

Protect Your Feet!



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Cat. No.: HS4-11/2004
ISBN: 0-662-68246-7

Printed in Canada

— **Protect Your Feet!**

In spite of the variety and quality of safety shoes available on the market, it is always surprising to see that one out of ten accidents happens to the feet. In many work environments, wearing safety shoes is mandatory given bad ground conditions or poor working conditions.

To properly protect your feet, it is important to choose shoes that will protect you against the risks that exist at your specific work station and to avoid shoes that protect against any risk at any work station.

— **What are the risks for your feet?**

Safety shoes are part of the personal protection equipment providing effective protection against a number of risks of foot injuries such as shock, crushing and puncture. However, it is important to be aware of the risks that are specific to your job.

- Falling objects and rolling equipment are the main causes of toe crushing.
- Jumping and falling cause fractures, trauma and various wounds to the heels, ankles and almost all parts of the foot.
- Pointed objects can puncture arches.
- Spatters caused by welding, molten metal, corrosive liquids or irritants can burn all parts of the foot.
- Slipping on slick floors or uneven surfaces causes all kinds of injuries to various parts of the body, not just the feet.
- Contact with conductor elements, normally or accidentally



electrically charged, can lead to electrocution and cause serious burns.

- Hot floors cause burns, allow micro-organisms to develop, soften the skin and cause cracks and blisters.
- Cold floors and cold temperatures cause chilblains on the toes.

Before buying a pair of safety shoes, make a list of the risks you want to avoid. This way, you will be able to rapidly identify the type of shoe you need to protect yourself.

— Basic safety criteria

Theoretically, a safety shoe is a shoe that meets at least one of the five criteria set by the Canadian Standards Association (CSA). You can find out what criteria a pair of safety shoes meets by consulting CSA's alphanumeric code found inside one of the shoes. The code is made up of five numbers or letters.



1, 2 or 0	P or 0	M or 0	E, S or C	X or 0
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- 1) The first code indicates whether the shoe comes with a steel toe cap, which is a shell that protects toes against crushing: “0” means there is none, “2” means that it resists impacts of 90 joules and “1” means that it resists impacts of 125 joules (a 22.7 kg object falling from a height of 56 cm).
- 2) The second code indicates whether the shoe has soles that protect arches against punctures. “P” means it does and “0” means it does not.
- 3) The third code indicates whether the shoe has a metatarsus protector against shocks and collisions. “M” means it does and “0” means it does not.

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- 4) The fourth code represents the sole's electrical characteristics: "E" means it resists electrical shocks, "S" means it disperses static electricity and "C" means it conducts electricity.
 - 5) The last code (X) can only be found on shoes that protect the foot against chain saws.

For instance, if the manufacturer of your street shoes had asked the CSA to assess its shoes, their safety code would probably be 000C0: no steel toe cap, no puncture-resistant sole, no metatarsus protector, are electrically conductive and provide no protection against chain saws.

Safety shoes also have tags on the outside.



green triangle: class 1 steel toe cap with puncture-resistant sole;



yellow triangle: class 2 steel toe cap with puncture-resistant sole;

no triangle: no toe cap;



white square: electrical protection;



yellow square: anti-static protection;



red square: electrically conductive;



fir tree: protection against chain saws.

A few helpful hints

- Avoid plastic toe caps because they are not as resistant as shells made of treated steel.
- Select puncture-resistant soles made of stainless steel because they resist corrosion caused by foot perspiration.

— There's more

Do you own a pair of approved shoes? That's great! However, are they really suitable? There are several other safety criteria that the CSA does not cover but are nevertheless indispensable in certain work environments.

Handling of chemicals

If you handle corrosive or irritant chemicals, or if you work with gravelly or hot substances, keeping these substances out of your shoes is preferable. In order to protect yourself, select a shoe with the tongue attached to the sides or shaped like a gusset.

If you sometimes work in places where surfaces are covered with chemicals like cement, lubricants, degreasers, removers, solvents or other chemicals being manufactured, ask to consult the material resistance table provided by the manufacturer before making your selection. These chemicals can easily destroy the materials in the soles and heels.

Slippery floors

There are no real non-skid shoes. On dry clean surfaces, a smooth sole adheres better than a sole with treads. On soft surfaces such as snow, soles with large treads or crampons are effective. On slick and wet surfaces, soles having a medium tread provide some protection because the treads break up the liquid film spilled on the floor.



Resistance to metal filings

In mechanical workshops, metal filings are often found on the floor and it is best to avoid having them accumulate under shoes. The soles offering the best protection from metal filings are made of Vibram, Dynatread or crepe.

Spattering of molten metal

Welders and other foundry workers can add coverings on the tops of their shoes to protect themselves against burning metal spatters and to keep the laces from catching fire.

Jumping and uneven terrain

Some workers must often jump to complete certain tasks, for example: exiting a delivery truck where it is impossible to place a ladder or stairs to avoid jumping. The shock is felt mainly in the heels and in the ankles. To improve the situation, select shoes that have full or pimped soles made of elastomer (shock-absorbing heels) and are equipped with ankle protectors (low boots).

If the risk of ankle injury is even greater and especially if you want to prevent sprains on uneven terrain (on a construction site, for instance), use a high-cut boot that covers the ankle. Don't forget that for maximum protection, these boots must be completely tied.

Resistance to heat or cold

If you work on hot floors, heat-insulated soles made of wood or a multi-layer insulating material (generally elastomers such as neoprene, silicon nitrile and acrylic nitrile) are available. These soles are specially designed for work in hot conditions in places such as glass-works, foundries, steel plants, machine shops and boilerworks.

To protect yourself against cold conditions, you can add a felt or wool liner, not to mention all of the accessories you can find displayed in shop windows: rubber overshoes, winter boots, socklinings, waterproof ankle socks, ice cleats, gaiters...

Wet floors

With the exception of leather, all soles are water-resistant. If you work in a very wet environment or if you want effective protection against bad weather, rubber footwear may be necessary.

— What about comfort?

Safety shoes are a little stiffer than regular shoes, especially if they have steel toe caps and soles. Is there anything more unpleasant than wearing shoes that are uncomfortable or hurt your feet? Safety is not the only



consideration when purchasing your shoes. To feel comfortable when wearing your shoes, take a look at the following comfort criteria.

Style

Some manufacturers offer shoe models that could be mistaken for street shoes. There are safety running shoes, high-heel safety shoes, cowboy safety boots and even safety moccasins, firefighter boots and safety overshoes. Don't be fooled by style. Your feet must not feel any uncomfortable pressure once the shoes are tied or fastened.

A few helpful hints

- Avoid models that are too narrow or too wide. Shoes must be adapted to the shape and size of your feet to avoid painful pinching.
- Avoid models having toe caps that are too low or too narrow. If you can feel the toe caps with your toes, wearing your shoes will become unbearable after a certain amount of time.
- Buy shoes that have little or no decorative strips or seams. Over the long run, these may bother you.
- Make sure that they are CSA approved safety shoes and not just a novelty product.

Aeration

A good shoe must have proper aeration to ensure that perspiration from your feet is drawn away. This may vary from 3 grams/hour when sitting to 15 grams/hour when running. Bad aeration causes foot temperature to increase and softens or swells the skin. This creates an environment that promotes the development of micro-organisms and the forming of cracks and blisters. Not to mention nasty odours!

The shoe that offers the best breathability is one made of lightly finished full-grain leather, the classic yellow leather! This type of leather is very permeable to perspiration.

You should also take a look at the inside of the shoe. The top sole should be made of leather or Synderm having a minimum thickness of 2 mm. These are the best shoes for absorbing perspiration.

A few helpful hints

- Avoid synthetic leather, also known as poromer, as it does not fit the shape of the foot as well and does not allow air to flow.
- Avoid leather treated with plastics as well as thick or overloaded leather.
- If you need to make your shoe waterproof, use a silicone spray. It is effective and allows the leather to breathe.
- Avoid wearing disposable liners.

Flexibility

Flexibility also means comfort. If you don't need a puncture-resistant sole, select a shoe that bends easily. Finding one is simple: walk around with your new shoes on before buying them and break them in.



Preferably select a leather model supple enough to stretch according to the variations in the volume of your feet when walking (from 2% to 4%) and to end of the day swelling. Here's a tip: purchase your shoes in the middle of the afternoon.

Weight

Shoes that are too heavy increase fatigue and require needless effort. A good pair of shoes should not weigh more than 1,300 grams.

— Be logical

In short, selecting a good pair of safety shoes is only logical:

- 1) first determine the risks involved in your job by making a detailed analysis of your tasks and working conditions;
- 2) determine the basic protection criteria required to protect yourself against the risks identified;
- 3) add your own personal safety criteria: anti-skid, anti-acid, anti-oil, anti-cold, anti-heat, etc.;
- 4) select comfortable shoes;
- 5) add the additional accessories you need only at the very end.

Your feet will feel much better.



Notes

