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## **Foot Protection Standard**

### **1.0 PURPOSE**

This standard specifies the selection, use, inspection and care of foot protection at SaskPower.

### **2.0 DEFINITIONS**

#### **2.1 Chainsaw-protective footwear**

Boots that are designed to prevent a chainsaw from cutting into the shin, ankle, foot, and toes.

#### **2.2 Conductive footwear**

A boot or shoe designed to continuously electrically ground the foot and thereby prevent an electrical discharge that might ignite volatile, flammable material in close proximity to the sole.

#### **2.3 Electric shock-resistant (ESR) footwear**

Footwear that has a sole and heel constructed of electrically insulating materials that provides protection against electric shock to the bottom of the foot. At the time of manufacturing, ESR footwear at dry conditions shall withstand a test potential of 18 kV 60 Hz for 1 minute without discharge to ground. The leakage current shall not exceed 1 mA when tested in accordance with CAN/CSA Z195-14 Clause 6.5.2.

#### **2.4 Static-dissipative footwear**

A boot or shoe designed to continuously dissipate electrostatic charges (not intended for use in environments where explosive hazards exist).

#### **2.5 Super static-dissipative footwear**

A boot or shoe designed to continuously dissipate electrostatic charges when working with electronics and sensitive instruments (not intended for use in environments where explosive hazards exist).

#### **2.6 Metatarsal protection**

An integral component that protects the complete top side of the foot.

#### **2.7 Permanently marked**

Given a marking that is intended to remain in the applied position and remain legible for the lifetime of the footwear under normal wear conditions.

#### **2.8 Protective footwear**

A boot or shoe that provides the wearer with a degree of protection against injury as specified in CSA Standard Z195-14.

#### **2.9 Protective sole plate**

An integral component in the footwear that provides puncture protection to the sole of the foot.

#### **2.10 Protective toecap**

A component designed to provide toe protection that is an integral and permanent part of the footwear.

## **2.11 Safety Boots**

Footwear that provides CSA Grade 1 toe protection, a puncture resistant sole plate, a minimum 6 inch high ankle protection and electric shock-resistance (ESR) in accordance with the CAN/CSA Z195-14 Standard.

## **2.12 Third Party**

Third party standards are developed from outside agencies and represent a consensus of best practice across industry.

## **3.0 METHOD / PRACTICE**

### **3.1 Selection**

- Protective footwear shall meet the requirements of hazard/aspect identification and risk assessment. Refer to Exhibit A – Hazard Consideration Selecting Protective Footwear and Refer to Exhibit B - Guidelines for Selecting Protective Footwear.
- Protective footwear shall meet the requirements of CSA Standards Z195 - 14 Protective Footwear and Z195.1 - 16 Guideline on Selection, Care, and Use of Protective Footwear.
  - Protective footwear shall have CSA Grade 1 toe protection and a puncture resistant sole plate.
  - Protective footwear shall be electric shock-resistant.
  - Where ankle protection is required, safety boots shall have a minimum 6 inch high ankle protection.
  - Where slip hazards are identified, safety footwear shall be equipped with slip resistant properties.

### **3.2 Provisioning**

- Protective footwear, when required, shall be supplied through the Division purchasing process or according to the union collective bargaining agreements.
- Grade 1 protective footwear shall be identified by a green triangular patch on boot. Refer to Exhibit C – Protective Footwear Markings.

- Electric shock-resistant (ESR) footwear shall be identified by a white rectangular patch containing the omega symbol ( $\Omega$ ) on the right boot. Refer to Exhibit C – Protective Footwear Markings.
- Specialized foot protection shall meet the SaskPower Specialized Foot Protection Standards.
- Although the Saskatchewan Occupational Health and Safety Regulations, 1996 do not explicitly state that foot protection shall meet the CAN/CSA 195-14 standard, this is the technical performance standard for foot protection used by SaskPower.
- ASTM F2413-11 Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear are **NOT** approved for use as equivalent to Grade 1 protective footwear:
  - ASTM F2413-11 protective footwear bearing a label with the text “EH” and “PR” currently do meet the same electric shock-resistance (EH) specification and puncture resistance (PR) protective sole requirements as CAN/CSA 195-14.
  - ASTM F2413-11 protective footwear do **NOT** meet CAN/CSA 195-14 Grade 1 toe impact criteria. ASTM F2413-11 has only one class of toe impact protection, which is Class 75 footwear (75 lbf = 101.6 joules toe impact energy compared to the 125 joule requirement of CSA 195-14 Grade 1).
  - ASTM F2413-11 protective footwear slightly exceed CAN/CSA 195-14 Grade 2 toe impact criteria but only in Men’s size 9 and under and Female’s size 7 and under. Larger sizes do not meet CAN/CSA 195-14 Grade 2 toe impact criteria.

### 3.3 Use

- Protective footwear shall be worn where hazard identification and risk assessment identify the requirement.
  - Exceptions shall be documented at the Division level.
- Protective footwear shall be used as per the manufacturer specifications.
- Laces shall be tied so that neither the laces nor the fit of the boot can cause tripping hazards.

### 3.4 Inspection

- Protective footwear shall be inspected for damage that could affect its ability to provide protection before each use.
- Inspect protective footwear for:
  - cracks in the soles
  - breaks in the leather
  - exposed toecaps

### 3.5 Care

- Protective footwear shall be cleaned and stored according to the manufacturer’s specifications.

- Protective footwear shall be replaced when damage could affect its ability to provide protection. If in doubt, replace.

#### **4.0 REFERENCES**

- The Saskatchewan Occupational Health and Safety Regulations, 1996.
- SaskPower (located on SafetyNet)
  - Personal Protective Equipment Policy
  - Job Hazard Assessment Policy
  - Hazard/Aspect and Risk Assessment Standard
  - SaskPower Health, Safety and Environment Rulebook
- Third Party
  - CAN/CSA Z195-14 Protective Footwear.
  - CAN/CSA Z195.1-16 Guideline on Selection, Care, and Use of Protective Footwear.
  - ASTM F2413-11 Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Footwear

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**EXHIBIT “A” – HAZARD CONSIDERATIONS FOR THE SELECTION OF PROTECTIVE FOOTWEAR**

The following potential hazard areas should be considered:

- (a) Materials handled by the employee during the normal course of his/her job:
  - (i) Evaluate the risk of objects falling onto or striking employees' feet.
  - (ii) Consider any material or equipment that might roll over employees' feet.
  - (iii) Consider any sharp or pointed objects that might cut the top of employees' feet.
- (b) Foreign objects that may penetrate the bottom or side of the foot;
- (c) Exposure to corrosive or irritating substances;
- (d) Exposure to explosive atmospheres: evaluate the risk of static electrical discharges igniting an explosion or fire;
- (e) Risk of damage to sensitive electronic components or equipment due to the discharge of static electricity;
  - Note:** *Check with protective footwear suppliers or manufacturers regarding the level of electrical resistance provided by the conductive and/or static-dissipative footwear.*
- (f) Risk of coming into contact with energized conductors of low to moderate voltage (e.g., 220 V or less);
- (g) Risk to ankles from uneven walking surfaces or rough terrain in which case ankle support is required;
- (h) Risk of foot injury due to exposure to extreme hot or cold environments/substances/surfaces;
- (i) Risk of slips and falls on slippery walking surfaces;
- (j) Exposure to water or other liquids that may penetrate the footwear causing damage to the foot and the footwear; and
- (k) Risk of exposure to rotating or abrasive machinery (e.g., chainsaws or grinders).

**EXHIBIT “B” GUIDELINES FOR THE SELECTION OF PROTECTIVE FOOTWEAR**









Hazard types	Protection							Comments
	Protective toe	Protective sole	Metatarsal protector	Electrical insulation	Static dissipation	Conductive sole	Chainsaw protection	
Falling objects	REQUIRED		R*					Metatarsal guards are recommended where heavy objects may fall on foot.
Rolling objects	REQUIRED		*					Select Grade 1 toe protection.
Sharp objects	REQUIRED	REQUIRED	*					Protect against sharp object penetrating sole and top of foot.
Hot objects	*	*	*					Select thermal-insulating footwear in high-heat conditions.
Electric shock				REQUIRED	DO NOT USE	DO NOT USE		SD and conductive footwear offer no protection.
Static discharge Micro-circuits				DO NOT USE	REQUIRED			Insulating footwear is hazardous to circuits.
Static ignition				DO NOT USE		REQUIRED		In addition, ground all containers and equipment.
Saw cutting	REQUIRED	*	*				REQUIRED	Select footwear for environmental conditions.
Uneven Surfaces								Select footwear with ankle support

\* Recommended (depending on degree of hazard).

Reference: CSA Standard CAN/CSA 195-14 criteria for protection types (Clauses 3 and 4)

**Note:** Always choose footwear that will provide the protection you need. Do not assume that a certain type of job always demands the same footwear. Different working environments may present different hazards. A hazard assessment of the working environment and the nature of the job are recommended prior to use of the selection guide. Some work environments may contain multiple hazards. In such cases, footwear that provides protection in more than one category (combined performance) should be selected.

**EXHIBIT “C” PROTECTIVE FOOTWEAR MARKINGS**

Outside labels	Location	Criteria	Intended application
	The label shall appear at ankle height or on the tongue of the right shoe.	Green triangle indicates sole puncture protection with a Grade 1 protective toe to withstand impacts up to 125 joules.	For any industrial environment, especially that of construction, where sharp objects (such as nails) are present; heavy work environments.
	The label shall appear at ankle height or on the tongue of the right shoe.	Yellow triangle indicates sole puncture protection with a Grade 2 protective toe to withstand impacts up to 90 joules.	For light industrial work environments requiring puncture protection as well as toe protection.
	The label shall appear at ankle height or on the tongue of the right shoe.	White rectangle with orange Greek letter omega indicates soles that provide resistance to electric shock.	For any industrial environment where accidental contact with live electrical conductors can occur. <b>Warning:</b> <i>Electrical shock resistance deteriorates with wear and in a wet environment.</i>
	The label shall appear at ankle height or on the tongue of the right shoe.	Yellow rectangle with green “SD” and grounding symbol indicates soles are static-dissipative.	For any industrial environment where a static discharge can create a hazard for workers or equipment.
	The label shall appear at ankle height or on the tongue of the right shoe.	Red rectangle with black “C” and grounding symbol indicates soles are electrically conductive.	For any industrial environment where low-power electrical charges may create a hazard for workers or equipment.
	The label shall appear at ankle height or on the tongue of the right shoe.	White label with green fir tree symbol indicates chainsaw protective footwear.	For forestry workers and others exposed to hand-held chainsaws or other cutting tools.
	The label shall appear on the outside of the right shoe.	Blue rectangle indicates a Grade 1 protective toe with no protective sole.	For industrial work environments not requiring puncture protection.
	The label shall appear on the outside of the right shoe.	Grey rectangle indicates a Grade 2 protective toe with no protective sole.	For institutional and non-industrial work environments not requiring puncture protection.

**Note:** The ® symbol indicates the preferred positioning for the registered identifying logo or mark of the certifying agency.