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12.1 Definitions

In this Part

"guard" means a type of safeguard consisting of a physical barrier which prevents a worker from reaching over, under, around or through the barrier to a moving part or point of operation;

"jumbo" means a mobile platform having one or more levels which provides work areas for persons, machines, tools, drills or other materials;

"point of operation" means the danger area in a machine where a part is being formed or work is being done;

"power transmission part" means any moving part of a machine that transfers power from a power source to a point of operation;

"safeguard" 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;

"safety device" means a type of safeguard consisting of an arrangement of operating controls, an active or passive physical restraint, an interlock, or a presence sensing device which ensures that a worker cannot access or be in a hazardous area while a machine is operating;

"shield" means a type of safeguard consisting of a physical cover or barrier which restricts but does not prevent access to a hazardous moving part or a point of operation.

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12.2 Safeguarding requirement

Unless elsewhere provided for in this Occupational Health and Safety Regulation, the employer must ensure that machinery and equipment is fitted with adequate safeguards which

(a) protect a worker from contact with hazardous power transmission parts,

(b) ensure that a worker cannot access a hazardous point of operation, and

(c) safely contain any material ejected by the work process which could be hazardous to a worker.

12.3 Standards

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*.

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

12.4 Effectiveness of safeguards

A safeguard must be capable of effectively performing its intended function.

12.5 Fixed guards

A fixed guard must not be modified to be readily removable without the use of tools.

12.6 Lubrication

A guard must be designed, where practicable, to allow lubrication and routine maintenance without removal of the guard.

12.7 Opening and reach distance

Repealed.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

12.8 Lockout

Repealed.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

12.9 Safe operation

Repealed.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

12.10 Identifying unsafe equipment

An unsafe tool, machine or piece of equipment must be removed from service and identified in a manner which will ensure it is not inadvertently returned to service until it has been made safe for use.

Note: The procedure for determining whether the tool, machine or piece of equipment is unsafe for use is provided by the requirements on the correction of unsafe conditions and refusal of unsafe work in Part 3 (Rights and Responsibilities).

12.11 Operating controls

(1) Powered equipment other than portable powered tools or mobile equipment must have

(a) starting and stopping controls located within easy reach of the operator,

(b) controls and switches clearly identified to indicate the functions they serve,

(c) controls positioned, designed or shielded as necessary to prevent inadvertent activation,

(d) if two-hand controls are installed, controls designed to require concurrent use of both hands to operate the equipment, and to require both controls to be released before another machine cycle can be initiated, and

(e) control systems meeting the requirements of this Regulation.

(2) Portable powered tools and mobile equipment must have operating controls conforming to an appropriate standard acceptable to the Board.

(3) A remote control device that operates mobile equipment must be equipped with a fail safe, or stop, mechanism that becomes operational if the remote control device fails.

[Amended by B.C. Reg. 139/2021, effective September 1, 2021.]

12.12 Machinery location

A machine must be located or safeguarded so that operation of the machine will not endanger workers using normal passage routes about the workplace or operating an adjacent machine.

12.13 Marking physical hazards

A physical hazard must be marked in a manner that clearly identifies the hazard to the affected workers.

Note: The following standards provide guidance for the effective identification of hazards:

(a) *CSA Standard CAN/CSA-Z321-96, Signs and Symbols for the Workplace*;

(b) *ANSI Standard Z535.1-1991, Safety Color Code;*

(c) *ANSI Standard Z535.2-1991, Environmental and Facility Safety Signs;*

(d) *ISO Standard 3864:1984, Safety Colours and Safety Signs.*

12.14 Identification of piping

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

(2) A piping system containing substances other than hazardous products must be identified in a manner known to the affected workers.

(3) The identification markings on a piping system must be maintained in a legible condition.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 30/2015, effective August 4, 2015.]

12.15 Restraining devices

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.

12.16 Rotating hazards

Rotating parts, such as friction drives, shafts, couplings and collars, set screws and bolts, keys and keyways, and projecting shaft ends, exposed to contact by workers must be guarded.

Note: If the projection of a shaft is less than half the shaft diameter and is free of snagging hazards, no guard is required.

12.17 Gears and sprockets

(1) Every gear and chain sprocket must be completely enclosed, or if complete enclosure is impracticable, must have band-type guards with flanges extending below the root of the teeth.

(2) If there is a hazard from rotating spokes, the spokes must be guarded on the sides accessible to workers.

12.17.1 Safeguards for objects or materials

(1) If a log loader or a rail car loader is mounted on rails, tracks or a fixed structure, the loader must not be used by an operator until

(a) a qualified person has completed a written risk assessment of any hazards created by falling, flying or intruding objects or materials that may be present while the loader is being used, and

(b) suitable protective structures, including cabs, windows, screens, grills, shields, deflectors, guards or structures, have been installed on the loader that are designed or approved by the manufacturer of the loader or by a professional engineer to

(i) eliminate, or reduce to the greatest extent possible, the risks identified in the risk assessment referred to in paragraph (a), and

(ii) provide an adequate view for the operator to safely use the machine.

(2) A person must not remain in a cab of a loader that is mounted on rails, tracks or a fixed structure while loads are elevated over the cab unless that cab is protected by an adequate overhead guard.

[Enacted by B.C. Reg. 139/2021, effective September 1, 2021.]

12.18 Reciprocating machinery

A crank, connecting rod, tail rod, extension piston rod or other reciprocating or oscillating part exposed to contact by workers must be guarded.

12.19 Drive belts

A power transmission belt, rope or chain must be guarded to protect workers who would be endangered in the event of its failure.

12.20 Reaching up

(1) The in-running nip point of a power transmission belt, rope or chain, and any portion of a flywheel or pulley located within 2.5 m (8 ft) above a floor, walkway or platform must be guarded to prevent contact by workers.

(2) 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 substantially overhauled or renovated.

12.21 Flywheels and pulleys

(1) A pit for a flywheel or pulley must have curbs or toeboards around the upper edge of the pit.

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

(3) A flywheel or pulley which is defective or has been exposed to excessive heat must be removed from service and must not be returned to service until it has been repaired according to the manufacturer's recommendations, or certified safe for use by a professional engineer.

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

12.22 Standards

Unless otherwise permitted by this Regulation, a conveyor must meet the requirements of *ANSI Standard ANSI/ASME B20.1-1993, Safety Standards for Conveyors and Related Equipment*.

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

12.23 Belt-type conveyors

A belt conveyor must have accessible nip points of spools and pulleys guarded to prevent contact by a worker.

12.24 Screw-type conveyors

(1) The moving parts of a screw-type conveyor must be guarded from contact by a worker.

(2) Each guard on a screw-type conveyor must be secured by fasteners requiring a tool for removal.

(3) The openings in mesh and grid guards must meet the requirements of Appendix A of *CSA Standard Z432-94, Safeguarding of Machinery*.

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

12.25 Feed points

If the feed point for a conveyor cannot be guarded because of the work process, any workers required to be in the area must have and use suitable devices and tools which prevent the worker from contacting moving parts of the conveyor system.

Note: Suitable devices include safety belts and lanyards rigged to prevent the worker from contacting moving parts. Suitable tools include materials-handling tools such as shovels or rakes, except shovels or other tools with "D" handles must not be used.

12.26 Lockout

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

12.27 Falling materials

A conveyor must have guards or sideboards to prevent material from falling from the conveyor into areas occupied by workers if the falling material presents a hazard of impact injury or burn.

12.28 Emergency stopping devices

(1) A conveyor must have an emergency stopping system unless worker access to the conveyor is prevented by guarding.

(2) The conveyor emergency stopping system must be designed and installed so that the system will activate as a worker falls onto the conveyor, or if a fallen worker on the conveyor moves an arm or leg off to one side of the conveyor.

(3) 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.

(4) The conveyor emergency stopping system must be designed and installed so that after an emergency stop, manual resetting is required before the conveyor can be restarted.

(5) A conveyor must not be restarted after an emergency stop until inspection has determined it can is be operated safely.

12.29 Standards

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.*

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

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

12.30 Point of operation safeguarding

(1) The point of operation of a power press, brake press or shear must be safeguarded to prevent injury to the operator or any other worker.

(2) A hand feeding or extraction tool must not be used as a substitute for point of operation safeguarding.

(3) A guillotine or alligator shear must have a guard or other device which protects the operator from flying particles or material emanating from the shears.

(4) The point of operation of a manually powered press, shear or cutter must be effectively guarded.

12.31 Exception for custom work

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.

12.32 Supervisory control

If a power press or brake press is being used in a production mode the keys for all control selector switches must remain under a supervisor's control.

12.33 Flywheel guarding

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

12.34 Feed-rolls

Feed-rolls must have a guard or safety device to prevent the operator from contacting any in-running nip points.

12.35 Guard design

A feed-roll guard must be effective for the material thickness being processed, and the clearance between the guard and the material passing through the feed-rolls must not exceed 6 mm (1/4 in).

12.36 Metal-forming rolls

If the work process on metal-forming rolls precludes the use of guards, an emergency stopping system must be installed across the machine, and also across the rear (offside) of the machine if a worker is exposed to the hazard on that side, and the emergency stopping system must activate automatically when contacted.

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12.37 Splash guards and shields

Cutting or cooling fluids, metal chips, swarf or turnings from machine tool work must be contained.

12.38 Lathe chucks

Dogs that extend beyond the circumference of a lathe chuck must be safeguarded from contact by the operator.

12.39 Restriction on hand polishing

Lathe stock must be polished with tools designed for this purpose, and the use of hand held strips of abrasive cloth is prohibited.

12.40 Stock projection

Safeguards must be provided to prevent a worker from contacting stock projecting from a machine tool.

12.41 Shapers/planers

A shaper or planer bed opening must be covered or safeguarded to eliminate shearing hazards.

12.42 Carriage travel

Safeguards must be installed at the farthest points of travel of the carriage or table of a shaper, planer, surface grinder or similar equipment to

protect workers against contact with moving parts.

12.43 Vertical boring mills

The rim of the revolving table of a vertical boring mill must be safeguarded to prevent contact by workers.

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12.44 Standards

An abrasive wheel must be guarded, used and maintained to meet the requirements of *ANSI Standard B7.1-1988, The Use, Care and Protection of Abrasive Wheels*.

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

12.45 Protective hood

(1) An abrasive wheel must have a protective hood that will contain fragments of the wheel should it break apart while turning.

(2) Subsection (1) does not apply to

(a) an abrasive wheel used for internal work,

(b) a mounted wheel of any shape or type which is 50 mm (2 in) or less in diameter,

(c) a threaded-hole, cone or plug type of wheel if the nature of the work provides protection, or

(d) a portable grinder when it is being used for grinding root passes in welded pipe, provided it has a protective hood covering at least 120° of the wheel periphery and the operator wears adequate eye and face protection.

12.46 Speed of abrasive wheels

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

(2) The allowable arbor or shaft speed of abrasive equipment must be clearly marked on the equipment.

(3) A pneumatic grinder must have a governor which limits maximum shaft speed to that specified by the tool manufacturer, and the maximum rated speed must be marked on the equipment.

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

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

12.47 Grinding prohibitions

The side of an abrasive wheel must not be used for grinding and non-ferrous materials must not be ground unless the wheel is designed for such use.

12.48 Work rests

When the work is hand-held, a grinding machine must have an adjustable work rest with its upper edge at or above the centreline of the abrasive wheel and within 3 mm (1/8 in) of the cutting surface.

12.49 Dust control

Dust from a grinding or buffing operation must be controlled to prevent a hazard to any worker.

12.50 Dressing grinding wheels

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

12.51 Standards

A powder actuated fastening system, consisting of the tool, power loads and fasteners must meet the requirements of *ANSI Standard A10.3-1995, American National Standard for Construction and Demolition Operations — Safety Requirements for Powder-Actuated Fastening Systems*.

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

12.52 Tool selection

A low velocity powder actuated tool, with a fastener test speed rating of less than 100 m (330 ft) per second, must be used unless no low velocity tool available on the market is capable of doing the fastening task.

12.53 Tool design

(1) Two separate and distinct operations must be required to activate a powder actuated tool and the final firing movement must be separate and subsequent to depressing the tool into the firing position.

(2) The tool must be designed so that positive means of varying the power level is available, or can be made available, so that the operator may select a power level appropriate to perform the desired work.

12.54 Markings

(1) A powder actuated tool must be marked with the manufacturer's name or trademark, model number and serial number.

(2) A guard or accessory for use with a powder actuated tool must be marked with the manufacturer's name or trademark.

12.55 Storage

(1) When not in use, a powder actuated tool must be unloaded and the tool and power loads must be securely stored and be accessible only to qualified and authorized persons.

(2) Power loads of different power levels and types must be kept in different compartments or containers.

12.56 Tool use

(1) Only a qualified person may handle or use a powder actuated tool or power loads.

(2) The operator must have immediately available when using or servicing a powder actuated tool

(a) a copy of the manufacturer's operating instructions for the tool,

(b) a copy of the power load and fastener charts for the tool, and

(c) any accessories or tools needed for use or field servicing of the tool, including personal protective equipment.

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

(4) A powder actuated tool must not be used in an explosive or flammable atmosphere.

(5) A powder actuated tool may only be loaded when it is being prepared for immediate use, and must be unloaded at once if work is interrupted after loading.

(6) A powder actuated tool must not be pointed at any person.

(7) If a powder actuated tool misfires, the operator must hold the tool firmly against the work surface for at least 5 seconds, then follow the manufacturer's instructions for such occurrences, and until the cartridge has been ejected, keep the tool pointed in a direction which will not cause injury to any person.

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

12.57 Limitations on use

(1) A powder actuated tool fastener must not be driven into very hard or brittle materials, such as cast iron, glazed tile, hardened steel, glass block, natural rock, hollow tile, and most brick.

(2) A powder actuated tool fastener may only be driven into easily penetrated or thin materials or materials of unknown resistance if the receiving material is backed by a material that will prevent the fastener from passing completely through.

(3) A powder actuated tool fastener must not be driven into steel within 13 mm (1/2 in) of an edge, or within 5 cm (2 in) of a weld except for special applications permitted by the tool manufacturer.

(4) Except for special applications recommended by the manufacturer, a powder actuated tool fastener may not be driven into masonry materials

(a) within 7.5 cm (3 in) of an unsupported edge with a low velocity tool, or

(b) within 15 cm (6 in) of an unsupported edge with a medium or high velocity tool.

(5) A powder actuated tool fastener must not be driven

(a) into concrete unless material thickness is at least 3 times the fastener shank penetration,

(b) into any spalled area, or

(c) through existing holes unless a specific guide means, as recommended and supplied by the tool manufacturer, is used to assure positive alignment.

12.58 Hand feeding

A template, jig, or pushstick must be used if there is a risk of injury to a worker's hands when feeding woodworking machinery.

12.59 Removing guards

(1) 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.

(2) A guard may otherwise only be removed if the guard itself creates a hazard, or if its removal is necessary for maintenance.

12.60 Kickback fingers, splitters, spreaders, and riving knives

(1) If a hand-fed circular saw is used for ripping wood, or is used for any other purpose where there is a risk of kickback, the circular saw must have

(a) anti-kickback fingers and a splitter or spreader designed to prevent kickback, or

(b) a riving knife designed to prevent kickback.

(2) Subsection (1) does not apply when the circular saw is used for grooving, dadoing or rabbeting.

[Enacted by B.C. Reg. 312/2012, effective February 1, 2013.]

12.61 Radial arm saw travel limits

The cutting table and the saw travel stop on a radial arm saw must be designed and maintained so that no part of the saw blade can travel past the forward edge of the cutting table.

12.62 Jointers

A hand-fed wood jointer must have a self adjusting guard over the cutting head on the working side and a guard over the portion of the cutting head behind the fence.

12.63 Sanding machines

(1) The revolving drums, pulleys, nip points, and unused runs of a sanding belt of a sanding machine must be effectively guarded.

(2) Guards must be arranged so that only the portion of the belt necessary for the operation is exposed.

12.64 Tenoning machines

A hand-fed tenoning machine must have a device which holds the material being cut.

12.65 Hand-held circular saws

A hand-held circular saw must have a guard which automatically adjusts to the thickness of the material being cut, and which, when the saw is withdrawn from the material, completely covers the cutting area of the blade.

12.66 Cutting heads

(1) A cutting head on a woodworking tool or piece of equipment such as a router, a shaper or a sticker must be properly adjusted and secured.

(2) If two or more knives are used in one head, they must be balanced.

(3) A cutting head protective hood fitted on woodworking equipment must be strong enough to contain fragments which result from failure of cutting head components.

(4) A small hand-held router using a one piece cutting bit is exempt from the requirements of subsection (3).

12.67 Band saws

(1) A band saw blade must be enclosed or guarded, except for the working side of the blade between the guide rolls and the table.

(2) A band saw wheel must be fully encased.

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12.68 Hand-fed chippers

A hand-fed mobile chipper must have a barrier or baffle installed on the feed side of the rotor to prevent the ejection of chipped material.

12.69 Self-feeding chippers

A self-feeding chipper must have a table or apron extending at least 1.5 m (5 ft) back from the rotor with sides sufficiently high to prevent a worker from reaching in and contacting the rotating knife.

12.70 Driven-feed chippers

(1) A driven-feed chipper must have

(a) a feed table that meets both of the following requirements:

(i) the feed table, including the drop-down extension, if any, must extend at least 150 cm (59 in) from the nip point of the feed rollers;

(ii) the total distance from the nip point of the feed rollers to the ground must be at least 210 cm (82 in), as measured along the centre line of the feed table to the lip of the feed table and then vertically from the lip of the feed table to the ground,

(b) side walls on the feed table, including any drop-down extension, and on the guard chute that are of sufficient height to prevent a worker who is standing on the ground from reaching the feed rollers, and

(c) a feed control bar that is

(i) located across the top and close to the feed end of the guard chute, and

(ii) designed so that a worker endangered by the feed rollers is able to stop or reverse the feed rollers both by

(A) pushing the feed control bar to its forward travel limit, and

(B) pulling the feed control bar to its rearward travel limit.

(2) No part of a person's body may be on the feed table or in the guard chute unless

(a) the feed rollers have stopped, and

(b) the motor of the driven-feed chipper is turned off and locked out.

(3) Despite subsection (1), a driven-feed chipper that is in use in British Columbia before February 1, 2012 may continue to be used if

(a) the driven-feed chipper meets the requirements of subsection (1) (a) and (b),

(b) the feed control bar meets the requirements of subsection (1) (c) (i), and

(c) the feed control bar is designed so that a worker endangered by the feed rollers is able to stop or reverse the feed rollers by at least one of the means set out in subsection (1)(c)(ii).

[Enacted by B.C. Reg. 188/2011, effective February 1, 2012.]

12.71 Vertically fed chippers

On a mobile chipper which gravity feeds material through a vertical hopper to the rotor, the sides of the hopper must be of a depth which prevents the operator from reaching in so as to contact the rotor, but which, in no case, is less than 90 cm (3 ft) measured from the top edge of the hopper

to the periphery of the rotor.

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12.72 Standards

(1) A chain saw must meet the requirements of *CSA Standard Z62.1-95, Chain Saws*.

(2) A chain saw must have a chain brake that activates automatically upon kickback regardless of the position of the power head or operator's hands.

(3) A chain saw manufactured before January 1, 1999, with a guide bar exceeding 66 cm (26 in), measured from the top of the cutters at the bar tip to the point of the "dogs" or "bumper spikes", is exempt from the requirement for a chain brake.

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

12.73 Stopping chain movement

A chain saw chain must be stopped before the saw operator moves from cut to cut, unless the next cut is in the immediate area and the saw operator can safely move to the next cutting position.

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12.74 Standards

(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*.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 17/2006, effective August 15, 2006.]

12.75 Assembly and installation

An automotive lift, portable automotive lifting device or other vehicle support must be assembled and installed by qualified personnel.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 17/2006, effective August 15, 2006.]

12.76 Operation

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.

[Amended by B.C. Reg. 17/2006, effective August 15, 2006.]

12.77 Records

The employer must keep a maintenance, inspection, modification and repair record for each automotive lift.

[Enacted by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 17/2006, effective August 15, 2006.]

12.78 Inspection and testing

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.

[Amended by B.C. Reg. 17/2006, effective August 15, 2006.]

12.79 Rated capacity

(1) The rated capacity must be marked on each automotive lift, portable automotive lifting device or other vehicle support and must not be exceeded.

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

(3) If the rated capacity of a device listed in subsection (1) is dependent on the concurrent use of 2 or more devices, the number of devices required to achieve the rated capacity must be clearly marked on the devices.

[Amended by B.C. Reg. 312/2003, effective October 29, 2003.]
[Amended by B.C. Reg. 17/2006, effective August 15, 2006.]

12.80 Controls

The control for an automotive lift must require continuous pressure by the operator when raising or lowering the unit, and the control must return to the neutral position when released.

12.80.1 Vehicle restraint

Before a runway type automotive lift is used,

(a) manual wheel chocks must be used as the primary means to restrain the vehicle from movement, and

(b) automatic or fixed stops, or a combination of them, must be provided and used as a secondary means to prevent the vehicle from inadvertently rolling off either end of the runway.

[Enacted by B.C. Reg. 17/2006, effective August 15, 2006.]

12.80.2 Swing-arm restraint

(1) An automotive lift that has swing arms must have swing-arm pivot restraints if

(a) no part of the rigid superstructure is under the raised vehicle, or

(b) the lift has 2 or more superstructures and the clearance between the rigid parts of the superstructures on each side of the vehicle is 1.3 m (51 in.) or more.

(2) Swing-arm pivot restraints required under subsection (1) must be designed and maintained to prevent unintentional removal or disengagement of the swing-arm pivot restraints when a vehicle is being supported by the automotive lift.

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

12.81 Tumblers

A tumbler drum must be guarded or enclosed, and any access door in a guard or enclosure must have interlocks which prevent the access door from being opened while the drum is rotating, and the drum from operating while the access door is open.

12.82 Pneumatic nailing and stapling tools

(1) A hand held pneumatic nailing or stapling tool capable of driving fasteners larger than 1.2 mm (0.05 in or 18 gauge ASWG) must not activate unless the operator performs 2 actions, one of which is to place the tool against a work surface.

(2) The trigger of a pneumatic nailing or stapling tool must not be taped or otherwise secured in the "on" position, or held in the "on" position while moving between operations.

(3) The air supply to a pneumatic nailing or stapling tool must be disconnected before adjusting or servicing the tool.

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

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

12.83 Industrial robots

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

(b) *ANSI Standard ANSI/RIA R15.06-1992, American National Standard Industrial Robots and Robot Systems - Safety Requirements*.

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

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

12.83.1 Chassis dynamometers - motor vehicle testing

(1) In this section:

"guard screen" means a screen manufactured from shock-absorbing material and designed to prevent any material striking the screen from ricocheting;

"motor vehicle" means a wheeled vehicle that is propelled by motorized or electric power, but does not include a vehicle that is designed to be used on rails or tracks.

(2) Only a qualified worker may

(a) test a motor vehicle on a chassis dynamometer, or

(b) operate a motor vehicle, chassis dynamometer or other test equipment for the purpose of testing a motor vehicle on a chassis dynamometer.

(3) Before a motor vehicle is tested on a chassis dynamometer, the wheels and tires of the motor vehicle must be inspected by a qualified worker.

(4) A motor vehicle must not be tested on a chassis dynamometer if any of the following apply:

(a) the tires on the motor vehicle contain rocks, stones or other foreign material embedded in the tire treads;

(b) the tires on the motor vehicle are studded;

(c) the wheels or tires on the motor vehicle are incapable of operating safely at the speeds to be reached during testing;

(d) the wheels or tires on the motor vehicle bounce during testing in a manner that is likely to cause the motor vehicle to move laterally off the rolls;

(e) the motor vehicle is likely, without continuous corrective steering, to move laterally off the rolls during testing.

(5) The following safety measures must be taken when testing a motor vehicle on a chassis dynamometer:

(a) the chassis dynamometer must be equipped with front-mounted idler safety rolls unless the motor vehicle is chained or otherwise secured to anchor points to prevent runaways;

(b) wheel chocks must be used to block the non-driving wheels to prevent runaways;

(c) in the case of a motor vehicle with front-wheel drive, the motor vehicle must be prevented from moving laterally during testing;

(d) guard screens of a size that is appropriate for the motor vehicle must be positioned behind the rear of the motor vehicle to block any materials that may be ejected from or by the wheels or tires;

(e) the exposed portions of the moving rolls of the chassis dynamometer must be fitted with adequate guards while the rolls are in motion during testing;

(f) exhaust gases from the motor vehicle must be removed from the work area.

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

12.84 General requirement

The employer must ensure that before drilling

(a) the back, face and sides of the work area have been scaled and stabilized,

(b) the working face and surrounding area have been thoroughly washed, and

(c) remnants of holes have been inspected for explosives and distinctively marked.

12.85 Drilling equipment

The employer must ensure that

(a) a rock drill is not used unless equipped with a water jet or other device capable of suppressing rock dust, and

(b) adequate restraining devices are installed on hose connections under pressure, if inadvertent disconnection could endanger workers.

12.86 Control location

Operating controls must not be installed on the feed slide of a top-hammer percussion drill.

12.87 Boom hazard

A worker must not proceed beyond the front of the drill controls of a drill jumbo if the drills are in operation, unless the drilling equipment is specifically designed and certified for that purpose.

12.88 Drill jumbos

(1) A drill jumbo that contains decks must be

(a) fitted with guardrails and toeboards, meeting the requirements of Part 4 (General Conditions), around the upper decks,

(b) equipped with a rack or receptacle for securely storing drill rods and other equipment,

(c) provided with safe access to each working level,

(d) provided with a visual warning system to warn workers located below the upper decks, before a worker above collars a hole or removes the boom stabilizer from the face after finishing a hole, and

(e) securely fixed in position at the face to prevent inadvertent movement during drilling operations.

(2) Explosives must not be brought onto or under a drill jumbo during a drilling operation, nor may holes be loaded until drilling is complete.

12.89 Drilling procedures

A driller must ensure that

(a) the cut is not drilled in the same location as the previous round,

(b) holes are not drilled within 15 cm (6 in) of any part of a bootleg as defined in section 21.1, and

(c) there is no drilling at a face when a hole is loaded or being loaded with explosives except in conformity with the requirements on drilling to refire a misfire, as specified in Part 21 (Blasting Operations).

[Amended by B.C. Reg. 207/2021, effective December 1, 2021.]

12.90 Rod handling

(1) A drill operator working without a helper must not manually add or remove drill steel or a drill bit, or service drilling equipment, while the drill is rotating under power.

(2) A worker assisting the drill operator with drill bit or drill steel handling must remain clear of rotating parts of the drill system.

(3) Except as provided in subsection (4), a boom-mounted percussion drill being used with multiple lengths of coupled drill steel must have a rod changer or other effective device installed and used to add or remove drill steel.

(4) If it is not practicable to fit a rod changer to a boom-mounted percussion drill, adequate written safe work procedures for adding and removing drill steel must be available, and the drill must be operated in accordance with those procedures.

12.91 Self-propelled drills

A self-propelled rock drill without a ROPS

(a) must have controls for machine travel that allow the operator to access the controls

(i) while standing on the upslope side of the machine, or

(ii) from a position off the machine and upslope from it, and

(b) may only be moved under its own power if the operator is in a position referred to in paragraph (a)(i) or (ii), so that the operator is already off the machine or in a position to safely step off the machine should it roll or slide downhill.

[Enacted by B.C. Reg. 139/2021, effective September 1, 2021.]

12.92 Cleaning drilled holes

If a drilled hole is being cleaned using an air or water pressure blowpipe, the operator must ensure that everyone is clear of the area made hazardous by blowback.

12.93 Breaking metal

An effective guard or barrier must be installed to protect workers from flying metal fragments if a drop weight or other impact device is used to break castings or other metal.

12.94 Inspection of linings

A furnace, crucible, ladle, mould or other equipment for handling or containing molten metal must be inspected at regular intervals to determine the condition of the lining, and if any abnormal deterioration is observed the equipment must be removed from service without delay.

12.95 Preventing eruptions

All practicable means must be used to prevent eruptions caused by moisture in furnaces, ladles, crucibles, molds and other equipment containing molten metal.

12.96 Inspection of materials

(1) Material to be put in a melting furnace must be carefully inspected to ensure that a cylinder, tank or similar closed vessel of any description is not placed in the furnace.

(2) Before being exposed to the intense heat of a furnace, a closed vessel must be cut open to eliminate the explosion hazard, but must not be cut open using a method involving the application of heat or flame.

(3) If a worker must be situated near an open furnace during charging operations, the material to be melted must be carefully examined and, if necessary, must be sufficiently preheated to ensure that moisture and foreign substances are eliminated.

(4) Preheating must be done under controlled circumstances to ensure that no worker is endangered by the process.

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12.97 Definitions

In sections 12.97 to 12.111

"cabinet" means an enclosure designed to permit abrasive blasting, high pressure washing or a similar operation to be conducted safely inside the enclosure by a worker who is outside the enclosure;

"enclosure" means a temporary or permanent enclosure of a work area provided with exhaust ventilation and makeup air to reduce exposure of workers inside the enclosure and prevent the uncontrolled release of air contaminants from the enclosure;

"high pressure washing" or "jetting" means the use of water or other liquid delivered from a pump at a pressure exceeding 34 MPa (5,000 psi), with or without the addition of solid particles, to remove unwanted matter from a surface or to penetrate into the surface of a material for the purpose of cutting that material.

12.98 Risk assessment

The employer must ensure that a risk assessment is done before any abrasive blasting activity, high pressure washing process, or related cleanup is started which may cause release of a harmful level of an air contaminant from a surface or coating containing a toxic heavy metal or asbestos.

12.99 Work procedures outside a cabinet

If abrasive blasting, high pressure washing or a similar operation is conducted by a worker outside a cabinet, written safe work procedures addressing the hazards and necessary controls must be prepared and implemented by the employer.

12.100 Substitution

Abrasive blasting materials containing crystalline silica must be replaced with less toxic materials, when practicable.

12.101 Reuse prohibition

(1) An abrasive material must not be reused if it

(a) contains crystalline silica, or

(b) becomes contaminated with any harmful impurities including metals such as lead, chromium, nickel or mercury.

(2) The requirements of subsection (1) do not apply to a fully enclosed, vented cabinet designed to recirculate the abrasive material.

12.102 Cleanup

(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.

[Enacted by B.C. Reg. 253/2001, effective January 28, 2002.]

Note: Section 4.41 of this Regulation requires that waste abrasive blasting materials not be allowed to accumulate so as to become hazardous to workers. Part 8 (Personal Protective Clothing and Equipment) of this Regulation provides requirements for respiratory and other forms of personal protective equipment to be used in the workplace.

12.103 Engineering controls

Engineering controls such as an enclosure or local exhaust ventilation with dust collection must be used to maintain airborne contaminant levels below exposure limits, where practicable.

12.104 Exhaust ventilation

(1) When abrasive blasting or a similar operation is conducted within a structure, the process must be isolated in a separate, properly ventilated enclosure or cabinet to minimize worker exposure to air contaminants generated by the process.

(2) When abrasive blasting or a similar operation is conducted inside an enclosure or cabinet, the enclosure or cabinet must have exhaust ventilation that

(a) maintains air pressure below the air pressure outside the enclosure or cabinet, so as to prevent the escape of air contaminants from the enclosure or cabinet to other work areas, and

(b) minimizes worker exposure inside the enclosure.

12.105 Restricted work zones

(1) When abrasive blasting or a similar operation is conducted outside a structure, the process must be restricted to a work zone which is identified by signs or similar means as being a contaminated area.

(2) Only properly protected workers who are necessary to perform the work are permitted inside an enclosure or a restricted work zone where abrasive blasting or a similar operation is conducted.

12.106 Operating controls

(1) The operating controls for a sandblasting machine or jetting gun must be

(a) located near the nozzle in a position where the operator's hands will be when using the device,

(b) the continuous pressure type that immediately stops the flow of material when released, and

(c) protected from inadvertent activation.

(2) Subsection (1)(a) does not apply to sandblasting machines or jetting guns used in operations where hand operated controls are clearly impracticable, in which case the operator must use a foot operated control or equivalent safety device, both of a design acceptable to the Board.

[Enacted by B.C. Reg. 253/2001, effective January 28, 2002.]

Note: An example of a work process in which the hand operation of a sandblasting machine or jetting gun is impracticable is the cleaning of small diameter pipes when the lance must be inserted completely inside the piping for effective cleaning.

12.107 Pressure restriction

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

12.108 Jetting gun

A jetting gun must not be modified except as authorized by the manufacturer.

12.109 Holding work

A worker must not hand hold an object while it is being cleaned or cut by a jetting gun.

12.110 Hose restraint

High pressure hoses, pipes, and fittings must be supported to prevent excessive sway and movement.

12.111 Personal protective equipment

(1) A nozzle or jetting gun operator must wear personal protective clothing and equipment on the body, hands, arms, legs and feet, including the metatarsal area, made of canvas, leather or other material which will protect the worker's skin from injury in the event of contact with the flow from the nozzle.

(2) Unless the process is isolated from the operator in a separate cabinet, a suitable respirator must be provided and worn whenever abrasive blasting or a similar operation is conducted.

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

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12.112 Standards

Welding, cutting and similar processes must be carried out according to the requirements of *CSA Standard W117.2-94, Safety in Welding, Cutting, and Allied Processes*.

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

12.113 Standards for completed work

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

12.114 Ventilation

Effective local exhaust ventilation must be used at any fixed work station to minimize worker exposure to harmful air contaminants produced by welding, burning or soldering.

12.115 Coatings on metals

A coating on metal which could emit harmful contaminants (such as lead, chromium, organic materials, or toxic combustion products) must be removed from the base metal, whenever practicable, before welding or cutting begins.

Note: If materials are to be welded and painted, coordination is necessary. See section 12.129(3) which restricts the application of coatings before welding operations.

12.116 Flammable and explosive substances

(1) A container which may have held a combustible substance must be thoroughly cleaned before any welding or burning operation is carried out on the container.

(2) Burning, welding or other hot work must not be done on any vessel, tank, pipe or structure, or in any place where the presence of a flammable or explosive substance is likely until

(a) tests have been made by a qualified person to ensure the work may be safely performed, and

(b) suitable safe work procedures have been adopted, including additional tests made at intervals that will ensure the continuing safety of the workers.

12.117 Silver solder

Silver solder containing cadmium must not be used without prior written approval from the Board.

12.118 Correct equipment

Welding equipment, including regulators, automatic reducing valves and hoses, must be used only for the gas for which it is designed.

12.119 Equipment inspection

Before using gas welding or burning equipment, the operator must ensure that the equipment is free from defects, leaks, oil and grease.

12.120 Flashback prevention

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.

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

12.121 Receptacles for stubs

Receptacles for electrode stubs must be provided and used.

12.122 Radiation protection

(1) Arc welding must not be carried out unless workers who may be exposed to radiation from the arc flash are protected by adequate screens, curtains or partitions or wear suitable eye protection.

(2) A screen, curtain or partition near an arc welding operation must be made of or be treated with a flame resistant material or coating, and must have a nonreflective surface finish.

Note: 12 m (40 ft) is the recommended minimum distance from which an electric welding arc should be seen by the unprotected eye.

12.123 Protective clothing and equipment

A worker involved in welding or burning operations must wear

(a) flame resistant work clothing,

(b) gauntlet gloves of leather or other suitable material and arm protection,

(c) an apron of leather or other suitable material for heavy work,

(d) eye and face protection against harmful radiation, particles of molten metal, and while chipping and grinding welds, and

(e) substantial safety footwear made of leather or other suitable material.

Note: Unless specifically manufactured as flame resistant, work clothing made of polyester, acetate, nylon, acrylic or polypropylene fibres, or mixtures of these with wool or cotton do not comply with paragraph (a). Such materials are not flame resistant and will melt while burning, causing deep and extensive burns to the skin. Work clothing made of laminated fabric containing polyurethane sponge should not be worn as it may readily ignite and burn.

Heavier wool or cotton fabrics are preferable to lighter fabrics because they are more difficult to ignite. The fabric should have a smooth tightly woven finish and be maintained in good condition. Follow the manufacturer's directions for all flame resistant protective apparel to ensure that the flame resistant properties are maintained.

12.124 Respiratory protection

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.

[Amended by B.C. Reg. 253/2001, effective January 28, 2002.]

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

12.125 Marking hot work

Recently welded or flame cut work must be marked "HOT" or effectively guarded to prevent contact by a worker, if a worker not directly involved in the hot work is likely to enter the work area.

12.126 Fire extinguishers

(1) At least one fire extinguisher of a suitable type and capacity must be immediately available at a work location where welding or cutting is done.

(2) Fire extinguisher locations must be marked and made known to workers.

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12.127 Application

Sections 12.128 to 12.141 apply to a workplace in which there is spraying or use of a paint or similar coating, a fibre reinforced resin, a thermoplastic material, an expandable resin foam, or other similar materials.

12.128 Substitution

(1) An employer must ensure that a less hazardous substance or work process is substituted for a higher hazard substance or process, whenever practicable.

(2) The employer must ensure that a substitute for a paint containing toxic heavy metal components is used if an alternative product exists.

12.129 Restrictions

(1) A toxic or flammable chemical or chlorofluorocarbon must not be used as a propellant in spraying operations.

(2) Spraying a flammable or other hazardous product is prohibited within a general work area, unless effective controls have been installed to control the fire, explosion and toxicity hazards.

(3) When practicable, a coating must not be applied to a material about to be welded.

12.130 Warning signs

A work area or enclosure where hazardous materials are handled or used must be posted with suitable signs or placards warning workers of the hazards within the identified restricted access area and stating the precautions for entry into the area.

12.131 Enclosure

When practicable, a ventilated spray booth or other enclosure designed to control worker exposure must be used during

(a) any operation or process which involves spraying a paint or resin,

(b) lay-up or moulding of reinforced plastic, or

(c) any application of a paint, coating or insulation containing a sensitizer such as an isocyanate compound, or similar operations using very toxic materials.

12.132 Air flow

(1) The air velocity through a horizontal flow spray booth, a vertical flow, down-draft booth or other enclosure required by section 12.131 must be at least

(a) 50 cm/s (100 fpm) if the cross-sectional area is 14 m^2 (150 ft^2) or less, and

(b) 25 cm/s (50 fpm) if the cross-sectional area is greater than 14 m^2 (150 ft^2).

(2) In outdoor applications of materials listed in section 12.131, an air velocity across the work area of at least 0.25 m/s (50 fpm) must be assured, by mechanical means if necessary, to carry vapours and aerosols away from the breathing zone of a worker.

12.133 Control of ignition sources

A ventilation system used to control airborne contaminants must have electrical and mechanical systems designed to control all potential ignition sources.

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

12.134 Arrester filters

(1) A ventilation system subject to heavy concentrations of overspray from the operation must have an arrester filter.

(2) An arrester filter must be maintained in good operating condition and replaced when the pressure drop across the filter exceeds the design criteria.

12.135 Respiratory protection

Each worker who is or may be exposed to an airborne contaminant generated by a spray operation involving a sensitizing agent referred to in section 5.57(1) must be provided with and wear a supplied-air respirator.

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

12.136 Disposal of isocyanate containers

Empty, non-returnable containers which contained isocyanates must be decontaminated by filling them with water and allowing them to stand for a minimum of 48 hours, without being sealed, stoppered or closed, after which they must be pierced to prevent re-use.

12.137 Authorized persons

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

12.138 Airless spray equipment

An airless spray gun must have

(a) a means to electrically bond the gun to the paint reservoir and pump,

(b) a guard that will protect against trigger activation if the gun is dropped, and

(c) the trigger function configured to require two distinct operations by the user to activate the release of paint or fluid through the nozzle, or a safety device which prevents the nozzle tip from coming into contact with a worker.

12.139 Design for high pressure

An airless spray gun, hose, fitting and pressure vessel must be designed and constructed to withstand the pressure involved.

12.140 Heating plastics

Emissions from operations involved in heating plastics to temperatures which may release thermal decomposition products must be removed from the workplace by local exhaust ventilation when there is a risk of harm to a worker from exposure to these emissions.

12.141 Resin foams

(1) A foam installation process performed indoors must be controlled or contained so that unprotected workers are not exposed to emissions by using an enclosure, portable local exhaust ventilation, or scheduling arrangements.

(2) A foam installation process performed outdoors and relying on natural ventilation must be done in an area restricted to authorized personnel wearing adequate personal protective equipment.

12.142 Definitions

In sections 12.143 to 12.166

"dry-to-dry machine" means a system in which the washing and drying is done in a single machine that is vented to a vapour recovery system or to the atmosphere during the drying and deodorizing phases of the machine cycle;

"fully enclosed refrigerated system" means a system in which the washing and drying is done in a single machine that is not vented to either a vapour recovery system or to the atmosphere during the drying and deodorizing phases of the machine cycle;

"spot cleaning" means applying spotting solvents or solutions by hand to remove spots or stains;

"transfer system" means a system in which the washing and drying is done in separate machines.

Dry Cleaning

12.143 Open cleaning prohibited

Dry cleaning in an open vessel by immersion, agitation, or spraying is prohibited except as required for spot cleaning.

12.144 Systems and equipment

(1) Dry cleaning systems and equipment must be designed, installed, operated and maintained to prevent the escape of solvent.

(2) Dry cleaning solvents may only be used in transfer, dry-to-dry, or fully enclosed refrigerated systems designed and installed for this purpose.

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

12.145 Equipment labels

A dry cleaning machine must have a label specifying the chemical name of the solvent it has been designed to use.

12.146 Solvent handling

Dry cleaning solvents and additives must be stored and handled in a manner that minimizes evaporation and spillage.

12.147 Bulk storage

A dry cleaning solvent bulk storage tank located inside a building must be effectively vented to the outdoors.

12.148 Machine ventilation

(1) A transfer, dry-to-dry, or fully enclosed refrigerated system must have an effective exhaust ventilation system which operates whenever the loading door is open to create an airflow into the door opening of at least 50 cm/sec (100 fpm) averaged across the face of the opening, and which maintains the concentration of solvent vapour in the workplace below the applicable exposure limits.

(2) A fully enclosed refrigerated system is exempt from the requirements of subsection (1) if workers are not exposed to levels of solvent vapours above 50% of the applicable exposure limits.

12.149 General ventilation

A dry cleaning area must have adequate general ventilation to maintain the concentration of evaporated solvents below the applicable exposure limits.

12.150 Inspection and repair

Dry cleaning equipment must be regularly inspected for liquid and vapour leaks, and any leaks must be repaired promptly.

12.151 Open flame heaters

An open flame heating apparatus must not be located in the same work area as a dry cleaning machine and must have corrosion-resistant flue and draft hoods to conduct products of combustion to the outdoors.

12.152 Combustion air supply

A flame heating apparatus must not obtain combustion air from areas subject to contamination with dry cleaning solvent vapours.

12.153 Vents

A vent pipe and duct which carries solvent vapour from a dry cleaning process, solvent recovery equipment or dry cleaning work area must

(a) have vapour-proof joints,

(b) discharge to the outside atmosphere at least 1.8 m (6 ft) above the roof peak and at least 3 m (10 ft) from any door, window or other building opening, and

(c) not discharge into any flue used for combustion products, nor into any building ventilation duct.

12.154 Servicing and maintenance

(1) A worker who may be exposed to dry cleaning solvent liquid or vapour during equipment servicing such as changing solvent filters, must wear appropriate personal protective equipment to prevent inhalation and skin contact.

(2) A filter or filter material that has been used in a dry cleaning system must be placed in a metal container with a tight fitting lid and stored in a well ventilated area.

12.155 Emergency ventilation

(1) Supplemental floor level emergency ventilation equipment must be available within 4.6 m (15 ft) of the dry cleaning equipment for use in the event of a spill, leak or accidental release of solvent liquid or solvent vapour.

(2) Supplemental ventilating equipment must be capable of changing the air in the dry cleaning area every 5 minutes (12 room-air changes per hour).

(3) The control switch for supplemental ventilation equipment must be readily accessible in an emergency, and must be clearly identified by signs or similar means.

12.156 Spotting chemicals

(1) A work surface where spot cleaning is done must be designed to contain spills and minimize exposure.

(2) Spotting chemicals must be kept in containers which will prevent skin contact, and appropriate skin protection must be used when spot cleaning is done.

12.157 Supplier responsibility

When articles are sent for processing to a laundry or dry cleaning facility, the employer sending the articles must advise the operator of the facility, in writing, of

(a) the identity of any materials contained with the articles which could pose a hazard to workers handling the articles,

(b) the nature of any hazard that may arise from the materials, and

(c) general precautionary measures to be followed when handling the materials.

12.158 Operator responsibility

If articles to be processed may contain materials such as hazardous biological or chemical contaminants, sharp objects, or other materials which would pose a hazard to workers handling the articles, the operator of a laundry or dry cleaning establishment must

(a) determine the nature of any hazard to workers,

(b) develop effective written safe work procedures to minimize the risk of injury and disease, and

(c) ensure that workers are adequately instructed and directed to follow the safe work procedures.

Laundry Equipment

12.159 Flatwork ironers

Feed-rolls for a flatwork ironer must have a front mounted trip bar designed to stop the machine on contact, or a fixed guard that will prevent the operator's hands from entering the rolls.

12.160 Roller-type ironers

(1) A roller-type ironer must have a front mounted fixed guard, designed to prevent the operator's hands from entering the rolls.

(2) The hot roll must be guarded to prevent contact by workers.

12.161 Press-type ironers

(1) A press-type ironer must have an automatic device to prevent the application of injurious pressure when the operator's fingers are between the bed and the pressure-head, or have a device which requires both of the operator's hands to be removed from the danger zone when the machine is

tripped.

(2) Hand controls must be well recessed or effectively shrouded to prevent inadvertent activation, require concurrent use of both the operator's hands, and require both controls to be released before another machine cycle can be initiated.

(3) Pads and covers must not be of a type that will allow the garment or fabric to slip off the buck easily, with or without vacuuming.

12.162 Interlocks

Drum-type washing machines and dryers must have devices which prevent the drum from operating while the door is open.

12.163 Centrifugal extractors

A centrifugal extractor must have devices to prevent power being applied before the cover is closed and to prevent the cover being opened while the basket is in motion.

12.164 Laundry chutes

A laundry chute must discharge into an unoccupied area, or have baffles or other equally effective means to prevent laundry coming out of the chute from striking workers.

12.165 Laundry carts

A laundry cart must be maintained in good mechanical condition and free of sharp corners, edges, or splintered wood.

12.166 Spillage

Curbs or other effective means must be provided to contain any liquid spilled from a washing machine, dry cleaning machine or associated equipment.

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12.167 Application

Sections 12.168 to 12.172 apply to movement of rail cars except those on a federally or otherwise provincially regulated railway.

12.168 General requirements

(1) Written safe work procedures must be developed and made available to all workers involved in moving, loading or unloading railway cars.

(2) Equipment used to move railway cars must be adequately designed and have the capacity to control railway car speed and direction at all times.

(3) Proper, designated attachment points on railway cars must be used to move railway cars.

(4) Railway cars being loaded on a siding must be protected against unexpected movement by other rail traffic on the siding by the "Blue Flag Rule" as specified in the *Canadian Rail Operating Rules*.

(5) Before a railway car is coupled or moved the load must be properly secured and all vehicles and equipment used to load or unload the car must be in the clear.

(6) Derails must be installed and used

(a) where it is possible for railway cars to move freely and to foul other tracks or create other hazards, and

(b) where required by the *Transportation of Dangerous Goods Act, 1992* (Canada).

12.169 Clearance

The employer must identify clearances that are less than the standard clearance with restricted clearance signs as specified in the *Canadian Rail Operating Rules*.

12.170 Riding restriction

If less than standard clearance exists, as specified in the *Canadian Rail Operating Rules,* workers must not ride on the top or sides of railway equipment.

12.171 Brakes

(1) Railway cars on a siding must have an adequate number of hand brakes set to prevent inadvertent movement.

(2) Railway car air brake systems must not be used on a private siding unless authorized by the Engineering and Inspection Branch of the Ministry of Municipal Affairs and Housing[1].

[1] now Technical Safety BC

12.172 Tracks

(1) All dead end tracks located in areas where workers are required to be must have a means to prevent rail-mounted equipment from travelling off the end of the tracks.

(2) All tracks on private sidings must be maintained to standards which permit the safe transit of all rail-mounted equipment using the tracks.

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12.173 Pressure relief device - when required

(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.

(2) A pressure vessel must have a pressure relief device that is set to discharge at 103 kPa (15 psi) or less, if the pressure vessel

(a) is connected to a production facility, compressor station or other pressure source, and

(b) is not directly open to the atmosphere.

(3) Subsection (2) does not apply to a pressure vessel if

(a) the pressure vessel is subject to the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation, B.C. Reg. 104/2004, or

(b) the manufacturer of the pressure vessel or a professional engineer indicates in writing that

(i) the pressure vessel will not operate in accordance with its engineered design if the vessel has a pressure relief device that is set to discharge at 103 kPa (15 psi), and

(ii) the pressure vessel can be operated safely without a pressure relief device or with a pressure relief device that is set to discharge at greater than 103 kPa (15 psi).

(4) A pressurized system, including any lines running from the output side of a pressure relief device that may be subject to accidental restriction, must be protected by a pressure relief device.

[Enacted by B.C. Reg. 312/2012, effective February 1, 2013.]

12.174 Pressure relief device - installation

(1) In this section *"pressure relief device"* means a pressure relief device referred to in section 12.173.

(2) A pressure relief device must

(a) have a flow capacity that is not less than the flow capacity of the pressure source, and

(b) be set to discharge at not more than the pressure rating of the component in the pressurized system with the lowest pressure rating.

(3) Any fluid or material discharged through a pressure relief device must be piped to a place where it will not endanger workers.

(4) The diameter of piping connected to the pressure side and the discharge side of a pressure relief device must not be smaller than the diameter of the openings to the device.

(5) The piping on the discharge side of a pressure relief device must be

(a) secured to prevent movement, and

(b) sloped to drain fluids away from the pressure relief device if freezing could restrict the fluid flow.

(6) A valve must not be installed in the discharge opening of a pressure relief device, or the device's discharge pipe, unless required by engineering design.

(7) A pressure relief device that requires block valves by engineering design must have the block valves locked in the appropriate position.

(8) A guard must be installed around the shear pin and spindle of a pressure relief device.

[Enacted by B.C. Reg. 312/2012, effective February 1, 2013.]

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12.175 Definitions

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.

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

12.176 Container safety standard

(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.

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

12.177 Protection against specified hazards

An owner of a roll-on/roll-off container, and an employer, must ensure that persons are not exposed to the following hazards in respect of a roll-on/roll-off container:

(a) the rupture or disintegration, resulting from poor maintenance, of the lifting eye, cables, anchors, latches, doors, guards, hinges or ladder rungs;

(b) being hit or struck by the unintended or premature discharge of any thing or substance collected, used, stored or transported in the container.

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

12.178 Visual Inspection before loading container onto vehicle

(1) Before loading a roll-on/roll-off container onto a vehicle, the driver of the vehicle must

(a) visually inspect the container for defects that may be a hazard, and

(b) ensure that the container doors will not open when the container is moved between the ground and the vehicle.

(2) If the driver identifies a defect in a roll-on/roll-off container that may be a hazard, the driver must immediately inform the following, as applicable, of the defect:

(a) the driver's employer;

(b) if the driver has no employer, the owner of the container.

[Enacted by B.C. Reg. 199/2014, effective February 1, 2015.]
[Amended by B.C. Reg. 116/2022, effective August 22, 2022.]

12.179 Withdrawal from service

(1) In this section, *"notified person"* means the person notified under section 12.178(2) that a roll-on/roll-off container has a defect that may be a hazard.

(2) On receiving notification under section 12.178(2), a notified person must

(a) withdraw the container from service immediately, or

(b) if it is not practical to withdraw the container from service immediately,

(i) arrange for the safe removal of the container to a place where it can be unloaded, if necessary, and

(ii) have the container repaired.

(3) A roll-on/roll-off container that has been withdrawn from service or repaired under this section may not be returned to service until inspected under section 12.180.

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

12.180 Inspection following repair

(1) An owner of a roll-on/roll-off container, and an employer, must ensure that a roll-on/roll-off container is inspected by a qualified person after any of the following occur:

(a) significant structural modification or refurbishment;

(b) significant repair of a structural component;

(c) repairs made under section 12.179.

(2) The qualified person must determine whether, following the modification, refurbishment or repairs referred to in subsection (1), the container meets the requirements of the container safety standard.

(3) An inspection under this section must occur on or before the earlier of the following:

(a) 30 days after the making of the modification, refurbishment or repairs referred to in subsection (1);

(b) the return of the container to the place where it is ordinarily stored or located.

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

12.181 Periodic inspection

(1) An owner of a roll-on/roll-off container, and an employer, must ensure that a qualified person inspects, in accordance with this section, each roll-on/roll-off container to determine if the container meets the requirements of the container safety standard.

(2) The first inspection of a container manufactured before February 1, 2015, or for which the date of manufacture is unknown, must occur as follows:

(a) if section 12.180 applies, as required by that section;

(b) if the container has not previously been inspected under section 12.180, before August 1, 2017;

(c) if the owner or employer, as applicable, acquires the container on or after June 2, 2017, but has no record of it being inspected in accordance with paragraph (a) or (b) of this subsection, within 60 days of acquiring it.

(3) The first inspection of a container manufactured on or after February 1, 2015, must occur as follows:

(a) if section 12.180 applies, as required by that section;

(b) if a container has not previously been inspected under section 12.180, before February 1, 2020;

(c) if the owner or employer, as applicable, acquires the container on or after December 3, 2019, but has no record of it being inspected in accordance with paragraph (a) or (b) of this subsection, within 60 days of acquiring it.

(4) Subsequent inspections of the container must occur within

(a) 30 months of the most recent inspection, whether made under this section or section 12.180, or

(b) a shorter period set by a qualified person, having regard to the condition of the container.

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

12.182 Records of inspection

An owner of a roll-on/roll-off container, and an employer, must keep a record for each roll-on/roll-off container that includes all of the following:

(a) the date of each inspection made under sections 12.180 and 12.181;

(b) details of any tests conducted, including testing methods and results;

(c) details of any repairs made;

(d) the date before which the next inspection must occur under section 12.181.

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

12.183 Withdrawal from service following inspection

If a qualified person determines, following an inspection under section 12.180 or 12.181, that a roll-on/roll-off container does not meet the container safety standard, the owner of the container, or the employer, must withdraw the container from service

(a) until it is repaired to meet the container safety standard, or

(b) permanently.

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