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#### 4.1 Safe workplace

A workplace must be planned, constructed, used and maintained to protect from danger any person working at the workplace.

[Enacted by B.C. Reg. 258/2008, effective January 1, 2009.]

#### 4.1.1 Avalanche risk assessment and safety plan

(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.

[Enacted by B.C. Reg. 199/2014, effective February 1, 2015.]

#### 4.1.2 Avalanche risk assessment and safety plan exception

(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).

[Enacted by B.C. Reg. 199/2014, effective February 1, 2015.]

### 4.2 Safe buildings and structures

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.

### 4.3 Safe machinery and equipment

(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.

[Enacted by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 243/2006, effective January 1, 2007.]

#### 4.4 Conformity to standards

(1) 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.

(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.

[Enacted by B.C. Reg 253/2001; Effective: January 28, 2002.]
[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.5 Manuals and information

If this Regulation requires an operation or maintenance manual for a tool, machine or piece of equipment, the employer must ensure that before the tool, machine or piece of equipment is used in the workplace

(a) the manual has been obtained, and

(b) the supplier has provided sufficient information to identify the standard or standards to which the tool, machine or equipment has been manufactured.

(c) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.6 Reassembly

If machinery, equipment or a structure is dismantled in whole or in part, and subsequently re-assembled, it must be checked by a qualified person and determined to be safe before operation or use.

**4.7 Information on rated capacity**

If a machine or piece of equipment has a rated capacity which varies with the reach or configuration of the machine or equipment, or has other operating limitations,

(a) appropriate instructions, load charts and warning notices must be affixed to the machine or equipment so as to be visible to the operator when the operator is at the controls, or

(b) the information, in written form, must be available to the operator.

**4.8 Rated capacity**

(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.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

**4.9 Inspection and maintenance records**

(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.

**4.10 Authorization**

(1) A machine or piece of equipment may only be operated by authorized persons.

(2) A person must not be authorized to operate a machine or piece of equipment until the person has been adequately instructed and trained, and has demonstrated an ability to safely operate it.

**4.11 Startup**

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.

**4.12 Circumvention of safeguards**

A person must not intentionally remove, impair, or render ineffective any safeguard provided for the protection of workers, except as permitted by this Regulation.

#### 4.13 Risk assessment

(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.

#### 4.14 Emergency procedures

(1) Emergency means of escape must 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.

(2) Emergency exit routes must be designed and marked to provide quick and unimpeded exit.

(3) At least once each year emergency drills must be held to ensure awareness and effectiveness of emergency exit routes and procedures, and a record of the drills must be kept.

#### 4.15 Maintenance of equipment

Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.16 Training

(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.

#### 4.17 Notification of fire departments

(1) An employer having at a workplace hazardous products covered by WHMIS, explosives, pesticides, radioactive material, consumer products or hazardous wastes in quantities which may endanger firefighters, must ensure the local fire department is notified of the nature and location of the hazardous materials or substances and methods to be used in their safe handling.

(2) Subsection (1) does not apply to a workplace

(a) where materials are kept on site for less than 15 days if the employer ensures an alternative effective means for notification of fire departments is in place in the event of fire or other emergency, or

(b) which is not within the service area of a fire department.

[Amended by B.C. Reg. 30/2015, effective August 4, 2015.]

#### 4.18 Notification of utility service providers

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.

[Enacted by B.C. Reg. 312/2010, effective February 1, 2011.]

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#### 4.19 Physical or mental impairment

(1) A worker with a physical or mental impairment which may affect the worker's ability to safely perform assigned work must inform the worker's 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.

[Amended by B.C. Reg. 116/2022, effective August 22, 2022.]

#### 4.20 Impairment by alcohol, drug or other substance

(1) A person must not enter or remain at any workplace while the person's ability to work is affected by alcohol, a drug or other substance so as to endanger the person or anyone else.

(2) The employer must not knowingly permit a person to remain at any workplace while the person's ability to work is affected by alcohol, a drug or other substance so as to endanger the person or anyone else.

(3) A person must not remain at a workplace if the person's behaviour is affected by alcohol, a drug or other substance so as to create an undue risk to workers, except where such a workplace has as one of its purposes the treatment or confinement of such persons.

**Note:** In the application of sections 4.19 and 4.20, workers and employers need to consider the effects of prescription and non-prescription drugs, and fatigue, as potential sources of impairment. There is a need for disclosure of potential impairment from any source, and for adequate supervision of work to ensure reported or observed impairment is effectively managed.

#### 4.20.1 Definition

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.

[Enacted by B.C. Reg. 318/2007, effective February 1, 2008.]

#### 4.20.2 Hazard identification, elimination and control

(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.

[Enacted by B.C. Reg. 318/2007, effective February 1, 2008.]

#### 4.21 Procedures for checking well-being of worker

(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.

[Amended by B.C. Reg. 318/2007, effective February 1, 2008.]

**Note:** High risk activities require shorter time intervals between checks. The preferred method for checking is visual or two-way voice contact, but where such a system is not practicable, a one-way system which allows the worker to call or signal for help and which will send a call for help if the worker does not reset the device after a predetermined interval is acceptable.

#### 4.22 Training

A worker described in section 4.21(1) and any person assigned to check on the worker must be trained in the written procedure for checking the worker's well-being.

[Amended by B.C. Reg. 318/2007, effective February 1, 2008.]

#### 4.22.1 Late night retail safety procedures and requirements

(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) a 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).

[Enacted by B.C. Reg. 318/2007, effective February 1, 2008.]
[Amended by B.C. Reg. 312/2010, effective February 1, 2011.]
[Amended by B.C. Reg. 230/2011, effective April 15, 2012.]

#### 4.22.2 Mandatory prepayment for fuel

An employer must require that customers prepay for fuel sold in gas stations and other retail fueling outlets.

[Enacted by B.C. Reg. 318/2007, effective February 1, 2008.]

#### 4.23 Annual reviews of procedures

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.

[Enacted by B.C. Reg. 230/2011, effective April 15, 2012.]

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#### 4.24 Definition

In sections 4.25 and 4.26,

*"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 the worker is at risk of injury, and

(b) horseplay, practical jokes, unnecessary running or jumping or similar conduct.

[Amended by B.C. Reg. 116/2022, effective August 22, 2022.]

**Note:** Worker means a worker as defined under the *Workers Compensation Act,* and includes a supervisor or other representative of the employer (see Part 2, Division 1, section 13).

#### 4.25 Prohibition

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.

#### 4.26 Investigation

Improper activity or behaviour must be reported and investigated as required by Part 3 (Rights and Responsibilities).

#### 4.27 Definition

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 the worker is at risk of injury.

[Amended by B.C. Reg. 116/2022, effective August 22, 2022.]

#### 4.28 Risk assessment

(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.

#### 4.29 Procedures and policies

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.

(c) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.30 Instruction of workers

(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.

#### 4.31 Advice to consult physician

(1) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

(2) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

(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.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

**Note:** The requirements for risk assessment, procedures and policies, the duty to respond to incidents and 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 this Occupational Health & Safety Regulation to address other workplace hazards.

#### 4.32 Access to work areas

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.

#### 4.33 Arrangement of work areas

(1) A work area must be arranged to allow the safe movement of people, equipment and materials.

(2) If, to ensure safety, an aisle or passageway is designated for pedestrian traffic, the route must be clearly indicated by markings or other effective means and, where practicable, floor or grade markings must be used.

#### 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.

#### 4.35 Door installations

(1) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

(2) If a door installed in a workplace swings towards a stair, the full arc of its swing must be over a landing.

(3) A double-acting swing door must permit a person approaching the door to see any person approaching from the opposite side so as not to endanger their safety.

(4) A glass or transparent door must have hardware, bars or markings so that its presence and position are readily apparent.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.36 Glass

(1) Repealed. [B.C. Reg. 312/2003, effective October 29, 2003.]

(2) A panel, window or sidelight made of glass or similar transparent material, which could be mistaken for a doorway, must have bars or markings so that its presence and position are readily apparent.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.37 Restricted visibility

A worker must not be permitted to enter or work in an area if visibility in the area is restricted by the presence of smoke, steam or other substance in the atmosphere, unless appropriate safe work procedures are followed.

#### 4.38 Extreme temperatures

(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.

#### 4.39 Slipping and tripping hazards

(1) Floors, platforms, ramps, stairs and walkways available for use by workers must be maintained in a state of good repair and kept free of slipping and tripping hazards.

(2) If such areas are taken out of service the employer must take reasonable means for preventing entry or use.

#### 4.40 Wet floors

If a work process results in a liquid accumulating on the floor or grade surface in a work area and the liquid creates a slipping or other hazard, floor drains or other suitable means must be used to control the hazard.

#### 4.41 Waste material

Refuse, spills and waste material must not be allowed to accumulate so as to constitute a hazard.

#### 4.42 Cleaning with compressed air

(1) 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.

(2) Subject to subsection (4) compressed air may not be used for blowing harmful or hazardous dusts or other harmful substances from clothing being worn by workers.

(3) If clothing is to be cleaned before leaving the work area, suitable cleaning equipment must be used.

(4) Compressed air may be used in specially designated areas for blowing dusts or other substances from clothing being worn by workers, provided that

(a) the substances have an exposure limit greater than 1.0 $mg/m^3$, as established by section 5.48,

(b) appropriate respirators and eye protection are worn, and

(c) the compressed air supply pressure is limited to a pressure of 70 kPa gauge (10 psig), or safety nozzles which have the same pressure limiting effect are used.

[Amended by B.C. Reg. 315/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 312/2010, effective February 1, 2011.]

#### 4.43 Stacking materials

(1) Material and equipment must be placed, stacked or stored in a stable and secure manner.

(2) Stacked material or containers must be stabilized as necessary by interlocking, strapping or other effective means of restraint to protect the safety of workers.

#### 4.43.1 Storage racks

(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.

(3) The employer must ensure that a storage rack in the workplace is

(a) capable of safely supporting the items stored on it,

(b) designed and constructed in accordance with good engineering practice, and

(c) used in accordance with the specifications and instructions of the manufacturer or a professional engineer.

(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.

(5) The employer must ensure that the instructions of the manufacturer or a professional engineer for safely loading, unloading and maintaining the storage rack are readily available in the workplace to workers.

(6) The employer must ensure that the rated capacity of the storage rack is clearly posted near the storage rack and readily visible to workers.

(7) The employer must ensure that any structural modification, including reconfiguration, of the storage rack is carried out in accordance with the specifications 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.

(9) The employer must ensure that, with respect to the storage rack,

(a) regular maintenance is done, and

(b) wear, corrosion, damage, missing or incompatible parts, and signs of fatigue are repaired or replaced in accordance with the specifications and instructions of the manufacturer or a professional engineer.

[Enacted by B.C. Reg. 143/2017, effective January 1, 2018.]

#### 4.44 Entrapment

A worker must not enter or remain in any place where there is a danger of entrapment or engulfment in loose materials or from other circumstances unless

(a) safe access and a safe work area is provided by catwalks, walkways, barriers or other means, or

(b) measures are taken, where practicable, to control the risk of entrapment or engulfment and, if the risk is not eliminated, the worker uses a lifeline and harness of a type that will keep the worker in a position so as to be able to be rescued and is continuously tended by a standby person who is equipped for and capable of effecting immediate rescue.

**Note:** See Part 9 (Confined Spaces) for requirements to control the risk of entrapment or engulfment in a confined space.

#### 4.45 Falling materials

An area in which material may be dropped, dumped or spilled must be guarded to prevent inadvertent entry by workers, or protected by adequate covers and guarding.

The purpose of sections 4.46 to 4.53 is to eliminate or, if that is not practicable, minimize the risk of musculoskeletal injury to workers.

**Note:** WorkSafeBC provides publications to assist with implementing the Ergonomics (MSI) Requirements. *Preventing Musculoskeletal Injury (MSI): A Guide for Employers and Joint Committees* provides a MSI prevention process to assist with the application of the ergonomics requirements along with procedures to investigate incidents of MSI and a table of common control measures. *Understanding the Risks of Musculoskeletal Injury (MSI)* is intended 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.

#### 4.46 Definition

In sections 4.47 to 4.53 (the Ergonomics (MSI) Requirements)

*"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.

**4.47 Risk identification**

The employer must identify factors in the workplace that may expose workers to a risk of musculoskeletal injury (MSI).

**4.48 Risk assessment**

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.

**4.49 Risk factors**

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, and

(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, and

(iv) floor surfaces;

(c) the characteristics of objects handled, including

(i) size and shape,

(ii) load condition and weight distribution, and

(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.

**4.50 Risk control**

(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.

**4.51 Education and training**

(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.

**4.52 Evaluation**

(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.

#### 4.53 Consultation

(1) The employer must consult with the joint committee 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) a representative sample of the workers who are required to carry out the work being assessed.

#### 4.54 Definitions

In sections 4.54 to 4.63

*"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.

[Amended by B.C. Reg. 312/2010, effective February 1, 2011.]

#### 4.55 Guardrail locations

An area accessible to workers must have guards or guardrails installed in any of the following circumstances:

(a) if a raised floor, open-sided floor, mezzanine, gallery, balcony, work platform, ramp, walkway, or runway is 122 cm (4 ft) or more above the adjacent floor or grade level;

(b) on both sides of any walkway over or adjacent to any substance which is a hazard if a worker fell in, or on it, or which is over machinery or work areas;

(c) around the perimeter of any open container or containment area such as an open vat, bin, tank or pit which is 122 cm (4 ft) or more in depth and which has sides that do not extend at least as high as required for a guardrail above the adjacent grade or work surface;

(d) if a stairway ends in direct proximity to dangerous traffic or other hazard to prevent inadvertent entry into the dangerous area.

#### 4.56 Exceptions

Section 4.55 does not apply

(a) to the front edge of a loading dock or to the viewing edge of a performance stage, and to parts of the scenic units which will be visible to the audience during a rehearsal or performance, provided effective measures are taken to ensure that workers are protected from injury, or

(b) during the construction, demolition, renovation or modification of a work area provided that

(i) access is restricted only to the workers involved in the activity, and

(ii) the requirements of Part 11 (Fall Protection) are followed, or

(c) to a movable work platform or scaffold, as those terms are defined in section 13.1, if the movable work platform or scaffold meets the requirements set out in section 13.2(1)(a) and (b) and (2) that apply in respect of guardrails on the movable work platform or scaffold.

[Amended by B.C. Reg. 9/2017, effective May 1, 2017.]

#### 4.57 Elevated workers

If a worker is employed on stilts or work platforms, or is otherwise elevated above the floor, and the effective height of guardrails, walls, or barricades is thus reduced to less than the height specified in section 4.54, additional guardrails must be installed or a personal fall protection system must be used in accordance with the relevant requirements contained in Part 11 (Fall Protection).

#### 4.58 Specifications for guards and guardrails

(1) Guards in a building must be appropriate for the use and occupancy of the area.

(2) Guards in areas not part of a building must meet the applicable criteria of subsections (3) to (5), or other standard acceptable to the Board.

(3) Unless otherwise permitted by subsections (4) and (4.1), guardrails must be installed to withstand a load applied horizontally and normal to the span of the rail, of 550 N (125 lbs) applied at any point along the rail, and a vertical, downward load of 1.5 kN per m (100 lbs per ft) along the top rail, but the horizontal and vertical loads need not be considered to act simultaneously.

(4) 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).

(4.1) 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.

(5) Unless designed by a professional engineer, temporary wooden guardrails on floors and platforms must meet the following criteria:

(a) posts must be spaced not more than 2.4 m (8 ft) apart, except a scaffold may have posts spaced not more than 3 m (10 ft) apart;

(b) wooden top rails must be at least 38 mm x 89 mm (2 in x 4 in nominal) lumber for a span of up to 2.4 m between supports, and at least 38 mm x 140 mm (2 in x 6 in nominal) lumber for a span of 2.4 m to 3 m between supports;

(c) wooden midrails must be 19 mm x 140 mm (1 in x 6 in nominal) or 38 mm x 89 mm (2 in x 4 in nominal) lumber;

(d) wooden rails must be secured to the tops or inner sides of their vertical supports;

(e) wooden guardrail posts must be at least 38 mm x 89 mm (2 in x 4 in nominal) lumber, and must be installed with the narrow dimension facing the open edge;

(f) plastic or wire mesh fencing of adequate strength may be used in place of the midrail, but posts and top rails must comply with the requirements of this section and such fencing must be secured in place.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 312/2010, effective February 1, 2011.]

#### 4.58.1 Temporary removal of guardrails

(1) If a guardrail must be removed to accommodate work,

(a) only that portion of the guardrail necessary to allow the work to be done may be removed, and

(b) workers exposed to a fall hazard must be protected by another fall protection system when the guardrail is absent.

(2) The guardrail must be replaced

(a) when the unguarded area is left unattended, and

(b) after the work is completed if the circumstances still require guardrails.

[Enacted by B.C. Reg. 420/2004, effective January 1, 2005.]

#### 4.59 Floor and roof openings

(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.

(2) If compliance with subsection (1) is not practicable for a vehicle service pit, the area around the perimeter of the pit must be marked in a high visibility colour extending back at least 1 m (3.3 ft) from the edge of the pit, and the marking coating or material must provide a skid resistant surface.

(3) Subsection (1) does not apply to a trap door in a performance stage or scenic unit that 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.

(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.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]

#### 4.60 Toeboards

(1) Floor openings, elevated walkways and platforms must have toeboards 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.

(2) The top of a toeboard must be 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 must not exceed 13 mm (1/2 in).

(3) 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.

(4) Subsections (1) and (2) 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.

#### 4.61 Walkways

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.

#### 4.62 Handrails on stairways

(1) Stairs with more than 4 risers must have continuous handrails on

(a) any open side of the stairway,

(b) one side of enclosed stairways 112 cm (44 in) or less in width, and

(c) both sides of enclosed stairways over 112 cm (44 in) wide.

(2) The top of a handrail must be 76 cm to 92 cm (30 in to 36 in) above the stair tread, measured vertically from the nose of the tread, and the height must not vary on any flight or succession of flights of stairs.

(3) A handrail on an open side of a stairway must have a midrail located approximately midway between the top of the handrail and the nose of the stair tread.

(4) A handrail must be able to withstand a load of 1.3 kN (300 lbs) applied vertically or horizontally at any point along the handrail.

#### 4.63 Vehicle travel areas

A curb must be installed, where practicable, whenever there is a danger of a vehicle or other equipment running off the edge of an elevated area.

**Note:** It is recommended the height of a curb be a minimum of 1/4 the outside tire diameter for the tires of the largest machine regularly using the area. Curbs should be of substantial construction, and while it may be impracticable to contain large machines, a well-constructed curb of the recommended height will provide warning to the operator that the machine is near the edge.

#### SCHEDULE 4–A

*(section 4.58 [specifications for guards and guardrails])*

#### WORKSAFEBC STANDARD — GUARDRAILS USING ROPE OR OTHER NON-RIGID MATERIAL

### 1 Scope

This standard sets out the minimum requirements for the design and use of a guardrail system temporarily installed in a workplace and made using a rope rail for part or all of the top rail or midrail of the guardrail system.

### 2 Definitions

In this standard:

*"fall protection system"* has the same meaning as in section 11.1 of this regulation;

*"guardrail"* has the same meaning as in section 4.54 of this regulation;

*"rope rail"* means a rail made of fibre rope, wire rope, chain or other non-rigid material.

**3 Performance and material requirements**

(1) A rope rail must be able to withstand a load of 550 N (125 lb.) applied in any direction at any point on the rope rail.

(2) A guardrail system using a rope rail must be installed with sufficient setback from the outer face of the parapet, the floor opening or the open edge of the floor or work surface, as the case may be, or from any other hazard, such that when the rope rail is subjected to a horizontal load of 550 N (125 lb.) applied at any point, the rope rail will not deflect

(a) past the outer face of the parapet,

(b) past the edge of the floor opening,

(c) past the open edge of the floor or work surface, or

(d) into the hazard.

(3) A rope rail must be made of a material that will remain stable and functional, having regard to the following:

(a) climatic conditions;

(b) exposure to

(i) high temperature sources, or

(ii) by-products of high temperature processes such as welding or cutting;

(c) chemical exposures that may occur due to

(i) the location of the workplace where the guardrail system is to be installed, or

(ii) the work that will be taking place around or near the guardrail system.

(4) A rope rail must not be made of natural fibre rope or other material relying on natural fibre for tensile strength.

**4 Engineering requirements**

(1) A rope rail must be installed and used in accordance with written instructions from a professional engineer.

(2) The written instructions required by subsection (1) must include the following:

(a) the seal and signature of the professional engineer providing the written instructions;

(b) the address of and location in the workplace where the guardrail system is to be used;

(c) the name of each employer, prime contractor or owner for whom the written instructions were prepared;

(d) a description of the guardrail system or an illustration for its configuration;

(e) details for the connection of the rope rail to supports and anchors;

(f) details on the size and grade of rope and all required rigging hardware to be used;

(g) details for corner posts and points where rope terminations occur;

(h) the maximum span permitted between supports;

(i) the tension required in the rope and the means to achieve it;

(j) the means for testing rope tension during inspections of the system.

(3) The written instructions for a guardrail system intended for use at a number of workplaces of similar design and construction must include the following:

(a) the seal and signature of the professional engineer providing the written instructions;

(b) a description of the type of structure where the guardrail system may be used;

(c) the name of each employer, prime contractor or owner for whom the written instructions were prepared;

(d) a description of the guardrail system or an illustration for its configuration;

(e) details for the connection of the rope rail to supports and anchors;

(f) details on the size and grade of rope and all required rigging hardware to be used;

(g) details for corner posts and points where rope terminations occur;

(h) the maximum span permitted between supports;

(i) the tension required in the rope and the means to achieve it;

(j) the means for testing rope tension during inspections of the system.

(4) The written instructions must be available at the workplace when the guardrail system is being installed and while the rope rail is in place.

**5 Installation and use requirements**

(1) A worker involved in the installation, maintenance or removal of a guardrail system described in section 1 *[scope]* must use a fall protection system if required by Part 11 *[Fall Protection]* of this regulation.

(2) A rope rail meeting this standard is intended for use only as a guardrail and must not be used as a horizontal lifeline unless a professional engineer specifically authorizes such use and provides written instructions for such use.

(3) If the lack of visibility of a rope rail is a hazard, high visibility coloured markers or flagging must be installed on the top rail of the guardrail system at intervals not exceeding 2 m (6.5 ft.)

(4) Once installation of a guardrail system described in section 1 *[scope]* is complete and before the system is relied on as the fall protection system for the work area, the employer must ensure the following:

(a) the rope rail and the guardrail system is inspected by a qualified person;

(b) the qualified person is satisfied that the installation conforms to the written instructions of the professional engineer required by section 4 of this Schedule;

(c) the qualified person provides the employer with a written record of the inspection that states that the guardrail system is properly installed;

(d) a copy of the record referred to in paragraph (c) is available at the workplace where the guardrail system is installed.

(5) In addition to the inspection required by subsection (4), the employer must ensure that the rope rail and the guardrail system is inspected by a qualified person at the start of each work shift to verify that

(a) the rope rail meets the tension requirements of section 3 (1) and (2) of this Schedule, and

(b) the guardrail system conforms to the written instructions referred to in subsection (4) (b) of this section.

(6) If, on inspection under subsection (5) or at any other time, the qualified person or any other person finds that

(a) the rope rail does not meet the tension requirements referred to in subsection (5), or

(b) the guardrail system does not conform to the written instructions referred to in subsection (4) (b),

no work is to take place in the affected area until the deficiency is corrected or the workers in the area are protected by an alternative fall protection system meeting the requirements of Part 11 *[Fall Protection]* of this regulation.

[Enacted by B.C. Reg. 312/2010, effective February 1, 2011.]

#### 4.64 Definitions

In sections 4.64 to 4.69

*"brightness ratio"* means for any 2 surfaces in the field of vision, the ratio of the luminance of one surface to the luminance of the other surface, expressed as a percentage;

*"contrast"* means the ratio of the luminance or light coming from an object and the luminance of its immediate background;

*"general lighting"* means an array of light fixtures that provides a fairly uniform illumination level for a large area, sometimes over the whole workplace, exclusive of any provision for special local lighting;

*"glare"* means brightness within the field of vision that causes eye fatigue or loss in visual performance;

*"illumination level"* means the amount of light falling on a surface;

*"local lighting"* means a light fixture or array of fixtures that provides illumination over a small area such as a service counter in a warehouse, without providing any significant general lighting in the surrounding area;

*"luminance"* means the amount of light reflected by a surface at a given angle;

*"reflectance"* means the ratio of the light reflected from a surface to that falling on the surface, expressed as a percentage.

**4.65 Illumination levels**

(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.

[Amended by B.C. Reg. 20/2008, effective May 1, 2008.]

**Table 4-1 : Illumination levels for task categories**

| Task category | Examples[1] | Minimum[2] illumination level in lux |
|---|---|---|
| 1. Simple orientation for short temporary visits | Inactive storage, waiting areas, VDT screens, log loading and unloading. | 50 |
| 2. Working spaces where visual tasks are only occasionally performed | Stairways, freight elevators, truck loading, active bulk storage. | 100 |
| 3. Visual tasks of high contrast or large size | Bakery mixing rooms, hospital central (clean) linen rooms, locker rooms, reading good quality text, casual reading, simple assembly, hand or simple spray painting, rough lumber grading, rough woodworking and benchwork. | 200 |
| 4. Visual tasks of medium contrast or small size | Hair styling shops, kitchens, vehicle repair garages, sawmill filing room (work areas), reading poor quality text, prolonged or critical reading, medium bench or machine work, mail sorting, fine hand painting and finishing, fine woodworking and finishing. | 500 |
| 5. Visual tasks of low contrast or very small size | Difficult assembly tasks, difficult inspections, weaving, clothing alteration, finished lumber grading. | 1,000 |
| 6. Visual tasks of low contrast and very small size over a prolonged period | Very difficult assembly tasks, sewing, fine bench or machine work, extra-fine hand painting and finishing. | 2,000 |
| 7. Very prolonged and exacting visual tasks | Exacting assembly or inspection, extra fine bench or machine work, precision manual arc-welding. | 5,000 |
| 8. Very special visual tasks of extremely low contrast and small size | Very detailed cloth product inspection and examination. | 10,000 |

**Note 1:** Further guidance in determining task categories that apply to specific work areas and activities is contained in the *IES Handbook*. This publication also provides information on acceptable measures to control brightness, reflectance and glare.

**Note 2:** The lux is the metric unit of light measurement, and replaces the footcandle (fc), which was the traditional imperial unit of measurement. One lux equals about one tenth of a footcandle. For example, the minimum illumination in footcandles for task category number 4, which is common in the office environment, is about 50 footcandles.

#### 4.66 Means of illumination

The lighting required by section 4.65 must be provided by general or local lighting, or an effective combination of the two.

#### 4.67 Brightness, reflectance and glare

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.

#### 4.68 Illumination measurement

(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.

#### 4.69 Emergency lighting

(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*.

[Amended by B.C. Reg. 199/2014, effective February 1, 2015.]

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#### 4.70 Application

Sections 4.71 to 4.80 apply to indoor or enclosed areas when occupied by workers, except

(a) a controlled atmosphere enclosure,

(b) a confined space, and

(c) when clearly impracticable, such as during some construction or renovation projects.

#### 4.71 Submitting plans

An employer or the employer's agent must submit to the Board drawings and specifications for an existing or proposed ventilation system when requested by the Board.

#### 4.72 Design and operation

(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.

[Amended by B.C. Reg. 312/2003 effective October 29, 2003.]

**Note:** If workers occupying a building exhibit signs or report symptoms of illness the circumstances must be investigated as required by Part 5 (Chemical Agents and Biological Agents). If such signs or symptoms are attributed to an inadequate supply of outdoor air, the Board will, under subsection (3), consider a standard other than the ASHRAE standard in place at the time the ventilation system was designed where necessary to address the circumstances.

#### 4.73 Building modifications

The owner of a building must permit an employer to install a ventilation system when required by this Part, provided that all such work is subject to

the approval of the owner, acting reasonably.

#### 4.74 Distribution

Outdoor air must be effectively distributed throughout the workplace.

#### 4.75 Balancing

The ventilation system must be balanced to

(a) ensure that each space within the building receives an adequate allotment of outdoor air, and

(b) accommodate the actual or the normally anticipated occupancy of each space.

#### 4.76 Ventilation openings

(1) A ventilation system must not be obstructed by material or equipment placed in front of the ventilation air intakes or discharge points.

(2) Outdoor air intakes must be located so that outdoor air entering the ventilation system does not contain any contaminant in a concentration greater than normal outdoor ambient air in that locality.

#### 4.77 Discharged air

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 Part 5 (Chemical Agents and Biological Agents), or an acceptable ambient air quality standard established by an authority having jurisdiction over environmental air standards, whichever is greater, and

(b) where practicable, to an objectionable odour.

#### 4.78 Preventive maintenance

(1) To maintain acceptable air quality, the employer, or if the employer is not responsible for maintenance of the ventilation system, the owner of the ventilation system must establish an effective preventive maintenance program for the ventilation system.

(2) Preventive maintenance must include

(a) regular inspections

(i) of all critical components of the ventilation system, such as dampers, fans, belts, baffles, ductwork, diffusers and control systems, and

(ii) for conditions which would promote the growth of micro-organisms, such as water leaks or stagnant water pools,

(b) correction of any deficiencies found during the inspections carried out under paragraph (a),

(c) repair or replacement of malfunctioning and consumable components, such as filters and belts, and the cleaning of air distribution systems, ducts and dampers when necessary to correct an indoor air quality deficiency,

(d) adequate treatment of open water systems associated with ventilation equipment such as cooling towers and humidifiers, to control biological growth, and

(e) maintenance of combustion sources, such as furnaces, space heaters and water heaters to assure proper burning and exhausting of waste gases so that recirculation of gases to the workplace will not occur.

#### 4.79 Investigation

(1) The employer must ensure that the indoor air quality is investigated when

(a) complaints are reported,

(b) occupancy in the space changes substantially, or

(c) renovations involving significant changes to the ventilation system occur.

(2) An air quality investigation must include

(a) assessment of the ventilation rate, unless the indoor carbon dioxide level is less than 650 ppm above ambient outdoor levels,

(b) inspection of the ventilation system as required in section 4.78(2),

(c) sampling for airborne contaminants suspected to be present in concentrations associated with the reported complaints, and

(d) a record of the complaint, the findings of the investigation, and any actions taken.

**Note:** In subsection (2)(a) carbon dioxide is considered a marker indicator of sufficient outdoor air, not as a toxic air contaminant for which the exposure limit established by section 5.48 would apply. Normally, ambient levels are approximately 350 ppm, but may be higher in locations such as urban areas or during weather conditions such as inversions. Ambient levels may be assumed to be 350 ppm unless sampling establishes otherwise.

#### 4.80 Temperature and humidity

The employer must ensure that temperature and humidity levels within the indoor work environment are maintained within acceptable comfort ranges, as far as is practicable.

**Note:** Refer to the ASHRAE publication *Handbook of Fundamentals* or to the WorkSafeBC publication *Indoor Air Quality* for information on acceptable temperature and humidity levels.

#### 4.80.1 Definitions

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*.

[Enacted by B.C. Reg. 9/2017, effective May 1, 2017.]

#### 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;

(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;

(c) except as permitted under section 4.82 of this regulation, prohibiting working in an indoor area where the activities referred to in paragraph (a) of this section are allowed under section 4.23(2)(a) or (b) of the Tobacco and Vapour Products Control Regulation.

[Enacted by B.C. Reg. 9/2017, effective May 1, 2017.]

#### 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.

[Enacted by B.C. Reg. 9/2017, effective May 1, 2017.]

#### 4.83 Public entertainment facilities

Repealed. [B.C. Reg. 258/2008, effective January 1, 2009.]

#### 4.84 Eating areas

(1) Workers must not keep or consume food in an area of a workplace where it could become unwholesome because of workplace contaminants.

(2) 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 consumption is restricted or prohibited at the workplace.

[Enacted by B.C. Reg. 421/2004, effective January 1, 2005.]

#### 4.85 Washroom facilities

(1) Subject to subsections (2) and (4), the employer must ensure that a sufficient number of plumbed washroom facilities are readily available for workers.

(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 handwashing facilities, or

(b) make such other reasonable arrangements to accommodate workers as the circumstances allow, if access to portable washroom and handwashing facilities cannot be provided.

(3) 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.

(4) This section does not apply to a specified construction site as defined in section 20.3.1.

[Enacted by B.C. Reg. 421/2004, effective January 1, 2005.]
[Amended by B.C. Reg. 260/2024, effective October 1, 2024]

#### 4.86 Change areas

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.

[Enacted by B.C. Reg. 421/2004, effective January 1, 2005.]

#### 4.87 Unsafe water

The employer must display at every plumbed non-potable water source from which a person might reasonably believe that the person can safely drink, a notice that the water is unfit for human consumption.

[Enacted by B.C. Reg. 421/2004, effective January 1, 2005.]
[Amended by B.C. Reg. 116/2022, effective August 22, 2022.]

#### Sections 4.88 to 4.106

Repealed. [B.C. Reg. 421/2004, effective January 1, 2005.]