

Part VII Personal Protective Equipment (PPE)

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*** It should be noted that Personal Protective Equipment (PPE) shall be selected in accordance with the Standards identified below and consideration should be given to the person's body size, shape and any other physical factors that may impede the safe use of the equipment. ***

Explanations

The Standards listed below are referenced in this Part of the Regulations.

Standard Agency	Standard Number	Standard Title
CSA	CAN/CSA Z94.4	<i>Selection, Care and Use of Respirators</i>
CSA	CAN/CSA Z94.1	<i>Industrial Protective Headwear</i>

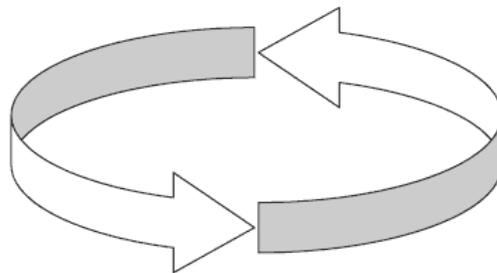
CSA	CAN/CSA-Z94.3	<i>Industrial Eye and Face Protectors</i>
ANSI	Z87.1	<i>Practice for Occupational and Educational Eye and Face Protectors</i>
CSA	Z195	<i>Protective Footwear</i>
CSA	Z180.1	<i>Compressed Breathing Air and Systems</i>

Section E74 General requirements of safety headgear

Safety headgear shall be worn as per the manufacturer’s instructions. When wearing a CSA approved safety hardhat, it shall be worn with the brim facing forward. Reversible headwear can be selected and worn if the job, task, or work environment necessitates wearing headwear backward (e.g., for welding).

There are CSA Approved hard hats which have been tested in the reverse position and have met CSA Standard CAN/CSA – Z94.1 “Industrial Protective Headwear”. These hard hats are permitted to be worn in the reverse position; however they must have the reverse orientation symbol displayed on, or affixed to, the hard hat to indicate that it meets the required CSA Standard. See Figure 7.1 for the accepted symbol.

Figure 7.1 – Reverse Orientation Performance Mark



Section E78 - General requirements of limb and body protection

Under this section, the "lack of clothing" is a concern if a worker is exposed to injury from the material being handled, contact with an abrasive surface or object, or contact with a surface at a temperature that could cause a burn injury. For example, a worker handling hot tar or other material that could cause a burn through contact, such as from a splash has to wear suitable clothing covering the body and arms. A worker exposed to the abrasive action of material, such as the

carrying of lumber on the shoulder or against the body, should wear appropriate clothing.

A worker may have to change or add clothing as the worker's job duties or work conditions change.

An employer may have a dress code or policy for clothing requirements during warm weather. Employers are responsible to ensure that the lack of appropriate clothing does not expose a worker to the possibility of injury.

Section E79 Leg protection

Any form of leg protection that is employed as PPE during the use of a chain saw shall have been designed and tested for that use.

Section E80 Foot protection

For the purposes of this section of the OHS Regulations, there are two CSA Standards that should be referenced in conjunction with each other. They are:
*CSA Standard CAN/CSA-Z195, Protective Footwear, and
CSA Standard CAN/CSA-Z195.1, Guideline on Selection, Care and Use of
Protective Footwear*

Subsection E80(1) The employer must determine the appropriate protection required for the feet and ankles based on the work assigned to each worker, and ensure each worker wears the appropriate footwear.

Subsection E80(2) The factors are based on whatever work procedures and arrangements exist in the workplace at any time. An employer may change the work procedures and arrangements to reduce or remove the risk. For example, an employer may limit the number of workers doing tasks that cause a risk of foot injury or the employer may change the way the tasks are done. Protective footwear need only be worn while a worker is exposed to the risk that requires it.

When determining the requirements for appropriate protective footwear, an employer shall not consider training and supervision as a substitute for protective footwear.

The risk assessment to determine appropriate footwear will result in persons or activities being placed into 1 of 3 categories:

1. The hazards present require "safety footwear". Because safety footwear is only certified with respect to certain features to protect from specific

- types of hazard, regard must be considered as to whether there should be additional requirements to cover all hazards of a worker's job.
2. There are some hazards present that require footwear to provide protection, but not necessarily protection to the level of "certified safety footwear". For example, a lifeguard at a beach likely will not need to wear footwear with safety toe protection, but needs to wear footwear that will protect against cuts from objects on a beach where there is a risk from such objects.
 3. There are no hazards of foot injury for which specific requirements are necessary. For example, this will be the case for most office workers.

If a hazard requires metatarsal protectors, the metatarsal protectors should be an integral part of the footwear. (This form of protection is typically required in foundries and heavy manufacturing where steel plate, beams or rails are handled, but it is not normally required in construction.) Metatarsal protectors that only attach to the laces or are only strapped in place do not meet the CSA Z195 Standard and must not be used because there is no assurance the metatarsal protector is properly supported by the toecap.

Subsection 80(2) specifies some of the hazards for which protection may be required, such as slipping, uneven terrain, abrasion, ankle protection, foot support, temperature extremes and corrosive substances. The employer must assess each worker's exposure to the dangers and ensure the worker's footwear is of a type and construction that minimizes, as far as is practicable, the risk of injury to the worker.

In addition to the appropriate approved safety devices for metatarsal, sole penetration and toe protection, the following criteria need to be considered in the selection of "appropriate" footwear:

1. If the possibility of ankle cuts or abrasion exists, the footwear should be at least 13 cm (about 5 inches) high and provide adequate protection from cuts and abrasion. (The height of footwear is the measurement from the top of the sole at the arch to the top of the upper.)
2. For walking on uneven surfaces, footwear should provide adequate ankle support and be worn tight fitting around the ankle to provide sufficient ankle support. Appropriate footwear would generally be lace-up boots. Cowboy style and rubber boots would not provide sufficient ankle support on uneven surfaces. Lace-up style 20 cm (8 inch) leather-upper boots generally provide sufficient ankle support on uneven surfaces.
3. Athletic shoes are acceptable for occupational use provided the style and construction provides protection from the hazards to which the worker will be exposed. For example, mesh-type covering over the toe area would not be appropriate in a laboratory where there is danger of chemicals dropping onto the foot. Low cut uppers will not be appropriate if there is danger of abrasion to the ankle.

The circumstances at a particular workplace may justify a variation from the above recommendations. For example, an employer may arrange the work in a manner that eliminates all hazards of foot injury.

A worker exposed to an environment requiring rubber boots extending above the ankle for protection from chemicals, water or other liquids, is not expected to have tight fitting leather uppers if walking on uneven surfaces.

Subsection E80(3) If a determination has been made that safety protective footwear is required to have toe protection, metatarsal protection, puncture resistant soles, dielectric protection or any combination of these, the footwear must meet the requirements of CSA Standard CAN/CSA-Z195, Protective Footwear.

Examples of hazards that require the provision of these types of protection are tools, materials or equipment potentially dropping or rolling onto the toes or top of the foot, or a worker stepping on sharp objects which can cut or puncture the sole of the foot.

The levels of footwear certified by CSA as meeting *CAN/CSA Z195* are set out in the following table.

Grade	1	2	3
Internal CSA label colour denoting only grade of toe protection.	Green	Yellow	Red
External triangular CSA patch colour denoting sole plate puncture protection with toe protection.	Green	Yellow	Red
External rectangular patch colour with Greek letter omega (W) in orange denoting only electrical shock resistant soles	White	White	White
External rectangular patch colour with green "SD" notation and an electrical grounding symbol, denoting static dissipate footwear	Fluorescent Yellow	Fluorescent Yellow	Fluorescent Yellow
Protective Toecap Impact Resistance, joules (ft*lb)	125 (93)	90 (65)	60 (45)

The degree of protection to the toe based on the table above is approximately as follows:

Grade 1-Dropping a 30 pound weight from 3 feet onto toe

Grade 2-Dropping a 20 pound weight from 3 feet onto toe
Grade 3-Dropping a 15 pound weight from 3 feet onto toe.

Sole plate puncture protection is only available in CSA certified footwear in combination with toe protection. All sole plates are designed to withstand the same puncture force using a pointed tester, and the colour of the external triangular patch varies only with the grade of toe protection. The external triangular patch may be positioned in any conspicuous location on the right footwear upper. The top of the tongue is an acceptable patch location, if the patch is visible when the footwear is laced up.

If a worker's footwear does not have the required protective features, an alternative is using footguards or other effective devices. External strap-on or glue-on "safety toecaps" do not meet any recognized safety standard and must not be used as an alternative to recognized safety footwear. Strap-on toecaps are not suitable replacements for integral metatarsal protectors.

Rubber type footwear with integral safety toecaps, which slip on over existing footwear and have evidence of independent testing proving that they meet the impact criteria of *CSA Standard Z195*, may be used.

Guidelines for certain types of workers are as follows:

1. A worker in the construction industry, or any other similar working environment where there is risk of toe injury, should wear safety footwear with Grade 1 toe protection.
2. A worker in the construction industry, or any other industry with a possibility of sole punctures, should wear footwear with protective sole plates.
3. A worker in any industry with a potential for electric shock, for example an electrician or power line technician, should wear footwear with dielectric protective soles, in addition to any other protective features required by the circumstances of the work.
4. A worker using high pressure washing or cutting equipment should wear footwear or footwear cover devices which protect the whole top area of the foot from accidental contact with the washing or cutting stream. Conventional safety toe and metatarsal protectors do not cover a sufficient portion of the worker's foot to protect the foot during this type of work.
5. A worker in a warehouse should wear safety footwear with Grade 1 toe protection.
6. A worker in a retail store environment using pallet jacks, forklifts or other rolling equipment should wear footwear with Grade 1 toe protection.

Section E81 High visibility apparel

The following information outlines the minimum amounts of reflective, brightly coloured and/or fluorescent material that is to be used in high visibility apparel. It also signifies how these materials are to be used together to enhance visibility and safety of workers. High Visibility Safety Apparel (HVSA) should be selected based on the type of work being performed and the associated risk.

HVSA should:

- signal the user's presence visually; and
- provide the user with conspicuity in hazardous situations under any light condition and under illumination by vehicle headlights.

For example: Silver reflective stripes/bands sewn on dark clothing does not constitute High Visibility apparel. This is only visible in the night.

Classes of High Visibility Safety Apparel

Classes are based on the risk of the Job being performed. The class number will determine the amount of body coverage that is required by HVSA. Class 2 apparel provides the greatest visibility for the wearer at great distance and under poor light conditions.

Class 1: Low Risk – Moderate Risk

Some criteria for this category are:

- Limited traffic and moving equipment with low speeds less than 20 kph
- Ample separation from the user and conflicting vehicle traffic
- Work activity permits full, undivided attention to approaching traffic.
- Areas that enable passers by to distinguish workers from the background.

Class 2: Moderate to High Risk

Some criteria for this category are:

- Higher volumes of traffic and moving equipment with speed more than 20 kph
- Reduced separation from the user and conflicting vehicle traffic
- Work activities that take place in or adjacent to unimpeded traffic.
- Backgrounds that are complex and reduce ones ability to notice workers
- Greater flame resistant (FR) requirements

Colour/Level of Performance of High Visibility Safety Apparel

The background material of the HVSA should be of *brightly coloured (Level 1) or fluorescent (Level 2) material* and have contrasting reflective stripes/bands. Background material can cover the whole garment (Class 2) or a portion (Class 1) of the garment.

Three Colours can be used: Red, Orange-Red, or Yellow-green.

Fluorescent colours are more effective than bright colours under low light conditions.

The following lists the Class and Level of HVSA in order from highest to lowest order of protection. This designation should be printed on the label.

- Class 2 Level 2 - Highest
- Class 2 Level 1
- Class 2 Level FR
- Class 1 Level 2
- Class 1 Level 1
- Class 1 Level FR - Lowest

Placement of Stripes/Bands on HVSA

Stripes/bands shall be laid out in the following standardized pattern:

- Symmetric “X” pattern on the back extending from the shoulders to the waist (emergency personnel (OHS, Fire, etc.) may substitute the “X” with 2 vertical stripes to allow for ID patch) See Figures B1, B2 & B3
- 2 vertical stripes on front extending over the shoulders and down to the waist; See Figures B1, B2 & B3
- A waist level horizontal stripe extending entirely around the back and encircling the waist. See Examples below.
- The total width of stripes/bands shall be at least 50 mm throughout.
- For class 2: the stripes/bands shall be of a contrasting colour than that of the background.
- If a combined performance material is used in HVSA, it means that the reflective material on the stripes/bands is fluorescent in colour (not silver).

Minimum High Visibility Material Coverage

Table 1: Minimal Coverage Based on Class

	Class 2 apparel	Class 1 apparel
Description of minimal coverage	Full coverage of upper torso (front, back, sides, and over the shoulders*)	Basic harness or stripes/bands over the shoulder(s) and encircling the waist
Background material	See above	0.14 m ² (minimum)
reflective or combined-performance material used in conjunction with background material	0.13 m ²	0.10 m ²
Combined-performance material used without background material	-	0.20 m ²

Examples of High Visibility Safety Apparel Designs

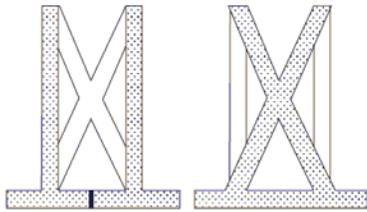


Figure B.1
Class 1 — Harness or Colour/Retroreflective Stripes on Other Clothing



Figure B.2
Class 2 — Vest

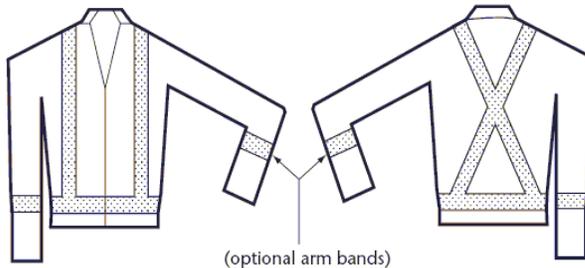


Figure B.3
Class 2 — Jacket

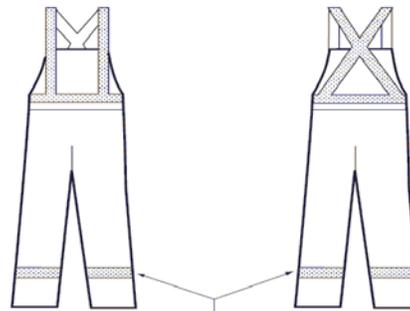


Figure B.4
Class 2 — Bib Overalls

There is no reference to a CSA Standard in the OHS Regulations; however additional information can be found in CSA Z96.1-06 “Selection, Use and care of High-Visibility Safety Apparel”.

Section E83 Respiratory protection program

Where respiratory protection is required, as determined in Section 84(1), this section applies.

Section 83 of the OHS Regulations requires that appropriate respiratory protective equipment must be selected in accordance with CSA Standard CAN/CSA-Z94.4, Selection, Use and Care of Respirators. The equipment is also to be selected by the employer in consultation with the worker and the occupational health and safety committee or the worker health and safety representative or designate, as applicable.

CSA Standard CAN/CSA-Z94.4, states "knowledge of respiratory hazards and respiratory protection is essential to ensure appropriate selection of respirators. The respirator selection then becomes a step-by-step elimination of inappropriate

respirators until only those which are appropriate remain. Section 6 of the CSA Standard prescribes the procedure for selecting an appropriate respirator.

Section E84 Respiratory protection

Subsection E84(6) this section refers to the training of workers that must effect a rescue in situations where an oxygen deficient atmosphere or hazardous contaminants may be present.

Section 38 - Emergency Plan Risk Assessment outlines the requirements for rescue and evacuation procedures, where required. If a rescue or evacuation may be needed with respect to an oxygen deficient atmosphere it should be addressed in this section.