

LEGISLATIVE INTERPRETATIONS

Topic: Protective footwear – Wild land fire	Issued by: VP, WorkSafe Services
Statute: <i>General Regulation 91-191</i>	Date Issued: March 3, 2014
Subsection or paragraph: 41(2), 51.3, 51.94(2)(a) and 346(a)	Date Revised:

38(1) Where protective equipment is required to be used by an employee under this Regulation, an employer shall provide the protective equipment required and shall ensure that the employee is instructed and trained in the proper use and care of the protective equipment.

41(2) At a place of employment, other than a project site, where an employee is exposed to a hazard that may injure the employee's foot, the employee shall use protective equipment that is appropriate to the hazard and that conforms to CSA standard CAN/CSA-Z195-M92, "Protective Footwear" or a standard offering equivalent protection.

51.3 When engaged in structural fire-fighting or rescue, a firefighter shall use protective footwear that

- (a) meets or exceeds NFPA 1974, "Standard on Protective Footwear for Structural Fire Fighting", 1992 edition or the standard for Grade 1 footwear, with sole puncture protection and electric shock resistant soles, in CSA standard CAN/CSA Z195-M92, "Protective Footwear",
- (b) is water resistant for at least 12.7 cm above the bottom of the heel, and
- (c) has a slip-resistant outer sole.

51.94(2) Where in a provision specified below, a firefighter is required to use protective equipment of the type specified below, the standard or standards cited in that provision shall be read, with respect to the protective equipment to which this section applies, as follows:

- (b) in paragraph 51.3(a) with respect to the use of protective footwear - NFPA 1974, "Standard on Protective Footwear for Structural Fire Fighting", 1986 edition or the standard for Grade 1 footwear, with sole puncture protection and electric shock resistant soles in CSA standard Z195-M1984, "Protective Footwear".

346 An employer shall, in addition to complying with the appropriate requirements for protective equipment under Part VII, ensure that an employee who operates a chain saw wears

- (a) safety footwear that meets the requirements of CSA standard CAN/CSA-Z195-M92, "Protective Footwear" or a standard offering equivalent protection, has chain saw protection on the top and sides and has non-slip soles.

Question

Our organization is involved in wild land fire operations. What type of protective footwear is our organization required to provide to employees involved in combating forest fires?

Response

The type of protective footwear your organization is required to provide is dependent on the type of work carried out by your employees. The hazards your employees are most likely to be exposed to include:

- Slips, trips and falls;
- Cuts, punctures and abrasions, including cuts from chainsaws, and
- Heat, both conductive and radiant, and flames.

The primary performance requirement of footwear meeting the CSA standard cited in Regulation 91-191, subsection 41(2), section 51.3 and paragraph 346(a), *CAN/CSA-Z195-M92 Protective Footwear*, is a protective toecap as defined in clause 4. **Design Requirements:**

3.1.1

All protective footwear covered by this standard shall provide toe protection and may provide sole, metatarsal, electric shock or other specific types of protection.

In essence, toe protection is the only requirement and it is usually provided by a steel toecap. Although not required in meeting this standard, where incorporated in the footwear, the standard does address the requirements for sole, metatarsal and electric shock protection. In considering specific types of protection, such as those required when firefighting, this standard is silent on footwear protection when fighting forest fires. It is therefore appropriate to consider standards offering equivalent protection.

One such standard, CSA standard *CAN/CSA-Z195-09 Protective Footwear*, makes the following statement in section 1. **Scope:**

1.3

Electrical flash and flame protection, ankle protection, firefighter's footwear, spiked climber's footwear, and riot boots are not specifically addressed in this Standard. While the specific protection required by these applications is not covered, impact, puncture, and static-dissipative criteria may be applied to other types of footwear as appropriate.

As in the 1992 edition of CSA standard Z195, the primary performance requirement of footwear meeting the CSA standard Z195-09 is a protective toecap as defined in clause

4. Design Requirements:

4.1.1

All protective footwear covered by this standard shall provide toe protection and may provide sole, metatarsal, chainsaw, and conductive protection, with the exception of static-dissipative and slip-resisting footwear, which may not provide toe protection.

Again, as hazards for wild land firefighting are not addressed in the above-mentioned CSA standard, the National Fire Protection Association (NFPA) standards were consulted for guidance. According to **NFPA 1977: Standard on Protective Clothing and Equipment for Wildland Fire Fighting**, wild land firefighting footwear must comply with at least 11 performance standards:

- Heat resistance – The boot should remain functional under heat tests without melting or delaminating;
- Corrosion resistance – Metal parts, including aluminum, brass, copper, stainless steel and zinc components, should remain functional and not show more than a light surface corrosion;
- Cut resistance;
- Puncture resistance;
- Abrasion resistance;
- Conductive heat resistance – The inside sole surface should not exceed 44 °C (111 °F) in conductive heat tests;
- Slip resistance;
- Attachment strength – The boot's eyelets and hooks must be tested for attachment strength;
- Flame resistance – Footwear should not ignite, melt or drip, and should not have an after-flame of longer than two seconds;
- Label legibility and durability – Footwear labels should be legible and remain in place; and
- Sewing thread heat resistance – All footwear sewing thread should be tested for resistance to heat and should not melt, char or ignite.

Protective footwear certified to the NFPA 1977 “Standard on Protective Clothing and Equipment for Wildland Fire Fighting” do address the hazards that may be encountered while fighting wild land fires and forest fires. Boots manufactured to meet the NFPA 1977 standard can be grouped into three categories:

1. Boots certified to NFPA 1977 standard without protective toecaps;
2. Boots certified to NFPA 1977 standard with protective toecaps;

3. Boots certified to NFPA 1977 standard with protective toecaps and Kevlar chainsaw protection.

Protective footwear provided to employees is required to be appropriate to the hazard of the work they are performing. With respect to wildland firefighting or forest fire fighting, boots certified to NFPA Standard 1977 with protective toecaps offer equivalent protection as required under subsection 41(2) of *General Regulation 91-191*. For employees required to use a chainsaw in the course of their employment, boots certified to NFPA 1977 standard with protective toecaps and Kevlar chainsaw protection offer equivalent protection as required under paragraph 346(a) of *General Regulation 91-191*.