GENERAL REQUIREMENTS

G31.4 Instruction and direction of firefighters

PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

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G31.4 Instruction and direction of firefighters

Preliminary Issue November 6, 2025

Regulatory excerpt
Section 1 of the *Workers Compensation Act* ("*Act*") states, in part:

> "firefighter" means a member of a fire brigade, working with or without remuneration, who is assigned primarily to
>
> (a) fire suppression duties, whether or not those duties include the performance of ambulance or rescue services,
>
> (b) investigation duties respecting the cause, origin or circumstances of a fire, or
>
> (c) any combination of both fire suppression duties as described in paragraph (a) and fire investigation duties as described in paragraph (b);

Section 31.4 of the *OHS Regulation* ("*Regulation*") states:

> The employer must ensure the adequate instruction and direction of firefighters in the safe performance of their duties.

Purpose of guideline
The purpose of this guideline is to provide employers with information about an option for meeting their obligation to ensure adequate instruction of firefighters.

Introduction
Section 31.4 of the *Regulation* requires that all firefighters receive adequate instruction and direction in the safe performance of firefighting and related duties. Part 31 of the *Regulation* applies to employers and workers employed in firefighting activities. A firefighter is defined in section 1 of the *Act*, and includes career, paid on call, and volunteer firefighters.

Adequate instruction and direction of firefighters
The Office of the Fire Commissioner for BC (OFC) develops and maintains firefighter training and competency standards for firefighters in British Columbia. The *BC Structure Firefighter Minimum Training Standards* (Standards) can help fire departments ensure that minimum levels of training are provided to all firefighters. The Standards replace the previous training standard, the Playbook, and are available on the Government of BC website: Structure firefighter minimum training standards.

Compliance with the OFC Standards may serve as evidence of adequate instruction of firefighters. Fire departments that can demonstrate they have aligned their training with the Standards would be considered to have taken reasonable steps to ensure that their workers are adequately

trained in the safe performance of their firefighting activities.

G31.10 Personal protective clothing and equipment

Issued August 1, 1999; Retired October 20, 2020

This guideline is no longer needed.

G31.13(2) Safety headgear – Alternate standard

Issued October 23, 2012

Regulatory excerpt
Section 31.13(2) of the *OHS Regulation* ("*Regulation*") states:

> Safety headgear must meet the requirements of *NFPA 1972, Helmets for Structural Firefighting: Structural Fire Fighters Helmets, 1992 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify an acceptable alternate standard for structural firefighters' safety headgear.

Background information
Section 31.13(2) of the *Regulation* requires that safety headgear for firefighters meet *NFPA 1972, Structural Firefighting: Structural Fire Fighters Helmets, 1992 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standard
WorkSafeBC has determined that for structural firefighting *NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2007 Edition* is an acceptable alternate standard to the 1992 edition of *NFPA 1972* referenced in section 31.13(2) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Information about *NFPA 1971*
More information about *NFPA 1971* can be found in the guideline *G31.14 Protective coats, pants, and hoods - Alternate standard*.

Access to standards
The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1971* can be found at http://www.nfpa.org/1971.

G31.14 Protective coats, pants, and hoods – Alternate standard

Issued October 23, 2012

Regulatory excerpt
Section 31.14(a) of the *OHS Regulation* ("*Regulation*") states:

> Firefighters required to approach the seat of a fire or enter a structure or other hazardous area during an incident must wear protective coats, pants and hoods meeting the requirements of
>
> (a) *NFPA 1971, Protective Clothing for Structural Fire Fighting, 1991 Edition*, or

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline

The purpose of this guideline is to specify an acceptable alternate standard for structural firefighters' protective coats, pants, and hoods.

Background information
Section 31.14(2) of the *Regulation* requires that protective clothing for structural firefighting meet *NFPA 1971, Protective Clothing for Structural Fire Fighting, 1991 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standard
WorkSafeBC has determined that for structural firefighting *NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2007 Edition* is an acceptable alternate standard to the 1991 edition of *NFPA 1971* referenced in section 31.14(a) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Changes to the standards
The 1997 edition of *NFPA 1971* combined into a single standard four former standards on structural firefighting apparel: *NFPA 1971*, covering clothing; *NFPA 1972*, covering helmets; *NFPA 1973*, covering gloves; and *NFPA 1974*, covering footwear.

Five key differences between the 2007 edition and the editions of the standards referenced by the *Regulation* are as follows:

1. A total heat loss (THL) test was added to evaluate how effective coats and pants are at dissipating heat from the firefighter.
   Heat stress is a significant cause of firefighter injuries. Clothing with a high THL rating may help reduce heat stress but may reduce thermal protective performance (TPP).
2. A conductive and compressive heat resistance (CCHR) test was added for insulation at the shoulders and knees.

   The shoulder area of a coat can become compressed by the self-contained breathing apparatus (SCBA) straps and the knee areas by kneeling. The CCHR test helps ensure that the thermal insulation in these areas performs as specified in the Standard while compressed.
3. A new glove dexterity test was added.

   The new glove dexterity test is better able to distinguish between gloves with good dexterity and with bad dexterity. It may be easier to work using gloves meeting the 2007 edition.

4. Optional chemicals, biological agents, and radiological particulates (CBRN) protection requirements were added.

   The CBRN requirements provide limited protection to firefighters from some CBRN terrorism agents that could be released as a result of a terrorist attack.

   The CBRN protection only applies to complete ensembles which include a coat, pants, boots, gloves, helmet and SCBA. The optional CBRN requirements do not decrease the protection offered in structural firefighting.

5. Proximity firefighting protective clothing requirements were added to *NFPA 1971*.

   The NFPA standards on structural and proximity firefighting protective clothing have been combined into one standard. Part 31 of the *Regulation* does not require proximity firefighting protective clothing to meet a NFPA standard.

Scope of *NFPA 1971*
NFPA 1971 specifies minimum design, performance, testing, and certification requirements for structural and proximity firefighting protective ensembles. Ensemble elements include coats, pants, helmets, gloves, footwear, and interface components. Footwear and proximity firefighting protective ensembles are not required by Part 31 to meet a NFPA standard. This is because the scope of the NFPA standards referenced by sections 31.13, 31.14, and 31.16 excludes proximity firefighting.

NFPA 1971 does not specify how protective clothing and equipment is used or maintained. It does not provide criteria for wildland firefighting protective clothing and equipment.

Access to standards
The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1971* can be found at http://www.nfpa.org/1971.

G31.15 Stationwear and personal garments

Issued August 1, 1999; Editorial Revision August 2004

Regulatory excerpt

Section 31.15 of the *OHS Regulation* ("*Regulation*") states:

> Firefighters required to approach the seat of a fire or enter a structure or other hazardous area during an emergency incident must not wear shirts, trousers, jackets or coveralls that have poor thermal stability or that ignite easily.

Purpose of guideline
The purpose of this guideline is to specify the requirements of section 31.15 of the *Regulation* regarding stationwear or other garments.

Thermal stability and ignition
Stationwear or other garments worn under protective coats and pants must not create a hazard to a firefighter due to poor thermal stability or ignition of the garment. A garment that can withstand 204 degrees C (400 degrees F) for 5 minutes without melting, dripping, or igniting will satisfy this requirement.

In thermal stability tests performed by the WorkSafeBC laboratory, the following clothing samples tested did not melt, drip, or ignite when exposed to a temperature of 204 degrees C for 5 minutes:

- 100% cotton shirting and pant fabric
- 90% cotton, 10% polyester shirting fabric
- 50% cotton, 50% polyester T-shirt fabric
- 35% cotton, 65% polyester shirting and pants fabric

The following fabric failed this requirement:

- 100% nylon fabric

G31.16 Firefighter gloves – Alternate standard

Issued October 23, 2012

Regulatory excerpt
Section 31.16 of the *OHS Regulation* ("*Regulation*") states:

> Firefighters required to approach the seat of a fire or enter a structure or other hazardous area during an emergency incident must wear gloves meeting the requirements of *NFPA 1973, Gloves for Structural Fire Fighting, 1988 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify an acceptable alternate standard for structural firefighters' gloves.

Background information
Section 31.16 of the *Regulation* requires that gloves for structural firefighting meet *NFPA 1973, Gloves for Structural Fire Fighting, 1988 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standard
WorkSafeBC has determined that for structural firefighting *NFPA 1971: Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2007 Edition* is an acceptable alternative to the 1988 edition of *NFPA 1973* referenced in section 31.16 of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Information about *NFPA 1971*
More information about *NFPA 1971* can be found in the guideline *G31.14 Protective coats, pants, and hoods - Alternate standard*.

Access to standards
The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1971* can be found at http://www.nfpa.org/1971.

G31.17(3) Fall protection – Alternate standards

Issued October 22, 2010, Revised October 23, 2012

Regulatory excerpt
Section 31.17(3) of the *OHS Regulation* ("*Regulation*") states:

> (3) Rescue ropes, rappelling lines and safety belts and harnesses including safety hooks, rope grabs, lowering devices, and related equipment must meet the requirements of *NFPA 1983, Fire Service Life Safety Rope, Harness and Hardware, 1990 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify, in the case of section 31.17(3) of the *Regulation*, an alternate standard acceptable to WorkSafeBC for rescue ropes, rappelling lines, safety belts, and harnesses including safety hooks, rope grabs, lowering devices, and related equipment.

Background information
Section 31.17(3) of the *Regulation* requires that some fall protection equipment employed in firefighting activities meet *NFPA 1983, Fire Service Life Safety Rope, Harness and Hardware, 1990 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept other standards as alternative standards.

Acceptable alternate standards
WorkSafeBC has determined that the 2012 Edition and 2006 Edition of *NFPA 1983: Standard on Life Safety Rope and Equipment for Emergency Services* are acceptable alternatives to the 1990 edition referenced in section 31.17(3) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standards accepted in the guideline or the standard in the *Regulation*.

Selection of equipment
Although equipment meeting the 2012 and 2006 editions of *NFPA 1983* meet the requirements of section 31.17(3) the equipment selected needs to be appropriate to the task and be compatible with the other equipment used. For example, a medium elongation laid life saving rope may not be appropriate for lifting of freely suspended workers where they can spin and the rope can unwind.

Scope of *NFPA 1983*
NFPA 1983 specifies minimum design, performance, testing, and certification requirements for life safety ropes and other equipment. It only applies to equipment used by emergency services and does not apply to equipment for mountain rescue, cave rescue, lead climbing operations, recreational use, or use by general industry.

2006 Edition
In addition to changes to refine design and performance criteria and test methods, the title of *NFPA 1983* was changed in the 2006 edition. The new title reflects the broader audience for the equipment covered by the standard.

2012 Edition
The 2012 edition adds new equipment to the scope of the standard and changes what was light use equipment to technical use equipment.

The 2012 edition classifies equipment as *general use, technical use,* or *escape use*. *General use* equipment is the strongest. *Technical use* loads are lower than *general use* loads and *technical use* equipment would more commonly be used in complicated specialized rescues. *Escape use* equipment is for the self-rescue of a single fire or emergency services' person from a life-threatening emergency situation. Refer to clause A.3.3.35 of the 2012 edition for more information on the selection of *technical use* or *general use* equipment.

The 1990 edition of *NFPA 1983* called *general use* and *technical use* equipment two-person and one-person equipment, respectively.

Access to standards
The NFPA offers free read-only versions of standards to users who register on their site. The 2012 edition of *NFPA 1983* can be found at http://www.nfpa.org/1983.

G31.18(2) Personal alert safety system – Alternate standard

Issued October 23, 2012

Regulatory excerpt
Section 31.18(2) of the *OHS Regulation* ("*Regulation*") states:

> (2) A PASS device must meet the requirements of *NFPA 1982, Personal Alert Safety Systems (PASS) for Fire Fighters, 1993 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify, in the case of section 31.18(2) of the *Regulation*, an alternate standard acceptable to WorkSafeBC for Personal Alert Safety Systems (PASS).

Background information
Section 31.18(2) of the *Regulation* requires that PASS meet *NFPA 1982, Personal Alert Safety Systems (PASS) for Fire Fighters, 1993 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept another standard as an alternative standard.

Acceptable alternate standard
WorkSafeBC has determined that *NFPA 1982: Standard on Personal Alert Safety Systems (PASS), 2007 Edition*, is an acceptable alternative to the 1993 edition referenced in section 31.18(2) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

NFPA 1982
There are five main differences between the 2007 edition and the 1993 edition:

1. New high temperature requirements to ensure that PASS remain functional and audible at a fire scene.

   Research from the National Institute for Occupational Safety and Health (NIOSH) into firefighter deaths found that PASS were not always heard at high temperatures. Testing by the National Institute for Standards and Technology (NIST) found that all PASS on the market at the time experienced significant alarm signal degradation at temperatures between 300°F and 500°F.

2. New loudness requirements to prevent muffling of the alarm signal when a firefighter wearing PASS is unconscious on the ground.

3. New water immersion requirements to ensure that the PASS remains functional and water does not enter the PASS.

   NIOSH found signs of water leakage into PASS in some fatalities.

4. Automatic activation of PASS.

   Clause A.6.2.2 of the 2007 edition explains that fatalities occurred where firefighters wearing PASS that were not activated went down in situations where they could likely have been rescued if other firefighters had known they had gone down.

5. Allowing for integration of PASS into Self-Contained Breathing Apparatus (SCBA) to ensure that firefighters always wear them.

   Clause A.6.2.2 of the 2007 edition explains that stand-alone PASS devices have become separated from firefighters and the newer edition allows integration with the SCBA.

Access to standards
The NFPA offers free read-only versions of standards to users who register on their site. The 2007 edition of *NFPA 1982* can be found at http://www.nfpa.org/1982. Not all old editions are available for free.

G31.23 Entry into Buildings

Issued April 27, 2000

Regulatory excerpt
Section 31.23 of the *OHS Regulation* ("*Regulation*") states:

(1) When self-contained breathing apparatus must be used to enter a building, or similar enclosed location, the entry must be made by a team of at least 2 firefighters.

(2) Effective voice communication must be maintained between firefighters inside and outside the enclosed location.

(3) During the initial attack stages of an incident at least one firefighter must remain outside.

(4) A suitably equipped rescue team of at least 2 firefighters must be established on the scene before sending in a second entry team

and not more than 10 minutes after the initial attack.

(5) The rescue team required by subsection (4) must not engage in any duties that limit their ability to make a prompt response to rescue an endangered firefighter while interior structural firefighting is being conducted.

Purpose of guideline
The purpose of this guideline is to discuss the application of section 31.23, with consideration of the requirements of section 8.35 of the *Regulation*, which must also be met during firefighting operations.

Oxygen deficient atmosphere
Section 31.19 states "Firefighters who may be exposed to an oxygen deficient atmosphere or to harmful concentrations of air contaminants must wear a self-contained breathing apparatus of a positive pressure type having a rated minimum duration of 30 minutes." A firefighter entering a part of a building or similar enclosed location that is burning or smoke-filled is considered to be exposed to such an atmosphere. The atmosphere is potentially immediately dangerous to life or health (IDLH) or oxygen deficient. Section 31.23(1) requires such an entry by firefighters to be made by a team of at least 2 firefighters. Section 8.35 requires that whenever a worker enters or works in an IDLH or oxygen deficient atmosphere, the worker must be attended by at least 1 other worker stationed at or near the entrance who is similarly equipped and capable of effecting rescue.

Rescue duties
Section 31.23(4) allows firefighters at the scene to start their initial attack of a fire or a rescue operation involving entry if additional firefighters are expected to be on scene and able to provide a suitably equipped rescue team within 10 minutes of the start of the initial attack. To establish that there are additional firefighters likely to be on the scene within 10 minutes there needs to be effective communication between the crew at the scene, the incident commander, and other firefighters being dispatched to the incident. This may be achieved either by direct communication between the firefighters or by coordination through a central dispatch. However, during this 10 minute "window," a third firefighter must be dressed, equipped, and available to be the rescue worker as required by section 8.35. Standard operating procedures for firefighter entry into a burning building or similar enclosed area stipulate the entry team take with them a hose which is charged and capable of spraying water should the need arise. This means a firefighter or other qualified worker must remain at the fire engine pump controls and act to ensure the water supply is available to the firefighters making the entry. This pump operator cannot be the rescue worker required by section 8.35 as the pump operator cannot leave the pump to perform rescue duties. Hence the minimum number of crew required on scene prior to commencing entry into a hazardous area for the initial attack of a fire or to search for occupants would be four if a charged hose is to be taken in by the entry team. Other equipment operators, such as the operator of an aerial platform, who are required to remain at an equipment operating position, would be in the same position as the pump operator and cannot be designated to perform rescue duties.

Self-contained breathing apparatus (SCBA)
There may be incidents requiring firefighters to use SCBA to enter a building or similar enclosed location even though there is no fire and no smoke. For example, a refrigeration plant leaking ammonia may require an emergency response by firefighters to rescue a person or to shut off or control the leak. (Section 31.5(2) of the *Regulation* requires the fire department have written procedures for such situations if it will do such responses.) In such circumstances the entry team would not likely need to take a charged hose in, so minimum crew size would be 3, for the first 10 minutes. All 3 firefighters would need to have donned the required protective clothing and breathing apparatus. Two would be the entry team, and the third firefighter would be the rescue worker required by section 8.35. The crew would have to establish prior to their initial entry that, within 10 minutes of the initial entry, a fourth firefighter with the required protective clothing and breathing apparatus is expected to be on scene and ready to join the rescue firefighter to establish the rescue team required by section 31.23(4).

If, during the first 10 minutes of the initial attack, circumstances change so there will be a delay beyond the 10-minute "window" in arrival of the additional crew needed to establish the 2 firefighter rescue team, the initial attack must be terminated until the rescue team can be established.

G31.26 Maintenance and inspection of self-contained breathing apparatus

Issued May 17, 2006; Revised October 23, 2012; Editorial Revision July 3, 2018; Editorial Revision October 20, 2020; Editorial Revision consequential to regulatory amendment to section 31.26(2) and (4), April 1, 2026.

Regulatory excerpt
Section 31.26 (Maintenance and records) of the *OHS Regulation* ("*Regulation*") states:

(1) Self-contained breathing apparatus, including regulators, must be serviced and repaired by qualified persons.

(2) Inspection of compressed air cylinders must be done in accordance with *CSA Standard CAN/CSA-Z94.4-18, Selection, Use, and Care of Respirators*.

(3) Compressed air cylinders must be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*.

(4) Complete maintenance and repair records for each self-contained breathing apparatus and all air cylinders must be kept in accordance with the requirements of section 14.6.2 (b) to (f) of *CSA Standard CAN/CSA-Z94.4-18*.

Section 4.9(3) of the *Regulation* states:

If this Regulation requires a machine or piece of equipment to have inspection and maintenance records, then detailed reports of inspection, maintenance, repairs and modifications must be kept for the duration of the service life of the machine or equipment and

must be reasonably available to the workplace and made available, upon request, to the operator and to anyone else involved in the operation, inspection, testing or maintenance of the equipment.

Section 4.4(2) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board …

Purpose of guideline
This guideline provides information on the application of the four requirements of section 31.26 of the *Regulation* covering inspection of self-contained breathing apparatus (SCBA), servicing and repair, hydrostatic testing, and maintenance and repair records.

A SCBA includes a full facepiece incorporating a second stage regulator, compressed air cylinder, first stage regulator, pressure gauge, alarm, connecting tubes, harness assembly and associated fittings. A SCBA offers one of the highest levels of respiratory protection available and is designed to provide protection in oxygen-deficient atmospheres and in situations where high or unknown concentrations of toxic air contaminants are present.

This guideline accepts *CAN/CSA B339-18* as an alternate standard to *CAN/CSA B339-96*.

Section 31.26(1) - Servicing and repair
This provision requires that SCBAs, including regulators and components like hose connectors, hoses, cylinders, facepieces, head straps, regulators, harness components, warning devices and gauges are serviced and repaired by a qualified person. "Qualified," as defined by section 1.1 of the *Regulation*, means being knowledgeable of the work, the hazards involved, and the means to control the hazards, by reason of education, training, experience, or a combination thereof. For the purposes of section 31.26(1), qualified SCBA maintenance personnel will

- Be qualified through training and experience to inspect, maintain and repair respirators in accordance with the manufacturer's written instructions
- Inspect, maintain, and repair SCBAs as required
- Ensure that maintenance tools are kept in good repair and properly calibrated
- Maintain appropriate records of maintenance and repair in accordance with section 31.26(4) of the *Regulation*

Only registered facilities can repair and requalify SCBA cylinders. Contact Transport Canada to locate a facility.

Section 31.26(2) - Inspection
This provision requires that compressed air cylinders must be inspected in accordance with *CSA Standard CAN/CSA Z94.4-18 (CSA Z94.4-18)*. *CSA Z94.4-18* covers inspection of SCBA cylinders, including those made of steel, aluminum, and composites. Inspections require an examination of both the exterior and interior of cylinders. *CSA Z94.4-18* states that inspections must be done according to the requirements of the following:

- *CAN/CSA-B339*
- *CAN/CSA-B340*
- *CGA C-6, C-6.1, or C-6.2* as appropriate
- Transport Canada regulations under the Transportation of Dangerous Goods Act
- Manufacturer's instructions

Cylinder manufacturers typically provide detailed inspection instructions.

Internal Inspections
Internal inspections are required for all cylinders at least at the time of hydrostatic testing. Transport Canada or the manufacturer may specify more frequent internal inspections. The purpose of the internal inspection is to look for the presence of corrosion, moisture, oil, or other deposits.

CSA Z94.4-18 requires at least annual inspections of steel and aluminum cylinders over 15 years old when the cylinders are in current use. *CSA Z94.4-18* requires composite cylinders to be removed from service if they are at least 15 years old.

External Inspections
External inspections are conducted on a more frequent basis than internal inspections. *CSA Z94.4-18* requires that cylinders be inspected externally after each use and before refilling. In addition, cylinders for emergency use, such as emergency escape SCBA cylinders, must be inspected on a schedule to ensure readiness for the anticipated emergency use.

The National Fire Protection Association (NFPA) recommends that SCBA, including cylinders, be inspected externally at least:

- At the start of a duty period (e.g. a shift) if assigned to an individual user
- Once a duty period for SCBA on fire trucks
- Weekly for other SCBA available for use

Volunteer departments should inspect SCBA at least before use and weekly.

The purposes of the external inspection include the following:

- Identifying any obvious damage to the cylinder
- Verifying that the hydrostatic test date is current

Defective equipment is to be identified as "out of service" and removed from service until repaired and replaced.

Refer to *CSA Z94.4-18* and Transport Canada for further information.

Section 31.26(3) - Hydrostatic testing
This provision requires that compressed air cylinders be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*. *CAN/CSA B339-18 Cylinders, spheres, and tubes for the transportation of dangerous goods* is an acceptable alternative to the 1996 edition referenced in section 31.26(3) of the *Regulation*.

CSA Standard *CAN/CSA-B339* specifies the requirements for the manufacturing, inspecting, testing, marking, requalifying, repairing, and rebuilding of cylinders, spheres and tubes for the transportation of dangerous goods. Clause 24 of this Standard specifies the requirements for retesting, inspecting, reheat treatment, repairing, and rebuilding of used containers. The minimum frequency of hydrostatic testing is specified in Table 29.

For more information on Transport Canada requirements contact the Transportation of Dangerous Goods Pacific office at 604-666-2955 or TDGPacific-TMDPacifique@tc.gc.ca

Section 31.26(4) - Maintenance and repair records
This provision requires that maintenance and repair records at a minimum contain the following information required by section 14.6.2 (b) to (f) of CSA Z94.4-18:

(a) Physical condition of the respirator and cylinders

(b) Date of inspection

(c) Cleaning and sanitizing of respirators

(d) Repairs done to respirators and cylinders

(e) Tests performed on respirators and cylinders and remedial actions taken

Section 4.9(3) of the *Regulation* requires that these records be reasonably available to the workplace and made available upon request to the user and to anyone else involved in the operation, inspection, testing, or maintenance of the SCBA.

This guideline does not discuss SCUBA cylinders, which are subject to different requirements for inspection, maintenance, and hydrostatic testing.

G31.29 Enclosed crew cabs - Alternate standards

Issued October 23, 2012

Regulatory excerpt
Section 31.29(2) of the OHS Regulation ("*Regulation*") states:

> (2) New firefighting vehicles ordered after April 15, 1998 must have fully enclosed crew cabs meeting the requirements of *NFPA 1901, Automotive Fire Apparatus, 1991 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify, in the case of section 31.29(2) of the *Regulation*, an alternate standard acceptable to WorkSafeBC for firefighting vehicle crew cabs.

Background information
Section 31.29 of the Regulation requires that firefighting vehicle crew cabs ordered after April 15, 1998 meet the requirements of *NFPA 1901, Automotive Fire Apparatus, 1991 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept another standard as an alternative standard.

Acceptable alternate standards
WorkSafeBC has determined that the crew cab requirements of the 2009 edition of *NFPA 1901, Standard for Automotive Fire Apparatus* are acceptable alternatives to the crew cab requirements of the 1991 edition referenced in section 31.29 of the *Regulation*. The crew cab

requirements of *NFPA 1901* are contained in *Chapter 14: Driving and Crew Areas*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

NFPA 1901
Some of the requirements of *Chapter 14: Driving and Crew Areas* of the 2009 edition of *NFPA 1901* include the following:

- All crew riding positions are within an enclosed area
- Each crew riding position has an approved seat and seat belt
- The seats and seating positions meet certain minimum dimensions
- A location for helmet storage is provided
- A label indicates that helmets are not to be worn while seated
- Self-Contained Breathing Apparatus (SCBA) units are secured with a positive latching mechanical means
- Any equipment in the cab is securely fastened
- There are two means of exiting the fully enclosed crew cab

Access to standards
The NFPA offers free read-only versions of standards to users who register on their site. The 2009 edition of *NFPA 1901* can be found at http://www.nfpa.org/1901.

G31.32 Vehicle exhaust in firehalls

Issued August 1, 1999; Revised November 17, 2003; Editorial Revision October 2004

Regulatory excerpt
Section 31.32 of the OHS Regulation ("*Regulation*") states:

> Unless air monitoring shows that levels of vehicle exhaust gas components are below the exposure limits established under section 5.48, effective local venting for the exhaust gases must be provided in vehicle areas in firehalls.<.p>

Purpose of guideline
The purpose of this guideline is to determine whether local exhaust venting is required as stated in section 31.32 of the *Regulation*.

Air monitoring
The following are guidelines on how air monitoring is to be conducted to determine whether local exhaust venting is required:

1. The air monitoring should be done in places such as the living quarters, service bays, and other locations where firefighters are normally present during on-duty hours.
2. The fire hall should be set up based on normal incident response with the maximum number of fire apparatus responding.
3. The overhead door(s) should be open or closed for the duration in accordance with written work procedures for the fire hall.
4. Where two or more fire halls in a fire department require the installation of a local exhaust system, the implementation may be phased in over a longer period. A reasonable compliance period would be two years where two or three fire halls must be upgraded, or three years where four or more fire halls require upgrading.

Contact your local WorkSafeBC office for information on sampling of diesel- or gasoline-based automotive exhaust.

G31.33 General

Issued June 3, 2019

Regulatory excerpt
Section 31.33 of the *OHS Regulation* ("*Regulation*") states:

> An aerial device used for firefighting must meet the requirements of *NFPA 1904, Aerial Ladder and Elevating Platform Fire Apparatus, 1991 Edition*.

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify an alternate standard to *NFPA 1904, Aerial Ladder and Elevating Platform Fire Apparatus, 1991 Edition*, identified in section 31.33 of the *Regulation*.

Background information
The standard identified in section 31.33 of the *Regulation* has been updated and replaced by *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition.*

Acceptable alternate standards
WorkSafeBC has determined that *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition* is an acceptable alternate to the standard listed in section 31.33 of the *Regulation*.

G31.34 Inspection and testing

Issued June 3, 2019; Revised June 19, 2020

Regulatory excerpt
Section 31.34 of the *OHS Regulation* ("*Regulation*") states:

> (1) A fire department aerial device must be inspected and tested in accordance with good engineering practice at intervals not exceeding 12 months, and certified as safe for use by a professional engineer or the equipment manufacturer.
>
> (2) The inspection and testing of a fire department aerial device must be done in accordance with the requirements of *NFPA 1914, Testing Fire Department Aerial Devices, 1991 Edition.*

Section 4.4(2)(a) of the *Regulation* states:

> (2) When this Regulation requires a person to comply with
>
> (a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify an alternate standard to *NFPA 1914, Testing Fire Department Aerial Devices, 1991 Edition*, identified in section 31.34(2) of the *Regulation*. It also outlines some of the factors that should be considered when determining if an inspection has been conducted in accordance with "good engineering practice" under section 31.34.

Background information
The standard identified in section 31.34(2) of the *Regulation* has been updated and replaced by *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition.*

Acceptable alternate standards
WorkSafeBC has determined that *NFPA 1911, Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles, 2017 Edition* is an acceptable alternate to the standard listed in section 31.34(2) of the *Regulation*.

The acceptance of this standard for section 31.34(2) of the *Regulation* means that non-destructive testing must be done every five (5) years as per section 22.1.2(1) of the *NFPA 1911 Standard* and all other inspection and testing must be completed annually as required by section 31.34(1) of the *Regulation* and section 22.1.1 of the *NFPA 1911 Standard.*

Good engineering practice
The Engineers and Geoscientists of BC (EGBC), in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia*, describes the standard of practice that engineering professionals should follow when carrying out equipment inspections and certifications. WorkSafeBC considers following this EGBC guideline as following good engineering practice for the annual inspections and certifications of firefighting aerial devices.

A copy of the EGBC's professional practice guideline can be accessed here - *Annual Equipment Inspection and Certification in British Columbia.*

Inspection and certification process
The EGBC has defined the annual inspection and certification process for firefighting aerial devices in its professional practice guideline titled *Annual Equipment Inspection and Certification in British Columbia.*

A copy of the EGBC's professional practice guideline can be accessed here - *Annual Equipment Inspection and Certification in British Columbia.*

G31.37 Ground ladders – Alternate standards

Issued August 1, 1999; Editorial Revision April 2005; Revised October 23, 2012

Regulatory excerpt
Section 31.37 of the *OHS Regulation* ("*Regulation*") states:

(1) A ground ladder used by firefighters must meet the requirements of *NFPA 1931, Design of and Design Verification Tests for Fire Department Ground Ladders, 1989 Edition.*

(2) A ground ladder must be used, tested and maintained in accordance with the requirements of *NFPA 1932, Use, Maintenance, and Service Testing of Fire Department Ground Ladders, 1989 Edition.*

Section 4.4(2)(a) of the *Regulation* states:

(2) When this Regulation requires a person to comply with

(a) a publication, code or standard of the Board or another agency, the person may, as an alternative, comply with another publication, code or standard acceptable to the Board, or

Purpose of guideline
The purpose of this guideline is to specify, in the case of section 31.37 of the *Regulation*, an alternate standard acceptable to WorkSafeBC for ground ladders and provide information about the inspecting and testing of ground ladders.

Background information
Section 31.37(1) of the *Regulation* requires that ground ladders used by firefighters meet the requirements of *NFPA 1931, Design of and Design Verification Tests for Fire Department Ground Ladders, 1989 Edition*.

Section 31.37(2) of the *Regulation* requires that ground ladders used by firefighters be used, tested, and maintained in accordance with *NFPA 1932, Use, Maintenance, and Service Testing of Fire Department Ground Ladders, 1989 Edition*.

Section 4.4(2)(a) authorizes WorkSafeBC to accept another standard as an alternative standard.

Acceptable alternate standards
WorkSafeBC has determined that *NFPA 1931: Standard for Manufacturer's Design of Fire Department Ground Ladders, 2010 Edition* is an acceptable alternative to the 1989 edition referenced in section 31.37(1) of the *Regulation*.

WorkSafeBC has determined that *NFPA 1932: Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground Ladders, 2010 Edition* is an acceptable alternative to the 1989 edition referenced in section 31.37(2) of the *Regulation*.

Accepting an alternate standard does not make that standard mandatory. An employer may comply with either the standard accepted in the guideline or the standard in the *Regulation*.

Significant changes to the standards
The 2010 standards allow two new types of ladders.

1. Combination ladders can be used as both a stepladder and a single or extension ladder. They have a maximum load of 340 kg (750 lb.).
2. Multi-purpose ladders must meet either *ANSI A14.2 Ladders – Portable Metal – Safety Requirements* or *ANSI A14.5 Ladders – Portable Reinforced Plastic – Safety Requirements* and be Type 1A or 1AA. They have a maximum load of 136 kg (300 lb.) and need to have heat sensor labels attached in accordance with Clause 6.2.10.2.4 of the 2010 edition of *NFPA 1932*.

Both new types of ladders must be inspected in accordance with the 2010 edition of *NFPA 1932*.

Inspection and testing frequency
The 2010 edition of *NFPA 1932* requires that ground ladders be visually inspected, as follows, in accordance with the standard at least:

1. Once every month
2. After each use
3. After use other than as specified in *NFPA 1932*

The 2010 edition of *NFPA 1932* requires that ground ladders be service tested as follows:

1. Before the ladder is placed in service for the first time
2. At least annually
3. At any time a ladder is suspected of being unsafe
4. After the ladder has been subjected to overloading
5. After the ladder has been subjected to impact loading or unusual conditions of use
6. Whenever the ladder has been exposed or is suspected of having been exposed to direct flame contact
7. Whenever the heat sensor label has changed to indicate heat exposure
8. After any repairs have been completed, unless the only repair was replacing the halyard
9. After use other than as specified in *NFPA 1932*

Old extension ladders
Extension ladders constructed prior to the adoption of the 1984 edition of *NFPA 1931* may not meet the tests required by either the 1989 or

2010 edition of *NFPA 1932*. If these ladders do not meet the tests, they cannot be used and must be replaced.

Access to standards

The NFPA offers free read-only versions of standards to users who register on their site. The 2010 edition of *NFPA 1931* can be found at http://www.nfpa.org/1931. The 2010 edition of *NFPA 1932* can be found at http://www.nfpa.org/1932.