contravention occurred, the Board may make an order requiring one or more of the following:

(a) that the employer or union cease the prohibited action;

(b) that the employer reinstate the worker to that worker's former employment under the same terms and conditions under which that worker was formerly employed;

(c) that the employer pay, by a specified date, the wages required to be paid by the OHS provisions or the regulations;

(d) that the union reinstate the membership of the worker in the union;

(e) that any reprimand or other references to the matter in the employer's or union's records on the worker be removed;

(f) that the employer or the union pay the reasonable out-of-pocket expenses incurred by the worker by reason of the prohibited action;

(g) that the employer or the union do any other thing that the Board considers necessary to secure compliance with the OHS provisions and the regulations.

Part 2 Division 7 - Information Requirements

51 Requirement to post information

(1) If the OHS provisions, the regulations or an order requires an employer or other person to post information at a workplace, the person must

(a) post the information at or near the workplace in one or more conspicuous places where it is most likely to come to the attention of the workers, or

(b) otherwise bring it to the notice of and make it available to the workers at the workplace in accordance with the regulations.

(2) If reasonably practicable, at least one place of posting under subsection (1)(a) must be at or near the equipment, works or area to which the information relates.

(3) As an exception, if posting or notice referred to in subsection (1) is not reasonably practicable, the employer or other person must instead adopt other measures to ensure that the information is effectively brought to the attention of the workers.

52 Occupational health and safety information summary

(1) An occupational health and safety information summary for a workplace or workplaces of an employer may be requested by any of the following:

(a) the employer;

(b) a joint committee or worker representative of the employer;

(c) a union representing workers of the employer;

(d) if there is no joint committee or worker representative for a workplace, any worker of the employer working at the workplace.

(2) On receiving a request under subsection (1), the Board must prepare a summary in relation to the workplace or workplaces for which the request is made of

(a) the prescribed information relating to the previous calendar year, and

(b) any other data the Board considers necessary or advisable to provide.

(3) A summary requested under this section must be sent to the person who made the request and, if the request was made by a person other than the employer, to the employer.

(4) As soon as reasonably practicable after an employer receives a summary under this section, the employer must

(a) post a copy at the workplaces to which it relates,

(b) provide a copy to the joint committees or worker representatives, as applicable, and

(c) if workers at a workplace to which it relates are represented by a union, send a copy to the union.

53 Information that must be kept confidential

(1) A person must not disclose or publish the following information, except for the purpose of administering this Act and the regulations or as otherwise required by law:

(a) information obtained in a medical examination, test or X-ray of a worker made or taken under the OHS provisions, Part 7 [*Appeals to Appeal Tribunal*] or the regulations, unless the worker consents or the information is disclosed in a form calculated to prevent the information from being identified with a particular person or case;

(b) information with respect to a claim under the compensation provisions obtained by the person by reason of the performance of a duty or the exercise of a power under the OHS provisions, Part 7 or the regulations;

(c) information with respect to a trade secret, or with respect to a work process whether or not it is a trade secret, obtained by the person by reason of the performance of a duty or the exercise of a power under the OHS provisions, Part 7 or the regulations;

(d) information obtained under the OHS provisions, Part 7 or the regulations that is exempted or subject to a claim for exemption as confidential business information in respect of a hazardous substance, as referred to in section 111(2)(m) [*Board regulations in relation to hazardous and other substances*];

(e) in the case of information received by the person in confidence by reason of the performance of a duty or the exercise of a power under the OHS provisions, Part 7 or the regulations, the name of the informant.

(2) Except in the performance of the person's duties,

(a) an officer,

(b) a person who accompanies an officer under section 78 [*representation on inspection*], or

(c) a person who conducts a test or other examination under the OHS provisions or Part 7 [*Appeals to Appeal Tribunal*] at the request of an officer

must not publish or disclose information obtained or made by the person in connection with that person's duties or powers under the OHS provisions or Part 7.

(3) Despite subsection (2), the Board may disclose or publish information referred to in that subsection, or authorize it to be disclosed or published, if the Board considers this advisable in the public interest.

(4) Except for the purposes of an inquest under the *Coroners Act*, an officer or other person referred to in subsection (2) is not a compellable witness in a civil suit or other proceeding respecting any information provided to the person in confidence.

(5) For the purposes of section 21(1)(b) [*disclosure harmful to business interests of third party*] of the *Freedom of Information and Protection of Privacy Act*, information referred to in subsection (1)(c) or (d) or (2) of this section that is in the custody or under the control of the Board or the appeal tribunal, whether or not supplied to the Board or the appeal tribunal, is deemed to be supplied to the Board or the appeal tribunal in confidence if it is

(a) information with respect to a trade secret, or with respect to a work process whether or not it is a trade secret,

(b) exempted or subject to a claim for exemption as confidential business information in respect of a hazardous substance, as referred to in section 111(2)(m), or

(c) commercial, financial, labour relations, scientific or technical information of an employer or supplier.

(6) This section does not apply to prevent a person from providing information, including confidential business information, in a medical emergency for the purpose of diagnosis, medical treatment or first aid.

54 Information that must be provided in a medical emergency

(1) This section applies in relation to a person who is a medical practitioner, nurse or prescribed health professional.

(2) On the request of a person referred to in subsection (1) who determines that

(a) a medical emergency exists, and

(b) information regarding a hazardous substance is needed for the purpose of diagnosis or providing medical treatment or first aid,

an employer, supplier or chemical manufacturer must immediately disclose to the requesting health professional all applicable information, including confidential business information, that is in the possession of the employer, supplier or manufacturer.

(3) A person to whom information is provided under subsection (2) must keep confidential any information specified by the person providing the information as being confidential, except for the purpose for which it is provided.

Part 2 Division 8 - Certification and Other Specific Authorities

55 Certification and training of first aid attendants and instructors

The Board may do the following:

(a) supervise the training of and train occupational first aid attendants and instructors;

(b) appoint examiners and conduct examinations for the purposes of this section;

(c) issue certificates to occupational first aid attendants and instructors, and renew and amend those certificates;

(d) enter into arrangements by which other persons provide training, give examinations and issue, renew and amend certificates for the purposes of this section;

(e) establish fees for the purposes of this section.

56 Installation and maintenance of required first aid equipment

If an employer fails, neglects or refuses to install or maintain first aid equipment or service required by regulation or order, the Board may do one or more of the following:

(a) have the first aid equipment and service installed, in which case the cost of this is a debt owed by the employer to the Board;

(b) impose a special rate of assessment under Part 5 [*Accident Fund and Employer Assessment*];

(c) order the employer to immediately close down all or part of the workplace or work being done there until the employer complies with the applicable regulation or order.

57 Medical monitoring programs

(1) If the Board considers this is advisable given the nature or conditions of a work activity, the Board may, by regulation, require employers of workers who carry out that activity or who are exposed to those conditions to establish a medical monitoring program in accordance with this section and the regulations.

(2) The following apply to a medical monitoring program under this section:

(a) the program must be provided at the expense of the employer;

(b) a worker may not be compelled to participate in the program;

(c) a worker who participates in the program must be advised of the results of each examination.

(3) A regulation under subsection (1) may prescribe the following:

(a) the medical examinations, including tests and X-rays, that are required;

(b) the type of health professional who is authorized to conduct the examinations;

- (c) when examinations are required;
 - (d) the information that must be obtained and recorded;
 - (e) the information that must be provided to the worker;
 - (f) responsibilities for keeping the records related to the program.
- (4) The Board may require the health professional who conducted an examination for the purposes of this section, or the person keeping the records for the purposes of the program, to provide to the Board the information referred to in subsection (3)(d).

58 Medical certification requirements

- (1) If the Board considers this is advisable given the physical requirements of a specific type of work, the Board may, by regulation, require employers to ensure that workers performing that work are medically certified as to their physical fitness for the work.
- (2) A regulation under subsection (1) may prescribe the following:
- (a) the medical examinations, including tests and X-rays, that are required for certification;
 - (b) the type of health professional who is authorized to make the certification;
 - (c) when re-evaluations and renewals of certificates are required;
 - (d) the information that must be obtained and recorded;
 - (e) who is to pay for the cost of the certification.
- (3) The Board may require the health professional who conducted an examination for the purposes of this section to provide to the Board the information referred to in subsection (2)(d).

59 Certification and training of blasters

The Board may do the following:

- (a) supervise the training of and train blasters and instructors;
 - (b) appoint examiners and conduct examinations for the purposes of this section;
 - (c) issue certificates to blasters and instructors, and renew and amend those certificates;
- (d) enter into arrangements by which other persons provide training, give examinations and issue, renew and amend certificates for the purposes of this section;
- (e) establish fees for the purposes of this section.

59.01 Certification and training related to asbestos abatement

- (1) In this section, "**relevant person**" means an employer, worker or instructor.
- (2) The Board may do the following:
- (a) supervise the training of and train a relevant person in the carrying out of asbestos abatement work;
 - (b) appoint examiners and conduct examinations for the purposes of this section;
 - (c) issue certificates to relevant persons, and renew and amend those certificates, for the purpose of carrying out asbestos abatement work;
- (d) enter into arrangements by which other persons provide training, give examinations and issue, renew and amend certificates for the purposes of this section;
- (e) establish fees for the purposes of this section.

Part 2 Division 9 - Variance Orders

60 Board may authorize variances from regulations

- (1) On application, the Board may, by order, authorize a variance from a provision of the regulations.
- (2) A variance order may be made only if the Board is satisfied that the variance

(a) affords protection for workers equal to or greater than the protection established by the provision being varied, or

(b) has substantially the same purpose and effect as the provision being varied.

(3) A variance order may be made applicable to

(a) a specified workplace, or

(b) a specified work process at all or specified workplaces of a specified employer.

(4) As a limit on the authority under subsection (1), a provision in a regulation of the Lieutenant Governor in Council under the OHS provisions may be varied only if this is permitted by regulation of the Lieutenant Governor in Council.

61 Effective period for variance order

(1) Unless another time is established in the order, a variance order ceases to have effect 3 years from the date on which it first comes into effect.

(2) The Board may only establish an effective period longer than 3 years if the application for the variance expressly requested the longer period.

62 Application for variance

(1) Subject to the regulations and subsection (2), an application for a variance must be made in writing to the Board and must include

(a) a description of the requested variance,

(b) a statement of why the variance is requested, and

(c) information with respect to the benefits and drawbacks in relation to the matters addressed by the applicable regulation that might reasonably be anticipated if the variation is allowed.

(2) In the case of an application by a single worker for a variance order that would apply only to that worker, an application may be made as permitted by the Board.

(3) The applicant must also provide the Board with the technical and any other information required by the Board to deal with the application.

63 Notice of application

(1) If the variance would apply to an existing workplace, the applicant must

(a) post a copy of the application at the workplace and keep it posted there until the decision on the requested variance is received by the applicant,

(b) provide a copy to the joint committee or worker representative, as applicable, and

(c) if workers at the workplace are represented by a union, send a copy to the union.

(2) If the variance would apply to a workplace that is not yet in existence, immediately after submitting the application for variance,

(a) the applicant must publish a notice of the application where it would reasonably be expected to come to the attention of persons who may be affected by the decision on the requested variance, and

(b) the notice must include

(i) a description of the requested variance, and

(ii) a statement of why the variance is requested.

64 Consultation on application

(1) After receiving an application for variance, the Board may give notice of the application and conduct consultations respecting that application as the Board considers advisable.

(2) Before making a decision on an application, the Board must provide an opportunity for persons who may be affected by the requested variance to submit to the Board information respecting their position on the requested variance.

(3) A union representing workers who may be affected by the requested variance is considered a person who may be affected for the purposes of subsection (2).

65 Decision on application

- (1) The Board must give written reasons for a decision on an application for a variance order.
- (2) The Board must give notice of its decision, including the written reasons and any variance order made, to the applicant and to any persons who submitted information under section 64(2).
- (3) The applicant must post a copy of the decision at each workplace to which it relates as follows:
 - (a) if the application for a variance order was refused, the applicant must keep the decision posted for 7 days or the period required by the order, whichever is longer;
 - (b) if a variance order was made, the applicant must keep the order and written reasons posted throughout the time the variance is in effect.

66 Legal effect of variance

- (1) A variance order authorizes variance from the applicable provision of the regulations
 - (a) only in accordance with the terms and conditions of the variance order, and
 - (b) only during the time that there is compliance with its terms and conditions.
- (2) For certainty, if the terms and conditions of a variance order are not met, the applicable provision of the regulations applies and the variance order is without effect.

67 Board regulations review must consider variance history

The Board must consider the history of variance applications and variance orders as part of its process of regulations review under section 115 *[ongoing review of Board regulations]*.

Part 2 Division 10 - Employer Accident Reporting and Investigation

68 Immediate notice of certain accidents

- (1) An employer must immediately notify the Board of the occurrence of any accident that
 - (a) resulted in serious injury to or the death of a worker,
 - (b) involved a major structural failure or collapse of a building, bridge, tower, crane, hoist, temporary construction support system or excavation,
 - (c) involved the major release of a hazardous substance,
 - (d) involved a fire or explosion that had a potential for causing serious injury to a worker, or
 - (e) was an incident required by regulation to be reported.
- (2) Except as otherwise directed by an officer of the Board or a peace officer, a person must not disturb the scene of an accident that is reportable under subsection (1) except so far as is necessary to
 - (a) attend to persons injured or killed,
 - (b) prevent further injuries or death, or
 - (c) protect property that is endangered as a result of the accident.

69 Incidents that must be investigated

- (1) An employer must conduct a preliminary investigation under section 71 and a full investigation under section 72 respecting any accident or other incident that
 - (a) is required to be reported under section 68,
 - (b) resulted in injury to a worker requiring medical treatment,
 - (c) did not involve injury to a worker, or involved only minor injury not requiring medical treatment, but had a potential for causing serious injury to a worker, or
 - (d) was an incident required by regulation to be investigated.
- (2) Subsection (1) does not apply in the case of a vehicle accident occurring on a public street or highway.

- (1) An investigation required under this Division must be carried out by persons knowledgeable about the type of work involved and, if they are reasonably available, with the participation of the employer or a representative of the employer and a worker representative.
- (2) For the purposes of subsection (1), the participation of the employer or a representative of the employer and a worker representative includes, but is not limited to, the following activities:
 - (a) viewing the scene of the incident with the persons carrying out the investigation;
 - (b) providing advice to the persons carrying out the investigation respecting the methods used to carry out the investigation, the scope of the investigation or any other aspect of the investigation;
 - (c) other activities, as prescribed by the Board.
- (3) The employer must make every reasonable effort to have available for interview by a person conducting the investigation, or by an officer, all witnesses to the incident and any other persons whose presence might be necessary for a proper investigation of the incident.
- (4) The employer must record the names, addresses and telephone numbers of persons referred to in subsection (3).

71 Preliminary investigation, report and follow-up action

- (1) An employer must, immediately after the occurrence of an incident described in section 69, undertake a preliminary investigation to, as far as possible,
 - (a) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (b) if unsafe conditions, acts or procedures are identified under paragraph (a) of this subsection, determine the corrective action necessary to prevent, during a full investigation under section 72, the recurrence of similar incidents.
- (2) The employer must ensure that a report of the preliminary investigation is
 - (a) prepared in accordance with the policies of the board of directors,
 - (b) completed within 48 hours of the occurrence of the incident,
 - (c) provided to the Board on request of the Board, and
 - (d) as soon as practicable after the report is completed, either
 - (i) provided to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, posted at the workplace.
- (3) Following the preliminary investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(b).
- (4) If the employer takes corrective action under subsection (3), the employer, as soon as practicable, must
 - (a) prepare a report of the action taken, and
 - (b) either
 - (i) provide the report to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

72 Full investigation, report and follow-up action

- (1) An employer must, immediately after completing a preliminary investigation under section 71, undertake a full investigation to, as far as possible,
 - (a) determine the cause or causes of the incident investigated under section 71,
 - (b) identify any unsafe conditions, acts or procedures that significantly contributed to the incident, and
 - (c) if unsafe conditions, acts or procedures are identified under paragraph (b) of this subsection, determine the corrective action necessary to prevent the recurrence of similar incidents.
- (2) The employer must ensure that a report of the full investigation is

- (a) prepared in accordance with the policies of the board of directors,
 - (b) submitted to the Board within 30 days of the occurrence of the incident, and
 - (c) within 30 days of the occurrence of the incident, either
 - (i) provided to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, posted at the workplace.
- (3) The Board may extend the time period, as the Board considers appropriate, for submitting a report under subsection (2)(b) or (c).
- (4) Following the full investigation, the employer must, without undue delay, undertake any corrective action determined to be necessary under subsection (1)(c).
- (5) If the employer takes corrective action under subsection (4), the employer, as soon as practicable, must
- (a) prepare a report of the action taken, and
 - (b) either
 - (i) provide the report to the joint committee or worker health and safety representative, as applicable, or
 - (ii) if there is no joint committee or worker health and safety representative, post the report at the workplace.

73 Employer or supervisor must not attempt to prevent reporting

An employer or supervisor must not, by agreement, threat, promise, inducement, persuasion or any other means, seek to discourage, impede or dissuade a worker of the employer, or a dependant of the worker, from reporting any of the following to the Board:

- (a) an injury or allegation of injury, whether or not the injury occurred or is compensable under the compensation provisions;
- (b) an illness, whether or not the illness exists or is an occupational disease compensable under the compensation provisions;
- (c) a death, whether or not the death is compensable under the compensation provisions;
- (d) a hazardous condition or allegation of a hazardous condition in any work to which the OHS provisions apply.

Part 2 Division 11 - Board Inspections, Investigations and Inquiries

74 Application of Division

This Division, as it applies in relation to inspections, also applies to investigations and inquiries.

75 Authority to conduct inspections

- (1) An officer of the Board may enter a place, including a vehicle, vessel or mobile equipment, and conduct an inspection for one or more of the following purposes:
- (a) preventing work-related accidents, injuries or illnesses;
 - (b) ascertaining the cause and particulars of a work-related accident, injury or illness or of an incident that had the potential to cause a work-related accident, injury or illness;
 - (c) investigating a complaint concerning health, safety or occupational environment matters at a workplace;
 - (d) determining whether there is compliance with the OHS provisions, the regulations or an order.
- (2) An inspection may be conducted
- (a) at a reasonable hour of the day or night, or
 - (b) at any other time if the officer has reasonable grounds for believing that a situation exists that is or may be hazardous to workers.
- (3) An officer may do one or more of the following for the purposes of an inspection under this Division:
- (a) bring along any equipment or materials required for the inspection and be accompanied and assisted by a person who has special, expert or professional knowledge of a matter relevant to the inspection;
 - (b) inspect works, materials, products, tools, equipment, machines, devices or other things at the place;

- (c) take samples and conduct tests of materials, products, tools, equipment, machines, devices or other things being produced, used or found at the place, including tests in which a sample is destroyed;
 - (d) require that a workplace or part of a workplace not be disturbed for a reasonable period;
 - (e) require that a tool, equipment, machine, device or other thing or process be operated or set in motion or that a system or procedure be carried out;
 - (f) inspect records that may be relevant and, on giving a receipt for a record, temporarily remove the record to make copies or extracts;
 - (g) require a person to produce within a reasonable time records in the person's possession or control that may be relevant;
 - (h) question persons with respect to matters that may be relevant, require persons to attend to answer questions and require questions to be answered on oath or affirmation;
 - (i) take photographs or recordings of the workplace and activities taking place in the workplace;
 - (j) attend a relevant training program of an employer;
 - (k) exercise other powers that may be necessary or incidental to the carrying out of the officer's duties and functions under the OHS provisions or the regulations.
- (4) The authority to conduct an inspection under this Division is not limited by any other OHS provision or by any regulations giving specific authority in relation to the inspection.
- (5) If an officer of the Board requests this, a peace officer may assist the Board officer in carrying out that officer's duties and functions under the OHS provisions or the regulations.

76 Restrictions on access to private residences

- (1) If a workplace, in addition to being a workplace, is occupied as a private residence, the authority under section 75 may be used to enter the place only if
- (a) the occupier consents,
 - (b) the Board has given the occupier at least 24 hours' written notice of the inspection,
 - (c) the entry is made under the authority of a warrant under this Act or the *Offence Act*, or
- (d) the Board has reasonable grounds for believing that the work activities or the workplace conditions are such that there is a significant risk that a worker might be killed or seriously injured or suffer a serious illness.
- (2) The authority under section 75 must not be used to enter a place that is occupied as a private residence, but is not a workplace, except with the consent of the occupier or under the authority of a warrant under this Act or the *Offence Act*.

77 Officer must produce credentials on request

- (1) The Board must provide officers with written credentials of their appointment.
- (2) On request, an officer must produce the credentials provided under this section when exercising or seeking to exercise any of the powers conferred on the officer under the OHS provisions.

78 Representation on inspection

- (1) Subject to this section, if an officer makes a physical inspection of a workplace under section 75, the following are entitled to accompany the officer on the inspection:
- (a) the employer or a representative of the employer;
- (b) a worker representative or, if there is no worker representative or the worker representative is not reasonably available, a reasonably available worker selected by the officer as a representative.
- (2) A worker is to be considered not reasonably available for the purposes of subsection (1) if the employer objects to that person's participation in the inspection on the basis that it would unduly impede production, but the employer may only object to one person on this ground.
- (3) Despite subsection (1), an officer may conduct a physical inspection of a workplace in the absence of a person referred to in that subsection if the circumstances are such that it is necessary to proceed with the inspection without the person.
- (4) The time spent by a worker accompanying an officer under this section is deemed to be time worked for the employer, and the employer must

pay the worker for that time.

(5) Nothing in this section requires the Board or an officer to give advance notice of an inspection.

(6) If an inspection involves the attendance of an officer at a workplace for a period longer than one day, the rights under this section may be abridged by direction of the officer.

79 Assistance on inspection

(1) A person must provide all reasonable means in that person's power to facilitate an inspection under the OHS provisions.

(2) A person must not do any of the following:

(a) hinder, obstruct, molest or interfere with, or attempt to hinder, obstruct, molest or interfere with, an officer in the exercise of a power or the performance of a duty or function under the OHS provisions or the regulations;

(b) knowingly provide an officer with false information, or neglect or refuse to provide information required by an officer in the exercise of the officer's powers or performance of the officer's duties or functions under the OHS provisions or the regulations;

(c) interfere with any monitoring equipment or device in a workplace placed or ordered to be placed there by the Board.

80 Person being questioned is entitled to have another person present

(1) A person who is questioned by an officer on an inspection is entitled to be accompanied during the questioning by one other person of the first person's choice who is reasonably available.

(2) As a limit on the person's choice under subsection (1), the officer may exclude a person who the officer has questioned or intends to question in relation to the matter.

(3) Subject to subsections (1) and (2), a person may be questioned by the officer either separate and apart from anyone else or in the presence of any other person permitted to be present by the officer.

81 Limited authority to seize evidence without warrant

(1) An officer may seize a thing without a warrant if

(a) the thing has been produced to the officer or is in plain view, and

(b) the officer has reasonable grounds for believing that the OHS provisions, the regulations or an order has been contravened and that the thing would afford evidence of the contravention.

(2) The officer must inform the person from whom a thing is seized under subsection (1) as to the reason for the seizure and must give the person a receipt for the thing.

(3) The officer may remove a thing seized under subsection (1) or may detain it in the place in which it was seized.

(4) As soon as reasonably practicable after a thing is seized under subsection (1), the officer must bring the thing, or a report of it, before a justice to be dealt with in accordance with the *Offence Act* as if it were seized under a warrant under that Act.

81.1 Warrants - investigations

(1) In this section, "**place**" and "**workplace**" include any vessel, vehicle or mobile equipment.

(2) On an application without notice and subject to this section, if a justice is satisfied by information provided under oath that there are reasonable grounds to believe that an offence against this Act or the regulations has been or is being committed, and that evidence respecting the commission of the offence will be obtained through the execution of a warrant, the justice may issue a warrant authorizing an officer, subject to this section, to

(a) enter the place in respect of which the warrant is issued, and

(b) do a thing described in the warrant.

(3) Without limiting subsection (2), a warrant issued under this section may authorize an officer to do any of the following:

(a) bring along any equipment or materials required to execute the warrant and be accompanied and assisted by a person who has special, expert or professional knowledge of a matter relevant to the execution of the warrant;

(b) search the place and seize works, materials, products, tools, equipment, machines, devices or other things at the place;

(c) take samples and conduct tests of works, materials, products, tools, equipment, machines, devices or other things produced, used or found at

the place, including tests in which a sample is destroyed;

(d) require that a workplace or part of a workplace not be disturbed for a reasonable period;

(e) require that any tool, equipment, machine, device or other thing or process be operated or set in motion or that any system or procedure be carried out;

(f) search records that may be relevant and seize the records or, on giving a receipt for the records, temporarily remove the records to make copies or extracts;

(g) require a person to produce within a reasonable time records in the person's possession or control that may be relevant;

(h) question persons and require the persons to answer those questions;

(i) take photographs or recordings of a workplace and activities taking place in the workplace;

(j) attend a relevant training program of an employer;

(k) exercise other powers that may be necessary or incidental to executing the warrant.

(4) A warrant issued under this section may contain terms and conditions that the justice considers advisable in the circumstances.

(5) An officer must inform a person from whom a thing is seized under this section as to the reason for the seizure and must give the person a receipt for the thing.

(6) An officer may remove a thing seized under this section or detain it in the place in which it was seized.

(7) As soon as reasonably practicable after a thing is seized under this section, the officer must bring the thing, or a report of it, before a justice to be dealt with in accordance with the *Offence Act* as if it were seized under a warrant under that Act.

(8) If an officer is of the opinion that it is impracticable for the officer to appear personally before a justice to apply for a warrant in accordance with this section, the officer may submit an information on oath by telephone or other means of telecommunication and, for this purpose, section 22 of the *Offence Act* applies.

82 Employer must post inspection reports

If an officer makes a written report to an employer relating to an inspection, whether or not the report includes an order, the employer must promptly

(a) post the report at the workplace to which it relates, and

(b) give a copy of the report to the joint committee or worker health and safety representative, as applicable.

Part 2 Division 12 - Enforcement

83 Compliance agreements with employers

(1) The Board may enter into an agreement with an employer if the Board considers that

(a) the employer has contravened, or failed to comply with, an OHS provision or a provision of the regulations,

(b) the employer has not contravened, or not failed to comply with, the same provision described in paragraph (a) within the 12-month period immediately preceding the contravention or failure referred to in that paragraph,

(c) the health or safety of workers, for which the employer has responsibilities under this Act, is not at immediate risk, and

(d) entering into the agreement is appropriate in the circumstances.

(2) An agreement under subsection (1) must be in writing and must do the following:

(a) describe one or more actions the employer agrees to take, which may include one or more expenditures the employer agrees to make, to remedy the employer's contravention or failure referred to in subsection (1)(a) or the adverse effects that resulted from that contravention or failure;

(b) set out the time frame within which the employer, with respect to each action described under paragraph (a) of this subsection, agrees to

(i) take the action, and

(ii) report to the Board on the action taken;

(c) specify the date the agreement ends;

(d) set out the required manner, form and content of the report referred to in paragraph (b)(ii) of this subsection.

(3) As soon as practicable after entering into an agreement under subsection (1), the employer must

- (a) provide a copy of the agreement to the joint committee or worker health and safety representative, as applicable, or
- (b) if there is no joint committee or worker health and safety representative, post a copy of the agreement at the workplace.

(4) As soon as practicable after reporting to the Board under subsection (2)(b)(ii), the employer must

- (a) provide a copy of the report to the joint committee or worker health and safety representative, as applicable, or
 - (b) if there is no joint committee or worker health and safety representative, post a copy of the report at the workplace.
- (5) Subject to subsection (6), an agreement under subsection (1) may be amended if agreed to by the Board and the employer.

(6) The Board must rescind an agreement under subsection (1) if the Board considers that any of the following apply:

- (a) the employer has failed to
 - (i) take any of the actions described under subsection (2)(a) within the time frame set out for the action under subsection (2)(b)(i), or
 - (ii) report to the Board within the time frame set out under subsection (2)(b)(ii);
 - (b) the employer intentionally provided false or misleading information in relation to the agreement;
 - (c) the health or safety of workers is at immediate risk, based on information received by the Board after the agreement was entered into.
- (7) The Board may rescind an agreement under subsection (1) if the Board considers that the agreement no longer adequately protects the health or safety of workers.

(8) A rescission under subsection (6) or (7) takes effect immediately despite the employer not having received notice.

(9) As soon as practicable after rescinding an agreement under subsection (6) or (7), the Board must

- (a) make reasonable efforts to provide verbal notice of the rescission to the employer, and
- (b) send written notice of the rescission to the employer.

(10) Section 344(4) to (6) [*issues related to sending or receipt of orders and other documents*] does not apply to the sending of written notice under subsection (9)(b) of this section.

(11) The employer must, as soon as practicable after receiving written notice under subsection (9),

- (a) provide a copy of the written notice to the joint committee or worker health and safety representative, as applicable, or
- (b) if there is no joint committee or worker health and safety representative, post a copy of the written notice at the workplace.

84 General authority to make orders

(1) The Board may make orders for the carrying out of any matter or thing regulated, controlled or required by the OHS provisions or the regulations, and may require that the order be carried out immediately or within the time specified in the order.

(2) Without limiting subsection (1), the authority under that subsection includes authority to make orders as follows:

- (a) establishing standards that must be met and means and requirements that must be adopted in any work or workplace for the prevention of work-related accidents, injuries and illnesses;
- (b) requiring a person to take measures to ensure compliance with this Act and the regulations or specifying measures that a person must take in order to ensure compliance with this Act and the regulations;
- (c) requiring an employer to provide in accordance with the order a medical monitoring program as referred to in section 57;
- (d) requiring an employer, at the employer's expense, to obtain test or evaluation results respecting any thing or procedure in or about a workplace, in accordance with any requirements specified by the Board, and to provide that information to the Board;
- (e) requiring an employer to install and maintain first aid equipment and service in accordance with the order;
- (f) requiring a person to post or attach a copy of the order, or other information, as directed by the order or by an officer;
- (g) establishing requirements respecting the form and use of reports, certificates, declarations and other records that may be authorized or required

under the OHS provisions;

(h) doing anything that is contemplated by the OHS provisions to be done by order;

(i) doing any other thing that the Board considers necessary for the prevention of work-related accidents, injuries and illnesses.

(3) An order may be made applicable to any person or category of persons and may include terms and conditions the Board considers appropriate.

(4) The authority to make orders under this section does not limit and is not limited by the authority to make orders under another OHS provision.

85 Other general matters relating to orders

(1) An officer of the Board may exercise the authority of the Board to make orders under the OHS provisions, subject to any restrictions or conditions established by the Board.

(2) An order may be made orally or in writing but, if made orally, it must be confirmed in writing as soon as is reasonably practicable.

(3) If an order relates to a complaint made by a person to the Board or an officer, a copy of the order must be given to that person.

86 Posting of orders by officer

(1) An officer may

(a) post at a workplace, or

(b) attach to any product, tool, equipment, machine, device or other thing,

a copy of an order or a notice related to that order.

(2) An order posted or attached under subsection (1) must not be removed except

(a) in accordance with the order, or

(b) by an officer or a person authorized by an officer.

87 Notice of variation or cancellation of order

(1) If the Board varies or cancels an order, it must give notice to the employer or other person in relation to whom the order was made.

(2) If the person given notice under subsection (1) was required under the OHS provisions to post a copy of the original order or to provide copies of it to a joint committee, worker representative or union, that person must post and provide copies of the notice in accordance with the same requirements.

88 Order may require compliance reports

(1) An order may include a requirement for compliance reports in accordance with this section.

(2) The employer or other person directed by an order under subsection (1) must prepare a compliance report that specifies

(a) what has been done to comply with the order, and

(b) if compliance has not been achieved at the time of the report, a plan of what will be done to comply and when compliance will be achieved.

(3) If a compliance report includes a plan under subsection (2)(b), the employer or other person must also prepare a follow-up compliance report when compliance is achieved.

(4) In the case of compliance reports prepared by an employer, the employer must

(a) post a copy of the original report and any follow-up compliance reports at the workplace in the places where the order to which it relates are posted,

(b) provide a copy of the reports to the joint committee or worker health and safety representative, as applicable,

(c) if the reports relate to a workplace where workers of the employer are represented by a union, send a copy to the union, and

(d) if required by the Board, send a copy of the reports to the Board.

89 Order to stop using or supplying unsafe equipment

(1) If the Board has reasonable grounds for believing that a thing that is being used or that may be used by a worker

(a) is not in safe operating condition, or

(b) does not comply with the OHS provisions or the regulations,

the Board may order that the thing is not to be used until the order is cancelled by the Board.

(2) If the Board has reasonable grounds for believing that a supplier is supplying a thing that

(a) is not in safe operating condition, or

(b) does not comply with the OHS provisions or the regulations,

the Board may order that supplier to stop supplying the thing until the order is cancelled by the Board.

(3) Despite section 85(2) [*orders may be made orally or in writing*], an order under this section may only be made in writing.

(4) The Board may cancel an order under this section only if it is satisfied that the thing in respect of which the order was made is safe and complies with the OHS provisions and the regulations.

90 Stop-work orders

(1) If subsection (2) or (3) applies, the Board may order that

(a) work at a workplace or any part of a workplace stop until the order to stop work is cancelled by the Board, and

(b) if the Board considers this is necessary, the workplace or any part of the workplace be cleared of persons and isolated by barricades, fencing or any other means suitable to prevent access to the area until the danger is removed.

(2) The Board may make an order under subsection (1) if the Board has reasonable grounds for believing there is a high risk of serious injury, serious illness or death to a worker at the workplace.

(3) The Board may make an order under subsection (1) if

(a) an employer

(i) has failed to comply with an OHS provision or a provision of the regulations, and

(ii) within the 12-month period immediately preceding the failure to comply as referred to in subparagraph (i),

(A) has failed to comply with the same provision, and

(B) has failed to comply with an order respecting the failure to comply with that provision, and

(b) the Board has reasonable grounds for believing there is a risk of serious injury, serious illness or death to a worker at the workplace.

(4) If an order is made under subsection (1)(b), an employer, supervisor or other person must not require or permit a worker to enter the workplace or part of the workplace that is the subject of the order, except for the purpose of doing work that is necessary or required to remove the danger or the hazard and only if the worker

(a) is protected from the danger or the hazard, or

(b) is qualified and properly instructed in how to remedy the unsafe condition with minimum risk to the worker's own health or safety.

91 Related stop-operation orders

(1) If the Board makes an order under section 90, the Board may, in accordance with this section, make an order with respect to another workplace or any part of another workplace whose employer is the same as the employer at the workplace or any part of the workplace in respect of which the order under section 90 was made.

(2) If the Board has reasonable grounds for believing that, at the other workplace or any part of the other workplace, the same or similar unsafe working or workplace conditions exist as at the workplace or any part of the workplace in respect of which the order under section 90 was made, the Board may order that

(a) work at the other workplace or any part of the other workplace stop until the order to stop work is cancelled by the Board, and

(b) if the Board considers this is necessary, the other workplace or any part of the other workplace be cleared of persons and isolated by barricades, fencing or any other means suitable to prevent access to the area until the danger is removed.

(3) If the Board has reasonable grounds for believing that, at the other workplace or any part of the other workplace, the same or similar unsafe working or workplace conditions would exist as at the workplace or any part of the workplace in respect of which the order under section 90 was made, the Board may make an order prohibiting the employer from starting work at the other workplace or any part of the other workplace.

(4) In making an order under this section, the Board is not required to specify the address of the other workplace or any part of the other workplace in respect of which the order is made.

(5) Section 90(4) applies in relation to an order under subsection (2)(b) of this section.

92 Restrictions on stop-work orders and stop-operation orders

(1) Despite section 85(2) [*orders may be made orally or in writing*], an order under section 90 or 91

(a) may only be made in writing, and

(b) must be served on the employer, supervisor or other person having apparent supervision of the work or the workplace.

(2) An order referred to in subsection (1) expires 72 hours after it is made, unless the order has been confirmed in writing by the Board.

93 Effect of stop-work orders and stop-operation orders on workers

(1) If, as a result of an order made under section 89, 90 or 91, a worker is temporarily laid off, the employer must pay the worker the amount the worker would have earned or, if this cannot be readily determined, the amount the worker would have been likely to earn

(a) for the day on which the order came into effect and for the next 3 working days during which the order is in effect, or

(b) for a longer period, if this is provided under a collective agreement.

(2) Nothing in this section prevents workers affected by an order referred to in subsection (1) from being assigned to reasonable alternative work during the time that the order is in effect.

94 Administrative penalties – OHS citations

(1) The Board may, by order, impose on an employer an administrative penalty prescribed under section 112 [*Board regulations in relation to OHS citations*] if the Board is satisfied on a balance of probabilities that the employer has failed to comply with an OHS provision or regulation provision prescribed under that section.

(2) An administrative penalty under this section must not be greater than \$1 142.98.

(3) If an employer files a request under section 270 [*request for review of Board decision*] for review of a decision under this section, the employer must

(a) post a copy of the request for review at the workplace to which the administrative penalty relates,

(b) provide a copy of the request for review to the joint committee or worker health and safety representative, as applicable, and

(c) if the workers at the workplace to which the administrative penalty relates are represented by a union, provide a copy of the request for review to the union.

(4) An employer who has been ordered to pay an administrative penalty under this section must pay the amount of the penalty to the Board for deposit into the accident fund.

(5) If an administrative penalty under this section is reduced or cancelled by a Board decision or on a review under Part 6 [*Review of Board Decisions*], the Board must refund the required amount to the employer.

95 Administrative penalties – higher maximum amount

(1) The Board may, by order, impose on an employer an administrative penalty under this section if the Board is satisfied on a balance of probabilities that any of the following circumstances apply:

(a) the employer has failed to take sufficient precautions for the prevention of work-related injuries or illnesses;

(b) the employer has not complied with an OHS provision, the regulations or an applicable order;

(c) the employer's workplace or working conditions are unsafe.

(2) An administrative penalty under this section must not be greater than \$710 488.79.

(3) An administrative penalty under this section must not be imposed on an employer if the employer establishes that the employer exercised due

diligence to prevent the circumstances described in subsection (1).

- (4) If an employer files a request under section 270 for review of a decision under subsection (1) of this section, the employer must
- (a) post a copy of the request for review at the workplace to which the administrative penalty relates,
 - (b) provide a copy of the request for review to the joint committee or worker health and safety representative, as applicable, and
- (c) if the workers at the workplace to which the administrative penalty relates are represented by a union, provide a copy of the request for review to the union.
- (5) An employer who has been ordered to pay an administrative penalty under this section must pay the amount of the penalty to the Board for deposit into the accident fund.
- (6) If an administrative penalty under this section is reduced or cancelled by a Board decision, on a review requested under section 270 or on an appeal to the appeal tribunal under Part 7, the Board must
- (a) refund the required amount to the employer, and
 - (b) pay interest on that amount calculated in accordance with the policies of the board of directors.
- (7) If an administrative penalty under this section is imposed on an employer, the employer must not be prosecuted under this Act in respect of the same facts and circumstances on which the Board based the administrative penalty.

96 Suspension or cancellation of certificates

- (1) If the Board has reasonable grounds for believing that a person who holds a certificate issued under the OHS provisions or the regulations has breached a term or condition of the certificate or has otherwise contravened an OHS provision or a provision of the regulations, the Board may, by order,
- (a) cancel or suspend the certificate, or
 - (b) place a condition on the use of that certificate that the Board considers necessary in the circumstances.
- (2) An order under this section suspending a certificate must specify the length of time that the suspension is in effect or the condition that must be met before the suspension is no longer in effect.

97 Court injunction on application of Board

- (1) On application of the Board and on being satisfied that there are reasonable grounds to believe that a person
- (a) has contravened or is likely to contravene the OHS provisions, the regulations or an order, or
 - (b) has failed to comply with, or is likely to fail to comply with, the OHS provisions, the regulations or an order,
- the Supreme Court may grant an injunction,
- (c) in the case of paragraph (a), restraining the person from continuing or committing the contravention,
 - (d) in the case of paragraph (b), requiring the person to comply, and
 - (e) in the case of paragraph (a) or (b), restraining the person from carrying on an industry, or an activity in an industry, within the scope of the compensation provisions for an indefinite or limited period or until the occurrence of a specified event.
- (2) If subsection (1)(e) applies and the person referred to in that provision is a company or corporation, an injunction under that provision may be made restraining the following persons:
- (a) an individual who is a member of the board of directors of a company as a result of having been elected or appointed to that position;
 - (b) a person who is a member of the board of directors or other governing body of a corporation other than a company, regardless of the title by which that person is designated;
 - (c) the chair or any vice chair of the board of directors or other governing body of a corporation, if that chair or vice chair performs the functions of the office on a full-time basis, regardless of the title by which that person is designated;
 - (d) the president of a corporation, regardless of the title by which that person is designated;
 - (e) any vice president in charge of a principal business unit of a corporation, including sales, finance or production, regardless of the title by which that person is designated;

- (f) any officer of a corporation, whether or not the officer is also a director of the corporation, who performs a policy-making function in respect of the corporation and who has the capacity to influence the direction of the corporation, regardless of the title by which that person is designated;
 - (g) a person who is not described in any of paragraphs (a) to (f) of this subsection but who performs the functions described in any of those paragraphs, and who participates in the management of a company or corporation, other than a person who
 - (i) participates in the management of the company or corporation under the direction or control of a shareholder or a person described in any of paragraphs (a) to (f),
 - (ii) is a lawyer, accountant or other professional whose primary participation in the management of the company or corporation is the provision of professional services to the corporation,
 - (iii) is, if the company or corporation is bankrupt, a trustee in bankruptcy who participates in the management of the company or corporation or exercises control over its property, rights and interests primarily for the purposes of the administration of the bankrupt's estate, or
 - (iv) is a receiver, receiver manager or creditor who participates in the management of the company or corporation or exercises control over any of its property, rights and interests primarily for the purposes of enforcing a debt obligation of the company or corporation.
- (3) For the purposes of subsection (2), "**company**" and "**corporation**" have the same meaning as in the *Business Corporations Act*.
- (4) An injunction under subsection (1) may be granted without notice to others if it is necessary to do so in order to protect the health or safety of workers.
- (5) A contravention of the OHS provisions, the regulations or an order may be restrained under subsection (1) whether or not a penalty or other remedy has been provided by the OHS provisions.

Part 2 Division 13 - Offences

98 Offence to contravene OHS provision, regulation or order

(1) A person who contravenes an OHS provision, a provision of the regulations or an order commits an offence.

(2) If a corporation commits an offence referred to in subsection (1), an officer, director or agent of the corporation who authorizes, permits or acquiesces in the commission of the offence also commits an offence.

(3) Subsection (2) applies whether or not the corporation is prosecuted for the offence.

99 Limits on prosecutions

The time limit for laying an information in respect of an offence is 2 years after the last occurrence of the act or omission on which the prosecution is based.

100 Defence of due diligence

A person is not guilty of an offence if the person proves that the person exercised due diligence to prevent the commission of the offence.

101 Additional defence for workers

A worker is not guilty of an offence if the worker proves that the offence was committed

(a) as a result of instructions given by the worker's employer or supervisor, and

(b) despite the worker's objection.

102 General penalties

On conviction for an offence, a person is liable to the following penalties:

(a) in the case of a first conviction,

(i) a fine not greater than \$777 601.27 and, in the case of a continuing offence, to a further fine not greater than \$38 880.09 for each day during which the offence continues after the first day,

(ii) imprisonment for a term not longer than 6 months, or

(iii) both fine and imprisonment;

(b) in the case of a subsequent conviction,

- (i) a fine not greater than \$1 555 202.51 and, in the case of a continuing offence, to a further fine not greater than \$77 760.13 for each day during which the offence continues after the first day,
- (ii) imprisonment for a term not longer than 12 months, or
- (iii) both fine and imprisonment.

103 Additional penalty to reclaim monetary benefit

- (1) On conviction for an offence, if the court is satisfied that monetary benefits accrued to the offender as a result of the commission of the offence, the court may order the offender to pay a fine in an amount equal to the estimation by the court of the amount of the monetary benefits.
- (2) A fine under subsection (1) is additional to any fine imposed under section 102.

104 Additional powers on sentencing

- (1) If a person is convicted of an offence, in addition to any other punishment imposed, the court may, having regard to the nature of the offence and the circumstances surrounding its commission, make an order doing one or more of the following:
 - (a) directing the person to perform community service in accordance with the requirements established by the court;
 - (b) directing the person to pay to the Board an amount for the purpose of research or public education related to occupational health and safety;
 - (c) directing the person to post a bond or pay into court an amount of money the court considers appropriate for the purpose of ensuring compliance with a prohibition, direction or requirement under this section;
 - (d) directing the person to submit to the Board, on application by the Board within 3 years after the date of the conviction, any information respecting the activities of the person that the court considers appropriate in the circumstances;
 - (e) directing that the facts relating to the commission of the offence be published in any manner the court considers appropriate, subject to any maximum amount for publication expenses or other restrictions established by the court, by
 - (i) the convicted person at that person's expense, or
 - (ii) the Board at the expense of the convicted person;
 - (f) prohibiting the person from working in a supervisory capacity at any workplace for a period not longer than 6 months from the date of conviction;
 - (g) requiring the person to comply with any other conditions that the court considers appropriate for securing the person's good conduct and for preventing the person from repeating the offence or committing other offences under the OHS provisions.
- (2) An order under subsection (1) comes into force on the day on which it is made or on another day specified by the court, but must not continue in force for more than 3 years after the day it comes into force.
- (3) If the court makes an order under subsection (1)(b) or the Board incurs publication expenses under subsection (1)(e), the amount or expenses constitute a debt due to the Board.
- (4) If a convicted person fails to comply with an order referred to in subsection (1)(e)(i), the Board may publish the facts and recover the publication expenses from the person.

104.1 Court may consider victim impact statements

- (1) In this section, "victim impact statement" means a written statement describing the physical or emotional harm, property damage or economic loss suffered by an individual as a result of an offence committed against this Act or the regulations.
- (2) For the purpose of determining a penalty or punishment, as applicable, under sections 102 to 104, the court may consider victim impact statements.

105 Penalties to be paid into accident fund

On receipt of payment of a fine ordered under this Division, the amount must be transferred for deposit into the accident fund.

Part 2 Division 15 - Regulations for OHS and Other Purposes

109 Lieutenant Governor in Council regulations

- (1) The Lieutenant Governor in Council may make regulations referred to in section 41 [*general powers to make regulations*] of the

(2) Without limiting subsection (1), the Lieutenant Governor in Council may make regulations as follows:

- (a) defining words or expressions used but not defined in the OHS provisions;
- (b) establishing criteria that must be applied and procedures that must be followed in making decisions under the OHS provisions or the regulations;
- (b.1) prescribing things or places for the purposes of the definition of "asbestos abatement work" in section 1 and prescribing different things or places for the purposes of different provisions of this Act;
- (c) requiring a greater number for minimum membership of a joint committee as referred to in section 33(a) and the circumstances in which that greater number is required;
- (d) establishing additional duties and functions for joint committees as referred to in section 36(j);
- (e) establishing a longer period of educational leave as referred to in section 41(1);
- (f) establishing assistance that must be provided to a joint committee by the employer in addition to the requirements of section 42;
- (g) prescribing information that must be included in an occupational health and safety information summary under section 52;
- (h) prescribing classes of health professionals for the purposes of section 54 [*information that must be provided in a medical emergency*];
- (i) specifying provisions of the regulations of the Lieutenant Governor in Council under the OHS provisions for which a variance under Division 9 of this Part may be ordered.

(3) Without limiting subsections (1) and (2), the Lieutenant Governor in Council may make regulations as follows:

- (a) amending the Act to reflect the deemed amendments under section 333 [*annual adjustment of dollar amounts referred to in Act*];
- (b) respecting any other matter for which regulations of the Lieutenant Governor in Council are contemplated by this Act.

110 Board regulations generally

(1) In accordance with its mandate under the OHS provisions, the Board may make regulations the Board considers necessary or advisable in relation to occupational health and safety and occupational environment.

(2) Without limiting subsection (1), the Board may make regulations as follows:

- (a) respecting standards and requirements for the protection of the health and safety of workers and other persons present at a workplace and for the well-being of workers in their occupational environment;
- (b) respecting specific components of the general duties of employers, workers, suppliers, supervisors, prime contractors and owners under the OHS provisions;
- (c) requiring employers to prepare written policies or programs respecting occupational health and safety and occupational environment in accordance with the regulations;
- (d) regulating or prohibiting the manufacture, supply, storage, handling or use of any tool, equipment, machine or device or the use of any workplace;
- (e) respecting standards and requirements for the monitoring of atmospheric or other workplace conditions or to demonstrate compliance with the OHS provisions, the regulations or an applicable order;
- (f) restricting the performance of specified functions to persons possessing specified qualifications or experience, including establishing certification requirements and establishing or arranging certification and instructor training programs;
- (g) requiring the preparation, maintenance and submission of records respecting statistical data related to occupational health and safety or occupational environment;
- (h) respecting the form and manner of reporting on any matter required to be reported under the OHS provisions or the regulations.

(3) Without limiting subsections (1) and (2), the Board may make regulations respecting any other matter for which regulations, other than regulations of the Lieutenant Governor in Council, are contemplated by this Act.

111 Board regulations in relation to hazardous and other substances

(1) The Board may, for the purpose of protecting the health or safety of workers, make regulations in relation to hazardous substances and other

substances that are potentially harmful to workers.

(2) Without limiting subsection (1), the Board may make regulations as follows:

- (a) prohibiting or regulating the transportation, storage, handling, use or disposal of any biological, chemical or physical agent;
- (b) prohibiting persons other than those meeting prescribed qualifications from transporting, storing, handling, using or disposing of any biological, chemical or physical agent;
- (c) prohibiting or regulating the manufacture, import, supply or sale or other disposition of any biological, chemical or physical agent;
- (d) establishing requirements with respect to the testing, labelling or examination of any substance or material;
- (e) establishing requirements with respect to the labelling of biological, chemical or physical agents supplied by a supplier;
- (f) establishing requirements for records that must be kept in relation to hazardous substances and other substances that are potentially harmful to workers;
- (g) designating a biological, chemical or physical agent as a hazardous substance;
- (h) classifying hazardous substances;
- (i) establishing requirements with respect to the labelling or identification of a hazardous substance;
- (j) establishing requirements with respect to safety data sheets to be provided for a hazardous substance;
- (k) establishing requirements with respect to worker training and instruction in relation to hazardous substances;
- (l) establishing requirements with respect to the disclosure of information in respect of a hazardous substance, including disclosure of confidential business information;
- (m) providing for exemptions from disclosure of confidential business information in respect of a hazardous substance;
- (n) establishing or designating an agency, board or commission to determine whether information in respect of a hazardous substance is confidential business information;
- (o) respecting the procedures, powers and functions of an agency, board or commission referred to in paragraph (n);
- (p) respecting the reporting by physicians and others of cases in which workers are affected by hazardous substances.

112 Board regulations in relation to OHS citations

(1) The Board may make regulations for the purposes of section 94 [*administrative penalties – OHS citations*] as follows:

- (a) specifying OHS provisions or provisions of the regulations that may be subject to administrative penalties under that section;
- (b) subject to subsection (2) of this section, prescribing administrative penalties or schedules of administrative penalties that may
 - (i) vary according to the nature or frequency of the failure to comply or the number of workers affected by any failure to comply, and
 - (ii) provide for greater penalties for a second penalty and for third or subsequent penalties in a 3-year period or any other period that may be prescribed.

(2) A penalty prescribed under subsection (1) must not be greater than the amount specified in section 94(2).

113 Notice and consultation before Board makes regulation

(1) Before making a regulation under the OHS provisions, the Board

- (a) must give notice of the proposed regulation in the Gazette and in at least 3 newspapers, of which one must be published in the City of Victoria and one in the City of Vancouver,
- (b) must hold at least one public hearing on the proposed regulation, and
- (c) may conduct additional consultations with representatives of employers, workers and other persons the Board considers may be affected by the proposed regulation.

(2) A defect or inaccuracy in the notice under subsection (1)(a) or in its publication does not invalidate a regulation made by the Board.

114 When Board regulation comes into force

A regulation of the Board must specify the date on which it is to come into force, which date must be at least 90 days after its deposit under the *Regulations Act*.

115 Ongoing review of Board regulations

The Board must undertake a process of ongoing review of and consultation on its regulations to ensure that they are consistent with current workplace practices, technological advances and other changes affecting occupational health and safety and occupational environment.

116 Minister may direct Board to consider changes to its regulations

- (1) The minister may direct the Board to consider whether the Board should make, repeal or amend its regulations in accordance with the recommendations of the minister.
- (2) If a direction under subsection (1) is made, the Board must consider the recommendations and report its response to the minister.
- (3) If the Board does not make, repeal or amend its regulations as recommended, the Lieutenant Governor in Council may, by regulation, make, repeal or amend the regulations of the Board in accordance with the recommendations of the minister.
- (4) On coming into force, a regulation under subsection (3) is deemed to be a regulation of the Board.

117 Authority and application of regulations generally

- (1) The authority to make regulations under this Division does not limit and is not limited by the authority to make regulations under another OHS provision.
- (2) The following apply to regulations under the OHS provisions:
 - (a) the regulations may be made applicable to employers, workers, suppliers and any other persons working in or contributing to the production of an industry;
 - (b) the regulations may be different for different workplaces, industries, activities, persons, things or categories of any of these;
 - (c) the regulations may delegate a matter to, or confer a discretion on, the Board, an officer of the Board or another person.
- (3) A regulation under the OHS provisions establishing a standard, code or rule may do so by adopting a standard, code or rule
 - (a) published by a provincial, national or international body or standards association, or
 - (b) enacted as or under a law of this or another jurisdiction, including a foreign jurisdiction.
- (4) A standard, code or rule referred to in subsection (3)
 - (a) may be adopted in whole, in part or with any changes considered appropriate, and
 - (b) may be adopted as it stands at a specific date, as it stands at the time of adoption or as amended from time to time.

Schedules - Contents

Schedule 1: [Presumption of Occupational Disease Related to Specific Process or Industry](#)

Schedule 2: [Non-Traumatic Hearing Loss](#)

Schedule 1

**Schedule 1
Presumption of Occupational Disease Related to Specific Process or Industry**

Item	Column 1 Description of Disease	Column 2 Description of Process or Industry
1	Poisoning by:	
	(1) Lead	Where there is exposure to lead or lead compounds.
	(2) Mercury	Where there is exposure to mercury or mercury compounds.
	(3) Arsenic or arsine	Where there is exposure to arsenic or arsenic compounds.
	(4) Cadmium	Where there is exposure to cadmium or cadmium compounds.
	(5) Manganese	Where there is exposure to manganese or manganese compounds.

	(6)	Phosphorus, phosphine or the anti-cholinesterase action of organic phosphorus compounds	Where there is exposure to phosphorus or phosphorus compounds.	
	(7)	Organic solvents, including n-hexane, carbon tetrachloride, trichloroethane, trichloroethylene, acetone, benzene, toluene and xylene	Where there is exposure to organic solvents.	
	(8)	Carbon monoxide	Where there is exposure to products of combustion or to any other source of carbon monoxide.	
	(9)	Hydrogen sulphide	Where there is excessive exposure to hydrogen sulphide.	
	(10)	Nitrous fumes, including silo-filler's disease	Where there is excessive exposure to nitrous fumes, including the oxides of nitrogen.	
	(11)	Nitriles, hydrogen cyanide or its soluble salts	Where there is exposure to chemicals containing -CN group, including certain pesticides.	
	(12)	Phosgene	Where there is excessive exposure to phosgene, including its occurrence as a breakdown product of chlorinated compounds by combustion.	
	(13)	Other toxic substances	Where there is exposure to such toxic gases, vapours, mists, fumes or dusts.	
2	Infection caused by:			
	(1)	Psittacosis virus	Where there is established contact with ornithosis-infected avian species or material.	
	(2)	Salmonella organisms, Staphylococcus aureus, or Hepatitis B virus	Where close and frequent contact with a source or sources of the infection has been established and the employment necessitates	
			(a)	the treatment, nursing or examination of or interviews with patients or ill persons,
			(b)	the analysis or testing of body tissues or fluids, or
			(c)	research into salmonellae, pathogenic staphylococci or Hepatitis B virus.
	(3)	Brucella organisms, including Undulant fever	Where there is contact with animals, animal carcasses or animal by-products.	
	(4)	Tubercle bacillus	Where close and frequent contact with a source or sources of tuberculous infection has been established and the employment necessitates	
			(a)	the treatment, nursing or examination of patients or ill persons,
			(b)	the analysis or testing of body tissues or fluids, or
			(c)	research into tuberculosis by a worker who,
				(i)
			(ii)	continued to be free from evidence of tuberculosis for 6 months after being so employed, except in the case of primary tuberculosis as proven by a negative tuberculin test at the time of employment. In the case of a worker previously compensated for tuberculosis, any subsequent tuberculosis after the disease has become inactive and has remained inactive for a period of 3 years or more is not to be considered to have occurred as a result of the original disability, unless the worker is still engaged in employment listed above or the Board is satisfied that the subsequent tuberculosis is the direct result of the tuberculosis for which the worker has been compensated.
3	Pneumoconiosis:			
	(1)	Silicosis	Where there is exposure to airborne silica dust, including in metalliferous mining and coal mining.	
	(2)	Asbestosis	Where there is exposure to airborne asbestos dust.	
	(3)	Other pneumoconioses	Where there is exposure to the airborne dusts of coal, beryllium, tungsten carbide, aluminum or other dusts known to produce fibrosis of the lungs.	
4	Diffuse pleural thickening or fibrosis, whether unilateral or bilateral		Where there is exposure to airborne asbestos dust and the worker has not previously had and does not currently have collagen disease, chronic uremia, drug-induced fibrosis, tuberculosis or other infection, trauma or disease capable of causing pleural thickening or fibrosis.	
5	Benign pleural effusion, whether unilateral or bilateral		Where there is exposure to airborne asbestos dust and the worker has not previously had and does not currently have collagen disease, chronic uremia, tuberculosis or other infection, trauma or disease capable of causing pleural effusion.	
6	Cancer:			

(1)	Primary carcinoma of the lung when associated with asbestosis	Where there is exposure to airborne asbestos dust.
(2)	Primary carcinoma of the lung when associated with bilateral diffuse pleural thickening over 2 mm thick	Where there is exposure to airborne asbestos dust and the worker has not previously had collagen disease, chronic uremia, drug-induced fibrosis, tuberculosis or other infection or trauma capable of causing pleural thickening.
(3)	Primary carcinoma of the lung	Where there is exposure to airborne asbestos dust for a period of 10 years or more of employment in one or more of the following industries:
		(a) asbestos mining;
		(b) insulation or filter material production;
		(c) construction, where there is disturbance of asbestos-containing materials;
		(d) plumbing or electrical work;
		(e) pulp mill work;
		(f) shipyard work;
		(g) longshoring.
(4)	Mesothelioma, whether pleural or peritoneal	Where there is exposure to airborne asbestos dust.
(5)	Carcinoma, associated with asbestosis, of the larynx or pharynx	Where there is exposure to airborne asbestos dust.
(6)	Gastrointestinal cancer, including all primary cancers associated with the esophagus, stomach, small bowel, colon and rectum excluding the anus, and without regard to the site of the cancer in the gastrointestinal tract or the histological structure of the cancer	Where there is exposure to asbestos dust if, during the period between the first exposure to asbestos dust and the diagnosis of gastrointestinal cancer, there has been a period of, or periods adding up to, 20 years of continuous exposure to asbestos dust and such exposure represents or is a manifestation of the major component of the occupational activity in which the exposure occurred.
(7)	Primary cancer of the lung	Where there is prolonged exposure to any of the following:
		(a) aerosols and gases containing arsenic, chromium, nickel or their compounds;
		(b) bis(chloromethyl) ether;
		(c) the dust of uranium, or radon gas and its decay products;
		(d) particulate polycyclic aromatic hydrocarbons.
(8)	Leukemia or pre-leukemia	Where there is prolonged exposure to benzene or to ionizing radiation.
(9)	Primary cancer of the skin	Where there is
		(a) prolonged contact with coal tar products, arsenic or cutting oils, or
		(b) prolonged exposure to solar ultraviolet light.
(10)	Primary cancer of the epithelial lining of the urinary bladder, ureter or renal pelvis	Where there is prolonged exposure to beta-naphthylamine, benzidine or 4-nitrodiphenyl.
(11)	Primary cancer of the mucous lining of the nose or nasal sinuses	Where there is prolonged exposure to
		(a) dusts, fumes or mists containing nickel, or
		(b) the dusts of hard woods.
(12)	Angiosarcoma of the liver	Where there is exposure to vinyl chloride monomer.
7	Asthma	Where there is exposure to any of the following:
		(a) western red cedar dust;
		(b) isocyanate vapours or gases;
		(c) the dusts, fumes or vapours of other chemicals or organic material known to cause asthma.
8	Extrinsic allergic alveolitis (including farmers' lung and mushroom workers' lung)	Where there is repeated exposure to respirable organic dusts.
9	Acute upper respiratory inflammation, acute pharyngitis, acute laryngitis, acute	Where

	tracheitis, acute bronchitis, acute pneumonitis or acute pulmonary edema, excluding any allergic reaction, reaction to environmental tobacco smoke or effect of an infection	(a) there is exposure to a high concentration of fumes, vapours, gases, mists or dusts of substances that have irritating or inflammatory properties, and (b) the respiratory symptoms occur within 48 hours of the exposure or, if there is exposure to nitrogen dioxide or phosgene, within 72 hours of the exposure.
10	Metal fume fever	Where there is exposure to the fumes of zinc or other metals.
11	Fluorosis	Where there is exposure to high concentrations of fluorine or fluorine compounds, whether in gaseous or particulate form.
12	Neurosensory hearing loss	Where there is prolonged exposure to excessive noise levels.
13	Bursitis:	
	(1) Knee bursitis (inflammation of the prepatellar, suprapatellar or superficial infrapatellar bursa)	Where (a) there is repeated jarring impact against the involved bursa, or (b) there are significant periods of kneeling on the involved bursa.
	(2) Shoulder bursitis (inflammation of the subacromial or subdeltoid bursa)	Where there is frequently repeated or sustained abduction or flexion of the shoulder joint greater than 60° and where such activity represents a significant component of the employment.
14	Tendinopathy:	
	(1) Hand-wrist tendinopathy	Where there is use of the affected tendon or tendons to perform a task or series of tasks that involve any 2 of the following and where such activity represents a significant component of the employment: (a) frequently repeated motions or muscle contractions that place strain on the affected tendon or tendons; (b) significant flexion, extension, ulnar deviation or radial deviation of the affected hand or wrist; (c) forceful exertion of the muscles used in handling or moving tools or other objects with the affected hand or wrist.
	(2) Shoulder tendinopathy	Where there is frequently repeated or sustained abduction or flexion of the shoulder joint greater than 60° and where such activity represents a significant component of the employment.
15	Decompression sickness	Where there is exposure to increased air pressure.
16	Contact dermatitis	Where there is excessive exposure to irritants, allergens or sensitizers ordinarily causative of dermatitis.
17	Hand-arm vibration syndrome	Where there has been at least 1 000 hours of exposure to tools or equipment that causes the transfer of significant vibration to the hand or arm of the worker.
18	Radiation injury or disease:	
	(1) Due to ionizing radiation	Where there is exposure to ionizing radiation.
	(2) Due to non-ionizing radiation:	
	(a) conjunctivitis or keratitis	Where there is exposure to ultraviolet light.
	(b) cataract or other thermal damage to the eye	Where there is excessive exposure to infrared, microwave or laser radiation.
19	Erosion of incisor teeth	Where there is exposure to acid fumes or mist.
20	Infection that is:	Where:
	(1) caused by communicable viral pathogens, and	(a) there is a risk of exposure to a source or sources of infection significantly greater than that to the public at large,
	(2) the subject of one or more of the following:	(b) the risk of exposure occurs during the applicable notice or emergency under column 1, and
	(a) a notice given under section 52(2) of the <i>Public Health Act</i> ;	(c) the risk of exposure occurs within the geographical area of the applicable notice or emergency under column 1.
	(b) a state of emergency declared under section 9(1) of the <i>Emergency Program Act</i> ;	

	(c)	a state of local emergency declared under section 12(1) of the <i>Emergency Program Act</i> ;
	(d)	an emergency declared under section 173 of the <i>Vancouver Charter</i> .

Schedule 2

Schedule 2
Non-Traumatic Hearing Loss

Complete loss of hearing in both ears equals 15% of total disability. Complete loss of hearing in one ear with no loss in the other equals 3% of total disability.

Loss of Hearing in Decibels Measured in Each Ear in Turn	Percentage of Total Disability	
	Ear Most Affected PLUS Ear Least Affected	
0-27	0	0
28-32	0.3	1.2
33-37	0.5	2.0
38-42	0.7	2.8
43-47	1.0	4.0
48-52	1.3	5.2
53-57	1.7	6.8
58-62	2.1	8.4
63-67	2.6	10.4
68 or more	3.0	12.0

The loss of hearing in decibels in the first column is the arithmetic average of thresholds of hearing measured in each ear in turn by pure tone, air conduction audiometry at frequencies of 500, 1 000 and 2 000 Hertzian waves, the measurements being made with an audiometer calibrated according to standards prescribed by the Board.

Part 1 Contents

Division 1 “ Interpretation

1 [Definitions](#)

Division 2 “ Scope of OHS Provisions

2 [General application of OHS provisions](#)

3 [Exceptions from application “ mines and industrial camps](#)

Division 3 “ Scope of Compensation Provisions

4 [General application of compensation provisions](#)

5 [Extending application: public interest undertakings](#)

6 [Extending application: vocational or training programs](#)

7 [Extending application: work study and other programs](#)

8 [Application to fishing industry](#)

Division 4 “ Liability of Employers in Industries Not Within the Scope of Compensation Provisions

9 [Application of this Division](#)

10 [Legal actions against employer](#)

11 [Legal actions in relation to work done under contract](#)

12 [Override and application of common law rules](#)

Part 1 Division 1 - Interpretation

1 Definitions

In this Act:

"accident", in relation to a worker, includes

- (a) a wilful and intentional act that is not the act of the worker, and
- (b) a fortuitous event occasioned by a physical or natural cause;

"accident fund" means the fund continued under section 239 [*Board to maintain accident fund*];

"action" includes proceedings brought in the civil resolution tribunal under the *Civil Resolution Tribunal Act*;

"appeal tribunal" means the Workers' Compensation Appeal Tribunal continued under Part 7 [*Appeals to Appeal Tribunal*];

"assessment" means an assessment under this Act of an amount to be paid to the Board;

"asbestos abatement work" means any of the following activities carried out for the purpose of the abatement of asbestos in relation to a building or in relation to any other thing or place prescribed by regulation of the Lieutenant Governor in Council:

- (a) identifying material that is or may be asbestos-containing material;
- (b) collecting samples of material that is or may be asbestos-containing material;
- (c) assessing the risk posed by material that is or may be asbestos-containing material;
- (d) assessing the risk posed by working with or near material that is or may be asbestos-containing material;
- (e) removing, repairing or transporting, or disposing of, material that is or may be asbestos-containing material;
- (f) any activity prescribed by regulation of the Lieutenant Governor in Council;
- (g) planning how an activity referred to in any of paragraphs (a) to (f) is to be carried out;
- (h) supervising an activity referred to in any of paragraphs (a) to (f);

"asbestos-containing material" means asbestos-containing material as defined by regulation of the Board;

"average net earnings", with respect to a worker, means the average net earnings of the worker as determined by the Board under section 220 [*average net earnings: short-term compensation*] or 221 [*average net earnings: long-term compensation*], as applicable;

"Board" means the Workers' Compensation Board continued under section 316 [*Workers' Compensation Board and its board of directors*];

"board of directors" means the board of directors under section 316(2);

"chief review officer" means an officer of the Board who is appointed as chief review officer under section 330 [*Board must appoint review officers*];

"class", in relation to an employer, independent operator or industry, means the applicable class established under section 244 [*classification of industries*];

"compensation" includes health care;

"compensation provision" means a provision of the following:

- (a) Division 3 [*Scope of Compensation Provisions*] of this Part;
- (b) Part 3 [*Workers' Compensation System*];
- (c) Part 4 [*Compensation to Injured Workers and Their Dependants*];
- (d) Part 5 [*Accident Fund and Employer Assessment*];
- (e) Part 6 [*Review of Board Decisions*];

"construction" includes reconstruction, repair, alteration and demolition;

"consumer price index for Canada" means the Consumer Price Index for Canada published by Statistics Canada under the *Statistics Act* (Canada);

"court" includes the civil resolution tribunal under the *Civil Resolution Tribunal Act*;

"dependant"

(a) means

- (i) a family member of the worker who was wholly or partly dependent on the worker's earnings at the time of the worker's death, or
- (ii) a family member of the worker who, but for the worker's incapacity due to the accident or occupational disease, would have been wholly or partly dependent on the worker's earnings, and

(b) other than in the following sections, includes a spouse, child or parent of the worker who satisfies the Board that the spouse, child or parent had a reasonable expectation of pecuniary benefit from the continuation of the life of that worker:

(i) section 167 [*lump sum payment to dependent spouse or foster parent*];

(ii) section 169 [*dependent spouse who is 50 years of age or older or is incapable of earning, no dependent children*];

(iii) section 170 [*dependent spouse who is under 50 years of age and not incapable of earning, no dependent children*];

(iv) section 171 [*dependent spouse and one or more dependent children*];

(v) section 172 [*one or more dependent children but no dependent spouse*];

(vi) section 173 [*dependent parents in addition to spouse or children*];

(vii) section 174 [*no dependent spouse or children: compensation to other dependants*];

(viii) section 178 [*dependent spouse living apart from worker at the date of death*];

"employer" includes every person having in their service under a contract of hiring or apprenticeship, whether the contract is written or oral, express or implied, a person engaged in work in or about an industry;

"employers' adviser" means a person appointed as an employers' adviser under section 350 [*government to provide workers' advisers and employers' advisers*];

"employment", when used in a compensation provision,

(a) means all or part of an establishment, undertaking, trade or business within the scope of the compensation provisions, and

(b) in the case of an industry that is not as a whole within the scope of the compensation provisions, includes a department or part of the industry that would be within the scope of those provisions if carried on separately;

"family member", in relation to a worker, means the following:

(a) a spouse, parent, grandparent, step-parent, child, grandchild, stepchild, sibling or half-sibling of the worker;

(b) a person, whether related to the worker by blood or not, who stood in place of a parent of the worker or to whom the worker stood in place of a parent;

"firefighter" means a member of a fire brigade, working with or without remuneration, who is assigned primarily to

(a) fire suppression duties, whether or not those duties include the performance of ambulance or rescue services,

(b) investigation duties respecting the cause, origin or circumstances of a fire, or

(c) any combination of both fire suppression duties as described in paragraph (a) and fire investigation duties as described in paragraph (b);

"health care", when used in a compensation provision, includes things that the Board is empowered under this Act to provide for injured workers;

"industry" includes establishment, undertaking, work, trade and business;

"initial payment period", in relation to an injured worker, means the period described in section 210(a) [*average earnings: short-term compensation*];

"manufacturing" includes making, preparing, altering, repairing, renovating, servicing, dyeing, cleaning, ornamenting, printing, finishing, packing, packaging, assembling the parts of and adapting for use or sale any raw material, goods, article or commodity;

"metalliferous mining industry" includes the operations of milling and concentrating, but does not include any other operation for the reduction of minerals;

"occupational disease" means a disease, including a disablement resulting from exposure to contamination, that is

(a) a disease identified in Schedule 1 [*Presumption of Occupational Disease Related to Specific Process or Industry*] of this Act,

(b) a disease designated or recognized by regulation under section 138(2) [*Board regulation of general application*],

(c) a disease designated or recognized by order under section 138(3) [*Board order in specific case*],

(d) a disease designated or recognized under section 138(4) [*disease peculiar to or characteristic of particular employment*], or

(e) a disease

(i) referred to in section 139(2) [*firefighters: presumptions respecting heart disease*],

(ii) referred to in section 140(2)(a) [*firefighters: presumptions respecting primary site lung cancer*], or

(iii) prescribed by regulation of the Lieutenant Governor in Council for the purposes of section 140(2)(b) [*firefighters: presumptions respecting prescribed diseases*],

but only in respect of a worker to whom the presumption in any of those provisions applies, unless the disease is otherwise described by this definition;

"OHS provision" means a provision of the following:

(a) Division 2 [*Scope of OHS Provisions*] of this Part;

(b) Part 2 [*Occupational Health and Safety*];

"physician" means a person authorized under an enactment to practise in British Columbia as a medical practitioner;

"president" means the president of the Board appointed under section 323 [*Board president*];

"qualified practitioner" means a person authorized under an enactment to practise in British Columbia as a chiropractor, dentist, naturopathic physician, nurse practitioner or podiatrist;

"reconsider" means to make a new decision in a matter previously decided such that the new decision confirms, varies or cancels the previous decision or order;

"regulation", when used in a compensation provision in relation to regulations of the Board, means rules and regulations made by the Board under a compensation provision;

"retirement benefit", in relation to a worker, means the lump sum payable to the worker under section 206 [*payment of retirement benefit*];

"review officer" means an officer of the Board who is appointed as a review officer under section 330 [*Board must appoint review officers*];

"silica dust" means dust containing silica;

"silicosis" means a fibrotic condition of the lungs caused by the inhalation of silica dust;

"specialist" means a physician residing and practising in British Columbia and listed by the Royal College of Physicians and Surgeons of Canada as having specialist qualifications;

"spouse" means a person who

(a) is married to another person, or

(b) has lived with another person in a marriage-like relationship for

(i) a period of at least 1 year, if the person has had a child with the other person, or

(ii) a period of at least 2 years in any other case;

"surviving spouse" means a person who was a spouse of a worker when the worker died;

"worker" includes the following:

(a) a person who has entered into or works under a contract of service or apprenticeship, whether the contract is written or oral, express or implied, and whether by way of manual labour or otherwise;

(b) a person who

(i) is a learner who is not under a contract of service or apprenticeship, and

(ii) becomes subject to the hazards of an industry within the scope of the compensation provisions for the purpose of undergoing training or probationary work specified by the employer as a preliminary to employment;

(c) [Repealed 2019-10-1.]

(c1) a firefighter;

(d) in respect of the industry of mining, a person

(i) while the person is actually engaged in taking or attending a course of training or instruction in mine rescue work under the direction or with the written approval of an employer in whose employment that person is employed as a worker in that industry,

(ii) while, with the knowledge and consent of an employer in that industry, either express or implied, the person is actually engaged in rescuing or protecting, or attempting to rescue or protect, life or property in the case of an explosion or accident that endangers either life or property in a mine, whether or not during the time that person is so engaged the person is entitled to receive wages from the employer, or from any employer, or is performing the work or service as a volunteer, or

(iii) while the person is engaged as a member of the inspection committee, appointed or elected by the workers in the mine, to inspect the mine on behalf of the workers;

(e) an independent operator to whom the compensation provisions apply by the Board direction under section 4(2)(a) [*extending application: independent operator who is neither an employer nor a worker*];

(f) a person deemed by the Board to be a worker under section 6(2) [*extending application: vocational or training programs*];

"workers' adviser" means a person appointed as a workers' adviser under section 350 [*government to provide workers' advisers and employers' advisers*].

Part 1 Division 2 - Scope of OHS Provisions

2 General application of OHS provisions

Subject to section 3, the OHS provisions apply to

(a) every employer and worker whose occupational health and safety are ordinarily within the jurisdiction of the government of British Columbia,

(b) the government of British Columbia and every agency of that government, and

(c) the government of Canada, every agency of that government and every other person whose occupational health and safety are ordinarily within the jurisdiction of the Parliament of Canada, to the extent that the government of Canada submits to the application of the OHS provisions.

3 Exceptions from application - mines and industrial camps

(1) The OHS provisions and the regulations under those provisions do not apply in respect of the following:

(a) mines to which the *Mines Act* applies;

(b) unless a regulation under subsection (2) applies, the operation of industrial camps to the extent their operation is subject to regulations under the *Public Health Act*.

(2) The Lieutenant Governor in Council may, by regulation, provide that all aspects of the OHS provisions and the regulations under those provisions apply to camps referred to in subsection (1)(b), in which case those provisions and regulations prevail over the regulations under the *Public Health Act* to the extent of any conflict.

Part 1 Division 3 - Scope of Compensation Provisions

4 General application of compensation provisions

(1) The compensation provisions apply to

(a) all employers, in their capacity as employers, in British Columbia, and

(b) all workers in British Columbia,

other than employers or workers exempted by order of the Board.

(2) The Board may direct that the compensation provisions apply on the terms specified in the Board's direction to

(a) an independent operator who is neither an employer nor a worker as if the independent operator were a worker, or

(b) an employer as if the employer were a worker.

(3) The application of the compensation provisions under subsection (2)(b) to an employer does not exempt the employer, in their capacity as an employer, from the application of the compensation provisions.

5 Extending application: public interest undertakings

(1) In relation to a person or group of persons carrying on an undertaking that the Board considers is in the public interest, the Board may, on the terms and conditions the Board directs,

(a) deem the person or group of persons, whether or not any of them receive payment for their services, to be a worker or workers for the purposes of this Act, and

(b) on approval of the Lieutenant Governor in Council, deem the person or group of persons to be a worker or workers of the Crown in right of British Columbia.

(2) Without limiting subsection (1), admissions under this section may be made at the time, in the manner, subject to the terms and conditions and for the period the Board considers adequate and proper.

6 Extending application: vocational or training programs

(1) This section applies if the minister responsible for the *School Act* or the minister responsible for the *College and Institute Act*, as applicable, approve

(a) a vocational or training program, and

(b) a school or other location as a place at which the vocational or training program is to be provided.

(2) The Board may, at the request of a minister referred to in subsection (1), deem a person or class of persons enrolled in a program approved under that subsection to be a worker or workers of the Crown in right of British Columbia.

(3) In relation to a person who is deemed to be a worker under subsection (2), compensation under this Act is payable under the compensation provisions for injuries to the worker arising out of and in the course of training for that worker.

(4) As limits on subsection (3), if an injury results in a period of temporary disability with no loss of earnings,

(a) subject to paragraph (b) of this subsection, a health care benefit only is payable, and

(b) if training allowances paid by Canada or British Columbia are suspended, the Board may, for the period the Board considers advisable, pay compensation in the amount of the training allowance.

(5) Admissions under this section may be made at the time, in the manner, subject to the terms and conditions and for the period the Board considers adequate and proper.

7 Extending application: work study and other programs

(1) This section applies in relation to a person or group of persons engaged in a work study program or other program of self-improvement involving work, whether or not the person or group of persons receives payment for the work.

(2) The Board may,

(a) on the application of an employer or a program organizer, and on the terms and conditions the Board directs, by order, admit the person or group of persons as being within the scope of the compensation provisions, and

(b) with the approval of the Lieutenant Governor in Council, deem a person or group of persons engaged in the program to be a worker or workers of the Crown in right of British Columbia, on the terms and conditions the Board determines.

(3) Without limiting subsection (2), admissions under this section may be made at the time, in the manner, subject to the terms and conditions and for the period the Board considers adequate and proper.

(4) On admission under subsection (2)(a),

(a) the person or group of persons is deemed to be a worker or workers to whom the compensation provisions apply, and

(b) the Board may levy assessments on the applicable employer or program organizer by the formula the Board determines.

8 Application to fishing industry

(1) The Lieutenant Governor in Council may make regulations as follows:

(a) defining the terms used in this section, and, for this purpose,

- (i) the term "fish" may be defined to include any species of animal living in water, and
- (ii) the term "commercial fisher" may be defined to include the master and crew of a fishing vessel, the master and crew of a fish-packing vessel and any other person who contributes in any manner to the catching or landing of fish for sale or commercial use;
- (b) providing that a compensation provision relating to workers applies or may be applied to any commercial fishers
 - (i) working in or out of British Columbia ports or on or about the waters of British Columbia, or
 - (ii) resident in British Columbia,
 even though the commercial fishers may not otherwise be workers under this Act;
- (c) providing that a compensation provision relating to employers applies or may be applied to
 - (i) any commercial buyers or other commercial recipients of fish, or
 - (ii) any person engaged in British Columbia in transmitting payments to commercial fishers for fish, whether the fish are landed in British Columbia or otherwise,
 even though the persons referred to in subparagraph (i) or (ii) may not otherwise be employers under this Act, and, to the extent the regulations provide, each buyer, recipient or payor is deemed to be the employer of all commercial fishers who contributed in any manner to the catching or landing of the fish bought, obtained or paid for by or through that person;
- (d) providing that methods of calculating and levying assessments additional to or different from the methods otherwise provided under the compensation provisions may be used for levying assessments, for the purposes of those provisions, on persons referred to in paragraph (c)(i) and (ii);
- (e) establishing obligations, different from the terms of this Act, on commercial buyers and other commercial recipients of fish, and on masters of fishing vessels,
 - (i) to report to the Board injuries and occupational diseases sustained by commercial fishers, and
 - (ii) to provide transportation for initial medical treatment of commercial fishers;
- (f) excluding from application of a compensation provision a portion of the fishing industry or a category of workers or employers in that industry to which the provision would otherwise apply, and to substitute provisions of regulations under this section;
- (g) delegating to the Board, to the extent the regulations provide, power conferred by paragraphs (a) to (f).

(2) If the Board considers that a provision of this Act, or a provision of a regulation under another section of this Act is inappropriate or unworkable in relation to commercial fishers, the fishing industry or commercial buyers, or other commercial recipients of fish, the Board may, by regulation, make the rules and give the decisions the Board considers fair and appropriate having regard to the intent that all commercial fishers must, as far as possible, receive the benefit of and be subject to the compensation provisions.

(3) If the death of a commercial fisher resident in British Columbia

(a) arises out of and in the course of the commercial fisher's occupation in British Columbia or waters off British Columbia, and

(b) is not otherwise compensable under the compensation provisions,

the Board may treat the death in the same manner as if the commercial fisher were a worker employed by the Crown in right of British Columbia.

Part 1 Division 4 - Liability of Employers in Industries Not Within the Scope of Compensation Provisions

9 Application of this Division

(1) This Division applies only to the industries to which the compensation provisions do not apply and to the workers employed in those industries.

(2) Workers who are exempted under section 4(1) [*Board orders for exemptions*] from the benefits of the compensation provisions are not, under this section, excluded from the benefits of this Division.

10 Legal actions against employer

(1) This section applies if personal injury is caused to a worker by reason of

(a) a defect in the condition or arrangement of the ways, works, machinery, plant, buildings or premises connected with, intended for or used in the business of the worker's employer, or

(b) the negligence of the worker's employer or of a person in the service of that employer acting within the scope of the person's employment.

(2) The following have a right of action against the employer:

(a) the worker;

(b) if the injury results in death, the legal personal representatives of the worker, and any person entitled in case of death.

(3) If an action under this section is brought by the worker, the worker is entitled to recover from the employer the damages sustained by the worker by or as a result of the injury.

(4) If an action under this section is brought by legal personal representatives of the worker, or by or on behalf of persons entitled to damages under the [Family Compensation Act](#), those persons are entitled to recover the damages to which they are entitled under that Act.

(5) A worker is not, by reason only of continuing in the employment of the employer with knowledge of the defect or negligence that caused the worker's injury, deemed to have voluntarily incurred the risk of injury.

11 Legal actions in relation to work done under contract

(1) This section applies if

(a) the execution of any work is being carried into effect under a contract,

(b) the person for whom the work is done owns or supplies ways, works, machinery, plant, buildings or premises and, by reason of a defect in the condition or arrangement of the ways, works, machinery, plant, buildings or premises, personal injury is caused to a worker employed by the contractor or by a subcontractor, and

(c) the defect arose from the negligence of

(i) the person for whom the work or any part of it is done, or

(ii) another person in that first person's service who is acting within the scope of this other person's employment.

(2) The person for whom the work or part of the work referred to in subsection (1)(c) is done is liable to an action under section 10 as if the worker had been employed by that person, and for this purpose the person is deemed to be the employer of the worker within the meaning of this Division.

(3) Despite subsection (2), the contractor or subcontractor is liable to the action as if that subsection had not been enacted, but not so that double damages are recoverable for the same injury.

(4) Nothing in this section affects a right or liability of the person for whom the work is done and the contractor or subcontractor as between themselves.

12 Override and application of common law rules

(1) A worker is deemed not to have undertaken the risks due to the negligence of the worker's fellow workers.

(2) Contributory negligence on the part of a worker is not a bar to recovery by the worker or by any person entitled to damages under the [Family Compensation Act](#) in an action for the recovery of damages for an injury sustained by or causing the death of the worker while in the service of that worker's employer for which the employer would otherwise have been liable.

(3) Contributory negligence on the part of the worker must be taken into account in assessing the damages in an action.

Part 3 Contents

Division 1 – General Rules Respecting Compensation System

118 [No contribution from workers](#)

119 [Compensation cannot be waived](#)

120 [Compensation not assignable or liable to attachment](#)

121 [Compensation for injured worker who is a minor](#)

Division 2 – Board Jurisdiction and Other Authorities

122 [Exclusive jurisdiction of Board in relation to compensation provisions](#)

123 [Board authority to reconsider previous decisions](#)

124 [Board authority to set aside decision or order](#)

125 [Board authority to reopen matter: recurrence of injury or significant change in medical condition](#)

Division 3 – Legal Effect of Workers' Compensation System

- 126 [Definitions for purposes of this Division](#)
- 127 [Limitation on legal proceedings against employers or workers](#)
- 128 [Worker or dependant may bring action against other persons or elect to claim compensation under this Act](#)
- 129 [Circumstances where compensation may be paid after action is settled](#)
- 130 [Board has right of action if compensation is claimed](#)
- 131 [Constraint on recovery if some fault attributable to employer or other worker](#)
- 132 [Limitation on legal proceedings by employer of injured or deceased worker](#)
- 133 [Amounts to be awarded in legal proceedings under this Division](#)

Part 3 Division 1 - General Rules Respecting Compensation System

118 No contribution from workers

(1) An employer must not, either directly or indirectly,

(a) deduct from the wages of a worker of the employer any part of an amount that the employer is or may become liable to pay into the accident fund or otherwise under a compensation provision, or

(b) require or permit a worker of the employer to contribute in any manner toward indemnifying the employer against a liability that the employer has incurred or may incur under a compensation provision.

(2) A person who contravenes subsection (1)

(a) commits an offence, and

(b) is liable to repay to a worker any amount

(i) deducted from the worker's wages in contravention of subsection (1)(a), or

(ii) that the worker has been required or permitted to contribute in contravention of subsection (1)(b).

119 Compensation cannot be waived

A worker may not agree with the worker's employer to waive or to forego any benefit to which the worker or the worker's dependants are or may become entitled under the compensation provisions, and every agreement to that end is void.

120 Compensation not assignable or liable to attachment

(1) The following apply to an amount payable as compensation or by way of commutation of a periodic payment in respect of compensation:

(a) the amount is not capable of being assigned, charged or attached;

(b) the amount must not pass by operation of law except to a personal representative.

(2) A claim must not be set off against an amount referred to in subsection (1), except for money

(a) advanced by way of financial or other social welfare assistance owing to the government, or

(b) owing to the accident fund.

121 Compensation for injured worker who is a minor

For the purposes of the compensation provisions,

(a) a worker who is a minor has the capacity of a person who has reached 19 years of age, and

(b) no other person has a cause of action or right to compensation for the personal injury or disablement of the worker except as expressly provided in the compensation provisions.

Part 3 Division 2 - Board Jurisdiction and Other Authorities

122 Exclusive jurisdiction of Board in relation to compensation provisions

(1) Subject to sections 288 and 289 [*appeals to appeal tribunal*], the Board has exclusive jurisdiction to inquire into, hear and determine all matters and questions of fact and law arising or required to be determined under the compensation provisions, and the action or decision of the Board on them is final and conclusive and is not open to question or review in any court.

(2) Without restricting the generality of subsection (1), the Board has exclusive jurisdiction to inquire into, hear and determine the following:

- (a) whether a worker's injury has arisen out of or in the course of an employment within the scope of the compensation provisions;
- (b) the existence and degree of a worker's disability by reason of an injury;
- (c) the permanence of a worker's disability by reason of an injury;
- (d) the degree of impairment of a worker's earning capacity by reason of an injury;
- (e) the existence, for the purposes of the compensation provisions, of the relationship of a family member of a worker;
- (f) the existence of dependency in relation to a worker;
- (g) the amount of the average earnings of a worker for purposes of payment of compensation;
- (h) whether a person is a worker, subcontractor, contractor or employer within the meaning of the compensation provisions;
- (i) the amount of the average earnings of a worker, whether paid in cash or board or lodging or other form of remuneration, for the purpose of levying assessments;
- (j) whether an industry or a part, branch or department of an industry is within the scope of the compensation provisions, and the class to which an industry or a part, branch or department of an industry within that scope should be assigned;
- (k) whether a worker in an industry that is within the scope of the compensation provisions is within the scope of those provisions and entitled to compensation under those provisions.

(3) Subsection (1) does not restrict the Board's authority under the following provisions:

- (a) section 123 [*Board authority to reconsider previous decisions*];
- (b) section 124 [*Board authority to set aside decision or order*];
- (c) section 125 [*Board authority to reopen matter: recurrence of injury or significant change in medical condition*];
- (d) section 152(2) [*Board reconsideration relating to occupational disease*].

123 Board authority to reconsider previous decisions

(1) Subject to subsection (2), the Board may, on its own initiative, reconsider a decision or order made under a compensation provision by the Board or an officer or employee of the Board.

(2) Subject to subsection (3), the Board may not reconsider a decision or order referred to in subsection (1) if any of the following apply:

- (a) more than 75 days have elapsed since the decision or order was made;
- (b) a request for review has been filed under section 270 [*making request for a review*] in respect of the decision or order;
- (c) a notice of appeal has been filed under section 292 [*how to appeal*] in respect of the decision or order.

(3) The Board may, on its own initiative, reconsider a decision or order after the 75 days referred to in subsection (2)(a) have elapsed, if the decision or order contains an obvious error or omission.

124 Board authority to set aside decision or order

The Board may at any time set aside a decision or order made under a compensation provision by the Board or an officer or employee of the Board if that decision or order resulted from fraud or misrepresentation of the facts or circumstances on which the decision or order was based.

125 Board authority to reopen matter: recurrence of injury or significant change in medical condition

(1) The Board may at any time, on its own initiative or on application, reopen a matter that had been previously decided under a compensation provision by the Board or an officer or employee of the Board if, since the decision was made in the matter,

- (a) there has been a recurrence of a worker's injury, or
- (b) there has been a significant change in a worker's medical condition that the Board had previously decided was compensable.

(2) If the Board determines that the circumstances described in subsection (1) justify a change in a previous decision respecting compensation or rehabilitation, the Board may make a new decision that varies the previous decision or order.

For the purposes of this Division:

"**person**" includes the personal representative of a person;

"**worker**" includes an employer to which the compensation provisions apply by direction under section 4(2)(b) [*Board direction*].

127 Limitation on legal proceedings against employers or workers

(1) Subject to subsection (2),

(a) the compensation provisions are in place of any right and rights of action, statutory or otherwise, founded on a breach of duty of care or any other cause of action, whether that duty or cause of action is imposed by or arises by reason of law or contract, express or implied, to which a worker or a dependant or family member of the worker is or may be entitled against

(i) the employer of the worker,

(ii) an employer within the scope of the compensation provisions, or

(iii) any other worker,

in respect of any personal injury, disablement or death of the worker arising out of and in the course of employment, and

(b) no action lies in respect of such an injury, disablement or death.

(2) Subsection (1) applies only if the action or conduct of

(a) the employer or the employer's servant or agent, or

(b) the other worker,

that caused the breach of duty of care arose out of and in the course of employment within the scope of the compensation provisions.

128 Worker or dependant may bring action against other persons or elect to claim compensation under this Act

(1) If the cause of an injury, disablement or death of a worker is such that an action lies against a person, other than an employer or worker within the scope of the compensation provisions, the worker or dependant may

(a) claim compensation under the compensation provisions, or

(b) bring an action.

(2) If a worker or dependant of a worker elects to claim compensation under subsection (1)(a), the worker or dependant must do so within 3 months of the occurrence of the injury, disablement or death of the worker or a longer period that the Board allows.

(3) If the Board is satisfied that

(a) a worker is unable to exercise the worker's right to elect to claim compensation under subsection (1)(a) due to the worker's physical or mental disability, and

(b) undue hardship will result,

the Board may pay the compensation provided under the compensation provisions until the worker is able to make an election.

(4) If, after compensation is paid under subsection (3), the worker then elects not to claim compensation under subsection (1)(a),

(a) no further compensation may be paid, and

(b) the compensation that was paid is a first charge against any amount recovered.

(5) In relation to a minor child of a deceased worker, an application filed by a parent, a guardian or the Public Guardian and Trustee for compensation for the child is a valid election on behalf of that child.

129 Circumstances where compensation may be paid after action is settled

If after trial, or after settlement out of court with the written approval of the Board, less is recovered and collected than the amount of the compensation to which a worker or dependant would be entitled under the compensation provisions, the worker or dependant is entitled to compensation under those provisions to the extent of the amount of the difference.

- (1) If a worker or dependant applies to the Board claiming compensation under the compensation provisions, neither the making of the application nor the payment of compensation under those provisions restricts or impairs any right of action against the party liable.
- (2) In relation to every claim referred to in subsection (1), the Board is subrogated to the rights of the worker or dependant and may maintain an action in the name of the worker or dependant or in the name of the Board.
- (3) The Board has exclusive jurisdiction to determine whether to maintain an action under this section or compromise the right of action, and the Board's decision is final and conclusive.
- (4) If, by an action under subsection (2), more is recovered and collected than the amount of the compensation to which the worker or dependant would be entitled under the compensation provisions, the amount of the excess, less costs and administration charges, must be paid by the Board to the worker or dependant.

131 Constraint on recovery if some fault attributable to employer or other worker

The following apply if, in an action brought by a worker, by a dependant of a worker or by the Board, it is found that the injury, disablement or death of the worker, as applicable, was due partly to a breach of duty of care of one or more employers or other workers to which the compensation provisions apply:

- (a) no damages, contributions or indemnity are recoverable for the portion of the loss or damage caused by the negligence of such an employer or other worker;
- (b) the portion of the loss or damage caused by that negligence must be determined despite the employer, other worker or both, as applicable, not being a party to the action.

132 Limitation on legal proceedings by employer of injured or deceased worker

- (1) Subject to subsection (2), the provisions of the compensation provisions are in place of any right of action that the employer of an injured or deceased worker is or may, in respect of the personal injury or death of the worker, be entitled to maintain against
 - (a) another employer within the scope of the compensation provisions, or
 - (b) an independent operator to whom the compensation provisions apply by Board direction under section 4(2)(a) [*Board direction of application*].
- (2) Subsection (1) does not affect any right an employer may have against another employer, or against an independent operator referred to in subsection (1)(b), arising out of an indemnity agreement or contract between the employer of the worker and the other employer or independent operator.

133 Amounts to be awarded in legal proceedings under this Division

- (1) In an action brought under this Division, an award for damages must include
 - (a) health care provided under Part 4 [*Compensation to Injured Workers and Their Dependants*], and
 - (b) wages and salary paid by an employer during the period of disability
 - (i) that were considered by the Board in setting the amount of a periodic payment of compensation, or
 - (ii) that would have been considered by the Board for that purpose if the worker had elected to claim compensation.
- (2) Costs may be awarded to and collected by the Board in an action taken by the Board under this Division even if a salaried employee of the Board acts as solicitor or counsel for the Board.

Part 4 Contents

Division 1 – Compensation for Injury, Mental Disorder and Occupational Disease

- 134 [Compensation for personal injury or death](#)
- 135 [Mental disorder](#)
- 136 [Occupational disease: general compensation rules](#)
- 137 [Schedule 1: presumption of occupational disease related to specified process or industry](#)
- 138 [Board powers in relation to recognition of occupational diseases](#)
- 139 [Firefighters: presumptions respecting heart injury and heart disease](#)
- 140 [Firefighters: presumptions respecting lung cancer and other diseases](#)
- 141 [Mining industry silicosis](#)

- 142 [Lung disease from exposure to dust conditions](#)
- 143 [Death of worker with occupational disease that impairs the lungs](#)
- 144 [Communicable disease: presumption in relation to testing order](#)
 - 145 [Non-traumatic hearing loss](#)
- 146 [Compensation if injury or disease superimposed on already existing disability](#)

Division 2 – Compensation in Relation to Work Outside British Columbia

- 147 [Injuries happening outside British Columbia](#)
- 148 [Election if compensation available under law of other place](#)

Division 3 – Reporting of Injury or Disease and Process for Claiming Compensation

- 149 [Worker obligation to give notice of injury or disease to employer](#)
 - 150 [Employer obligation to report injury or disease to Board](#)
- 151 [Application for compensation: form of application and time for making application](#)
 - 152 [Special circumstances: new evidence relating to occupational disease](#)
 - 153 [Worker has continuing obligation to provide information](#)
- 154 [Worker obligation to comply with examination and treatment requirements](#)

Division 4 – Vocational Rehabilitation, Health Care and Other Assistance

- 155 [Vocational rehabilitation and other assistance](#)
 - 156 [Health care for injured worker](#)
 - 157 [Board powers in relation to provision of health care](#)
 - 158 [Emergency care by physician or qualified professional](#)
 - 159 [Employer authority and obligations in relation to health care](#)
- 160 [Health care by physician or qualified practitioner selected by worker](#)
 - 161 [Replacement, repair and provision of physical assistance items](#)
- 162 [Retirement services and supports for workers with total disability](#)
 - 163 [Duties of physicians and qualified practitioners](#)
 - 164 [Obligations of health care service providers](#)

Division 5 – Compensation in Relation to Death of Worker

- 165 [Definitions and other interpretation rules](#)
- 166 [Payment towards funeral and related expenses](#)
- 167 [Lump sum payment to dependent spouse or foster parent](#)
- 168 [Compensation payable to dependants of deceased worker](#)
- 169 [Dependent spouse who is 50 years of age or older or is incapable of earning, no dependent children](#)
- 170 [Dependent spouse who is under 50 years of age and not incapable of earning, no dependent children](#)
 - 171 [Dependent spouse and one or more dependent children](#)
 - 172 [One or more dependent children but no dependent spouse](#)
- 173 [Compensation to dependent parents in addition to spouse or children](#)
- 174 [No dependent spouse or child: compensation to other dependants](#)
 - 175 [Compensation to persons other than dependants](#)
 - 176 [Compensation to foster parent and dependent children](#)
 - 177 [Apportionment between dependants](#)
- 178 [Dependent spouse living apart from worker at the date of death](#)
- 179 [Restriction on compensation to spouse living in marriage-like relationship](#)
 - 180 [Worker leaves more than one dependent spouse](#)
- 181 [Change in circumstances: dependent spouse and dependent children – reduction in number of dependent children](#)
 - 182 [Change in circumstances: spouse ceases to have dependent children](#)
 - 183 [Change in circumstances: spouse and dependent children – spouse dies](#)
- 184 [Change in circumstances: only dependent children – reduction in number of dependent children](#)
 - 185 [Change in circumstances: dependent spouse ceases to be incapable of earning](#)
 - 186 [Compensation in relation to the death of more than one worker](#)
- 187 [Board authority in relation to dependent spouse who has impairment of earning capacity](#)
 - 188 [Proof of dependant status](#)
- 189 [Board authority in relation to matters not otherwise dealt with](#)

Division 6 – Compensation for Worker Disability

- 190 [Compensation subject to general rules](#)

- 191 [Temporary total disability](#)
- 192 [Temporary partial disability](#)
- 193 [Recurrence of temporary disability more than 3 years after injury](#)
- 194 [Permanent total disability](#)
- 195 [Permanent partial disability: general rules](#)
- 196 [Permanent partial disability: exception to general rules](#)
- 197 [Permanent disability or increase in permanent disability occurring more than 3 years after injury](#)
- 198 [Non-traumatic hearing loss: compensation where no resulting loss of earnings and compensation where earnings affected](#)
- 199 [Permanent disfigurement](#)
- 200 [Maximum compensation in the case of further disability](#)
- 201 [Payment period for worker disability compensation](#)
- 202 [Deductions in relation to Canada Pension Plan disability benefit](#)
- 203 [Reconsideration of prescribed compensation claims](#)
- 204 [Retirement benefit in relation to permanent disability](#)
- 205 [Worker contributions to retirement benefit](#)
- 206 [Payment of retirement benefit](#)
- 207 [Board administration of money to be paid as retirement benefit](#)

Division 7 – Worker's Average Earnings and Earning Capacity

- 208 [Determination of worker's average earnings and earning capacity](#)
- 209 [Annual determination of maximum wage rate for average earnings](#)
- 210 [Average earnings: short-term compensation](#)
- 211 [Average earnings: long-term compensation](#)
- 212 [Worker without earnings: short-term and long-term compensation](#)
- 213 [Worker in public interest undertaking: short-term and long-term compensation](#)
- 214 [Casual worker: short-term and long-term compensation](#)
- 215 [Employer or independent operator with purchased coverage: short-term and long-term compensation](#)
- 216 [Worker who is apprentice or learner: long-term compensation](#)
- 217 [Worker employed for less than 12 months: long-term compensation](#)
- 218 [Exceptional circumstances: long-term compensation](#)
- 219 [Determination if multiple rules apply](#)

Division 8 – Average Net Earnings of Worker

- 220 [Average net earnings: short-term compensation](#)
- 221 [Average net earnings: long-term compensation](#)
- 222 [Schedule or procedure for determining average net earnings](#)

Division 9 – Transitional and Related Compensation Matters

- 223 [Periodic payments awarded before 1966 for permanent injury](#)
- 224 [Workers receiving health care before April 1, 1972](#)
- 225 [Compensation in relation to worker death before July 1, 1974](#)
- 226 [Compensation in relation to hearing loss before September 1, 1975](#)
- 227 [Compensation in relation to worker injury before January 1, 1986](#)
- 228 [Compensation in relation to worker death before June 30, 2002](#)
- 229 [Compensation in relation to worker injury before June 30, 2002](#)

Division 10 – Compensation Payments and Other General Matters

- 230 [Manner of compensation payment: periodic or lump sum](#)
- 231 [Payment of compensation in specific circumstances](#)
- 232 [Board authority to discontinue, suspend or otherwise deal with compensation payments](#)
- 233 [Deduction in relation to payments from employer](#)
- 234 [Restriction on compensation in relation to injury or death from warlike actions](#)
- 235 [Confidentiality obligations in relation to compensation claims information](#)
- 236 [Penalties in relation to offences under the compensation provisions](#)
- 237 [Additional Board authority for compensation orders, directives, rules and regulations](#)
- 238 [Effective date of Board's compensation regulations](#)

Part 4 Division 1 - Compensation for Injury, Mental Disorder and Occupational Disease

(1) If, in an industry within the scope of the compensation provisions, personal injury or death arising out of and in the course of a worker's employment is caused to the worker, compensation as provided under this Part must be paid by the Board out of the accident fund.

(2) As an exception to subsection (1), if the injury is attributable solely to the serious and wilful misconduct of the worker, compensation is not payable unless the injury results in the worker's death or serious or permanent disablement.

(3) The following apply in relation to an injury caused by accident:

(a) if the accident arose out of the worker's employment, unless the contrary is shown, it must be presumed that the injury occurred in the course of that employment;

(b) if the accident occurred in the course of the worker's employment, unless the contrary is shown, it must be presumed that the injury arose out of that employment.

(4) If an injury disables a worker from earning full wages at the work at which the worker was employed, compensation other than a health care benefit is payable under this Part from the first working day following the day of the injury.

(5) A health care benefit may be provided for an injured worker in respect of the day of the injury.

135 Mental disorder

(1) Subject to subsection (3), a worker is entitled to compensation for a mental disorder, payable as if the mental disorder were a personal injury arising out of and in the course of a worker's employment, if that mental disorder does not result from an injury for which the worker is otherwise entitled to compensation under this Part, and only if all of the following apply:

(a) the mental disorder is either

(i) a reaction to one or more traumatic events arising out of and in the course of the worker's employment, or

(ii) predominantly caused by a significant work-related stressor, including bullying or harassment, or a cumulative series of significant work-related stressors, arising out of and in the course of the worker's employment;

(b) the mental disorder is diagnosed by a psychiatrist or psychologist as a mental or physical condition that is described, at the time of diagnosis, in the most recent Diagnostic and Statistical Manual of Mental Disorders published by the American Psychiatric Association;

(c) the mental disorder is not caused by a decision of the worker's employer relating to the worker's employment, including a decision to change the work to be performed or the working conditions, to discipline the worker or to terminate the worker's employment.

(2) If a worker who is or has been employed in an eligible occupation

(a) is exposed to one or more traumatic events arising out of and in the course of the worker's employment in that eligible occupation, and

(b) has a mental disorder that, at the time of the diagnosis under subsection (1)(b), is recognized in the manual referred to in that subsection as a mental or physical condition that may arise from exposure to a traumatic event,

the mental disorder must be presumed to be a reaction to the one or more traumatic events arising out of and in the course of the worker's employment in that eligible occupation, unless the contrary is proved.

(3) The Board may require that a psychiatrist or psychologist appointed by the Board review a diagnosis made for the purposes of subsection (1) (b) and may consider that review in determining whether a worker is entitled to compensation for a mental disorder.

(4) Section 163 [*duties of physicians and qualified practitioners*] applies to a psychiatrist or psychologist who makes a diagnosis referred to in this section.

(5) In this section:

"correctional officer" means a correctional officer as defined by regulation of the Lieutenant Governor in Council;

"eligible occupation" means the occupation of correctional officer, emergency medical assistant, firefighter, police officer, sheriff or, without limitation, any other occupation prescribed by regulation of the Lieutenant Governor in Council;

"emergency medical assistant" means an emergency medical assistant as defined in section 1 of the *Emergency Health Services Act*;

"police officer" means an officer as defined in section 1 of the *Police Act*;

"psychiatrist" means a physician who is recognized by the College of Physicians and Surgeons of British Columbia, or another accredited body recognized by the Board, as being a specialist in psychiatry;

"psychologist" means a person who is

(a) a registrant of the college responsible for carrying out the objects of the *Health Professions Act* in respect of the health profession of psychology, or

(b) entitled to practise as a psychologist under the laws of another province;

"sheriff" means a person lawfully holding the office of sheriff or lawfully performing the duties of sheriff by way of delegation, substitution, temporary appointment or otherwise.

136 Occupational disease: general compensation rules

(1) Compensation is payable under this Part in relation to an occupational disease, as if the disease were a personal injury arising out of and in the course of a worker's employment, if

(a) as applicable,

(i) the worker has an occupational disease that disables the worker from earning full wages at the work at which the worker was employed, or

(ii) the death of the worker is caused by an occupational disease, and

(b) the occupational disease is due to the nature of any employment in which the worker was employed, whether under one or more employments.

(2) For the purposes of subsection (1), the date of disablement must be treated as the occurrence of the injury.

(3) A health care benefit may be provided for a worker who has an occupational disease referred to in subsection (1)(b) even though the worker is not disabled from earning full wages at the work at which the worker was employed.

137 Schedule 1: presumption of occupational disease related to specified process or industry

(1) This section applies to a worker who is disabled as referred to in section 136(1)(a)(i) as a result of an occupational disease described in column 1 of Schedule 1 of this Act.

(2) If, on or immediately before the date of the disablement, the worker was employed in a process or industry described in column 2 of Schedule 1 opposite the occupational disease that has resulted in the disablement, the occupational disease must be presumed to have been due to the nature of the worker's employment unless the contrary is proved.

138 Board powers in relation to recognition of occupational diseases

(1) The Board may, by regulation, do the following:

(a) add to or delete from Schedule 1 of this Act a disease that, in the opinion of the Board, is an occupational disease;

(b) add to or delete from that Schedule a process or an industry;

(c) set terms, conditions and limitations for the purposes of paragraphs (a) and (b) of this subsection.

(2) The Board may, by regulation of general application, designate or recognize a disease as an occupational disease.

(3) The Board may, by order, designate or recognize a disease as an occupational disease in a specific case.

(4) The Board may designate or recognize a disease as being a disease that is peculiar to or characteristic of a particular process, trade or occupation, on the terms and conditions and with the limitations set by the Board.

139 Firefighters: presumptions respecting heart injury and heart disease

(1) In this section:

"heart disease" includes disease of the pericardium or coronary arteries;

"heart injury" includes heart attack, cardiac arrest or arrhythmia.

(2) Subject to subsection (4), if a worker

(a) is disabled as a result of a heart disease, and

(b) was employed as a firefighter on or immediately before the date of disablement from the heart disease,

the heart disease must be presumed to be due to the nature of the worker's employment as a firefighter unless the contrary is proved.

(3) Subject to subsection (4), if a worker

(a) is disabled as a result of a heart injury, and
(b) was employed as a firefighter on or immediately before the date of disablement from the heart injury,
the heart injury must be presumed to have arisen out of and in the course of the worker's employment as a firefighter unless the contrary is proved.

(4) The presumptions in subsections (2) and (3) apply only to a worker who
(a) has been regularly exposed, throughout the worker's employment as a firefighter, to the hazards of a fire scene, and
(b) is first disabled as a result of the heart disease or heart injury, as applicable, on or after May 29, 2014.

140 Firefighters: presumptions respecting lung cancer and other diseases

(1) In this section, "**firefighter**" means a member of a fire brigade who is
(a) described in paragraph (c) [*worker serving a municipality, regional district or other local authority*] of the definition of "worker" in section 1 or employed by the government of Canada, and

(b) assigned primarily to fire suppression duties, whether or not those duties include the performance of ambulance or rescue services.

(2) Subject to subsections (3) and (4), if a worker who is or has been a firefighter contracts
(a) primary site lung cancer, or
(b) a disease prescribed by regulation under subsection (5),
the disease must be presumed to be due to the nature of the worker's employment as a firefighter unless the contrary is proved.

(3) The presumptions in subsection (2) do not apply to a worker unless the worker
(a) has worked as a firefighter for the minimum cumulative period prescribed by regulation under subsection (5) for the applicable disease,
(b) throughout the period referred to in paragraph (a), has been regularly exposed to the hazards of a fire scene, and
(c) is first disabled from the disease on or after the following date, as applicable:
(i) in the case of primary site lung cancer, May 27, 2008;
(ii) in the case of a disease that was prescribed on or before March 18, 2009 for the purposes of subsection (2)(b), April 11, 2005;
(iii) in the case of a disease prescribed after March 18, 2009 for the purposes of subsection (2)(b), the date on which the regulation took or takes effect, as applicable.

(4) In addition to the conditions established by subsection (3), the presumption for primary site lung cancer does not apply to a worker unless the
worker

(a) has, in the worker's lifetime, smoked a combined total of fewer than 365 cigarettes, cigars and pipes, or
(b) has been a non-smoker of tobacco products immediately before the date on which the worker is first disabled from that disease for the
minimum period prescribed by regulation under subsection (5).

(5) The Lieutenant Governor in Council may make regulations for the purposes of this section, including regulations that
(a) establish minimum cumulative periods for the purposes of subsection (3), which may be defined differently, and be different, for different
categories of firefighters, and
(b) establish minimum periods for the purposes of subsection (4), which may be different for different types or amounts of previous tobacco
product usage.

141 Mining industry silicosis

(1) Subject to subsection (2),
(a) a worker in the metalliferous mining industry or coal mining industry who becomes disabled from uncomplicated silicosis or from silicosis
complicated with tuberculosis is entitled to compensation for total or partial disability as provided under this Part, and
(b) if death results from the worker's disability, the worker's dependants are entitled to compensation as provided under this Part.
(2) The worker or a dependant of the worker is not entitled to compensation for the disability or death referred to in subsection (1) unless the

following apply:

(a) either

- (i) the worker has been a resident of British Columbia for a period of at least 3 years immediately before the disablement, or
 - (ii) at least 2/3 of the worker's exposure to silica dust occurred in British Columbia;
- (b) the worker did not have silicosis or tuberculosis before being first exposed to silica dust in the metalliferous mining or coal mining industry in British Columbia;
- (c) the worker was exposed to silica dust in the metalliferous mining or coal mining industry in British Columbia
 - (i) for a period or periods totalling 3 years preceding the worker's disablement, or
 - (ii) for a shorter period if the worker was not exposed to silica dust anywhere except in British Columbia.

142 Lung disease from exposure to dust conditions

(1) This section applies to compensation in relation to a worker who has sustained a pulmonary injury caused by a disabling form of pneumoconiosis as a result of exposure to dust conditions that the Board considers have contributed to the development of the disease in employment in British Columbia in an industry in which that disease is an occupational disease under this Part.

(2) The worker or a dependant of the worker is entitled to compensation if

- (a) the worker did not have either pneumoconiosis or tuberculosis before being first exposed in British Columbia to the dust conditions referred to in subsection (1), and
- (b) the worker's residence in British Columbia and exposure to the dust conditions have been of the duration required to entitle a worker to compensation for silicosis under section 141 [*occupational disease - mining industry silicosis*].

143 Death of worker with occupational disease that impairs the lungs

(1) This section applies to a deceased worker who, on the date of the worker's death,

(a) was under 70 years of age, and

(b) had an occupational disease of a type that impairs the capacity of function of the lungs.

(2) If the death was caused by an ailment or impairment of the lungs or heart of non-traumatic origin, it must be conclusively presumed that the death resulted from the occupational disease.

144 Communicable disease: presumption in relation to testing order

(1) This section applies to a worker if

- (a) the worker is an applicant, as defined in the *Emergency Intervention Disclosure Act*, who has obtained a testing order under that Act respecting a source individual, as defined in that Act,
 - (b) the worker has contracted a communicable disease prescribed for the purposes of the *Emergency Intervention Disclosure Act*,
 - (c) the worker came into contact with the bodily substance of the source individual in the course of the worker's employment, and
 - (d) test results obtained under the testing order indicate that the source individual is infected with a pathogen that causes the communicable disease contracted by the worker.
- (2) It must be presumed, unless there is evidence to the contrary, that the communicable disease of the worker is due to the nature of the worker's employment.

145 Non-traumatic hearing loss

(1) A worker is entitled to compensation under this Part if

- (a) the worker has a hearing loss of non-traumatic origin that arose out of and in the course of employment to which the compensation provisions apply, and
 - (b) the hearing loss
 - (i) was sustained by exposure to causes of hearing loss in British Columbia, and

(ii) is a greater loss than the minimum set out in Schedule 2 [*Non-Traumatic Hearing Loss*] of this Act.

(2) An application for compensation under this section must be accompanied or supported by a specialist's report and audiogram or by other evidence of hearing loss that the Board prescribes.

(3) The Board may, by regulation, amend Schedule 2 in respect of the following:

- (a) the ranges of hearing loss;
- (b) the percentages of disability;
- (c) the methods or frequencies to be used to measure hearing loss.

146 Compensation if injury or disease superimposed on already existing disability

The following apply to compensation under this Part in relation to personal injury or disease that is superimposed on an already existing disability:

- (a) the compensation is limited to the proportion of the disability following the injury or disease that may reasonably be attributed to that injury or disease;
- (b) the measure of the disability attributable to the injury or disease must, unless it is otherwise shown, be the difference between the extent of the worker's disability before and disability after the occurrence of the injury or disease.

Part 4 Division 2 - Compensation in Relation to Work Outside British Columbia

147 Injuries happening outside British Columbia

(1) This section applies if

- (a) a worker is injured while working outside British Columbia, and
- (b) the injury would entitle the worker or the worker's dependants to compensation under this Part if the injury occurred in British Columbia.

(2) The Board must pay compensation under this Part only if all of the following apply:

- (a) a place of business of the worker's employer is located in British Columbia;
- (b) the worker's residence and usual place of employment are located in British Columbia;
- (c) the employment is such that the worker is required to work both in and outside British Columbia;
- (d) the worker's employment outside British Columbia
 - (i) has immediately followed the worker's employment in British Columbia by the same employer, and
 - (ii) has lasted less than 6 months.

148 Election if compensation available under law of other place

(1) This section applies if, by the law of the country or place in which a worker's injury or occupational disease occurred, the worker or the worker's dependants are entitled to compensation in respect of the injury or occupational disease.

(2) The worker or the worker's dependants must

- (a) elect whether they will claim compensation
 - (i) under the law of the country or place referred to in subsection (1), or
 - (ii) under this Part, and
- (b) give notice of the election.

(3) Notice of the election required under subsection (2) must be given to the Board as follows:

- (a) unless paragraph (b) of this subsection applies, within 3 months after the occurrence of the injury or disablement from occupational disease;
- (b) if the injury or occupational disease results in death,
 - (i) within 3 months after the death, or

(ii) within a longer period that the Board allows before or after the expiration of the 3 months.

(4) If the required election is not made and notice not given, it must be presumed that the worker or the worker's dependants have elected not to claim compensation under this Part.

(5) If an agreement or arrangement under section 335 [*interjurisdictional agreements and arrangements*] applies, any right of election is subject to the terms of that agreement or arrangement.

Part 4 Division 3 - Reporting of Injury or Disease and Process for Claiming Compensation

149 Worker obligation to give notice of injury or disease to employer

(1) This section applies in relation to every occurrence of an injury or disabling occupational disease to a worker in an industry that is within the scope of the compensation provisions.

(2) As soon as practicable after the occurrence, the worker or, in the case of death, the worker's dependant must inform the employer of the occurrence as follows:

(a) the information provided must include

(i) the name of the worker,

(ii) the time and place of the occurrence, and

(iii) in ordinary language, the nature and cause of the injury or disease;

(b) the information must be provided to the superintendent, first aid attendant, supervisor or agent in charge of the work where the injury occurred or to another appropriate representative of the employer.

(3) In the case of an occupational disease the employer who is to be informed under subsection (2) is the employer who last employed the worker in the employment in relation to which the occupational disease was due.

(4) On request of the employer, the worker must, if fit to do so, provide to the employer particulars of the injury or occupational disease on a form directed by the Board and supplied to the worker by the employer.

(5) Failure to provide the information required by this section is a bar to a claim for compensation under this Part, unless the Board is satisfied that

(a) the information, although imperfect in some respects, is sufficient to describe the worker's injury or disease and the circumstances in which it occurred,

(b) the employer or the employer's representative had knowledge of the injury or disease, or

(c) the employer has not been prejudiced, and the Board considers that the interests of justice require that the claim be allowed.

150 Employer obligation to report injury or disease to Board

(1) Subject to subsection (7), an employer must report to the Board, within 3 days after its occurrence, every injury to a worker that is or is claimed to be an injury arising out of and in the course of the worker's employment.

(2) Subject to subsection (7), an employer must report to the Board, within 3 days after receiving information under section 149, every disabling occupational disease or claim for or allegation of an occupational disease in relation to a worker.

(3) An employer must report immediately to the Board the death of a worker if the death is or is claimed to be a death arising out of and in the course of the worker's employment.

(4) A report under this section must be on the form directed by the Board and must provide the following information:

(a) the name and address of the worker;

(b) the time and place of the injury, disease or death;

(c) the nature of the injury or alleged injury;

(d) the name and address of any physician or qualified practitioner who attended the worker;

(e) any other particulars required by the Board or by the regulations.

(5) A report under this section may be made by mailing copies of the form addressed to the Board at the address specified by the Board.

(6) An employer who fails to make a report required under this section commits an offence unless excused by the Board on the ground that the

report, for some sufficient reason, could not have been made.

(7) Without limiting the authority of the Board under section 237 [*additional authority for orders, directives, rules and regulations*], the Board may make regulations as follows:

(a) establishing a category of minor injuries not required to be reported under this section;

(b) establishing or varying the time at which the obligation to report under this section begins.

(8) If a report required under this section is not received by the Board within 7 days after an injury or death, or any other time prescribed by regulation under subsection (7), the Board

(a) may make an interim adjudication of the claim, and

(b) if the Board allows the claim on an interim basis, may begin the payment of compensation in whole or in part.

151 Application for compensation: form of application and time for making application

(1) An application for compensation must

(a) be made on the form directed by the Board or prescribed by regulation, and

(b) be signed by the worker or the worker's dependant making the application.

(2) If the Board is satisfied that compensation is payable, it may be paid without an application.

(3) Except as provided in this section and section 152, no compensation is payable unless an application for compensation is filed, or a determination under subsection (2) of this section is made, within one year after the date of the worker's injury, mental disorder, death or disablement from occupational disease.

(4) The Board may pay the compensation provided under this Part if

(a) an application is not filed within the period referred to in subsection (3),

(b) the Board is satisfied that special circumstances existed that precluded filing within that period, and

(c) the application is filed within 3 years after the date referred to in subsection (3).

(5) The Board may pay the compensation provided under this Part for the period beginning on the date the Board receives an application for compensation if

(a) an application is not filed within the period referred to in subsection (3),

(b) the Board is satisfied that special circumstances existed that precluded filing within that period, and

(c) the application is filed more than 3 years after the date referred to in subsection (3).

152 Special circumstances: new evidence relating to occupational disease

(1) The Board may pay the compensation provided under this Part if

(a) the application for compensation arises from a worker's death or disablement due to an occupational disease,

(b) sufficient medical or scientific evidence was not available on the date referred to in section 151(3) for the Board to recognize the disease as an occupational disease and this evidence became available on a later date, and

(c) the application is filed within 3 years after the date that sufficient medical or scientific evidence, as determined by the Board, became available to the Board.

(2) If, since July 1, 1974, the Board considered an application for compensation under the equivalent of this section or section 151 in respect of a worker's death or disablement from occupational disease, the Board may reconsider the application but must apply subsection (1) of this section in the reconsideration.

153 Worker has continuing obligation to provide information

(1) A worker who applies for or is receiving compensation under this Part must provide the Board with the information that the Board considers necessary to administer the worker's claim

(2) If a worker fails to comply with subsection (1), the Board may reduce or suspend payments to the worker until the worker complies.

- (1) The Board may require a worker who applies for or is receiving compensation under this Part to be medically examined at a place reasonably convenient for the worker.
- (2) If a worker fails to attend an examination under this section or obstructs the medical examiner,
 - (a) the worker's right to compensation is suspended until the examination has taken place, and
 - (b) no compensation is payable during the period of suspension.
- (3) The Board may reduce or suspend compensation for a worker if the worker
 - (a) persists in unsanitary or injurious practices that tend to imperil or delay the worker's recovery, or
 - (b) refuses to submit to medical or surgical treatment that the Board considers, based on expert medical or surgical advice, reasonably essential to promote the worker's recovery.

Part 4 Division 4 - Vocational Rehabilitation, Health Care and Other Assistance

155 Vocational rehabilitation and other assistance

- (1) To aid in getting an injured worker back to work or to assist in lessening or removing a resulting disability, the Board may take the measures and make the expenditures that the Board considers necessary or expedient, regardless of the date on which the worker first became entitled to compensation.
- (2) If compensation is payable under this Part as the result of the death of a worker, the Board may make provisions and expenditures for the training or retraining of a dependent spouse, regardless of the date of death.
- (3) The Board may, if it considers this advisable, provide counselling and placement services to dependants of a worker.

156 Health care for injured worker

- (1) In addition to other compensation under this Part, the Board may provide for an injured worker any services or supplies, including related transportation, that the Board considers reasonably necessary at the time of the injury and afterwards during the worker's disability to cure the injury or alleviate the effects of the injury.
- (1.1) The services and supplies referred to in subsection (1) may be provided before the Board determines a worker's entitlement to compensation under this Part if the Board is satisfied that medical evidence indicates that without such services or supplies the worker is at risk of a significant deterioration in health.
- (1.2) If a service or supply is provided under subsection (1.1) and the Board later determines that the worker is not eligible for compensation under this Part, the worker is not required to reimburse the Board for that service or supply.
- (2) The Board may adopt rules and regulations with respect to the provision of health care to injured workers and for the payment of such health care.
- (3) The Board may make a daily allowance to an injured worker for the worker's subsistence if, under the Board's direction, the worker is undergoing treatment at a place other than the place where that worker resides.
- (4) The power of the Board under subsection (3) extends to an injured worker who receives compensation, regardless of the date the worker first became entitled to compensation.

157 Board powers in relation to provision of health care

- (1) Health care provided under any of the following provisions must at all times be subject to the direction, supervision and control of the Board:
 - (a) section 156 [*Board may provide health care for injured worker*];
 - (b) section 158 [*emergency care by physician or qualified professional*];
 - (c) section 159 [*employer authority and obligations in relation to health care*].
- (2) All questions as to the necessity, character and sufficiency of health care to be provided are to be determined by the Board.
- (3) The Board may, for any health care required,
 - (a) contract with physicians, nurses or other persons authorized to treat human ailments and with hospitals and other institutions, and

(b) agree on a scale of fees or remuneration for that health care.

(4) The fees or remuneration for health care provided under this Act must be set by the Board and must not be greater than the worker would be properly and reasonably charged if the worker were paying.

(5) No action for an amount greater than that set by the Board lies in respect of health care.

158 Emergency care by physician or qualified professional

The Board must pay the costs of services provided by a physician or qualified practitioner, other than one provided by the Board, if

(a) the physician or qualified practitioner is called in to treat an injured worker in a case of emergency or for other justifiable cause, and

(b) the Board considers there was a justifiable cause and that the charge for the services is reasonable.

159 Employer authority and obligations in relation to health care

(1) The Board may, at the Board's discretion, authorize an employer to provide health care at the expense of the Board and on the terms set by the Board.

(2) If a worker is injured in the course of employment, the worker's employer must, at the employer's own expense, provide the injured worker, when necessary, with immediate conveyance and transportation to a hospital, physician or qualified practitioner for initial treatment.

160 Health care by physician or qualified practitioner selected by worker

(1) The Board must permit health care to be administered, so far as the selection of a physician or qualified practitioner is concerned, by a physician or qualified practitioner who may be selected or employed by the injured worker.

(2) Subsection (1) does not limit the powers of the Board under this Division respecting the supervision and provision of health care in every case where the Board considers the exercise of those powers is expedient.

161 Replacement, repair and provision of physical assistance items

(1) The Board may assume the responsibility of replacement and repair of the following for a worker:

(a) artificial appliances, including artificial members damaged or broken as the result of an accident arising out of and in the course of the worker's employment;

(b) eyeglasses, dentures and hearing aids broken as a result of an accident arising out of and in the course of the worker's employment if

(i) that breakage is accompanied by objective signs of personal injury to the worker, or

(ii) where there is no personal injury, the accident is otherwise corroborated and the Board is satisfied the worker was not at fault.

(2) If an injury to a worker results in serious impairment of the worker's sight, the Board may, for the purpose of protecting the worker's remaining vision, provide the worker with protective eyeglasses.

162 Retirement services and supports for workers with total disability

(1) If a worker has a permanent total disability, the Board must, within the 3-month period before a retirement benefit under section 206 [*retirement benefits for workers with permanent disability*] is payable to the worker, evaluate the worker's need or continued need for services and personal supports under this Division.

(2) After the evaluation under subsection (1) is completed, the Board must take all actions necessary to provide to the worker, for the worker's life, the services and personal supports under this Division that the Board considers necessary.

(3) This section does not limit the powers of the Board to otherwise provide services and personal supports to workers at any time under this Division.

163 Duties of physicians and qualified practitioners

(1) A physician or qualified practitioner attending or consulted on a case of injury to a worker in an industry within the scope of the compensation provisions, or of an alleged case of such an injury, has the following duties:

(a) to provide the reports in respect of the injury in the form required by regulation or directed by the Board, with the first report containing all requested information being provided to the Board within 3 days after the date of the physician's or qualified practitioner's first attendance on the worker;

(b) to provide a report to the Board within 3 days after the worker is, in the opinion of the physician or qualified practitioner, able to resume work and, if treatment is being continued after resumption of work, to provide further adequate reports to the Board;

(c) if the physician

(i) is a specialist whose opinion is requested by the attending physician, the worker or the Board, or

(ii) continues to treat the worker after the physician is consulted as a specialist,

to provide the first report to the Board within 3 days after the consultation is completed and, if the physician is regularly treating the worker, to provide further reports to the Board as required in paragraphs (a) and (b);

(d) without charge to the worker, to give to the worker and the worker's dependants all reasonable and necessary information, advice and assistance they need to

(i) make an application for compensation, and

(ii) provide the certificates and proofs required in relation to the application.

(2) Every physician or qualified practitioner authorized under this Act to treat an injured worker is subject to the duties and responsibilities established by subsection (1), and any health care provided by the physician or qualified practitioner is subject to the direction, supervision and control of the Board.

164 Obligations of health care service providers

(1) Physicians, qualified practitioners or other persons authorized to provide health care under the compensation provisions must confine their treatment to injuries that are injuries to the parts of the body that they are authorized to treat under the Act under which they are permitted to practise.

(2) A person referred to in subsection (1) who gives treatment that is not authorized as referred to in that subsection commits an offence.

(3) A person referred to in subsection (1) who fails to submit prompt, adequate and accurate reports and accounts as required by this Act or by the Board commits an offence.

(4) If a person fails to submit reports and accounts as referred to in subsection (3), the Board may

(a) cancel the right of the person to be selected by a worker to provide health care, or

(b) suspend the person for a period determined by the Board.

(5) If the right of a person to provide health care is cancelled or suspended under subsection (4),

(a) the Board must

(i) notify the person of the cancellation or suspension, and

(ii) inform the applicable governing body under the *Health Professions Act*, and

(b) the person must notify injured workers who seek treatment from that person of the cancellation or suspension.

(6) Unless the Board otherwise directs, an account for medical services or other health care must not be paid if it is submitted later than 90 days after the date of whichever of the following occurs first:

(a) the last treatment was given;

(b) the person providing the health care was first aware that the Board may be liable for that person's services.

Part 4 Division 5 - Compensation in Relation to Death of Worker

165 Definitions and other interpretation rules

(1) In this Division:

"child", in relation to a deceased worker, means a child of the worker who

(a) is under 19 years of age, including a child who was not yet born at the date of the worker's death,

(b) is under 25 years of age and regularly attends an academic, technical or vocational place of education,

(c) is a child of any age who, at the date of the worker's death, had a physical or mental disability that resulted in the child being incapable of

earning, or

(d) at the date of the worker's death was not a child described in paragraph (c) but became such a child before otherwise ceasing to be entitled to compensation under this Part;

"dependent spouse", in relation to a deceased worker, means a surviving spouse of the worker who is a dependant of the worker;

"federal benefits" means the benefits paid for a dependant under the *Canada Pension Plan* as a result of a worker's death, other than the death benefit payable to the estate of a worker under section 57 [*death benefit*] of that Act.

(2) If 2 workers are spouses and both are contributing to the support of a common household, each is deemed to be a dependant of the other.

(3) If parents contribute to the support of a common household at which their children also reside, the children are deemed to be dependants of the parent whose death is compensable under this Part.

166 Payment towards funeral and related expenses

(1) The following apply if compensation is payable under this Part as the result of the death of a worker or of injury resulting in such death:

(a) in addition to any other compensation payable under this Division, the Board must pay an amount in respect of funeral and related expenses, as determined in accordance with the policies of the board of directors;

(b) the employer of the worker must bear the cost of transporting the body to the nearest business premises where funeral services are provided;

(c) if burial does not take place at the premises referred to in paragraph (b), the Board may pay the costs of any additional transportation, up to a maximum determined in accordance with the policies of the board of directors.

(2) No action for an amount greater than that established under subsection (1) lies in respect of the funeral, burial or cremation of the worker or related cemetery charges.

167 Lump sum payment to dependent spouse or foster parent

In addition to any other compensation provided, a dependent spouse or foster parent in Canada to whom compensation is payable is entitled to a lump sum of \$3 009.38.

168 Compensation payable to dependants of deceased worker

(1) Subject to subsection (3), if compensation is payable as the result of the death of a worker or of injury resulting in such death, the Board must pay compensation to the dependants of the deceased worker in accordance with this Division.

(2) Unless a shorter period applies under this Division, the Board must make periodic payments under this Division for the life of the person to whom the payment is to be made.

169 Dependent spouse who is 50 years of age or older or is incapable of earning, no dependent children

(1) This section applies if

(a) a deceased worker leaves a dependent spouse but does not leave any child dependants, and

(b) at the date of the worker's death, the dependent spouse

(i) was 50 years of age or older, or

(ii) had a physical or mental disability that resulted in the spouse being incapable of earning.

(2) Subject to subsection (3), the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits payable to or for the dependent spouse, would equal 60% of the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of the worker's death, sustained a permanent total disability.

(3) A monthly payment under this section must not be less than \$1 263.70.

170 Dependent spouse who is under 50 years of age and not incapable of earning, no dependent children

(1) This section applies if

(a) a deceased worker leaves a dependent spouse but does not leave any child dependants, and

(b) at the date of the worker's death, the dependent spouse

(i) was under 50 years of age, and

(ii) did not have a physical or mental disability that resulted in the spouse being incapable of earning.

(2) Subject to subsection (3), the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits payable to or for the dependent spouse, would equal the product of

(a) the percentage determined by subtracting 1% from 60% for each year that the age of the dependent spouse, at the date of the worker's death, is under 50 years of age, and

(b) the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of death, sustained a permanent total disability.

(3) The percentage determined under subsection (2)(a) must not be less than 30%, and a monthly payment under this section must not be less than \$1 263.70.

171 Dependent spouse and one or more dependent children

(1) This section applies if a deceased worker leaves a dependent spouse and one or more child dependants.

(2) Subject to subsection (4), if the dependants are a dependent spouse and one child dependant, the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits payable to or for the dependants referred to in subsection (1), would equal 85% of the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of death, sustained a permanent total disability.

(3) Subject to subsection (4), if the dependants are a dependent spouse and 2 or more child dependants, the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits payable to or for those dependants, would equal the total of

(a) the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of death, sustained a permanent total disability, and

(b) if there are more than 2 child dependants, \$391.05 per month for each child dependant beyond that number.

(4) The minimum compensation payable under this section must be the compensation that would be payable if the compensation were calculated under this section in respect of a deceased worker with average earnings of \$42 130.24 per year.

172 One or more dependent children but no dependent spouse

(1) This section applies if a deceased worker leaves no dependent spouse eligible for monthly payments under this Division but does leave one or more child dependants.

(2) Subject to subsection (5), if there is one child dependant, the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits to or for that child, would equal 40% of the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of death, sustained a permanent total disability.

(3) Subject to subsection (5), if there are 2 child dependants, the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits payable to or for those children, would equal 50% of the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of death, sustained a permanent total disability.

(4) Subject to subsection (5), if there are more than 2 child dependants, the Board must make a monthly payment of an amount that, when combined with 50% of the federal benefits payable to or for those children, would equal the total of

(a) 60% of the monthly rate of compensation under this Part that would have been payable if the deceased worker had, at the date of death, sustained a permanent total disability, and

(b) if there are more than 3 child dependants, \$391.05 per month for each child beyond that number.

(5) The minimum compensation payable under this section must be the compensation that would be payable if the compensation were calculated under this section in respect of a deceased worker with average earnings of \$42 130.24 per year.

173 Compensation to dependent parents in addition to spouse or children

(1) This section applies if a deceased worker

(a) leaves either a dependent spouse or one or more child dependants entitled to compensation under this Division, but not both a dependent spouse and one or more child dependants, and

(b) leaves a dependent parent or dependent parents.

(2) In addition to the compensation payable to the spouse or children, the Board must pay to the dependent parent or dependent parents an amount the Board considers is reasonable and proportionate to the pecuniary loss suffered by the dependent parent or dependent parents by reason of the worker's death.

(3) As a restriction on subsection (2), an amount paid under this section must not be greater than \$692.12 per month for life or for a lesser period as determined by the Board.

174 No dependent spouse or child: compensation to other dependants

(1) This section applies if a deceased worker does not leave a dependent spouse or a child dependant entitled to compensation under this Division, but does leave other dependants.

(2) The Board must pay to the other dependants of the worker an amount the Board considers is reasonable and proportionate to the pecuniary loss suffered by those dependants by reason of the worker's death.

(3) As a restriction on subsection (2), the total of the amounts paid under this section must not be greater than \$692.12 per month for life or for a lesser period as determined by the Board.

175 Compensation to persons other than dependants

(1) This section applies if

(a) either

(i) no compensation is payable under sections 169 to 174 in relation to a deceased worker, or

(ii) compensation is payable under those sections only to a spouse, a child or children or a parent or parents of the worker, and

(b) the worker leaves a spouse, a child or children or a parent or parents who, although not dependent on the worker's earnings at the time of the worker's death, had a reasonable expectation of pecuniary benefit from the continuation of the life of the worker.

(2) At the discretion of the Board, payments may be made to persons referred to in subsection (1)(b), but not to more than one of the categories of persons referred to in that provision.

(3) As a restriction on subsection (2), the total of the amounts paid under this section must not be greater than \$692.12 per month for life or for a lesser period determined by the Board.

176 Compensation to foster parent and dependent children

(1) This section applies if

(a) a deceased worker

(i) leaves a child or children entitled to compensation under this Division, and

(ii) either leaves no dependent spouse or the dependent spouse subsequently dies,

(b) the Board considers it desirable to continue the existing household, and

(c) a suitable person acts as a foster parent in keeping up the household and taking care of and maintaining the child or children, in a manner satisfactory to the Board.

(2) The same compensation is payable to the foster parent and children as would have been payable to a dependent spouse and child dependants, and the compensation must continue as long as the conditions described in subsection (1) continue.

177 Apportionment between dependants

(1) Subject to subsection (2), if it is necessary to apportion compensation payable to dependants among those dependants, the formula for apportionment is at the discretion of the Board.

(2) Unless the Board has grounds for a different apportionment, apportionment of the following must be in accordance with this subsection:

(a) if there is a dependent spouse and one child dependant, 2/3 of the compensation is payable to the spouse and 1/3 to the child;

(b) if there is a dependent spouse and more than one child dependant, 1/2 of the compensation is payable to the spouse and 1/2 among the children in equal shares;

(c) if there is more than one child dependant but no dependent spouse, the compensation is payable to the children in equal shares.

(1) This section applies if

(a) compensation is payable under this Division in relation to a worker's death, and

(b) at the date of death, the worker and a dependent spouse of the worker were living separate and apart.

(2) If, at the date of the worker's death, there was in force a court order or separation agreement providing periodic payments for support of the dependent spouse, or children living with that spouse,

(a) no compensation under sections 169 to 171 [*compensation to dependent spouse or to dependent spouse and child or children*] is payable to the spouse or children living with the spouse, and

(b) subject to subsection (5), the Board must make monthly payments in respect of that spouse and those children equal to the periodic payments due under the order or agreement.

(3) Subject to subsection (5), if

(a) there was no court order or separation agreement described in subsection (2) in force at the date of the worker's death, and

(b) the worker and dependent spouse were separated, with the intention of living separate and apart, for a period of 3 months or longer preceding that date,

the Board must make monthly payments up to the level of support the Board considers the spouse and children would have been likely to receive from the worker if the death had not occurred.

(4) Subject to subsection (5), if

(a) there was no court order or separation agreement described in subsection (2) in force at the date of the worker's death, and

(b) the worker and dependent spouse were living separate and apart for a period of less than 3 months preceding that date,

compensation is payable as provided in sections 169 to 176 [*rules respecting specific compensation payment*].

(5) Compensation payable under this section must not be greater than the compensation that would have been payable under sections 169 to 176 if there had been no separation.

179 Restriction on compensation to spouse living in marriage-like relationship

(1) Subject to subsection (2), compensation under this Division is payable to a worker's surviving spouse described in paragraph (b) [*marriage-like relationship*] of the definition of "spouse" in section 1, only if the worker was living with and contributing to the support and maintenance of that spouse immediately before the worker's death.

(2) Subsection (1) does not apply in relation to compensation that is payable under section 178(2) or (3) [*payment in relation to court order or separation agreement*].

180 Worker leaves more than one dependent spouse

(1) This section applies if a deceased worker has left both

(a) a dependent spouse who is a spouse described in paragraph (a) [*spouse by marriage*] of the definition of "spouse" in section 1 from whom, at the date of death, the worker was living separate and apart, and

(b) a spouse described in paragraph (b) [*marriage-like relationship*] of that definition with whom the worker was living, and to whose support and maintenance the worker was contributing, immediately before the worker's death.

(2) If there is a difference between

(a) the amount of compensation payable to the spouse referred to in subsection (1)(a) [*spouse by marriage*] by reason of the separation, and

(b) the amount of compensation that would have been payable to that spouse if the spouse and the worker had not been living separate and apart, the Board may pay compensation, up to the amount of the difference, to the spouse referred to in subsection (1)(b) [*marriage-like relationship*].

181 Change in circumstances: dependent spouse and dependent children - reduction in number of dependent children

(1) This section applies if

(a) a deceased worker has left both a dependent spouse and child dependants, and

(b) subsequently there is a reduction in the number of child dependants.

(2) The dependent spouse and remaining child dependants are then entitled to the compensation that would have been payable if the worker's death had occurred on the date the number of child dependants was reduced.

182 Change in circumstances: spouse ceases to have dependent children

(1) This section applies if

(a) a deceased worker has left both a dependent spouse and dependent children, and

(b) the dependent spouse subsequently ceases to have dependent children.

(2) The dependent spouse is entitled to the compensation that would have been payable if the worker's death had occurred on the date the dependent spouse ceased to have dependent children.

183 Change in circumstances: spouse and dependent children - spouse dies

(1) This section applies if

(a) a deceased worker leaves a dependent spouse and one or more dependent children, and

(b) the dependent spouse subsequently dies.

(2) Compensation to the dependent children must continue and be calculated in the same manner as if the worker had died leaving no dependent spouse.

184 Change in circumstances: only dependent children - reduction in number of dependent children

(1) This section applies if

(a) a deceased worker leaves dependent children and no dependent spouse, and

(b) subsequently there is a reduction in the number of dependent children.

(2) The remaining dependent children are entitled to the compensation that would have been payable if the worker's death had occurred on the date the number of dependent children was reduced.

185 Change in circumstances: dependent spouse ceases to be incapable of earning

(1) This section applies if

(a) a deceased worker leaves a dependent spouse who has had a physical or mental disability that resulted in the spouse being incapable of earning, and

(b) the dependent spouse subsequently ceases to have that disability.

(2) The dependent spouse is entitled to the compensation that would have been payable if the worker's death had occurred on the date the dependent spouse ceased to have the disability.

186 Compensation in relation to the death of more than one worker

(1) Subject to subsection (2), if a dependant is entitled to receive compensation under this Part

(a) as a result of the worker's death, and

(b) as a result of the subsequent death of another worker,

the total compensation payable for the dependant as a result of those deaths is an amount that the Board considers appropriate.

(2) The compensation payable for a dependant under subsection (1)

(a) must not be less than the greatest of the amounts that would otherwise be payable in respect of the death of any of the workers, and

(b) must not be greater than 90% of the average net earnings of a worker whose wage rate is the maximum wage rate established under section 209 [*maximum wage rate for average earnings*] for the year in which the last death referred to in subsection (1)(b) occurred.

- (3) For the purposes of subsection (2), the average net earnings for the worker are to be calculated in accordance with section 220 [determination of average net earnings: short-term compensation].

187 Board authority in relation to dependent spouse who has impairment of earning capacity

- (1) This section applies if, at the date of a worker's death, a dependent spouse of the worker does not have a physical or mental disability that results in the spouse being incapable of earning but does have a disability that results in a substantial impairment of earning capacity.
- (2) The Board may, having regard to the degree of disability or the extent of impairment of earning capacity, pay the spouse a proportion of the compensation that would have been payable if the spouse had the incapacity referred to in subsection (1).

188 Proof of dependant status

- (1) The Board may from time to time require the proof the Board considers necessary of the existence and condition of dependants receiving compensation payments under this Part.
- (2) If the Board requires proof under this section, the Board may withhold further compensation payments until that proof is received.

189 Board authority in relation to matters not otherwise dealt with

If

- (a) a situation arises that is not expressly covered by this Division, or
- (b) some special additional facts are present that the Board considers would make the strict application of this Division inappropriate, the Board must make rules and make decisions the Board considers fair, using this Division as a guideline.

Part 4 Division 6 - Compensation for Worker Disability

190 Compensation subject to general rules

Compensation under this Division is subject to the following provisions:

- (a) section 230 [manner of compensation payment: periodic or lump sum];
- (b) section 231 [payment of compensation in specific circumstances];
- (c) section 232 [Board authority to discontinue or suspend payments];
- (d) section 233 [deduction in relation to payments from employer].

191 Temporary total disability

- (1) Subject to subsection (2), if a temporary total disability results from a worker's injury, the Board must pay the worker compensation that is a periodic payment of an amount that equals 90% of the worker's average net earnings.
- (2) Compensation to be paid under this section
- (a) must not be less than an amount that equals \$446.17 per week if the worker's average earnings per week are greater than or equal to that amount, and
- (b) must be an amount that equals the worker's average earnings if the worker's average earnings per week are less than the amount referred to in paragraph (a).

192 Temporary partial disability

- (1) Subject to subsection (2), if a temporary partial disability results from a worker's injury, the Board must pay the worker compensation that is a periodic payment of an amount that equals 90% of the difference between
- (a) the worker's average net earnings before the injury, and
- (b) whichever of the following amounts the Board considers better represents the worker's loss of earnings:
- (i) the average net earnings that the worker is earning after the injury;
- (ii) the average net earnings that the Board estimates the worker is capable of earning in a suitable occupation after the injury.

(2) The minimum compensation to be paid under this section must be calculated in accordance with section 191(2) but to the extent only of the partial disability.

193 Recurrence of temporary disability more than 3 years after injury

- (1) This section applies if there is a recurrence of temporary total disability or temporary partial disability of a worker after a lapse of 3 years following the occurrence of the injury to the worker.
- (2) For the purpose of determining the amount of compensation payable to the worker, the Board may calculate the compensation as if the date of the recurrence was the date of the injury if the Board considers that, by doing so, the compensation payable would more closely represent the percentage of actual loss of earnings of the worker by reason of the recurrence of the injury.
- (3) Subject to subsection (4), if
- (a) a worker receives compensation for permanent partial disability for the original injury, and
- (b) compensation for recurrence of temporary total disability under subsection (2) is calculated by reference to the average earnings of the worker at the date of the recurrence,
- the compensation under this section must be calculated without deduction of the compensation payable for the permanent partial disability.
- (4) The total compensation payable under this section must not be greater than the maximum payable under this Part at the date of the recurrence.

194 Permanent total disability

- (1) Subject to subsection (2), if a permanent total disability results from a worker's injury, the Board must pay the worker compensation that is a periodic payment of an amount that equals 90% of the worker's average net earnings.
- (2) Compensation to be paid under this section must not be less than \$1 933.73 per month.

195 Permanent partial disability: general rules

- (1) Subject to section 196, if a permanent partial disability results from a worker's injury, the Board must
- (a) estimate the impairment of the worker's earning capacity from the nature and degree of the injury, and
- (b) pay the worker compensation that is a periodic payment of an amount that equals 90% of the Board's estimate of the worker's loss of average net earnings resulting from the impairment.
- (2) The minimum compensation to be paid under this section must be calculated in accordance with section 191(2) [*compensation for temporary total disability*] but to the extent only of the permanent partial disability.
- (3) The Board may compile a rating schedule of percentages of impairment of earning capacity for specified injuries or mutilations that may be used as a guide in determining the compensation payable in permanent partial disability cases.

196 Permanent partial disability: exception to general rules

- (1) This section applies in relation to a permanent partial disability if an amount required under section 195 is less than an amount required under this section.
- (2) [repealed]
- (3) The Board must pay the worker compensation that is a periodic payment of an amount that equals 90% of the difference between
- (a) the average net earnings of the worker before the injury, and
- (b) whichever of the following amounts the Board considers better represents the worker's loss of earnings:
- (i) the average net earnings that the worker is earning after the injury;
- (ii) the average net earnings that the Board estimates the worker is capable of earning in a suitable occupation after the injury.

197 Permanent disability or increase in permanent disability occurring more than 3 years after injury

- (1) This section applies if, more than 3 years after a worker's injury,
- (a) a permanent disability resulting from the injury occurs, or
- (b) an increased degree of permanent disability resulting from the injury occurs.

- (2) Despite section 208(1) [*determination of average earnings as at time of injury*], the Board may calculate the compensation by reference to the average earnings of the worker at the date of the occurrence of the permanent disability or increased degree of permanent disability, as applicable.

198 Non-traumatic hearing loss: compensation where no resulting loss of earnings and compensation where earnings affected

- (1) This section applies in relation to compensation payable to a worker under section 145 [*non-traumatic hearing loss*].

(2) If

- (a) the worker's hearing loss amounts to total deafness measured in the manner described in Schedule 2 [*Non-Traumatic Hearing Loss*] of this Act, and

(b) there is no loss of earnings resulting from the hearing loss,

compensation must be calculated as for a disability equivalent to 15% of total disability.

(3) If

- (a) the worker's hearing loss does not amount to total deafness measured in the manner referred to in subsection (2), and

(b) there is no loss of earnings resulting from the hearing loss,

compensation must be calculated as for a lower percentage of total disability than that specified in subsection (2) and, unless otherwise ordered by the Board, must be based on the percentages set out in Schedule 2 of this Act.

- (4) If a loss or reduction of earnings results from the hearing loss, the worker is entitled to compensation for a total or partial disability as provided under this Division.

- (5) Compensation paid for a worker's hearing loss under subsection (4) must not be less than the amount determined under subsection (2) or (3).

199 Permanent disfigurement

If a worker experiences a serious and permanent disfigurement that the Board considers capable of impairing the worker's earning capacity, the Board may pay a lump sum in compensation and may do so even if the amount the worker was earning before the injury has not been reduced.

200 Maximum compensation in the case of further disability

- (1) If a worker is receiving compensation for a permanent or temporary disability, the worker must not receive compensation for a further or other disability in an amount that would result in the worker receiving compensation that, in total, is in excess of the maximum payable for total disability.

- (2) If a worker has received a lump sum in place of the periodic payments that otherwise would have been payable for a permanent disability, the worker is deemed, for the purposes of subsection (1), to still receive the periodic payments.

201 Payment period for worker disability compensation

- (1) Subject to subsection (2), periodic payment of compensation under this Division may be paid to an injured worker only as follows:

(a) if the worker is under 63 years of age on the date of the injury, until the later of the following:

(i) the date the worker reaches 65 years of age;

(ii) if the Board is satisfied the worker would retire after reaching 65 years of age, the date the worker would retire, as determined by the Board;

(b) if the worker is 63 years of age or older on the date of the injury, until the later of the following:

(i) 2 years after the date of the injury;

(ii) if the Board is satisfied that the worker would retire after the date of the injury, the date the worker would retire, as determined by the Board.

- (2) As a restriction on subsection (1), the Board may not make a periodic payment to a worker under this Division if the worker ceases to have the disability for which the periodic payment is to be made.

- (3) A determination made under subsection (1)(a)(ii) as to a date on which a worker would retire after reaching age 65 may be made after a worker has reached age 63, and the Board may, when making the determination, consider the worker's circumstances at the time of that determination.

202 Deductions in relation to Canada Pension Plan disability benefit

(1) This section applies to a worker who receives

- (a) a periodic payment of compensation under section 194(1), 195(1) or 196(1) [*compensation for permanent disability*] in respect of an injury, and
- (b) a disability benefit under the *Canada Pension Plan* in respect of the injury.

(2) Subject to sections 194(2), 195(2) and 198(5) [*minimum compensation payments*], the Board must deduct from a periodic payment referred to in subsection (1)(a), an amount that equals 50% of any disability benefit paid as referred to in subsection (1)(b).

203 Reconsideration of prescribed compensation claims

(1) This section applies to claims for compensation that the Board may, by regulation, determine.

(2) A worker may apply for reconsideration of compensation payable to the worker if

(a) the worker's claim is of a type prescribed under subsection (1),

(b) the worker continues to have a compensable disability that was sustained more than 10 years before the worker's application under this section is made, and

(c) either

(i) the permanent disability compensation determined by the Board for the worker was based on a percentage of total disability of 12% or greater, or

(ii) the worker's case is of a kind in which the Board uses a projected loss of earnings method in calculating the compensation.

(3) A worker may apply under this section even though the worker has received

(a) compensation for permanent disability that has been wholly or partly commuted under section 230 [*commutation of periodic payments to lump sum payment*], or

(b) compensation for a fixed term,

but, for the purposes of this section, the worker is deemed to be still receiving the periodic payments that have been commuted or the life equivalent of the periodic payments made for a fixed term.

(4) Despite section 122(1) [*Board decisions are final*], if a worker's application under this section is with respect to a claim for compensation to which this section applies,

(a) the Board must reconsider the compensation provided to the worker, and

(b) if, having regard to the projected loss of income resulting from the worker's disability, the Board considers that the worker is not receiving adequate compensation, the Board must increase or establish periodic payments accordingly.

(5) For the purposes of subsection (4), the Board must consider compensation to be adequate if

(a) in the case of a worker who is under 65 years of age, the amount of compensation provided to the worker is at least 75% of the projected loss of earnings resulting from the worker's disability, and

(b) in the case of a worker who is 65 years of age or older, the amount of compensation provided to the worker is at least 75% of the projected loss of retirement income resulting from the worker's disability.

(6) Periodic payments increased or established under this section for a worker who is under 65 years of age are subject to readjustment, by reference to subsection (5)(b), on the worker reaching 65 years of age.

(7) The calculation of compensation under this section must be made in the manner the Board determines.

(8) Section 200 [*maximum compensation in the case of further disability*] applies to the calculation of compensation under this section, but the calculation must not be limited by reference to average earnings at the time of injury.

(9) Periodic payments to an applicant worker that are increased or established under this section must not exceed the maximum the Board would establish, at the time of the reconsideration decision, for a worker in an occupational category similar to that of the applicant worker before the injury if that other worker had a compensable disability similar to the compensable disability of the applicant worker.

(10) A reconsideration decision under this section must not result in periodic payments to a worker being less than they would have been if no application had ever been made under this section.

(11) The effective date for the commencement of an increase or establishment of compensation under this section is the date the application for

reconsideration is received by the Board.

- (12) A worker may reapply under this section for reconsideration of the worker's compensation 10 years after the worker's most recent application under this section.

204 Retirement benefit in relation to permanent disability

- (1) This section applies to a worker who is receiving periodic payments under section 194(1), 195(1) or 196(3) [*compensation for permanent disability*].

(2) The Board must set aside, at the time a periodic payment is made to a worker, an amount that

(a) equals 5% of the periodic payment, and

(b) is in addition to the periodic payment.

- (3) The Board must provide each worker with an annual statement containing all relevant information about the funds accumulated by the Board for payment of the worker's retirement benefit.

205 Worker contributions to retirement benefit

- (1) A worker may apply to the Board to contribute to the amount set aside or to be set aside under section 204 an amount that is not less than 1% and not greater than 5% of each subsequent periodic payment made to the worker.

(2) Subject to subsection (3), if a worker makes an application under this section, the Board must, as soon as practicable, deduct the amount of the worker's contribution from each subsequent periodic payment made to the worker and add this contribution to the amount set aside under section 204.

(3) The deductions made by the Board under subsection (2) may not be varied, except in response to an application by the worker to stop the deductions.

(4) A worker may

(a) only once make an application for deductions under subsection (2), and

(b) only once make an application to stop the deductions under subsection (3).

(5) An application made under this section must be made in a form acceptable to the Board.

206 Payment of retirement benefit

(1) Subject to subsection (3), on the date determined under subsection (2), a worker is entitled to receive a lump sum that equals the total of

(a) the amounts set aside for payment to the worker under section 204,

(b) the contributions, if any, made by the worker under section 205, and

(c) the accumulated investment income earned on those amounts and contributions.

(2) A worker's entitlement under subsection (1) is effective,

(a) subject to paragraph (b) of this subsection, on the date the worker reaches 65 years of age, or

(b) if the date of the last periodic payment to the worker is after the date the worker reaches 65 years of age, on the date of that last periodic payment.

(3) Despite section 231(4) [*Board discretion respecting amount accrued to worker*], if a worker dies before receiving the worker's retirement benefit under subsection (1) of this section, the Board must, on the death of the worker, pay the lump sum to which the worker would have been entitled under that subsection to

(a) a beneficiary designated by the worker, or

(b) the worker's estate, if a beneficiary is not designated.

207 Board administration of money to be paid as retirement benefit

- (1) The Board must establish a reserve in the accident fund into which the amounts and contributions referred to in sections 204 and 205 must be deposited.

(2) The funds deposited in the reserve under subsection (1) must be held and invested in the name of the reserve, and those investments must clearly indicate that they are held in that reserve for payment of retirement benefits under section 206.

(3) If approved by the board of directors and on terms set by the Board, the Board may authorize a financial institution, as defined in the *Financial Institutions Act*, or a bank to administer the reserve referred to in subsection (1), and a financial institution or bank that is so authorized must comply with the relevant compensation provisions as if the financial institution or bank were the Board.

Part 4 Division 7 - Worker's Average Earnings and Earning Capacity

208 Determination of worker's average earnings and earning capacity

(1) The Board must determine the amount of a worker's average earnings and the worker's earning capacity with reference to the worker's average earnings and earning capacity at the time of the worker's injury.

(2) The Board must determine the amount of a worker's average earnings in accordance with this Division, subject to the restriction that the amount may not exceed the maximum wage rate as determined under section 209.

(3) The Board must not include the following in determining the amount of a worker's average earnings:

(a) the employer's payments on behalf of the worker for

(i) contributions payable under the *Canada Pension Plan*,

(ii) premiums payable under the *Employment Insurance Act (Canada)*, and

(iii) contributions to a retirement, pension, health and welfare, life insurance or other benefit plan for the worker or the worker's dependants;

(b) special expenses or allowances paid to the worker because of the nature of the worker's employment.

(4) If income from employment benefits was payable to a worker under the *Employment Insurance Act (Canada)* during the period for which average earnings are to be determined, the Board may include that income in the determination only if the Board considers that the worker's employment during that period was in an occupation or industry that results in recurring seasonal or recurring temporary interruptions of employment.

(5) The compensation payable to workers who, on July 1, 1974, receive compensation for permanent total disability must not be less than \$1 933.73 per month.

209 Annual determination of maximum wage rate for average earnings

(1) Before the end of each calendar year, the Board must determine the maximum wage rate applicable for the following calendar year.

(1.1) As an exception to subsection (1), the maximum wage rate for 2021 is \$100 000.

(2) The maximum wage rate to be determined under this section must be an amount, which may be rounded to the nearest \$100, that the Board considers represents the same relationship to the amount of \$100 000 as

(a) the annual average of wages and salaries in British Columbia for the year preceding the year in which the determination is being made

bears to

(b) the annual average of wages and salaries in British Columbia for the year 2019.

(3) For the purpose of determining annual average of wages and salaries under this section, the Board may use data published or supplied by Statistics Canada.

210 Average earnings: short-term compensation

Subject to this Division, the Board must determine, for the shorter of the following periods, the amount of a worker's average earnings based on the rate at which the worker was remunerated by each of the employers for whom that worker was employed at the time of the injury:

(a) the initial payment period, being the period

(i) starting on the date of the injury, and

(ii) ending on the last day of the tenth week for which compensation is payable under this Part to the worker for a temporary disability resulting from that injury;

(b) the period starting on the date of the worker's injury and ending on the date the worker's injury results in a permanent disability, as determined by the Board.

Subject to this Division, if a worker's disability continues after the end of the shorter period referred to in section 210, the Board must, for the period starting after the end of that period, determine the amount of the worker's average earnings based on the worker's gross earnings, as determined by the Board, for the 12-month period immediately preceding the date of the worker's injury.

212 Worker without earnings: short-term and long-term compensation

If a worker had no earnings at the time of the injury, the Board must determine the amount of a worker's average earnings from the date of injury in a manner that the Board considers appropriate.

213 Worker in public interest undertaking: short-term and long-term compensation

(1) This section applies to a person who is

- (a) deemed to be a worker under section 5 [*extending application: public interest undertakings*], and
- (b) not regularly employed.

(2) The Board may, on the terms and conditions the Board directs, fix the amount of a person's average earnings having regard to all the circumstances, including the person's income.

(3) As a restriction, an amount fixed under subsection (2) must not be less than \$148.74 per week.

214 Casual worker: short-term and long-term compensation

If a worker's pattern of employment at the time of the injury is casual in nature, the Board's determination of the amount of the worker's average earnings from the date of injury must be based on the worker's gross earnings, as determined by the Board, for the 12-month period immediately preceding the date of injury.

215 Employer or independent operator with purchased coverage: short-term and long-term compensation

If an employer or independent operator to whom the Board directs that the compensation provisions apply under section 4(2) [*coverage for independent operators and employers*] has purchased coverage under this Act, the Board must determine the amount of the employer's or independent operator's average earnings from the date of injury based on the gross earnings for which coverage is purchased.

216 Worker who is apprentice or learner: long-term compensation

(1) This section applies to a worker who, at the time of injury, was

- (a) an apprentice in a trade, occupation or profession, or
- (b) a person referred to in paragraph (b) [*training preliminary to employment*] of the definition of "worker" in section 1.

(2) If a worker's injury results in a temporary disability that continues after the initial payment period, the Board must, for the period starting after the end of the initial payment period, determine the amount of the worker's average earnings based on the greater of the following:

- (a) the rate at which the worker was remunerated by each of the employers for whom the worker was employed at the time of the injury;
- (b) the worker's gross earnings, as determined by the Board, for the 12-month period immediately preceding the date of injury.

(3) If a worker's injury results in a permanent disability, the Board must, for the period starting on the date, as determined by the Board, that the injury resulted in a permanent disability, determine the amount of the worker's average earnings based on the gross earnings, as determined by the Board, for the 12-month period immediately preceding the date of injury, of a qualified person employed at the starting rate in the same trade, occupation or profession

- (a) by the same employer, or
- (b) if no person is so employed, by an employer in the same region.

217 Worker employed for less than 12 months: long-term compensation

(1) This section applies to a worker who was employed, on other than a casual or temporary basis, by the worker's employer for less than 12 months immediately preceding the date of the injury.

(2) The Board's determination of the amount of the worker's average earnings under section 211 [*long-term compensation*] must be based on the gross earnings, as determined by the Board, for the 12-month period immediately preceding the date of injury, of a person of similar status

employed in the same type and classification of employment

(a) by the same employer, or

(b) if no person is so employed, by an employer in the same region.

218 Exceptional circumstances: long-term compensation

(1) If exceptional circumstances exist such that the Board considers that the application of section 211 would be inequitable, the Board's determination of the amount of a worker's average earnings may be based on an amount that the Board considers best reflects the worker's loss of earnings.

(2) Subsection (1) does not apply in the circumstances described in section 214, 215, 216 or 217.

219 Determination if multiple rules apply

If 2 or more of sections 212 to 218 apply to the same worker for the same injury, the Board must determine the section that best reflects the worker's circumstances and apply that section.

Part 4 Division 8 - Average Net Earnings of Worker

220 Average net earnings: short-term compensation

(1) This section applies to the determination of the amount of a worker's average net earnings for the period under section 210 [*average earnings: short-term compensation*] that applies to the worker.

(2) The Board must estimate the following deductions based on the worker's earnings for the calendar year immediately preceding the injury:

(a) premiums payable by a worker under the *Employment Insurance Act* (Canada);

(b) contributions payable by a worker under the *Canada Pension Plan*;

(c) probable income taxes payable by a worker under the *Income Tax Act* and the *Income Tax Act* (Canada).

(3) In order to determine the amount of a worker's average net earnings under this section, the Board must deduct the amounts estimated under subsection (2) from the worker's average earnings as determined under Division 7 of this Part.

(4) For the purposes of this section, premiums and contributions referred to in subsection (2)(a) and (b) are deemed to be payable by all workers.

(5) To estimate probable income taxes for the purposes of this section, the Board must assume that the following are the only deductions that may be made for a worker under the *Income Tax Act* and the *Income Tax Act* (Canada):

(a) the amounts that may be deducted under

(i) section 4.3(1)(c) [*BC basic personal credit - single status*] of the *Income Tax Act*, and

(ii) section 118(1)(c) [*equivalent*] of the *Income Tax Act* (Canada),

each multiplied by 1.5;

(b) the amounts that may be deducted under

(i) section 4.64 [*BC credit for EI premium and CPP contribution*] of the *Income Tax Act*, and

(ii) section 118.7 [*equivalent*] of the *Income Tax Act* (Canada).

221 Average net earnings: long-term compensation

(1) This section applies to the determination of the amount of a worker's average net earnings after the end of the applicable period referred to in section 220(1).

(2) The Board must estimate the following deductions based on the worker's earnings for the calendar year immediately preceding the injury:

(a) if premiums are payable by the worker under the *Employment Insurance Act* (Canada), those premiums;

(b) if contributions are payable by the worker under the *Canada Pension Plan*, those contributions;

(c) unless a worker is exempt from, or not subject to, the taxes imposed by the *Income Tax Act* and the *Income Tax Act* (Canada), probable income taxes payable by the worker under those Acts.

- (3) In order to determine a worker's average net earnings under this section, the Board must deduct the amounts estimated under subsection (2) from the worker's average earnings as determined under Division 7 of this Part.
- (4) To estimate probable income taxes for the purposes of this section, the Board must assume that the following are the only deductions that may be made for a worker under the *Income Tax Act* and the *Income Tax Act* (Canada):
- (a) the amounts that may be deducted under
 - (i) section 4.3(1)(c) [*BC basic personal credit* "single status"] of the *Income Tax Act*, and
 - (ii) section 118(1)(c) [*equivalent*] of the *Income Tax Act* (Canada);
 - (b) the amounts that may be deducted under
 - (i) section 4.64 [*B.C. credit for EI premium and CPP contribution*] of the *Income Tax Act*, and
 - (ii) section 118.7 [*equivalent*] of the *Income Tax Act* (Canada);
 - (c) the amounts that may be deducted under
 - (i) section 4.3(1)(a), (b) or (d.1) [*other personal credits*] of the *Income Tax Act*, and
 - (ii) section 118(1)(a), (b) or (d) [*equivalent*] of the *Income Tax Act* (Canada).

222 Schedule or procedure for determining average net earnings

- (1) The Board may establish for each calendar year one or more schedules of deductions under section 220 or 221, or procedures for determining those deductions, that may be used as a guide to determining the deductions under those sections.
- (2) The Board is not required to consider a worker's actual circumstances
- (a) in establishing a schedule or procedure under subsection (1), or
 - (b) in calculating the average net earnings of the worker under this Division.

Part 4 Division 9 - Transitional and Related Compensation Matters

223 Periodic payments awarded before 1966 for permanent injury

- (1) This section applies in relation to periodic payments for permanent disability that were awarded to a worker by the Board before January 1, 1966 if
- (a) a portion of the periodic payments equivalent to 12% of total disability or greater was commuted before January 1, 1966,
 - (b) the award was for a percentage of total disability of 12% or greater and the whole of the periodic payments was commuted before January 1, 1966, or
 - (c) the award was for a percentage of total disability of 12% or greater and was of periodic payments for a fixed term.
- (2) If a worker to whom an award referred to in subsection (1) was made still has the disability, the Board may, on the application of the worker, establish new periodic payments that are to begin for the month in which the application is received by the Board.
- (3) For the purpose of calculating the rate of new periodic payments to be established under this section, the Board must determine the following:
- (a) as applicable,
 - (i) if the commutation was partial, the additional rate of monthly payments that would have been payable on January 1, 1966 if there had been no commutation, and
 - (ii) if the commutation was complete, the monthly payments that would have been payable on January 1, 1966 if the award had been of periodic payments for life and there had been no commutation;
 - (b) the additional amount of monthly payments that would have been payable for the month during which the application is received by way of increases on the amounts calculated under paragraph (a) if those amounts had continued to be due, which additional amount is to be the total of all increases that would have been made from January 1, 1966 to and including the last day of the month before the month in which the application was received.
- (4) The rate of the new periodic payments to be established under this section must be the amount calculated under subsection (3)(b), but future adjustments under section 334 [*annual adjustment of periodic payment amounts*] must be based on the total of the amounts calculated under subsection (3)(a) and (b) of this section.

(5) This section does not apply if its purpose has been achieved as a result of an application under section 203 [*reconsideration of prescribed compensation claims*] or in some other way.

224 Workers receiving health care before April 1, 1972

(1) If, before April 1, 1972, a worker received health care under

(a) the *Canada Shipping Act*, R.S.C. 1970, c. S-9, or

(b) a health care plan approved by the Board,

the worker is entitled to receive additional health care in accordance with Division 4 [*Vocational Rehabilitation, Health Care and Other Assistance*] of this Part.

(2) If additional health care is provided by the Board under this section, the Board's cost of providing the health care may be charged in a manner the Board considers proper.

225 Compensation in relation to worker death before July 1, 1974

(1) If, on July 1, 1974,

(a) compensation was being paid to one or more dependants in respect of deaths occurring before that date,

(b) those dependants were not receiving or were not entitled to receive benefits under the *Canada Pension Plan*, and

(c) as applicable,

(i) the dependant was a widow who was 50 years of age or older or had a physical or mental disability that resulted in the spouse being incapable of earning,

(ii) the dependants were children, or

(iii) the dependants were a widow and children,

there must be added to the monthly payments under the compensation provisions the amount of \$523.62 for each such dependent widow and \$162.53 for each dependent child.

(2) If

(a) dependants would qualify for the increases under subsection (1) but for the fact that they are receiving or entitled to receive benefits under the *Canada Pension Plan*, and

(b) the amount of benefits under the *Canada Pension Plan* is less than the amounts specified in subsection (1),

the monthly payments payable to those dependants under the compensation provisions must be increased by the amount by which the benefits under the *Canada Pension Plan* are less than the specified amounts.

(3) The Board must make periodic payments under this section for the life of the person to whom the payment is to be made.

226 Compensation in relation to hearing loss before September 1, 1975

Compensation is not payable to a worker under section 145 [*non-traumatic hearing loss*]

(a) in respect of a period before September 1, 1975, or

(b) if the worker's exposure to causes of hearing loss in British Columbia ended before that date.

227 Compensation in relation to worker injury before January 1, 1986

In relation to a worker injured before January 1, 1986, section 209(2) [*maximum wage rate*] is to be read as if

(a) the reference to \$100 000 were a reference to \$11 200, and

(b) the reference to 2019 were a reference to 1972.

228 Compensation in relation to worker death before June 30, 2002

(1) In this section:

"former Act" means the *Workers Compensation Act*, R.S.B.C. 1996, c. 492;

"transition date" means December 31, 2003, being the date on which this section came into force.

(2) This section applies to a worker's death that occurred before June 30, 2002.

(3) Subject to subsections (5) and (6), the former Act, as it read immediately before June 30, 2002, applies to a death referred to in subsection (2).

(4) Subject to subsections (5) and (6), in recalculating compensation under sections 181 to 185 [*compensation adjustment when there are changes in circumstances*] of this Act, the Board must, if the actual date of the worker's death was before June 30, 2002, base the recalculation on the former Act as it read immediately before June 30, 2002.

(5) Section 334 [*annual adjustment of periodic payment amounts*] applies to compensation paid on or after the transition date in respect of a worker's death, irrespective of the date the worker died.

(6) For the purposes of applying subsections (3) and (4), the Board must adjust the dollar amounts referred to in sections 17 [*compensation in fatal cases*] and 18 [*addition to payments in relation to worker death before July 1, 1974*] and Schedule C [*Payments to Widows*] of the former Act, as it read immediately before June 30, 2002, in accordance with section 333(1) [*annual adjustment of dollar amounts referred to in Act*] of this Act.

229 Compensation in relation to worker injury before June 30, 2002

(1) In this section:

"former Act" means the *Workers Compensation Act*, R.S.B.C. 1996, c. 492;

"transition date" means June 30, 2002, being the date on which this section came into force.

(2) This section applies to an injury that occurred before the transition date.

(3) Subject to subsections (4) to (8), the former Act, as it read immediately before the transition date, applies to an injury that occurred before the transition date.

(4) Subject to subsections (5) to (8), if a worker's permanent disability first occurs on or after the transition date as a result of an injury that occurred before the transition date, this Act applies to the permanent disability.

(5) For the purposes of subsection (4), sections 194 to 196 [*compensation for permanent disability*] of this Act apply as if

(a) all references, other than references in section 196(3)(b)(i) [*permanent partial disability: exception to general rules*], to "90%" were read as "75%",

(b) all references, other than references in section 196(3)(b)(i), to "average net earnings" were read as references to "average earnings determined under the former Act immediately before the transition date", and

(c) section 196(3)(b)(i) read as follows:

(i) the average earnings that the worker is earning after the injury, as determined under the former Act immediately before the transition date.

(6) Section 202 [*deductions in relation to Canada Pension Plan disability benefit*] does not apply in the circumstances described in subsection (4) of this section.

(7) Section 334 [*annual adjustment of periodic payment amounts*] applies to compensation paid to a worker on or after December 31, 2003, being the date on which section 228(5) came into force, irrespective of the date the worker was injured.

(8) If a worker has, on or after the transition date, a recurrence of a disability that results from an injury that occurred before the transition date, the Board must determine compensation for the recurrence based on this Act.

Part 4 Division 10 - Compensation Payments and Other General Matters

230 Manner of compensation payment: periodic or lump sum

(1) Subject to this section, payments of compensation under this Part must be made periodically at the times and in the manner and form the Board considers advisable.

(2) The Board may, at the Board's discretion, do the following:

(a) commute all or part of

- (i) the periodic payments due or payable to a worker or dependant, and
 - (ii) the future amounts that are to be set aside for payment of a retirement benefit, to one or more lump sum payments, to be applied as directed by the Board;
- (b) divide into periodic payments compensation that is otherwise payable as a lump sum.

(3) In the case of a worker's

- (a) death,
 - (b) permanent total disability, or
 - (c) permanent partial disability where the impairment of the earning capacity of the worker is greater than 10% of the worker's earning capacity at the time of the injury,
- commutation of periodic payments must not be made under subsection (2) except on the application of and at an amount agreed to by the worker or dependant entitled to the payments.

231 Payment of compensation in specific circumstances

(1) In the case of payments of compensation to

- (a) a minor, or
 - (b) a person of unsound mind who the Board considers incapable of managing the person's own affairs,
- the payments may be made to the person that the Board considers best qualified in all the circumstances to administer the payments, whether or not that person is the legal guardian of the person in respect of whom the payment is being made.

(2) If an injured worker is receiving custodial care in a hospital or elsewhere, periodic payments of compensation due to the worker may be dealt with as follows, regardless of the date of the injury:

(a) in a case of temporary disability of the worker, the payments may be

- (i) applied to the maintenance of a home to which the worker is likely to return on the worker's recovery, or
- (ii) accumulated by the Board for payment to the worker on the worker's recovery;

(b) in a case of permanent disability of the worker, the payments may be applied toward the cost of the worker's maintenance;

(c) in any case, the payments may be paid to or for the benefit of

(i) the worker, to the extent the worker is able to make use of the compensation for personal needs or is able to manage the worker's own affairs, or

(ii) any person who is dependent on the worker for support.

(3) As a restriction on subsection (2)(b), if the worker is conscious, the Board must pay to the worker, or for the use of the worker, a comfort allowance of at least \$266.61 out of each periodic payment.

(4) Any compensation owing or accrued to a worker for a period not longer than 3 months before the worker's death may, at the discretion of the Board, be paid to a surviving spouse or a person who takes charge of the funeral arrangements, free from debts of the deceased.

232 Board authority to discontinue, suspend or otherwise deal with compensation payments

(1) If a worker is confined to prison, the Board may cancel, withhold or suspend the payment of compensation for the period the Board considers advisable.

(2) If compensation is withheld or suspended under subsection (1), the Board may pay the compensation or any portion of it to

(a) the worker's spouse or the worker's children, or

(b) a trustee appointed by the Board, who must use the payment for the benefit of the worker, the worker's spouse or the worker's children.

(3) If an order for spousal support or child support has been made against a worker by a court of competent jurisdiction, the Board may divert all or part of the compensation payable to the worker from the worker for the benefit of the worker's spouse or children.

233 Deduction in relation to payments from employer

- (1) In setting the amount of a periodic payment of compensation to a worker, the Board must consider payments, allowances or benefits that the worker may receive from the worker's employer during the period of the worker's disability, including a pension, gratuity or other allowance provided wholly at the expense of the employer.
- (2) An amount deducted under this section from the compensation otherwise payable to a worker may be paid to the worker's employer out of the accident fund.

234 Restriction on compensation in relation to injury or death from warlike actions

- (1) This section applies if
 - (a) a worker's personal injury, disablement or death occurs in the course of the worker's employment as a direct result of enemy warlike action or counteraction taken against such enemy action, and
 - (b) provision has been made by the government of Canada for compensation for the worker or the worker's dependants in respect of the injury, disablement or death.
- (2) The worker or the worker's dependants are entitled to compensation under this Part only if the compensation provided by the government of Canada is less than that provided by this Act, and then only to the extent of the difference.

235 Confidentiality obligations in relation to compensation claims information

- (1) If information in a claim file, or in any other material relating to the claim of an injured or disabled worker, is disclosed for the purposes of this Act by an officer or employee of the Board to a person other than the worker, that other person must not disclose the information except as follows:
 - (a) in compliance with an enactment of British Columbia or Canada;
 - (b) in compliance with a subpoena, warrant or order issued or made by a court, tribunal, person or body with jurisdiction to compel the production of information;
 - (c) for the purpose of preparing a submission or argument for a proceeding under a compensation provision, an OHS provision or Part 7 [*Appeals to Appeal Tribunal*];
 - (d) if the information is about a person, the person has identified the information and consented, in the manner required by the Board, to disclosure of that information.
- (2) A court, tribunal or other body may not admit into evidence any information that is disclosed in contravention of subsection (1).
- (3) A person who contravenes subsection (1) commits an offence.

236 Penalties in relation to offences under the compensation provisions

- (1) A person who commits an offence under a compensation provision for which no other punishment has been provided is liable on conviction to a fine not greater than \$5 949.56.
- (2) Every person who contravenes or fails to comply with a regulation made under a compensation provision commits an offence and is liable on conviction to the fine prescribed by the regulations, but that fine must not be greater than \$5 949.56.
- (3) Penalties imposed by or under the authority of the compensation provisions
 - (a) are recoverable under the *Offence Act* or by an action brought by the Board in a court of competent jurisdiction, and
 - (b) when collected, must be paid over to the Board to form part of the accident fund.

237 Additional Board authority for compensation orders, directives, rules and regulations

- (1) In addition to the rules and regulations that may be made under the compensation provisions, the Board may
 - (a) issue the orders and directives the Board considers necessary for the administration and carrying out of those provisions, and
 - (b) establish rules respecting the form and use of payrolls, reports, certificates and declarations and other records that may be needed for those purposes.
- (2) If the Board considers this necessary, the Board may make regulations for the purposes referred to in subsection (1).

238 Effective date of Board's compensation regulations

- (1) Subject to subsection (2), a regulation of the Board under a compensation provision must specify the date on which the regulation is to come into force, which date must be at least 90 days after its deposit under the *Regulations Act*.
- (2) The Board may specify a date that is less than 90 days after the date of deposit as the effective date of a regulation made under section 138(1) in relation to an occupational disease that is an infection caused by a communicable viral pathogen.

Part 5 Contents

Division 1 – Accident Fund and Assessments for Purposes of Fund

- 239 [Accident fund](#)
- 240 [Board estimate of amounts needed for accident fund](#)
- 241 [Annual employer assessments for accident fund purposes](#)
 - 242 [Additional assessment amounts](#)
 - 243 [General rules in relation to assessments](#)
 - 244 [Classification of industries](#)
- 245 [Employer obligation to provide payroll estimates and reports](#)
- 246 [Use of payroll information for purpose of assessment](#)
 - 247 [Variation of assessment rates](#)
 - 248 [Class accounts for accident fund](#)

Division 2 – Special Assessment Rules

- 249 [Compensation charged to different employer class or subclass](#)
 - 250 [Apportionment in other circumstances](#)
 - 251 [Levy of contribution from specific employer](#)

Division 3 – Collection of Assessments

- 252 [Assessment notice to employers](#)
- 253 [Assessment operates by Board notice](#)
- 254 [Annual adjustment of assessments](#)
- 255 [Interest may be charged on amounts owed on assessment](#)
 - 255.1 [Demand on third party](#)
 - 255.2 [Failure to comply with demand](#)
- 256 [Collection after change in owners or employers](#)
 - 257 [Collection from municipal contractors](#)
 - 258 [Contractor and other liability for assessment](#)
 - 258.1 [Director's liability](#)
 - 259 [Employer still liable if assessment not made](#)
- 260 [Temporary industries - requirement for payment or security](#)
 - 261 [Penalty for default in payment or return](#)
- 262 [Employer assessment in relation to injury not reported as required](#)
- 263 [Employer payment for compensation provided during period of default](#)
 - 264 [Collection of assessments by legal action or certificate](#)
 - 265 [Priority as to amounts due to the Board](#)
 - 266 [Court order restraining industry if employer defaults](#)

Part 5 Division 1 - Accident Fund and Assessments for Purposes of Fund

239 Accident fund

(1) The Board must continue and maintain the accident fund

- (a) for payment of compensation, outlays and expenses under the compensation provisions,
- (b) for payment of expenses incurred in the Board's administration of this Act, and

(c) for payment to the government required under section 283(2) [*appeal tribunal expenses*] or 350(4) [*workers' advisers and employers' advisers expenses*].

(2) The Board is solely responsible for the management of the accident fund and must manage it with a view to the best interests of the workers' compensation system.

240 Board estimate of amounts needed for accident fund

- (1) For the purpose of assessment under section 241, the Board must every year make an estimate of sufficient funds to do the following:
- (a) meet all amounts payable from the accident fund during the year;
 - (b) provide a reserve in aid of industries or classes which may become depleted or extinguished;
 - (c) provide a reserve to be used to meet the loss arising from a disaster or other circumstance that the Board considers would unfairly burden the employers in a class;
 - (d) provide and maintain a reserve for payment of that portion of the disability enhanced by reason of a pre-existing disease, condition or disability;
 - (e) provide in each year capitalized reserves sufficient to meet the periodic payments of compensation accruing in future years in respect of all injuries which occur during the year;
 - (f) provide and maintain a reserve for payment of retirement benefits.
- (2) If it is found, on an estimate made by the Board, that more than sufficient funds have been provided for the purposes set out in subsection (1) (a) to (d), the excess may be transferred to the capitalized reserves of the fund.

241 Annual employer assessments for accident fund purposes

- (1) For the purpose of continuing and maintaining an adequate accident fund, the Board must every year assess and levy on and collect from employers and independent operators in each class established under section 244 [*classification of industries*] sufficient funds as estimated for the year under section 240.
- (2) An assessment under this section must be rated on payroll, rated on a unit of production or made in another manner the Board considers proper.

242 Additional assessment amounts

- (1) If the Board considers that there are not sufficient funds to provide the compensation required to be paid under the compensation provisions,
- (a) the Board may levy on and collect from employers within the scope of the compensation provisions sufficient funds for this purpose without regard to the date of injury or the period during which the employer carried on an industry within the scope of those provisions,
 - (b) the levy and collection may be by way of addition to the usual assessment or by levy of special or additional assessment, and
 - (c) the levy and collection may be made in the manner and at the times the Board considers equitable.
- (2) If the estimated assessments in a class prove insufficient, the Board
- (a) may make further assessments and levies as necessary, or
 - (b) may temporarily advance the amount of a deficiency out of any reserve provided for that purpose and add that amount to any subsequent assessments.
- (3) The following apply if special circumstances, including legislative change, result in claims being made or liabilities being imposed on the accident fund in excess of what the Board considers should reasonably be funded by assessments levied during the current year:
- (a) the Board must raise sufficient funds by assessments during that year to meet the estimated payments due within the year;
 - (b) the Board need not establish within the year reserves to meet future payments on those claims or liabilities and may instead establish those reserves by assessments levied over a period of years.

243 General rules in relation to assessments

(1) Assessments

- (a) may be made in the manner and form and by the procedure the Board considers adequate and expedient, and
 - (b) may be general as applicable to a class or subclass, or special as applicable to an industry or part or department of an industry.
- (2) If the Board considers this to be expedient, assessments may be collected in half-yearly, quarterly or monthly instalments, or otherwise.
- (3) If the Board considers that the funds in a class are sufficient for the time being, an instalment may be reduced or cancelled or its collection deferred.

244 Classification of industries

(1) The following classes are established for the purpose of assessment in order to maintain the accident fund:

Class 1: Primary resources

Class 2: Manufacturing

Class 3: Construction

Class 4: Transportation and warehousing

Class 5: Trade

Class 6: Public sector

Class 7: General sector

Class 8: Canadian Pacific Railway Limited, Teck Resources Limited

Class 9: BNSF Railway Company

Class 10: Air Canada, Canadian National Railway, Via Rail Canada Inc.

Class 11: British Columbia Assessment Authority, British Columbia Ferry Services Inc., Government of British Columbia, Workers' Compensation Board.

(2) The Board may do one or more of the following:

(a) establish new classes in addition to those referred to in subsection (1);

(b) divide classes into subclasses and divide subclasses into further subclasses;

(c) consolidate or rearrange any existing classes and subclasses;

(d) assign an employer, independent operator or industry to one or more classes or subclasses;

(e) withdraw any of the following from a class and transfer it to another class or subclass or form it into a separate class or subclass:

(i) an employer, independent operator or industry;

(ii) a part of the class;

(iii) a subclass or part of a subclass;

(f) withdraw any of the following from a subclass and transfer it to another class or subclass or form it into a separate class or subclass:

(i) an employer, independent operator or industry;

(ii) a part of the subclass;

(iii) another subclass or part of another subclass.

(3) If the Board exercises authority under subsection (2), it may make the adjustment and disposition of the funds, reserves and accounts of the classes and subclasses affected that the Board considers just and expedient.

245 Employer obligation to provide payroll estimates and reports

(1) An employer must do the following:

(a) keep at all times at a place in British Columbia complete and accurate particulars of the employer's payrolls;

(b) notify the Board of the current location of the place referred to in paragraph (a);

(c) provide to the Board an estimate of the probable amount of the payroll of each of the employer's industries within the scope of the compensation provisions, together with any further information required by the Board,

(i) when the employer becomes an employer within the scope of those provisions, and

(ii) at other times as required by Board regulation of general application or by an order of the Board limited to a specific employer;

(d) provide to the Board certified copies of reports of the employer's payrolls, on or after the end of each calendar year and at the other times and in the manner required by the Board.

(2) If an employer fails to comply with subsection (1),

- (a) the employer must pay, as a penalty for the failure, the percentage of the assessment prescribed by Board regulation or determined by the Board, and
 - (b) the Board may make its own estimate of the payrolls and make its assessment and levy based on that estimate, in which case the employer is bound by the estimate, assessment and levy.
- (3) If an employer fails to comply with subsection (1), or if a statement made under the requirements of that subsection is not true and accurate, the employer commits an offence for every such failure to comply and for every such statement.

246 Use of payroll information for purpose of assessment

- (1) In computing the amount of the payroll for the purpose of assessment, regard must be had only to that portion of the payroll that represents workers and employment within the scope of the compensation provisions.
- (2) If a worker's wages are greater than the maximum wage rate for the year as determined under section 209, a deduction may be made where practical in respect of the portion in excess of that rate.
- (3) If the wages of a worker are shown to be greater than the maximum wage rate referred to in subsection (2), the Board may make a deduction where practical in respect of the portion in excess of that rate.
- (4) If a worker works at a nominal wage or no wage, the Board may fix the amount of the worker's average earnings for purposes of the compensation provisions.

247 Variation of assessment rates

- (1) The Board must establish subclassifications, differentials and proportions in the rates as between the different kinds of employment in the same class, as the Board considers just.
- (2) If the Board considers that a particular industry or plant is circumstanced or conducted such that the hazard or cost of compensation differs from the average of the class or subclass to which the industry or plant is assigned, the Board
 - (a) must establish a special rate, differential or assessment for that industry or plant to correspond with the relative hazard or cost of compensation of the industry or plant, and
 - (b) for the purpose referred to in paragraph (a), may also adopt a system of experience rating.
- (3) The Board may, in a manner that the Board determines,
 - (a) vary the rates of assessment as between different employers, or
 - (b) levy supplementary assessments according to the estimated exposure of workers to industrial noise.
- (4) The Board may make that variance or levy under subsection (3) whether or not hearing protection is worn.

248 Class accounts for accident fund

- (1) Separate accounts must be maintained of the amounts collected and expended in respect of every class, reserve and special fund, but the accident fund is, for the purpose of paying compensation, one fund and indivisible.
- (2) If a deficit occurs in the account of a class or subclass, the Board
 - (a) may charge to that class or subclass interest on the amount of the deficit at a rate that will reimburse the accident fund for any loss sustained by reason of the deficit, and
 - (b) may apportion the amount of the interest received and credit that amount to the class or subclass or special fund from which money was advanced to meet the deficit.

Part 5 Division 2 - Special Assessment Rules

249 Compensation charged to different employer class or subclass

- (1) This section applies if the Board considers that
 - (a) a substantial amount of compensation has been awarded under the compensation provisions as a result of the injury or death of a worker, and

(b) the injury or death was caused or substantially contributed to by a serious breach of duty of care of

(i) an employer, or

(ii) an independent operator to whom the compensation provisions apply by Board direction under section 4(2)(a)

that is in a different class or subclass from that of the worker's employer.

(2) The Board may order that the compensation be charged, in whole or in part, to the class or subclass of an employer referred to in subsection (1)(b)(i) or an independent operator referred to in subsection (1)(b)(ii).

250 Apportionment in other circumstances

(1) If compensation is paid

(a) under section 141 [*mining industry silicosis*] in relation to a worker who was exposed to the inhalation of silica dust in 2 or more classes or subclasses of industry in British Columbia, or

(b) under section 142 [*lung disease from exposure to dust conditions*] in relation to a worker who was exposed to dust conditions in 2 or more classes or subclasses of industry in British Columbia,

the Board may apportion the cost of compensation among the funds provided by those classes or subclasses on the basis of the duration and severity of the exposure in each.

(2) If compensation is paid under section 145 [*non-traumatic hearing loss*] in relation to a worker's hearing loss caused by exposure to causes of hearing loss in 2 or more classes or subclasses of industry in British Columbia, the Board may apportion the cost of compensation among the funds provided by those classes or subclasses on the basis of the duration or severity of the exposure in each.

251 Levy of contribution from specific employer

(1) This section applies if

(a) an injury, death or disablement from occupational disease in respect of which compensation under Part 4 [*Compensation to Injured Workers and Their Dependants*] is payable occurs to a worker, and

(b) the Board considers that the injury, death or occupational disease was due substantially to

(i) the gross negligence of an employer,

(ii) the failure of an employer to adopt reasonable means for the prevention of injuries, deaths or occupational diseases, or

(iii) the failure of an employer to comply with the orders or directions of the Board, or with the regulations made under Part 2 [*Occupational Health and Safety*].

(2) The Board may levy on and collect from that employer as a contribution to the accident fund all or part of the amount of the compensation payable in respect of the injury, death or occupational disease, to a maximum of \$62 208.07.

(3) The payment of an amount levied under this section may be enforced in the same manner as the payment of an assessment may be enforced.

Part 5 Division 3 - Collection of Assessments

252 Assessment notice to employers

(1) The Board must notify each employer of the amount of each assessment due in respect of the employer's industry and the time when it is payable.

(2) A notice under subsection (1) may be sent by mail to the employer, and is deemed to be given to the employer on the day the notice is mailed.

253 Assessment operates by Board notice

(1) If the Board

(a) notifies an employer of assessment rates or percentages determined by the Board in respect of the industries in which the employer is engaged, and

(b) informs the employer of the manner in which the assessment is calculated and the date the assessment is payable,

the notice constitutes an assessment under this Part, and the employer must, within the time frame set out in the notice,

(c) make a return on the form provided or prescribed by the Board, and

(d) remit the amount of the assessment.

(2) An employer who neglects or refuses to comply with subsection (1) is liable for the penalty prescribed by Board regulation or determined by the Board, and that penalty is enforceable as an assessment under this Part.

254 Annual adjustment of assessments

(1) As soon as practicable in each year, the Board must adjust the amount of the assessments for the preceding calendar year based on the estimated requirements of the class and on the correctly ascertained payroll of each industry.

(2) In relation to the adjustment under subsection (1), as applicable,

(a) the employer must promptly make up and pay to the Board any deficiency, or

(b) the Board must refund to the employer any surplus, or credit the surplus on the succeeding assessment, as the case may require.

255 Interest may be charged on amounts owed on assessment

(1) This section applies if

(a) the payroll of an industry ascertained under section 254(1) is greater than the estimated payroll on which an employer in that industry was assessed, or

(b) an employer remits less than the amount of the assessment due to the Board.

(2) The Board may, on the adjustment under section 254(1), charge to the employer interest on the amount of the deficiency in the assessment at a rate the Board considers will reimburse the accident fund for any loss sustained by reason of the deficiency.

(3) Interest under subsection (2) must be added to the amount of the deficiency and becomes a part of that amount.

255.1 Demand on third party

(1) If the Board has reason to believe that a person is or is likely to become indebted to an employer that owes an amount to the Board under this Act, the Board may demand in writing that the person pay to the Board, on account of the employer's liability to the Board, all or part of the money otherwise payable to the employer.

(2) A person on whom a demand is made under this section must, if indebted to the employer, pay to the Board or to someone specified by the Board the amount demanded, within 15 days after the later of

(a) the date the demand is served, and

(b) the date the person named in the demand becomes indebted to the employer.

(3) The Board's receipt for money paid by a person in response to a demand made under this section is proof that the person's liability to the employer that owes money to the Board is discharged to the extent of the amount stated in the receipt.

(4) For the purposes of this section, a savings institution is indebted to an employer that owes money to the Board for money or a beneficial interest in money in the savings institution

(a) on deposit to the credit of that employer when a demand is served under this section,

(b) held in trust by a depositor for that employer when a demand is served under this section, or

(c) deposited to the credit of that employer after a demand is served under this section.

(5) A demand made under this section continues in effect until it is satisfied or until it is cancelled by the Board.

255.2 Failure to comply with demand

(1) If a person on whom a demand is made under section 255.1 does not comply with the demand,

(a) the Board may enforce recovery of the amount stated in the demand as if it were an unpaid assessment owed to the Board by the person, and

(b) sections 108 and 264 of this Act apply to the recovery of that amount.

(2) If a person on whom a demand is made under section 255.1 denies indebtedness to an employer that owes money to the Board, the Board may require that person to produce information the Board considers necessary to establish that there is no indebtedness.

(1) This section applies if a change of ownership or employership has occurred in an industry.

(2) The Board may, as applicable,

(a) levy any deficiency in an assessment on any of the successive owners or employers, or

(b) pay or credit the amount that is surplus to the assessment to any one or more of those owners.

(3) Unless there is an agreement between the successive owners or employers determining the apportionment of assessment, assessment is apportionable between or among the successive owners, as nearly as may be, in accordance with the proportions of the payrolls of the respective periods of ownership or employership.

257 Collection from municipal contractors

(1) This section applies to work within the scope of the compensation provisions that is performed under contract for

(a) a municipal corporation, or

(b) a board or commission having the management of any work or service operated for a municipal corporation.

(2) An assessment in respect of the work may be paid by the corporation, board or commission referred to in subsection (1), as the case may be, and the amount of the assessment may be deducted from money due the contractor in respect of the work.

258 Contractor and other liability for assessment

(1) The following applies if work within the scope of the compensation provisions is undertaken for a person by a contractor:

(a) both the contractor and the person for whom the work is undertaken are liable for the amount of an assessment in respect of the work;

(b) the assessment may be levied on and collected from either of them, or partly from each;

(c) in the absence of a term in the contract for the work to the contrary, the contractor is, as between the contractor and the person for whom the work is performed, primarily liable for the amount of the assessment.

(2) The following applies if work within the scope of the compensation provisions is performed under subcontract:

(a) both the contractor and the subcontractor are liable for the amount of an assessment in respect of the work;

(b) the assessment may be levied on and collected from either of them, or partly from each;

(c) in the absence of a term in the subcontract for the work to the contrary, the subcontractor is, as between the subcontractor and the contractor, primarily liable for the amount of the assessment.

(3) The workers of a contractor or subcontractor may, at the discretion of the Board, be deemed to be workers of another person if

(a) the contractor or subcontractor is doing work in or for the purposes of an industry carried on by the other person,

(b) the industry is within the scope of the compensation provisions, and

(c) the contractor or subcontractor is not assessed with respect to the work.

(4) For the purposes of this section, a person, contractor or subcontractor includes an employer within the scope of the compensation provisions.

258.1 Director's liability

(1) Subject to this section, if a corporation has failed to pay an amount owed to the Board under this Act, the directors of the corporation at the time the corporation was required to pay the amount are jointly and severally liable with that corporation to pay that amount.

(2) A director is not liable under subsection (1) unless one of the following has occurred:

(a) a certificate has been filed under section 108 (1) (b) or 264 (3) with respect to the amount the corporation is liable to pay and execution for that amount has been returned unsatisfied in whole or in part;

(b) the corporation has been dissolved or has commenced liquidation proceedings in any jurisdiction;

(c) the corporation has, under the *Bankruptcy and Insolvency Act* (Canada),

(i) made an assignment in bankruptcy,

- (ii) filed a notice of intention to make a proposal with the official receiver, or
- (iii) made a proposal under Division 1 of Part III of that Act;
- (d) a bankruptcy order has been made against the corporation under the *Bankruptcy and Insolvency Act* (Canada);
- (e) the corporation has obtained a court order granting a stay of proceedings under section 11.02 of the *Companies' Creditors Arrangement Act* (Canada);
- (f) the corporation has been or is subject in any jurisdiction to a proceeding similar in nature to a proceeding referred to in paragraphs (c) to (e) of this subsection.

(3) A director is not liable under subsection (1) if the director exercised the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances to prevent the corporation's failure to pay an amount owed to the Board.

(4) No action lies and no proceeding may be commenced to recover an amount payable by a director under subsection (1) after 2 years have elapsed since the date that the director ceased to be a director of the corporation.

(5) If a director pays an amount in respect of a corporation's liability referred to in subsection (1) that is proved in liquidation, dissolution or bankruptcy proceedings,

(a) the director is entitled to the same priority to which the Board would have been entitled if the amount had not been paid, and

(b) if a certificate that relates to that amount has been registered, the director is entitled to an assignment of the certificate to the extent of the director's payment, and the Board may make that assignment.

(6) If a director is liable for an amount under subsection (1),

(a) the Board may enforce recovery of the amount as if it were an unpaid assessment owed to the Board by the person, and

(b) sections 108 and 264 apply to the recovery of that amount.

259 Employer still liable if assessment not made

If for any reason an employer liable to assessment is not assessed in any year,

(a) the employer is nevertheless liable to pay the Board the amount for which the employer should have been assessed, and

(b) payment of that amount may be enforced in the same manner as the payment of an assessment may be enforced.

260 Temporary industries "requirement for payment or security

(1) This section applies if

(a) an employer engages in an industry within the scope of the compensation provisions and has not been assessed in respect of the industry, and

(b) the Board considers that the industry is to be carried on only temporarily.

(2) The Board may require the employer to

(a) pay to the Board an amount sufficient to pay the assessment for which the employer would be liable if the industry had been in existence when the most recent assessment under section 241 [*annual employer assessments for accident fund purposes*] was made, or

(b) give security for payment to the Board of the amount described in paragraph (a).

(3) An employer who fails to comply with a requirement of the Board under subsection (2) commits an offence.

261 Penalty for default in payment or return

(1) Subject to subsection (3), if an assessment levied under the compensation provisions is not paid at the time when it becomes payable, the defaulting employer must pay, as a penalty for the default, the applicable percentage of the following, as prescribed by Board regulation or determined by the Board:

(a) the amount unpaid;

(b) the assessment for the preceding year;

(c) the projected assessment for the current year.

(2) A penalty under subsection (1)

(a) may be added to the amount of the assessment and become a part of the assessment, and

(b) if the penalty is not added to the assessment, must be enforced in the same manner as the payment of an assessment is enforced.

(3) If satisfied that the default was excusable, the Board may in a specific case relieve the employer in whole or in part from liability under this section.

262 Employer assessment in relation to injury not reported as required

(1) This section applies if the Board pays compensation under section 150(8) [*payment of compensation where employer defaults in reporting*].

(2) If compensation is paid under section 150(8) before 3 days after the Board receives the report required by that section, that compensation may be levied and collected from the employer by way of additional assessment as a contribution to the accident fund, and payment may be enforced in the same manner as other assessments.

(3) If the Board is satisfied that the delay in reporting was excusable, it may relieve the employer in whole or in part of the additional assessment imposed under this section.

263 Employer payment for compensation provided during period of default

(1) This section applies if an employer

(a) refuses or neglects to make or provide a payroll estimate or other record required to be provided by the employer under section 245(1) [*employer obligation to provide payroll estimates and reports*], or

(b) refuses or neglects to pay

(i) an assessment,

(ii) the provisional amount of an assessment, or

(iii) an instalment or part of an assessment or a provisional amount of an assessment.

(2) Subject to subsection (4), the employer must, in addition to any penalty or other liability to which the employer may be subject, pay the Board the full amount or capitalized value, as determined by the Board, of the compensation payable in respect of an injury or occupational disease to a worker in the employer's employ that happens during the period of the default referred to in subsection (1).

(3) The payment of an amount required to be paid under subsection (2) may be enforced in the same manner as the payment of an assessment may be enforced.

(4) If satisfied that the default was excusable, the Board may in a specific case relieve the employer in whole or in part from liability under this section.

264 Collection of assessments by legal action or certificate

(1) If an assessment or part of an assessment is not paid in accordance with the terms of the assessment and levy, the Board has a right of action against the defaulting employer in respect of the amount unpaid, together with costs of the action.

(2) If default is made in the payment of an assessment or part of an assessment, the Board may issue a certificate stating

(a) that the assessment was made,

(b) the amount remaining unpaid on account of the assessment, and

(c) the person by whom the amount was payable.

(3) A certificate under subsection (2), or a copy of it certified by the secretary of the Board under the seal of the Board to be a true copy, may be filed with any district registrar of the Supreme Court.

(4) On filing under subsection (3), the certificate becomes an order of the Supreme Court and may be enforced as a judgment of that court against the person named in the certificate for the amount stated in the certificate.

265 Priority as to amounts due to the Board

(1) This section applies to an amount due to the Board from an employer or, if an assignment has been made under subsection (7), from the assignee,

(a) on an assessment under this Act,

(b) in respect of an amount the employer is required to pay to the Board under this Act, or

(c) on a judgment for an amount referred to in this subsection.

(2) Despite any other Act but subject to subsection (3), an amount referred to in subsection (1) constitutes a lien in favour of the Board or its assignee payable in priority over all liens, charges or mortgages of every person, whenever created or to be created, with respect to the property or proceeds of property, real, personal or mixed, used in or in connection with or produced in or by the industry with respect to which the employer was assessed or the amount became payable, excepting liens for wages due to workers by their employer and liens under section 50(1) of the *Temporary Foreign Worker Protection Act*.

(3) The Board's priority under subsection (2) does not apply to liens for wages due to workers by their employer, other than a lien for wages that is, under section 87(5) [*lien for unpaid wages*] of the *Employment Standards Act*, postponed to a mortgage or debenture.

(3.1) The exception in subsection (3) respecting liens under section 50(1) of the *Temporary Foreign Worker Protection Act* does not apply in respect of a lien that is, by section 50(4) of the *Temporary Foreign Worker Protection Act*, postponed to a mortgage or debenture.

(4) In relation to an employer that is a corporation, the reference to "property" in subsection (2) includes the property of a director, manager or other principal of the corporation

(a) that is used in, or in connection with, the industry with respect to which the employer was assessed or the amount became payable, or

(b) that was used as described in paragraph (a) within the period in respect of which assessments of the employer are unpaid.

(5) The lien under subsection (2) for the amount due the Board or its assignee continues to be valid and in force with respect to each assessment until the expiration of 5 years from the end of the calendar year for which the assessment was levied.

(6) Without limiting subsection (2), the Board may enforce its lien by proceedings under the *Court Order Enforcement Act*.

(7) The Board may assign its lien rights to a contractor, subcontractor or other person referred to in section 258 [*contractor and other liability for assessment*] who has fully discharged the person's liability for the amount of an assessment under that section by payment of that amount.

266 Court order restraining industry if employer defaults

(1) The Supreme Court may make an order under subsection (2) if

(a) an employer defaults in the payment of an assessment,

(b) an execution, issued on a judgment entered with respect to the assessment, is returned with a certificate from a sheriff or the sheriff's deputy that the sheriff or deputy was unable wholly to satisfy the execution, and

(c) an industry, or an activity in an industry, within the scope of the compensation provisions is commenced or continues to be carried on by one or more of the following persons:

(i) the judgment debtor;

(ii) if the judgment debtor is a company, within the meaning of the *Business Corporations Act*, an individual who is a member of the board of directors of the judgment debtor as a result of having been elected or appointed to that position;

(iii) if the judgment debtor is a corporation other than a company, within the meaning of the *Business Corporations Act*, a person who is a member of the board of directors or other governing body of the judgment debtor, regardless of the title by which that person is designated;

(iv) the chair or a vice chair of the board of directors or other governing body of the judgment debtor, if that chair or vice chair performs the functions of the office on a full-time basis, regardless of the title by which that person is designated;

(v) the president of the judgment debtor, regardless of the title by which that person is designated;

(vi) a vice president in charge of a principal business unit of the judgment debtor, including sales, finance or production, regardless of the title by which that person is designated;

(vii) an officer of the judgment debtor, whether or not the officer is also a director of the judgment debtor, who performs a policy-making function in respect of the judgment debtor and who has the capacity to influence the direction of the judgment debtor, regardless of the title by which that person is designated;

(viii) a person who is not described in any of subparagraphs (ii) to (vii) of this paragraph but who performs the functions described in any of those subparagraphs, and who participates in the management of the judgment debtor, other than a person who

(A) participates in the management of the judgment debtor under the direction or control of a shareholder or a person described in any of subparagraphs (ii) to (vii),

(B) is a lawyer, accountant or other professional whose primary participation in the management of the judgment debtor is the provision of

professional services to the judgment debtor,

(C) is, if the judgment debtor is bankrupt, a trustee in bankruptcy who participates in the management of the judgment debtor or exercises control over its property, rights and interests primarily for the purposes of the administration of the bankrupt's estate, or

(D) is a receiver, receiver manager or creditor who participates in the management of the judgment debtor or exercises control over any of its property, rights and interests primarily for the purposes of enforcing a debt obligation of the judgment debtor.

(2) In the circumstances described in subsection (1), the Supreme Court, on an application made on behalf of the Board, without the commencement of an action, may make an order restraining one or more persons described in subsection (1)(c) from carrying on an industry, or an activity in an industry, within the scope of the compensation provisions until the amount due on the execution, all the assessments made by the Board and the costs of the application are paid.

Part 6 Contents

267	Definitions in relation to reviews
268	Requests for review
269	Who may request a review
270	Making request for a review
271	General matters in relation to requests for review
272	Conduct of review
273	Reconsideration directed by chief review officer
274	Delegation of chief review officer's powers and duties
275	Payment of compensation following review
276	Effect of review in relation to employer payment obligations

Part 6 Review of Board Decisions

267 Definitions in relation to reviews

For the purposes of this Part:

"employer" means,

(a) in relation to a review under section 268(1)(a) [*reviews in relation to OHS provisions*], an employer as defined in section 13 [*OHS definitions*], and

(b) in relation to a review under section 268(1)(b) or (c) [*reviews in relation to compensation provisions*],

(i) an employer as defined in section 1,

(ii) a person who is deemed to be an employer under the compensation provisions or the regulations under those provisions, or

(iii) the owner and the master of a fishing vessel for which there is crew to whom the compensation provisions apply as if the crew were workers;

"worker" means the following:

(a) a worker as defined in section 1;

(b) a person who is deemed to be a worker under the compensation provisions or the regulations under those provisions;

(c) a person to whom the compensation provisions apply as if the person were a worker.

268 Requests for review

(1) Subject to subsection (2), a person referred to in the applicable provision of section 269 may request a review officer to review the following in a specific case:

(a) a Board order respecting an occupational health or safety matter under the OHS provisions, a refusal to make such an order or a variation or cancellation of such an order;

(b) a Board decision respecting a compensation or rehabilitation matter under the compensation provisions;

(c) a Board decision under the compensation provisions respecting

(i) an assessment or classification matter,

(ii) a monetary penalty, or

(iii) an employer payment to the Board under any of the following:

(A) section 251 [*levy of contribution from specific employer*];

(B) section 262(2) [*employer assessment in relation to injury not reported as required*];

(C) section 263 [*employer payment for compensation in relation to injuries during period of default*].

(2) A review may not be requested under subsection (1) respecting the following:

(a) in relation to section 50 [*response to complaint respecting prohibited actions against a worker*], a determination, an order, a refusal to make an order or a cancellation of an order under that section;

(b) an assessment under section 108(1)(a) [*levy of amount owed by employer under the OHS provisions*];

(c) an assignment of an employer to a class or subclass, other than the assignment of an employer to a class or subclass that

(i) has employers as members, and

(ii) does not have subclasses as members;

(d) an assignment of a subclass to a class or subclass;

(e) a withdrawal of an employer from a class or subclass, other than the withdrawal of an employer from a class or subclass that

(i) has employers as members, and

(ii) does not have subclasses as members;

(f) a withdrawal of a subclass from a class or subclass;

(g) the allocation of income, compensation payments, outlays, expenses, assets, liabilities, surpluses or deficits to or from the account of a class or subclass or to or from a reserve of the accident fund, other than an allocation as it relates to a specific employer or an independent operator respecting

(i) the reserve referred to in section 240(1)(b), (c) or (d) [*reserve purposes*] or

(ii) the account of a class or subclass referred to in section 249 [*compensation charged to different employer class or subclass*];

(h) the determination of an assessment rate for a class or subclass, other than the modification to the assessment rate determined for an employer on the basis of the employer's own experience;

(i) [repealed].

269 Who may request a review

(1) Any of the following who is directly affected by a decision or order referred to in section 268(1)(a) [*OHS decisions*] may request a review of the decision or order:

(a) a worker;

(b) a family member of a deceased worker;

(c) an employer as defined in section 13 [*OHS definitions*];

(d) an owner as defined in section 13;

(e) a supplier as defined in section 13;

(f) a union as defined in section 13.

(2) Any of the following who is directly affected by a decision referred to in section 268(1)(b) [*compensation or rehabilitation decisions*] may request a review of the decision:

(a) a worker;

(b) a dependant of a deceased worker;

(c) an employer.

(3) An employer or independent operator who is directly affected by a decision referred to in section 268(1)(c) [*assessment, classification and*

other decisions affecting employers and independent operators] may request a review of the decision.

270 Making request for a review

- (1) A request for a review must be filed as follows:
 - (a) if a shorter time period is not prescribed under paragraph (b), within 90 days after the Board's decision or order is made;
 - (b) if a time period shorter than 90 days is prescribed by regulation of the Lieutenant Governor in Council with respect to the type of decision or order to be reviewed, within the shorter time period.
- (2) The chief review officer may extend the time to file a request for a review, including making an extension after the time to file has expired, if this is done on application and the chief review officer is satisfied that
 - (a) special circumstances existed that preclude or precluded the filing of a request for a review within the applicable time period required by subsection (1), and
 - (b) an injustice would otherwise result.
- (3) The filing of a request for a review under this section does not operate as a stay or suspend the operation of the decision or order under review unless, on application, the chief review officer orders otherwise.

271 General matters in relation to requests for review

- (1) As soon as practicable after a request for a review is filed under section 270, the Board must provide the parties to the review with a copy of the Board's records respecting the matter under review.
- (2) Subject to subsection (3), for the purposes of a specific review, if the employer has ceased to be an employer within the meaning of the compensation provisions, the chief review officer may deem an employers' adviser or an organized group of employers to be the employer.
- (3) An organized group of employers may be recognized by the chief review officer under subsection (2) only if the organized group includes among its members employers in the subclass of industry to which the employer who has ceased to be an employer belonged.

272 Conduct of review

- (1) This section applies to a review requested under section 270.
- (2) Subject to any Board practices and procedures for the conduct of a review, a review officer may conduct a review as the officer considers appropriate to the nature and circumstances of the decision or order being reviewed.
- (3) If a party to the review does not make a submission within the time required by any Board practices and procedures referred to in subsection (2), the review officer may
 - (a) complete the review and make a decision on the basis of the information before the review officer, or
 - (b) determine that the request for a review is abandoned.
- (4) A review officer may require an employer who is a party to a review respecting a matter referred to in section 268(1)(a) [*OHS decisions*] to post a notice in a specified form and manner to bring the review to the attention of the employees of the employer.
- (5) On application or on the chief review officer's own initiative, the chief review officer may suspend a review in a specific case in order to allow a review officer to deal with related matters at the same time.
- (6) After taking into account any applicable period of suspension under subsection (5), the review officer must make a decision on a review, within the following time period:
 - (a) if a time period is not established as set out in paragraph (b) of this subsection, within 150 days after the Board receives the request for a review;
 - (b) if a policy of the board of directors establishes a time period that is less than 150 days after the Board receives a request for a review, within the shorter time period.
- (7) A time period referred to in subsection (6)(b) may be different for different types of decisions or orders.
- (8) The chief review officer may extend the applicable time period in subsection (6)(a) or (b) if the complexity of the proceedings in a review or the matter under review makes the time period impractical.
- (9) The review officer may make a decision

(a) confirming, varying or cancelling the decision or order under review, or

(b) referring the decision or order under review back to the Board, with or without directions.

(10) Subject to sections 273 [*reconsideration directed by chief review officer*] and 288 [*appeal of review decisions*], a decision by the review officer under subsection (9) is final and the Board must comply with the decision.

273 Reconsideration directed by chief review officer

(1) The chief review officer may direct a review officer to reconsider a decision under section 272(9) in either of the following circumstances:

(a) on the chief review officer's own initiative;

(b) on application from a party to a completed review of a decision that may not be appealed to the appeal tribunal, if the chief review officer is satisfied that new evidence has become available or been discovered that

(i) is substantial and material to the decision, and

(ii) did not exist at the time of the review or did exist at that time but was not discovered and could not through the exercise of reasonable diligence have been discovered.

(2) Each party to a completed review may apply for reconsideration of a decision under subsection (1)(b) on one occasion only.

(3) Despite subsection (1), a review officer must not reconsider a decision

(a) more than 23 days after the decision was made, if a direction to reconsider was given under subsection (1)(a), or

(b) if the decision has been appealed under section 288 [*appeal of review decisions*].

274 Delegation of chief review officer's powers and duties

(1) The chief review officer may delegate to a review officer a power or duty of the chief review officer.

(2) A delegation under subsection (1) must be in writing and may include limits and conditions on the exercise of the power or performance of the duty.

(3) If the chief review officer has delegated a power or duty and subsequently ceases to hold office, the delegation continues in effect

(a) so long as the delegate continues in office, or

(b) until the delegation is revoked by a new chief review officer.

(4) The chief review officer may designate a review officer to act in the chief review officer's place during the chief review officer's temporary absence and, while acting in the chief review officer's place, the designated review officer has the power and authority of the chief review officer.

275 Payment of compensation following review

(1) If, following a review under this Part, a review officer's decision requires payments to be made to a worker or a deceased worker's dependants, the Board must

(a) begin any periodic payments, and

(b) pay any lump sum due under section 167 [*payment to dependent spouse or foster parent*].

(2) In the absence of fraud or misrepresentation, an amount paid under subsection (1) to a worker or a deceased worker's dependants is not recoverable.

(3) If a review officer has made a decision described under subsection (1), the Board must defer the payment of any compensation applicable to the time period before that decision

(a) for a period of 40 days following the review officer's decision, and

(b) if the review officer's decision is appealed under section 288 [*appeal of review decisions*], for a further period until the appeal tribunal has made a final decision or the appeal has been withdrawn, as the case may be.

(4) Subsection (3) applies despite the following:

(a) section 168(2) [*dependants of deceased worker*];

(b) section 191(1) [*temporary total disability*];

- (c) section 192(1) [*temporary partial disability*];
- (d) section 194(1) [*permanent total disability*];
- (e) section 195(1) [*permanent partial disability: general rules*];
- (f) section 196(3) [*permanent partial disability: exception to general rules*].

276 Effect of review in relation to employer payment obligations

- (1) The commencement of a review under this Part does not relieve an employer from paying an amount in respect of a matter that is the subject of the review.
- (2) If the decision on a review under this Part requires the refund of an amount to an employer, interest calculated in accordance with the policies of the board of directors must be paid to the employer on that refunded amount.

Part 7 Contents

Division 1 – Appeal Tribunal

- 277 [Definitions](#)
- 278 [Appeal tribunal and membership](#)
- 279 [End of appointment to appeal tribunal](#)
- 280 [Role of appeal tribunal chair](#)
- 281 [Delegation of chair's powers and duties](#)
- 282 [Appeal tribunal staff](#)
- 283 [Compensation and expenses of appeal tribunal members](#)
- 284 [Finances for appeal tribunal administration and operation](#)
- 285 [Appeal panels](#)
- 286 [Annual report to minister](#)

Division 2 – Appeal Rights

- 287 [Definitions in relation to appeals](#)
- 288 [Review decisions that may be appealed](#)
- 289 [Other Board decisions that may be appealed](#)
- 290 [Who may appeal: matters related to OHS provisions](#)
- 291 [Who may appeal: matters related to compensation provisions](#)
- 292 [How to appeal](#)
- 293 [Time limit for appeal](#)
- 294 [General rule: appeal does not stay decision](#)

Division 3 – Appeal Procedure

- 295 [Board provision of policies and records](#)
- 296 [Application of *Administrative Tribunals Act* to appeal tribunal](#)
- 297 [Appeal tribunal proceedings](#)
- 298 [Evidence admissible in appeal tribunal proceedings](#)
- 299 [Witnesses and production of information](#)
- 300 [Deemed employer](#)
- 301 [Health professional assistance to appeal tribunal](#)
- 302 [Health professional assistance in specific cases](#)
- 303 [Appeal tribunal decision making](#)
- 304 [Application of policies of the board of directors](#)
- 305 [Suspension of appeal proceedings pending Board decision](#)
- 306 [Decision on appeal](#)
- 307 [Amendment to final decision](#)

Division 4 – General

- 308 [Exclusive jurisdiction of appeal tribunal](#)
- 309 [Appeal tribunal decision or action final](#)
- 310 [Reconsideration of appeal tribunal decision](#)
- 311 [Request for appeal tribunal certification to court](#)
- 312 [Payment of compensation following appeal](#)
- 313 [Effect of appeal in relation to employer payment obligations](#)

277 Definitions

In this Part:

"**chair**" means the chair of the appeal tribunal appointed under section 278(2)(a);

"**extraordinary member**" means a member of the appeal tribunal appointed under section 278(2)(c);

"**health professional**" means a medical practitioner, a person entitled to practise medicine under the laws of another jurisdiction or any other person with prescribed qualifications;

"**members of the appeal tribunal**" means the chair, vice chairs and extraordinary members appointed under section 278(2) and temporary substitute members appointed under section 278(9);

"**presiding member**" means the member of the appeal tribunal chairing a panel of the tribunal;

"**vice chair**" means a vice chair of the appeal tribunal appointed under section 278(2)(b).

278 Appeal tribunal and membership

(1) The Workers' Compensation Appeal Tribunal is continued.

(2) The appeal tribunal consists of the following members appointed after a merit-based process:

(a) the chair appointed by the Lieutenant Governor in Council;

(b) one or more vice chairs appointed by the chair, after consultation with the minister;

(c) any extraordinary members appointed by the chair, after consultation with the minister, with representation from individuals with experience in employers' interests and from individuals with experience in workers' interests.

(3) The chair holds office for an initial term of 3 to 5 years and may be reappointed, after a merit-based process, for one or more successive terms of up to 5 years each.

(4) The vice chairs hold office for an initial term of 2 to 4 years and may be reappointed, after a merit-based process, for additional terms of up to 5 years.

(5) An extraordinary member holds office for the period required to discharge the person's duties as a member of a panel appointed by the chair under section 285(5)(b) or (6)(b) [*appointment of extraordinary members*].

(6) Individuals are not eligible for appointment as vice chairs unless they have successfully completed a merit-based process established or approved by the chair.

(7) Before beginning their duties, members of the appeal tribunal must take an oath of office in the form and manner prescribed by the Lieutenant Governor in Council.

(8) The *Labour Relations Code* and the *Public Service Labour Relations Act* do not apply to members or officers of the appeal tribunal.

(9) Despite subsections (3) to (5), if a member of the appeal tribunal is absent or incapacitated for an extended period or expects to be absent for an extended period,

(a) the Lieutenant Governor in Council, if the member is the chair, or

(b) the chair, if the member is a vice chair or extraordinary member,

may appoint another person, who would otherwise be qualified for appointment as a member, to replace the member until the member returns to full duty or the member's term expires, whichever comes first.

(10) The appointment of a person to replace a member under subsection (9) is not affected by the member returning to less than full duty.

279 End of appointment to appeal tribunal

(1) A member of the appeal tribunal may resign at any time by giving written notice to the chair or, in the case of the chair, to the minister.

(2) If a member resigns or the member's appointment expires, the chair may authorize that person to continue to exercise powers as a member of the appeal tribunal in any appeal in which that individual had jurisdiction immediately before the end of the person's term.

(3) The Lieutenant Governor in Council may terminate the appointment of the chair for cause.

(4) The chair may, after consultation with the minister, terminate the appointment of a member of the appeal tribunal for cause.

280 Role of appeal tribunal chair

(1) The chair is responsible for the general operation of the appeal tribunal.

(2) Without restricting subsection (1), the chair is responsible for the following:

- (a) appointing vice chairs and extraordinary members in accordance with any procedures or requirements prescribed by the Lieutenant Governor in Council;
 - (b) establishing quality adjudication, performance and productivity standards for members of the appeal tribunal and regularly evaluating the members according to those standards;
 - (c) developing a 3-year strategic plan and an annual operations plan for the appeal tribunal;
 - (d) establishing any forms, practices and procedures required for the efficient and cost-effective conduct of appeals to the appeal tribunal, including
 - (i) the time periods within which steps must be taken,
 - (ii) requiring pre-hearing conferences, and
 - (iii) employing voluntary alternate dispute resolution processes;
 - (e) making any forms, practices and procedures established under paragraph (d) accessible to the public;
 - (f) establishing administrative practices and procedures for the effective operation of the appeal tribunal;
 - (g) providing for public access to decisions of the appeal tribunal in a manner that protects the privacy of the parties to the proceedings;
 - (h) establishing a list of health professionals for the purposes of section 301 [*health professional assistance to appeal tribunal*];
 - (i) presiding over meetings of the appeal tribunal;
 - (j) establishing panels;
 - (k) ordering the consideration of related matters in one hearing before the appeal tribunal;
 - (l) establishing a code of conduct, including conflict of interest provisions, that governs the conduct of the members, officers, employees and contractors of the appeal tribunal;
 - (m) preparing the annual report of the appeal tribunal;
 - (n) appointing officers of the appeal tribunal;
 - (o) for the purpose of judicial proceedings, preparing a certificate attaching the record of the appeal tribunal in the matter of a particular appeal or decision of the tribunal, including any practices and procedures applied by the tribunal.
- (3) The chair may exercise any power and perform any duty or function of the appeal tribunal or of a member of the appeal tribunal.
- (4) The chair may designate another member of the appeal tribunal to act in the chair's place during the chair's temporary absence, and while acting in the chair's place the designated member has the power and authority of the chair.
- (5) The chair must attend not fewer than 4 meetings of the board of directors each calendar year to exchange information on matters of common interest and importance to the workers' compensation system.

281 Delegation of chair's powers and duties

(1) Subject to section 304(9) [*chair authority in relation to policies of the board of directors*], the chair may delegate in writing to another member of the appeal tribunal, or to an officer of the appeal tribunal, a power or duty of the chair and may impose limitations or conditions on the exercise of that power or performance of that duty.

(2) If the chair has delegated a power or duty of the chair and subsequently ceases to hold office, the delegation continues in effect

(a) so long as the delegate continues in office, or

(b) until the delegation is revoked by a new chair.

282 Appeal tribunal staff

(1) Employees necessary to exercise the powers and perform the duties of the appeal tribunal may be appointed under the *Public Service Act*.

(2) The *Public Sector Pension Plans Act* and the *Public Service Benefit Plan Act* apply to the employees of the appeal tribunal.

(3) Despite the *Public Service Act*, the appeal tribunal may engage or retain consultants and contractors that the appeal tribunal considers necessary to exercise the tribunal's powers and perform its duties, and may determine the functions and remuneration of those consultants and contractors.

283 Compensation and expenses of appeal tribunal members

(1) In accordance with general directives of the Treasury Board, members must be reimbursed for reasonable travelling and out-of-pocket expenses necessarily incurred in carrying out their duties.

(2) In accordance with general directives of the Treasury Board, the minister must set the remuneration for those members who are to receive remuneration.

(3) For the purposes of subsection (2), the Treasury Board may specify different rates of remuneration for different classes of members.

(4) The chair of the appeal tribunal must determine the class to which a member is assigned for the purposes of remuneration.

(5) The *Public Sector Pension Plans Act* and the *Public Service Benefit Plan Act* apply to the members of the appeal tribunal.

284 Finances for appeal tribunal administration and operation

(1) All money required for the administration and operation of the appeal tribunal must be paid by the government, but on request of the minister the Board must reimburse the government for all amounts so paid.

(2) On receiving a request under subsection (1), the Board must pay the amount requested to the Minister of Finance out of the accident fund.

285 Appeal panels

(1) All appeals to the appeal tribunal must be heard by panels appointed under this section.

(2) The chair must establish the panels of the appeal tribunal.

(3) The chair may

(a) terminate an appointment to a panel,

(b) fill a vacancy on a panel, and

(c) refer an appeal that is before one panel to another panel.

(4) Subject to subsections (5) and (6), panels must consist of the chair sitting alone or a vice chair sitting alone.

(5) If the chair determines that a matter under appeal requires consideration by a 3-member panel, the chair may appoint a panel with either of the following memberships:

(a) the chair or a vice chair, acting as presiding member, plus 2 additional vice chairs;

(b) the chair or a vice chair, acting as presiding member, plus one extraordinary member with experience in employers' interests and one extraordinary member with experience in workers' interests.

(6) If the chair determines that the matters in an appeal are of special interest or significance to the workers' compensation system as a whole, the chair may appoint a panel of up to 7 members with either of the following memberships:

(a) the chair or a vice chair, acting as presiding member, plus additional vice chairs;

(b) the chair or a vice chair, acting as presiding member, plus additional vice chairs and extraordinary members.

(7) If a panel is constituted under subsection (6)(b),

(a) there must be an equal number of extraordinary members appointed who have experience in employers' interests and who have experience in workers' interests, and

(b) the extraordinary members must not constitute a majority of the membership of the panel.

(8) A panel has the power and authority of the appeal tribunal in an appeal assigned to the panel under this section.

(9) If a panel consists of more than one member, the decision of the majority is the appeal tribunal's decision but, if there is no majority, the decision of the presiding member is the appeal tribunal's decision.

(10) Despite subsections (6) and (7), if a member of a panel constituted under subsection (6) is unable to complete an appeal, the chair may direct the remaining members of the panel to complete the appeal and make the decision of the appeal tribunal.

(11) If a panel is composed of one member and that member is unable for any reason to complete the member's duties, the chair of the appeal tribunal may appoint a new panel to continue to hear and determine the appeal on terms agreed to by the parties, and the vacancy does not invalidate the proceeding.

286 Annual report to minister

(1) On or before March 25 of each year, the chair must make a report to the minister respecting the appeal tribunal's operations for the preceding calendar year.

(2) The minister may require the annual report referred to in subsection (1) to address specified matters and to be in a specified form.

Part 7 Division 2 - Appeal Rights

287 Definitions in relation to appeals

For the purposes of this Part:

"review decision" means a decision of a review officer that may be appealed under section 288 [*review decisions that may be appealed*];

"worker" means the following:

(a) a worker as defined in section 1;

(b) a person who is deemed to be a worker under the compensation provisions or the regulations under those provisions;

(c) a person to whom compensation provisions apply as if the person were a worker.

288 Review decisions that may be appealed

(1) Subject to subsection (2), a final decision made by a review officer in a review under Part 6 [*Review of Board Decisions*], including a decision declining to conduct a review under that Part, may be appealed to the appeal tribunal.

(2) The following decisions made by a review officer may not be appealed to the appeal tribunal:

(a) a decision in a prescribed class of decisions respecting the conduct of a review;

(b) a decision respecting an order under Part 2 [*Occupational Health and Safety*], other than any of the following orders:

(i) an order relied on to impose an administrative penalty under section 95(1) [*administrative penalties - higher maximum amount*];

(ii) an order imposing an administrative penalty under section 95(1);

(iii) an order under section 96 [*certificates issued under OHS provisions*] to cancel or suspend a certificate;

(c) a decision respecting matters referred to in section 155 [*vocational rehabilitation*];

(d) a decision respecting the application under section 195(1) [*compensation for permanent partial disability*] of rating schedules compiled under subsection (3) of that section if the specified percentage of impairment has no range or has a range that is not greater than 5%;

(e) a decision respecting commutations under section 230 [*commutation of lump sum payment*].

289 Other Board decisions that may be appealed

(1) The following may be appealed to the appeal tribunal:

(a) a determination or order under section 50 [*response to worker complaint respecting prohibited action*];

(b) a refusal to make an order under that section;

(c) a cancellation of an order under that section.

(2) A decision to reopen or not to reopen a matter on an application under section 125 [*recurrence of injury or significant change in medical condition*] may be appealed to the appeal tribunal.

290 Who may appeal: matters related to OHS provisions

(1) In relation to a review officer decision respecting a matter referred to in section 268(1)(a) [*reviews in relation to OHS provisions*], any of the following who is directly affected by the decision may appeal that decision:

(a) a worker;

(b) a family member of a deceased worker;

(c) an employer as defined in section 13 [*definitions in relation to OHS provisions*];

(d) an owner as defined in section 13;

(e) a supplier as defined in section 13;

(f) a union as defined in section 13.

(2) In relation to a decision or order referred to in section 289(1) [*response to worker complaint respecting prohibited action*], any of the following who is directly affected by the decision or order may appeal that decision or order:

(a) a worker;

(b) an employer as defined in section 13;

(c) a union as defined in section 13.

291 Who may appeal: matters related to compensation provisions

(1) In relation to a review decision respecting a matter referred to in section 268(1)(b) [*compensation or rehabilitation matters*], any of the following who is directly affected by the decision may appeal that decision:

(a) a worker;

(b) a dependant of a deceased worker;

(c) an employer.

(2) In relation to a review decision respecting a matter referred to in section 268(1)(c) [*employer assessment, classification, payments and penalties*], an employer or independent operator who is directly affected by the decision may appeal that decision.

(3) In relation to a decision referred to in section 289(2) [*decision in relation to an application under section 125*], a worker or employer who is directly affected by the decision may appeal that decision.

(4) In this section, "**employer**" means the following:

(a) an employer as defined in section 1;

(b) a person who is deemed to be an employer under the compensation provisions or the regulations under those provisions;

(c) the owner and the master of a fishing vessel for which there is crew to whom the compensation provisions apply as if the crew were workers.

292 How to appeal

(1) A person authorized under section 290 or 291 to appeal a particular decision or order may appeal the decision or order by filing a notice of appeal with the appeal tribunal.

(2) A notice of appeal must

(a) be made in writing or in another form authorized by the appeal tribunal's rules,

(b) identify the decision or order that is being appealed,

(c) state why the decision or order is incorrect or why it should be changed,

(d) state the outcome requested,

- (e) include the name, address and telephone number of the appellant,
 - (f) if the appellant has an agent to act on the appellant's behalf in respect of the appeal, include the name of the agent and a telephone number at which the agent may be contacted during regular business hours,
 - (g) include an address for delivery of any notices in respect of the appeal, and
 - (h) be signed by the appellant or the appellant's agent.
- (3) If a notice of appeal is deficient, the appeal tribunal may allow a reasonable period within which the notice may be corrected.

293 Time limit for appeal

- (1) A notice of appeal respecting a decision referred to in section 288 [*review decisions that may be appealed*] must be filed within 30 days after the decision being appealed was made.
- (2) A notice of appeal respecting a decision referred to in section 289 [*other Board decisions that may be appealed*] must be filed within 90 days after the decision or order being appealed was made.
- (3) The chair may extend the time to file a notice of appeal under this section, including making an extension after the time to file has expired, if this is done on application and the chair is satisfied that
 - (a) special circumstances existed that preclude or precluded the filing of a notice of appeal within the applicable time period required by subsection (1) or (2), and
 - (b) an injustice would otherwise result.

294 General rule: appeal does not stay decision

Unless the appeal tribunal orders otherwise, the filing of a notice of appeal under section 292 does not operate as a stay or affect the operation of the decision or order under appeal.

Part 7 Division 3 - Appeal Procedure

295 Board provision of policies and records

- (1) The Board must provide the appeal tribunal with copies of all current policies of the board of directors.
- (2) As soon as practicable, the appeal tribunal must notify the Board of an appeal filed under this Part.
- (3) As soon as practicable after being given notice under subsection (2), the Board must provide the appeal tribunal and the parties to the appeal with a copy of the Board's records respecting the matter under appeal.
- (4) On request of the appeal tribunal and as soon as practicable, the Board must advise the appeal tribunal of any policy of the board of directors that is applicable to the matter under appeal.
- (5) As soon as practicable after receiving advice under subsection (4), the appeal tribunal must advise the parties to the appeal of any policy of the board of directors that the Board has advised the appeal tribunal is applicable to the matter under appeal.

296 Application of Administrative Tribunals Act to appeal tribunal

The following provisions of the *Administrative Tribunals Act* apply to the appeal tribunal:

- (a) Part 1 [*Interpretation and Application*];
- (b) section 7.1 [*validity of tribunal acts*];
- (c) Part 3 [*Clustering*];
- (d) the following provisions of Part 4 [*Practice and Procedure*]:
 - (i) section 11 [*general power to make practice and procedure rules*];
 - (ii) section 13 [*practice directives tribunal may make*];
 - (iii) section 14 [*general power to make orders*];
 - (iv) section 15 [*interim orders*];
 - (v) section 28 [*facilitated settlement*];

- (vi) section 29 [*disclosure protection*];
- (vii) section 30 [*tribunal duties*];
- (viii) section 31 [*summary dismissal*];
- (ix) section 32 [*representation of parties to an application*];
- (x) section 35(1) to (3) [*recording tribunal proceedings*];
- (xi) section 37 [*applications involving similar questions*];
- (xii) section 38 [*examination of witnesses*];
- (xiii) section 42 [*discretion to receive evidence in confidence*];
- (e) [repealed]
- (f) the following provisions of Part 6 [*Costs and Sanctions*]:
 - (i) section 48 [*maintenance of order at hearings*];
 - (ii) section 49 [*contempt proceeding for uncooperative witness or other person*];
 - (g) section 52 [*notice of decision*];
 - (h) Part 8 [*Immunities*];
 - (i) Part 9 [*Accountability and Judicial Review*], other than section 59 [*standard of review without privative clause*];
 - (j) the following provisions of Part 10 [*Miscellaneous*]:
 - (i) section 60(1)(a), (b) and (g) to (i) and (2) [*power to make regulations*];
 - (ii) section 61 [*application of Freedom of Information and Protection of Privacy Act*].

297 Appeal tribunal proceedings

- (1) Subject to any rules, practices or procedures established by the chair, the appeal tribunal may conduct an appeal in the manner it considers necessary, including conducting hearings in writing or orally with the parties present in person, by teleconference or videoconference facilities or by other electronic means.
- (2) Without restricting subsection (1), the appeal tribunal may do one or more of the following:
- (a) inquire into the matter under appeal and consider all information obtained;
 - (b) request the Board to investigate further into a matter relating to a specific appeal and report in writing to the appeal tribunal;
 - (c) require the parties to the appeal to attend a pre-hearing conference to discuss procedural and substantive issues relating to the conduct of the appeal;
 - (d) require the parties to the appeal to make a pre-hearing disclosure of their evidence, including requiring the pre-hearing examination of a party on oath or by affidavit;
 - (e) recommend to the parties to the appeal that an alternate dispute resolution process be used to assist in the resolution of a matter under appeal;
 - (f) require an employer who is a party to an appeal respecting a matter referred to in section 268(1)(a) [*reviews in relation to OHS provisions*] to post a notice in the specified form and manner bringing the appeal to the attention of the employees of the employer;
 - (g) request any person or representative group to participate in an appeal if the tribunal considers that this participation will assist the tribunal to fully consider the merits of the appeal.
- (3) If, in an appeal, the appeal tribunal considers there to be a matter that should have been determined but that was not determined by the Board, the appeal tribunal may refer that matter back to the Board for determination and suspend the appeal proceedings until the Board provides the appeal tribunal with that determination.
- (4) If the appeal tribunal refers a matter back to the Board for determination under subsection (3), the appeal tribunal must consider the Board's determination in the context of the appeal and no review of that determination may be requested under section 268 [*requests for review*].
- (5) If a party fails to comply with an order of the appeal tribunal or with the rules of practice and procedure of the appeal tribunal, including any time limits specified for taking any actions, the appeal tribunal may, after giving notice to that party, do one or more of the following:

- (a) schedule a written, electronic or oral hearing;
- (b) continue with the appeal and make a decision based on the evidence before the appeal tribunal, with or without providing an opportunity for submissions;
- (c) dismiss the application.

298 Evidence admissible in appeal tribunal proceedings

- (1) The appeal tribunal may receive and accept information that it considers relevant, necessary and appropriate, whether or not the information would be admissible in a court of law.
- (2) Despite subsection (1), the appeal tribunal may exclude anything unduly repetitious.
- (3) Nothing is admissible before the appeal tribunal that is inadmissible in a court because of a privilege under the law of evidence.
- (4) Nothing in subsection (1) overrides the provisions of any Act expressly limiting the extent to or purposes for which any oral testimony, documents or things may be admitted or used in evidence.
- (5) Notes or records kept by a person appointed by the appeal tribunal to conduct a dispute resolution process in relation to an appeal are inadmissible in appeal tribunal proceedings.

299 Witnesses and production of information

- (1) At any time before or during a hearing, but before the appeal tribunal's decision, the appeal tribunal may make an order requiring a person
 - (a) to attend an oral or electronic hearing to give evidence on oath or affirmation or in any other manner that is admissible and relevant to an issue in an appeal, or
 - (b) to produce for the appeal tribunal or a party a document or other thing in the person's possession or control, as specified by the appeal tribunal, that is admissible and relevant to an issue in an appeal.
- (2) The appeal tribunal may apply to the Supreme Court for an order
 - (a) directing a person to comply with an order made by the appeal tribunal under subsection (1), or
 - (b) directing any directors and officers of a person to cause the person to comply with an order made by the appeal tribunal under subsection (1).
- (3) On an appeal, the appeal tribunal may cause depositions of witnesses residing in or out of British Columbia to be taken before a person appointed by the appeal tribunal in a similar manner to that prescribed by the Supreme Court Civil Rules for the taking of like depositions in the Supreme Court before a commissioner.
- (4) Despite subsections (1) to (3), an officer, employee or contractor of the Board may only be compelled to give evidence or produce records and things that
 - (a) relate to the issues in a specific appeal, and
 - (b) are necessary for the appeal tribunal to address those issues and to make a decision in the appeal.
- (5) Despite subsections (1) to (3), a member of the board of directors or an officer, employee or contractor of the Board may not be compelled to give evidence or produce records and things respecting the development or adoption of the policies of the board of directors.

300 Deemed employer

- (1) Subject to subsections (2) and (3), for the purposes of a specific appeal, if the employer has ceased to be an employer within the meaning of the compensation provisions, the appeal tribunal may deem an employers' adviser or an organized group of employers to be the employer.
- (2) An organized group of employers may be recognized by the appeal tribunal for the purposes of subsection (1) only if the organized group includes among its members employers in the subclass of industry to which the employer who has ceased to be an employer belonged.
- (3) If, for the purposes of the review under Part 6 [*Review of Board Decisions*] of a decision respecting a specific matter, an employers' adviser or organized group of employers was deemed to be the employer, the employers' adviser or group, as applicable, is deemed to be the employer for the purposes of appealing the review officer's decision in that matter and participating in the appeal.

301 Health professional assistance to appeal tribunal

- (1) The chair must establish a list of health professionals who may be retained to provide independent assistance or advice on the request of the appeal tribunal in an appeal.

(2) The list established by the chair under subsection (1) must not include a person who is employed by the Board.

(3) After taking into account any fee schedule established by the Board for services provided by health professionals, the chair may determine the terms and conditions, including remuneration and reimbursement of expenses, under which a health professional may be retained by the appeal tribunal under section 302.

302 Health professional assistance in specific cases

(1) Subject to subsection (8), if the appeal tribunal determines that independent assistance or advice from a health professional would assist in reaching a decision on an appeal, the presiding member may retain a health professional from the list under section 301 to provide such assistance or advice.

(2) When a health professional is retained under this section, the presiding member must set the terms of reference for the advice, including requiring a written report, setting any time periods for providing the report and specifying any questions to be answered in the report.

(3) If a health professional retained under this section considers it necessary to examine a worker in order to provide the independent assistance or advice set out in the terms of reference under subsection (2), the health professional may require the worker to attend for an examination by giving the worker written notice.

(4) If the worker fails to attend the examination required under subsection (3) or obstructs that examination without reasonable cause, the appeal tribunal may, after giving notice to the worker, do one or more of the following:

(a) direct the health professional to reschedule the examination of the worker and give the worker notice of the rescheduled examination;

(b) direct the health professional to provide a report without examining the worker;

(c) make a determination that the worker has abandoned the appeal.

(5) The appeal tribunal must give a copy of the health professional's written report to the parties to the appeal.

(6) The parties to an appeal may make submissions to the appeal tribunal in respect of the report provided to them under subsection (5).

(7) The appeal tribunal may suspend an appeal until a health professional's report to be provided under this section in respect of that appeal is received by the appeal tribunal.

(8) Except with the written consent of the parties to the appeal, the appeal tribunal must not retain a health professional to provide independent assistance or advice in respect of a specific appeal if the health professional

(a) has previously examined the worker whose claim is the subject of the appeal,

(b) is treating or has previously treated the worker,

(c) has been consulted in the treatment of the worker,

(d) has acted as a consultant to the employer,

(e) is a partner of or practises with a health professional described in this subsection, or

(f) is otherwise in circumstances that could result in a reasonable apprehension of bias.

(9) Subsection (8) does not prohibit the appeal tribunal in an appeal

(a) from requesting a health professional to provide the appeal tribunal with medical evidence or to clarify or interpret medical evidence previously provided by the health professional, or

(b) from compensating the health professional for the services described in paragraph (a) of this subsection.

(10) Evidence or advice given under subsection (9) is not independent assistance or advice within the meaning of this section.

303 Appeal tribunal decision making

(1) The appeal tribunal may consider all questions of fact and law arising in an appeal, but is not bound by legal precedent.

(2) The appeal tribunal must make its decision based on the merits and justice of the case, but in doing this the appeal tribunal must apply any policies of the board of directors that are applicable in that case.

(3) Despite subsection (1), the appeal tribunal is bound by a prior decision of a panel appointed under section 285(6) [*matters of importance to the workers' compensation system as a whole*] unless

- (a) the specific circumstances of the matter under appeal are clearly distinguishable from the circumstances addressed in the prior decision,
- (b) after the prior decision, a policy of the board of directors that the panel relied on in the prior decision was repealed, replaced or revised, or
 - (c) the prior decision has been overruled under subsection (4) of this section.
- (4) Despite subsection (3), a panel appointed under section 285(6) may overrule a prior decision of another panel appointed under that section.
- (5) If the appeal tribunal is hearing an appeal respecting the compensation of a worker and the evidence supporting different findings on an issue is evenly weighted in that case, the appeal tribunal must resolve that issue in a manner that favours the worker.

304 Application of policies of the board of directors

- (1) The appeal tribunal may refuse to apply a policy of the board of directors only if the policy is so patently unreasonable that it is not capable of being supported by this Act and the regulations under this Act.
- (2) If, in an appeal, the appeal tribunal considers that a policy of the board of directors should not be applied, that issue must be referred to the chair and the appeal proceedings must be suspended until the chair makes a determination under subsection (4) or the board of directors makes a determination under subsection (6), as the case may be.
 - (3) As soon as practicable after an issue is referred under subsection (2), the chair must determine whether the policy should be applied.
- (4) If the chair determines under subsection (3) that the policy should be applied, the chair must refer the matter back to the appeal tribunal and the tribunal is bound by that determination.
 - (5) If the chair determines under subsection (3) that the policy should not be applied, the chair must
 - (a) send a notice of this determination, including the chair's written reasons, to the board of directors, and
 - (b) suspend, until the board of directors makes a determination under subsection (6), any other appeal proceedings that are pending before the appeal tribunal and that the chair considers to be affected by the same policy.
- (6) Within 90 days after receiving a notice under subsection (5)(a), the board of directors must review the policy and determine whether the appeal tribunal may refuse to apply it under subsection (1).
- (7) On a review under subsection (6), the board of directors must provide the following with an opportunity to make written submissions:
 - (a) the parties to the appeal referred to in subsection (2);
- (b) the parties to any appeals that were pending before the appeal tribunal on the date the chair sent a notice under subsection (5)(a) and that were suspended under subsection (5)(b).
- (8) After the board of directors makes a determination under subsection (6), the board of directors must refer the matter back to the appeal tribunal, and the appeal tribunal is bound by that determination.
- (9) The chair must not make a general delegation of the chair's authority under subsection (3), (4) or (5) but, if the chair considers there may be a reasonable apprehension of bias, the chair may delegate this authority to a vice chair or to a panel of the appeal tribunal for the purposes of a specific appeal.

305 Suspension of appeal proceedings pending Board decision

- (1) On application of the appellant or on the chair's own initiative, the chair may suspend appeal proceedings if a Board's decision respecting a matter that is related to the appeal is pending.
- (2) Within 30 days after the Board's decision referred to in subsection (1) is made, the appellant may request the appeal tribunal to continue the appeal proceedings and, on receiving that request, the appeal tribunal must continue the proceedings.
- (3) If the appellant requests the appeal tribunal to continue the appeal proceedings before the Board's decision referred to in subsection (1) is made, the chair may
 - (a) direct the appeal tribunal to continue the proceedings, or
 - (b) continue the suspension until the Board's decision is made.
- (4) The chair may extend the time to make a request under subsection (2), including making an extension of the time after the time to make the request has expired, if this is done on application and the chair is satisfied that
 - (a) special circumstances existed that preclude or precluded the making of a request within the time required by subsection (2), and

(b) an injustice would otherwise result.

306 Decision on appeal

- (1) On an appeal, the appeal tribunal may confirm, vary or cancel the appealed decision or order.
- (2) Despite subsection (1), on an appeal under section 289(2) [*other Board decisions that may be appealed*], the appeal tribunal may make one of the following decisions:
 - (a) the matter that is the subject of the application under section 125 must be reopened;
 - (b) the matter that is the subject of the application under section 125 may not be reopened.
- (3) The appeal tribunal's final decision on an appeal must be made in writing with reasons.
- (4) Subject to any suspensions of the appeal proceedings permitted under this Part, the appeal tribunal must make its final decision on an appeal
 - (a) within 180 days after the appeal tribunal receives a copy of the records provided under section 295(3) [*Board provision of policies and records*] respecting the matter under appeal, or
 - (b) if a shorter time period is prescribed by the Lieutenant Governor in Council, within that shorter time period.
- (5) The chair may extend the applicable time period under subsection (4) if
 - (a) the complexity of the proceedings in the appeal or of the matter under appeal makes the time period impractical, or
 - (b) the appellant requests a delay in the proceedings to submit new evidence or make additional submissions.
- (6) If the appellant has requested a delay for a reason referred to in subsection (5)(b), the chair may extend the time for not more than 45 days.
- (7) If the time is extended under subsection (6), the chair, on application, must extend the time for an additional period not longer than that granted under subsection (6) to allow the other parties to the appeal to submit new evidence or to make additional submissions.
- (8) The chair may extend the time under this section even if the applicable time period under subsection (4) has expired.

307 Amendment to final decision

- (1) On application by a party, or on the appeal tribunal's own initiative, the appeal tribunal may amend a final decision to
 - (a) correct any of the following:
 - (i) a clerical or typographical error;
 - (ii) an accidental or inadvertent error, omission or similar mistake;
 - (iii) an arithmetical error made in a computation, or
 - (b) clarify the final decision.
- (2) Unless the appeal tribunal determines otherwise, an amendment under subsection (1) must not be made more than 90 days after all parties have been served with the final decision.
- (3) [repealed]
- (4) The appeal tribunal may not amend a final decision other than in those circumstances described in subsection (1).
- (5) This section must not be construed as limiting the appeal tribunal's ability, on request of a party, to reopen an appeal in order to cure a jurisdictional defect.

Part 7 Division 4 - General

308 Exclusive jurisdiction of appeal tribunal

- The appeal tribunal has exclusive jurisdiction to inquire into, hear and determine all those matters and questions of fact, law and discretion arising or required to be determined under this Part and to make any order permitted to be made, including the following:
- (a) all appeals from review decisions as permitted under section 288 [*review decisions that may be appealed*];
 - (b) all appeals from Board decisions or orders as permitted under section 289 [*other Board decisions that may be appealed*];

(c) all matters that the appeal tribunal is requested to determine under section 311 [*request for certification to court*];

(d) all other matters for which a regulation under section 315 [*regulations respecting this Part*] permits an appeal to the appeal tribunal under this Part.

309 Appeal tribunal decision or action final

(1) Any decision or action of the chair or the appeal tribunal under this Part is final and conclusive and is not open to question or review in any court.

(2) Proceedings by or before the chair or appeal tribunal under this Part must not

(a) be restrained by injunction, prohibition or other process or proceeding in any court, or

(b) be removed by certiorari or otherwise into any court.

(3) The Board must comply with a final decision of the appeal tribunal made in an appeal under this Part.

(4) A party in whose favour the appeal tribunal makes a final decision, or a person designated in the final decision, may file a certified copy of the final decision with the Supreme Court.

(5) A final decision filed under subsection (4) has the same force and effect, and all proceedings may be taken on it, as if it were a judgment of the Supreme Court.

310 Reconsideration of appeal tribunal decision

(1) This section applies to the following:

(a) a decision in a completed appeal by the appeal tribunal under this Part or under Part 2 [*Transitional Provisions*] of the *Workers Compensation Amendment Act (No. 2), 2002*;

(b) a decision in a completed appeal by the appeal division under a former enactment or under Part 2 of the *Workers Compensation Amendment Act (No. 2), 2002*.

(2) A party to a completed appeal may apply to the chair for reconsideration of the decision in that appeal if new evidence has become available or been discovered.

(3) On receiving an application under subsection (2), the chair may refer the decision to the appeal tribunal for reconsideration if the chair is satisfied that the evidence referred to in the application

(a) is substantial and material to the decision, and

(b) did not exist at the time of the appeal hearing or did exist at that time but was not discovered and could not through the exercise of reasonable diligence have been discovered.

(4) Each party to a completed appeal may apply for reconsideration of a decision under this section on one occasion only.

311 Request for appeal tribunal certification to court

(1) If a court action is commenced based on

(a) a personal injury,

(b) death, or

(c) a disability caused by occupational disease,

the court or a party to the action may request the appeal tribunal to make a determination under subsection (2) and to certify that determination to the court.

(2) For the purposes of subsection (1), the appeal tribunal may determine any matter that is relevant to the action and within the Board's jurisdiction under this Act, including determining whether

(a) a person was, at the time the cause of action arose, a worker,

(b) a worker's injury, death or disability arose out of, and in the course of, the worker's employment,

(c) an employer or the employer's servant or agent was, at the time the cause of action arose, employed by another employer, or

(d) an employer was, at the time the cause of action arose, engaged in an industry within the meaning of the compensation provisions.

(3) This Part, except section 306(4) [*time for making final decision*], applies to proceedings under this section as if the proceedings were an appeal under this Part.

312 Payment of compensation following appeal

(1) If the appeal tribunal's decision on an appeal requires the payment of compensation, all or part of which was deferred under section 275(3) [*payment following review decision*], interest must be paid on the deferred amount of that compensation as specified in subsection (2).

(2) Interest payable under subsection (1) must be calculated in accordance with the policies of the board of directors and begins

(a) 41 days after the review officer made the appealed decision, or

(b) on an earlier day determined in accordance with the policies of the board of directors.

313 Effect of appeal in relation to employer payment obligations

(1) The commencement of an appeal under this Part respecting a matter described in section 268(1)(c) [*employer assessments, classifications, monetary penalties or compensation payments*] does not relieve an employer from paying an amount in respect of a matter that is the subject of the appeal.

(2) If the decision on the appeal requires the refund of an amount to an employer, interest calculated in accordance with the policies of the board of directors must be paid to the employer on that refunded amount.

314 Confidentiality obligations

(1) Members of the appeal tribunal and officers, employees and contractors of the appeal tribunal must not disclose any information obtained by them or of which they have been informed while performing their duties and functions under this Part, except as may be necessary to discharge their obligations under this Part.

(2) If information is disclosed for the purposes of this Part to a person other than the person the information is about, the person to whom the information is disclosed must not disclose the information except in the circumstances listed in section 235(1)(a) to (d) [*confidentiality â€“ compensation claim information*].

(3) A person who contravenes subsection (1) or (2) commits an offence.

315 Regulations respecting this Part

The Lieutenant Governor in Council may make regulations as follows:

(a) prescribing

(i) decisions or orders under this Act that may be appealed under this Part,

(ii) who may appeal those decisions or orders, and

(iii) classes of decisions for purposes of section 288(2)(a) [*review decisions that may not be appealed*];

(b) respecting the awarding of costs by the appeal tribunal in an appeal under this Part;

(c) prescribing the circumstances under which the appeal tribunal may order the Board to reimburse the expenses incurred by a party to an appeal under this Part;

(d) prescribing qualifications of health professionals for purposes of section 301 [*health professional assistance to appeal tribunal*].

Part 8 Contents

Division 1 â€“ Workers' Compensation Board and Board of Directors

316 [Workers' Compensation Board and its board of directors](#)

317 [Voting directors](#)

318 [Term of office and remuneration for voting directors](#)

319 [Policies of the board of directors](#)

320 [General responsibilities of the board of directors](#)

321 [Meetings and other proceedings of the board of directors](#)

322 [Standard of care obligations for directors](#)

323 [Board president appointment and responsibilities](#)

Division 2 – Board Administration

- 325 [Annual service plan](#)
- 326 [Annual report to minister](#)
- 327 [Financial management](#)
- 328 [Audit requirement](#)
- 329 [Board may appoint officers and other employees](#)
- 330 [Board must appoint review officers](#)
- 331 [Superannuation fund](#)
- 332 [Protection for Board, directors, officers and employees](#)

Division 3 – Other Board Powers and Responsibilities

- 333 [Annual adjustment of dollar amounts referred to in Act](#)
- 334 [Annual adjustment of periodic payment amounts](#)
- 335 [Interjurisdictional agreements and arrangements](#)
- 336 [Exercise of powers under federal Acts or agreements](#)
- 337 [Information respecting Board activities](#)

Division 4 – Board Practices, Procedures and Related Matters

- 338 [Board practices and procedures](#)
- 339 [Board decision making](#)
- 340 [Protection of Board proceedings](#)
- 341 [Authority to act on advice of officers and persons conducting inquiries](#)
- 342 [Authority to compel witnesses and production of evidence](#)
- 343 [Authority to award costs in relation to contested matters](#)
- 344 [Service of orders and other documents](#)
- 345 [Alternative dispute resolution](#)

Division 5 – Board Inquiry Powers

- 346 [General inquiry authority](#)
- 347 [Examinations and other inquiries respecting employer information](#)
- 348 [Oaths, affidavits and other declarations in relation to inquiries](#)
- 349 [Confidentiality obligations in relation to inquiries](#)

Division 6 – Workers' Advisers, Employers' Advisers and Other Assistance

- 350 [Workers' advisers and employers' advisers](#)
- 351 [Role of workers' advisers](#)
- 352 [Role of employers' advisers](#)
- 353 [Information and confidentiality rules for advisers and staff](#)
- 354 [Lay advocates](#)

Part 8 Division 1 - Workers' Compensation Board and Board of Directors

316 Workers' Compensation Board and its board of directors

- (1) The Workers' Compensation Board is continued as a corporation.
- (2) The board of directors of the Workers' Compensation Board consists of
 - (a) 9 voting directors appointed by the Lieutenant Governor in Council in accordance with section 317, and
 - (b) the president appointed by the board of directors under section 323, who is a non-voting director.

317 Voting directors

- (1) The voting directors are to be appointed by the Lieutenant Governor in Council as follows:
 - (a) one director, representative of the public interest, who is chair;
 - (b) 2 additional directors, representative of the public interest;

- (c) one director, representative of workers;
- (d) one director, representative of employers;
- (e) one director who is or was a professional in the area of occupational health and safety;
- (f) one director who is or was a professional in the area of law or law enforcement;
- (g) one director who at the time of appointment is a professional providing health care or rehabilitation services to persons with disabilities;
- (h) one director who at the time of appointment is an actuary.

(2) The Lieutenant Governor in Council must make selections for an appointment under this section in accordance with the following:

- (a) for appointment under subsection (1)(c), selection of a person from a list of at least 3 persons, each of whom is nominated by one or more organizations that represent workers or classes of workers;
- (b) for appointment under subsection (1)(d), selection of a person from a list of at least 3 persons, each of whom is nominated by one or more organizations that represent employers or classes of employers;
- (c) for appointment under subsection (1)(e), selection of a person from a list of at least 3 persons, each of whom is nominated by one or more organizations that provide occupational health and safety services;
- (d) for appointment under subsection (1)(f), selection of a person from a list of at least 3 persons, each of whom is nominated by one or more organizations for professionals in law or law enforcement;
- (e) for appointment under subsection (1)(g), selection of a person from a list of at least 3 persons, each of whom is nominated by one or more organizations that provide health care or rehabilitation services to persons with disabilities;
- (f) for appointment under subsection (1)(h), selection of a person from a list of at least 3 persons, each of whom is nominated by one or more professional organizations for actuaries.

(3) In relation to an appointment under subsection (1)(f), "**law enforcement**" means any of the following:

- (a) policing, including criminal intelligence operations;
- (b) investigations that lead or could lead to a penalty or sanction being imposed;
- (c) proceedings that lead or could lead to a penalty or sanction being imposed.

318 Term of office and remuneration for voting directors

- (1) Each voting director, other than the chair, holds office for a term of up to 3 years, as set by the Lieutenant Governor in Council.
- (2) The chair holds office for a term of up to 5 years, as set by the Lieutenant Governor in Council.
- (3) A voting director, other than the chair, must not be appointed for a continuous period of more than 6 years.
- (4) The chair may not be appointed for a continuous period of more than 10 years.
- (5) The Board must pay voting directors
 - (a) remuneration in an amount determined by the Lieutenant Governor in Council, and
 - (b) reasonable travel and out-of-pocket expenses necessarily incurred in discharging their duties.

319 Policies of the board of directors

The board of directors must set and revise as necessary the policies of the board of directors, including policies respecting occupational health and safety, compensation, rehabilitation and assessment.

320 General responsibilities of the board of directors

- (1) The board of directors must set and supervise the direction of the Board.
- (2) Without restricting subsection (1), the board of directors is responsible for the following:
 - (a) subject to this Act, selecting the president and determining the president's functions;
 - (b) approving the operating and capital budgets of the Board;

- (c) establishing policies and accounting systems to ensure adequate funding of the accident fund;
- (d) approving major programs and expenditures of the Board;
- (e) approving the investment of funds of the Board in accordance with the requirements imposed under this Act;
- (f) planning for the future of the Board;
- (g) subject to this Act, enacting bylaws and passing resolutions
 - (i) for the conduct of the business of the Board, and
 - (ii) for the functions of the board of directors,including enacting bylaws respecting the manner in which the policies of the board of directors are to be published.

(3) The board of directors may establish committees and give directions to those committees.

(4) The board of directors may authorize the Board to acquire and dispose of land.

321 Meetings and other proceedings of the board of directors

(1) The chair must preside at meetings of the board of directors.

(2) Meetings of the board of directors must be held at the call of the chair at any place in British Columbia that the chair determines.

(3) A majority of the voting directors in office constitutes a quorum at a meeting of the board of directors.

(4) A vacancy on the board of directors does not impair the right of the other directors to act.

(5) The chair may designate a director appointed under section 317(1)(b) [*representative of the public interest*] to act in the chair's place during the chair's temporary absence, and the designated director has the power and authority of the chair when acting in the chair's place.

322 Standard of care obligations for directors

(1) A director, when exercising the powers and performing the duties and functions as a member of the board of directors, must

(a) act honestly and in good faith,

(b) act with a view to the best interests and objectives of the workers' compensation system,

(c) exercise the care, diligence and skill that a reasonably prudent individual would exercise in comparable circumstances, and

(d) act in a financially responsible and accountable manner.

(2) This section is in addition to, and not in derogation of, any enactment or rule of law or equity relating to the duties or liabilities of members of the board of directors.

323 Board president appointment and responsibilities

(1) The board of directors must appoint a person to be president of the Board.

(2) The president is responsible to the board of directors and

(a) must attend and participate as a non-voting director at meetings of the board of directors,

(b) must implement the policies of the board of directors with respect to the administration of the Board and this Act,

(c) is responsible for all functions related to staff, other than the staff appointed by and reporting directly to the board of directors, and

(d) must carry out other duties and functions assigned to the president by the board of directors.

(3) Subject to this Act, the board of directors may enter into a contract with the president providing for the remuneration of the president and setting out the terms and conditions of the president's appointment.

324 Delegation by board of directors or president

(1) The board of directors may delegate in writing a power or duty of the board of directors to the president of the Board or another officer of the Board, and may impose limitations or conditions on the delegate's exercise of a power or performance of a duty.

- (2) The president may delegate in writing any of the president's powers and duties to another officer of the Board or another person, and may impose limitations or conditions on the delegate's exercise of a power or performance of a duty.

Part 8 Division 2 - Board Administration

325 Annual service plan

- (1) On or before April 30 of each year, the Board must provide the minister with a service plan that addresses the 3-year period starting on January 1 of that year and does the following:

- (a) sets out the Board's priorities;
- (b) identifies specific objectives and performance measures for the Board;
- (c) provides a fiscal forecast for the Board, including a statement of all material assumptions and policy decisions underlying the forecast;
- (d) compares actual results of the previous year with the expected results identified in the previous year's service plan;
- (e) presents other information that the Board considers appropriate.

- (2) After receiving the annual service plan, the minister must promptly

- (a) lay the plan before the Legislative Assembly, if the Legislative Assembly is in session, or
- (b) file the plan with the Clerk of the Legislative Assembly, if the Legislative Assembly is not in session.

326 Annual report to minister

- (1) On or before April 30 of each year, the Board must make to the minister a report of the Board's transactions during the last preceding calendar year, and the report must include any other information the minister specifies.

- (2) The annual report under this section must include

- (a) a review of the Board's activities under Part 2 [*Occupational Health and Safety*] for the year, including financial, statistical and performance information, and
- (b) an evaluation of the occupational health and safety record of workplaces in British Columbia.

- (3) After receiving the annual report, the minister must promptly

- (a) lay the report before the Legislative Assembly, if the Legislative Assembly is in session, or
- (b) file the report with the Clerk of the Legislative Assembly, if the Legislative Assembly is not in session.

327 Financial management

- (1) The Board must establish and maintain an accounting system satisfactory to the Minister of Finance, and that minister may, at any time, inspect the accounting records of the Board and advise the Board on all matters respecting its accounts and other financial matters.

- (2) Subject to the supervision and direction of the Minister of Finance, the Board must cause all money in the accident fund in excess of current requirements to be invested and reinvested and, in doing this, must exercise the care, skill, diligence and judgment that a prudent investor would exercise in making investments.

328 Audit requirement

- (1) Unless the Auditor General is appointed in accordance with the *Auditor General Act* as the auditor of the Board, the Board must appoint an auditor to audit the accounts of the Board at least once each year.

- (2) The remuneration of an auditor for auditing the accounts of the Board must be paid by the Board.

- (3) For the purpose of an audit under this section, the Lieutenant Governor in Council may appoint a competent person to make and report on an actuarial valuation of the assets and liabilities of the accident fund, and the remuneration of that person to make and report on the valuation must be paid by the Board.

329 Board may appoint officers and other employees

- (1) The Board may appoint the officers and other employees it considers necessary to carry out the business and operations of the Board and may establish their duties and determine their remuneration.

(2) A person appointed under this section holds office during the pleasure of the Board.

(3) The *Labour Relations Code* does not apply to the following:

- (a) a person employed
 - (i) for the purposes of policy development or providing policy advice, and
 - (ii) in the policy and regulation development division of the Board;
- (b) a person employed
 - (i) for the purpose of investigating the conduct of persons working for the Board, and
 - (ii) as an investigator in the special investigations branch of the Board.

330 Board must appoint review officers

(1) The Board must appoint a chief review officer and one or more review officers to conduct reviews under Part 6 [*Review of Board Decisions*].

(2) The *Labour Relations Code* does not apply to a chief review officer or a review officer.

331 Superannuation fund

- (1) The Board may
- (a) establish and maintain a fund, to be known as the superannuation fund, for the payment of superannuation allowances to the Board's employees or of allowances on the disability or death of its employees, by contributions from the employees of the Board and from the accident fund, and
 - (b) determine the amounts of superannuation or other allowances and the conditions on which they may be paid and the persons to whom they may be paid.
- (2) The Board may use the superannuation fund to purchase superannuation allowances for its employees from the Crown in right of Canada, from the Crown in right of British Columbia or from an insurer.
- (3) The costs of administering the superannuation fund are part of the cost of the administration of this Act.
- (4) Despite any other Act, the matters respecting the establishment and maintenance of the superannuation fund under this section or payment of superannuation allowances to employees or allowances on the disability or death of employees, including the following, must not be the subject of a collective agreement between the Board and its employees:

- (a) contributions to the fund by the Board and its employees;
- (b) amounts of superannuation or other allowances;
- (c) conditions on which and the persons to whom superannuation or other allowances may be paid.

332 Protection for Board, directors, officers and employees

An action may not be maintained or brought against the Board or a director, officer or employee of the Board in respect of any act, omission or decision

- (a) that was within the jurisdiction of the Board, or
- (b) that the Board, director, officer or employee believed was within the jurisdiction of the Board.

Part 8 Division 3 - Other Board Powers and Responsibilities

333 Annual adjustment of dollar amounts referred to in Act

(1) Subject to subsection (2), the Board must adjust every dollar amount referred to in this Act on January 1 of each year by applying the percentage change in the consumer price index for Canada, for all items, for the 12-month period ending on October 31 of the previous year.

(2) Subsection (1) does not apply to a dollar amount referred to in the following:

- (a) section 209(2) [*maximum wage rate for applicable year*];
- (b) section 227 [*compensation for workers injured before 1986*].

(3) On the Board making an adjustment of a dollar amount under subsection (1), the dollar amount referred to in this Act is deemed to be amended.

(4) Adjustments under subsection (1) must be published in the Gazette.

334 Annual adjustment of periodic payment amounts

(1) The Board must, on or before January 1 of each year,

(a) determine the percentage change in the consumer price index for Canada, for all items, for the 12-month period ending on October 31 of the previous year, and

(b) subtract 1% from the percentage change determined under paragraph (a).

(2) The percentage resulting from calculations made under subsection (1) must not be greater than 4% or less than 0%.

(3) On January 1 of each year, the Board must adjust, in accordance with subsection (4), the periodic payments of compensation made in respect of an injury or a death occurring more than 12 months before the date of the adjustment.

(4) For the purposes of subsection (3), the Board must adjust the periodic payments of compensation to be paid in that calendar year for the injury or death by the percentage determined under subsection (1).

(5) If the Board starts or restarts periodic payments of compensation for an injury or a death that occurred more than 12 months before the payments are started or restarted, the Board must, under this section, adjust all periodic payments as if the payments were made continuously from the date of injury or death.

335 Interjurisdictional agreements and arrangements

(1) The Board may enter into agreements or make arrangements with Canada, a province or a territory, or with the appropriate authority of Canada, a province or a territory, respecting the following:

(a) administrative cooperation and assistance between jurisdictions in all matters under this Act and corresponding legislation in other jurisdictions;

(b) the provision of compensation, rehabilitation and health care to workers in accordance with the standards established under this Act or corresponding legislation in other jurisdictions;

(c) avoidance of duplication of assessments on workers' earnings.

(2) An agreement or arrangement under this section may

(a) waive or modify a residence or exposure requirement for eligibility for compensation, rehabilitation or health care, or

(b) provide for payment to an appropriate authority of Canada or an appropriate authority of a province or a territory for compensation, rehabilitation costs or health care costs paid by the authority.

336 Exercise of powers under federal Acts or agreements

The Board may exercise any power or duty conferred or imposed on it by or under a statute of Canada or an agreement between Canada and British Columbia.

337 Information respecting Board activities

The Board must publish and distribute among employers, workers and the general public the information respecting the business transacted by the Board that it considers may be useful.

Part 8 Division 4 - Board Practices, Procedures and Related Matters

338 Board practices and procedures

The Board may establish practices and procedures for carrying out its responsibilities under this Act, including specifying time periods within which certain steps must be taken and the consequences for failing to comply within those time periods.

339 Board decision making

(1) The Board may consider all questions of fact and law arising in a case, but the Board is not bound by legal precedent.

(2) The Board must make its decision based on the merits and justice of the case, but in doing this the Board must apply the policies of the board of directors that are applicable in that case.

- (3) If the Board is making a decision respecting the compensation or rehabilitation of a worker and the evidence supporting different findings on an issue is evenly weighted in that case, the Board must resolve that issue in a manner that favours the worker.

340 Protection of Board proceedings

Proceedings by or before the Board must not be

- (a) restrained by injunction, prohibition or other process or proceeding in any court, or
- (b) removed by certiorari or otherwise into any court.

341 Authority to act on advice of officers and persons conducting inquiries

The Board may act

- (a) on the report of any of its officers, and
- (b) in relation to an inquiry under this Part, on the report of the person making the inquiry as to the result of that inquiry.

342 Authority to compel witnesses and production of evidence

(1) The Board has the same powers as the Supreme Court

- (a) to compel the attendance of witnesses and examine them under oath, and
- (b) to compel the production and inspection of records and things.

- (2) The Board may require depositions of witnesses residing in or out of British Columbia to be taken before a person appointed by the Board and in a manner similar to that established by the Rules of the Supreme Court for the taking of depositions in that court.

343 Authority to award costs in relation to contested matters

(1) This section applies in relation to a contested claim for compensation or any other contested matter.

- (2) The Board may award to the successful party an amount the Board considers reasonable to meet the expenses to which the party has been put by reason of or incidental to contesting the matter.

- (3) An order of the Board for payment by an employer or worker of an amount awarded under this section, when filed in the manner provided for the filing of certificates under section 264(2) [*collection of unpaid assessment*], becomes a judgment of the court in which the order is filed and may be enforced accordingly.

344 Service of orders and other documents

(1) A document that must be served on or sent to a person under this Act may be

- (a) personally served on the person,
- (b) mailed to the person's last known address, or
- (c) transmitted electronically, by fax or otherwise, to the address or number requested by the person.

(2) If a document is mailed, the document is deemed to have been received 8 days after it was mailed.

- (3) If a document is transmitted electronically, the document is deemed to have been received when the person transmitting the document receives an electronic acknowledgement of the transmission.

- (4) If, through absence, accident, illness or other cause beyond the party's control, a party who acts in good faith does not receive the copy until a later date than the date provided under subsection (2) or (3), that subsection does not apply.

(5) If a notice or document is not served in accordance with this section, the proceeding is not invalidated if

- (a) the contents of the notice or document were known by the person to be served within the time allowed for service,
- (b) the person to be served consents, or

- (c) the failure to serve does not result in prejudice to the person or any resulting prejudice can be satisfactorily addressed by an adjournment or other means.

- (6) If, in relation to a proceeding under Part 7 [*Appeals to Appeal Tribunal*], the appeal tribunal is of the opinion that, because there are so many

parties to the proceeding or for any other reason, it is impracticable to give notice of a hearing to a party by a method referred to in subsection (1), the appeal tribunal may give notice of a hearing by public advertisement or otherwise as the appeal tribunal directs.

345 Alternative dispute resolution

In circumstances it considers appropriate, the Board may recommend the use of alternative dispute resolution processes to assist in the resolution of matters under this Act.

Part 8 Division 5 - Board Inquiry Powers

346 General inquiry authority

- (1) If the Board considers that an inquiry is necessary, the inquiry may be made by an officer of the Board or by another person appointed by the Board to make the inquiry.
- (2) For the purposes of an inquiry under this section, the person making the inquiry has the powers conferred on the Board under section 342 *[authority to compel witnesses and production of evidence]*.

347 Examinations and other inquiries respecting employer information

- (1) The Board, an officer of the Board or a person authorized by the Board for this purpose may examine the books and accounts of an employer and make any other inquiry the Board considers necessary to determine any of the following:
 - (a) whether an industry or person is within the scope of the compensation provisions;
 - (b) the amount of the payroll of the employer;
 - (c) whether a statement provided to the Board under section 245 *[employer to provide estimate of payroll]* is an accurate statement of the matters that are required to be stated in it.
- (2) For the purpose of an inquiry under this section, the Board or person authorized to make the inquiry may give notice in writing to an employer or agent of an employer requiring the employer to bring or produce before the Board or person, at a time and place specified in the notice, all records in the possession, custody or power of the employer touching or in any way relating to or concerning the subject matter of the inquiry referred to in the notice.
 - (3) The time specified in a notice under subsection (2) must be at least 10 days after the notice is given.
 - (4) An employer or agent named in and served with a notice under subsection (2) must, at the time and place specified in the notice, produce all records in accordance with the notice.
 - (5) A person who does any of the following commits an offence:
 - (a) obstructs or hinders the making of an inquiry under this section;
 - (b) refuses to permit such an inquiry to be made;
 - (c) neglects or refuses to produce the required records at the time and place specified in the notice under subsection (2).

348 Oaths, affidavits and other declarations in relation to inquiries

An officer of the Board or a person authorized by the Board to make an inquiry under section 346 or 347 may

- (a) require and take affidavits, affirmations or declarations as to any matter of the inquiry,
- (b) take affidavits for the purposes of this Act, and
- (c) in relation to these, administer oaths, affirmations and declarations and certify that they were made.

349 Confidentiality obligations in relation to inquiries

- (1) Officers of the Board and persons authorized to make an inquiry under this Division must not, except in the performance of their duties or under the authority of the Board, disclose or allow to be disclosed information obtained by them or which has come to their knowledge in making or in connection with an inquiry under this Division.
- (2) A person who contravenes subsection (1) commits an offence and is liable on conviction to a fine not greater than \$5 949.56.

Part 8 Division 6 - Workers' Advisers, Employers' Advisers and Other Assistance

(1) Workers' advisers, employers' advisers and other employees necessary to enable the workers' advisers and employers' advisers to perform their duties under this Division may be appointed under the *Public Service Act* as employees of the minister's ministry.

(2) The following apply to a ministry employee appointed under subsection (1) as a workers' adviser or employers' adviser:

(a) the employee need not be a member of the Law Society of British Columbia;

(b) section 15 [*restrictions on practice of law*] of the *Legal Profession Act* does not apply to the employee if that employee is not a member of the Law Society of British Columbia.

(3) The minister may request that the Board reimburse the government for all amounts paid by the government for the reasonable expenses properly incurred by the government in administering workers' and employers' advisers programs.

(4) On receiving a request under subsection (3), the Board must pay the amount requested to the Minister of Finance.

351 Role of workers' advisers

A workers' adviser must

(a) give assistance to a worker or dependant having a claim under this Act, unless the workers' adviser considers the claim has no merit,

(b) on claims matters, communicate with or appear before the Board and the appeal tribunal on behalf of a worker or dependant if the adviser considers assistance is required, and

(c) advise workers and dependants regarding the interpretation and administration of this Act or any regulations or decisions made under this Act.

352 Role of employers' advisers

An employers' adviser must

(a) give assistance to an employer respecting any claim under this Act of

(i) a worker of the employer, or

(ii) a dependant of such a worker

unless the employer's adviser considers the claim has no merit,

(b) on claims matters, communicate with or appear before the Board and the appeal tribunal on behalf of an employer if the adviser considers assistance is required, and

(c) advise employers regarding the interpretation and administration of this Act or any regulations or decisions made under this Act.

353 Information and confidentiality rules for advisers and staff

(1) The workers' advisers, the employers' advisers and the staff of those advisers must have access at any reasonable time to the complete claims files of the Board and any other material relating to the claim of an injured or disabled worker.

(2) The advisers and staff referred to in subsection (1) must treat the information contained in the claims files as confidential to the same extent as the information is treated by the Board.

(3) An employers' adviser must not report or disclose to an employer information obtained from or at the Board of a type that would not be disclosed to the employer by the Board.

354 Lay advocates

(1) A person may

(a) give advice respecting the interpretation or administration of this Act, the policies of the board of directors, the Board's practices and procedures or any regulations, orders or decisions under this Act, or

(b) act on behalf of a person by

(i) communicating with the Board, an officer or employee of the Board, the appeal tribunal or any other person acting under this Act, or

(ii) appearing before the Board, an officer or employee of the Board or the appeal tribunal.

(2) Section 15 [*restrictions on practice of law*] of the *Legal Profession Act* does not apply to a person while the person performs functions referred to in subsection (1).