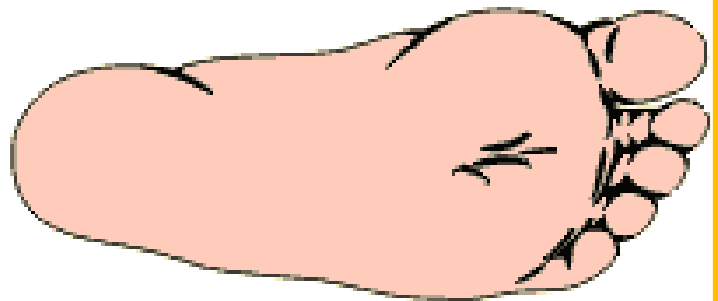


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The Basics of Foot Protection



“Spending time selecting the right footwear and making sure that they are comfortable is time well spent.”

Rob Vajko

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The Basics of Foot Protection

As any soldier will tell you “Protect Your Feet!” If you’ve ever tried hiking with an ingrown toenail or a callus, you know why they make that their motto when in the field.

The purpose of protective Footwear in the workplace is to protect the feet.

Hazards include:

- Objects being dropped on them
- Stepping on sharp objects
- Temperature extremes (hot or cold)
- Exposure to harmful substances
- Slips and falls
- Electrical Current

Employees should be aware of any and all potential hazards and wear the appropriate footwear to protect against them. Employers therefore need to assess all areas, determine the potential hazards and mandate protective footwear accordingly.

What you need to know about Safety Footwear.

- You need to wear footwear wherever it is mandated or wherever there is a potential hazard.
- If protective footwear is mandated by the company, they need to implement a complete safety footwear program that includes selection, proper fitting, testing, training and approval of all footwear.
- You need to make sure that the sole is appropriate (and approved) for the particular conditions.
- Be aware of the potential hazards and protect accordingly. Make sure that you have toe protection where there is a risk of heavy weights crushing the foot or toes. Make sure you have steel shanks where there is a potential puncture hazard (nails sticking up, for example), etc...







What features should I look for in safety boots / Shoes?

- **Height of the boot / shoe** – If there is a risk of sparks, slag or chemicals getting into the boot or shoe then you probably need to purchase high-cut boots or shoes.
- **Reinforced Safety Toe** – Protects against crushing or injury from heavy weight falling on the toes. Reinforced toes come in steel or non-steel.
- **Steel Shanks** – Designed to protect the sole of the foot against puncture and laceration from sharp or pointed objects that you might accidentally step on.

- **Sole Types** – Not all soles are created equal. Depending on the conditions, different soles are available.
- **Insulation** – Depending on the environment you may need insulation to protect the feet against the cold (outdoor cold weather conditions, freezer work, etc...).
- **Metatarsal Protection** – Provides protection for the top of the foot from the toes up to the ankle.

Understanding the Safety Boot / Shoes symbols

Many safety shoes have symbols that denote the special safety features that are offered with the shoe. These symbols are:

-  indicates that it is a class 1 toe cap with puncture resistant sole.
-  indicates that it is a class 2 toe cap with puncture resistant sole.
-  indicates electrical protection.
-  indicates anti-static protection.
-  indicates electrically conductive.
-  indicates protection against chain-saws.

The ASTM F2415-05 Standard for Specification for Performance Requirements for Foot Protection rates safety footwear according to their degree of protection in various categories.

You can easily determine the ASTM rating by looking for the information on the boot or shoe label. It will usually look something like this:

ASTM F2413-05
M/I75/C/75

The first line tells you that the footwear complies with the ASTM F2413-05 standard and the second line reads as follows:

M stands for “Male” (or F for “Female”) letting you know that the boot was designed for a male.

I/75 = Impact Rating of 75 foot pounds

C/75 = Compression rating of 75 (75 = 2500 lbs of pressure, 50 = 1,750 lbs of pressure)

The Boot may also have an EH which means that the boot is an approved boot for protection for Electrical work.

Which Boot do I choose for protection against chemicals?

The nature of the chemical(s) that you are being exposed to will determine the material that the boot you are getting will be made of. The most common materials are:

Natural Rubber – Extremely flexible material that stays supple in cold weather. Good slip, cut and puncture resistance (especially as compared to PVC boots). It resists bases, acids, alcohols and most water-soluble chemicals. Not recommended against oil-based chemicals and solvents

Neoprene – Extremely resistant to most animal fats, blood, oils, alcohol, alkalies and caustics. Not as puncture or cut-resistant as natural rubber boots.

PVC – Good protection against animal fats, bases, alkalies, oils, many acids, alcohol and petroleum hydrocarbons. It is not recommended for use with most solvents, ketones and aldehydes.

Substance	Neoprene	PVC	Rubber
Animal Fats	Best	Good	Least Suited
Blood	Best	Good	Least Suited
Fish Oil	Best	Good	Least Suited
Caustics	Best	Good	Least Suited
Vegetal Oils	Best	Good	Least Suited
Lard, Butter	Best	Good	Least Suited
Ketones	Best	Least Suited	Good
Salts	Best	Good	Least Suited
Alkalies	Best	Good	Least Suited
Fuel Oil	Good	Best	Least Suited
Grease	Best	Good	Least Suited
Alcohol	Good	Least Suited	Best
Hydrocarbons	Best	Good	Least Suited
Antifreeze	Best	Good	Least Suited
Gasoline	Best	Good	Least Suited
Hydraulic Fuel	Best	Good	Least Suited
Kerosene	Best	Good	Least Suited

The Fit, Comfort and Care of Safety Footwear

A good pair of safety shoes or boot should last you a good long time. Spending time selecting the right boot, making sure that they are comfortable and fit well is time well spent.

Fit and Comfort – Make sure that the boots or shoes fit properly; do not continue wearing them believing that they will “stretch” with wear. Good footwear should fit well right away. Wear them when you are off work first to make sure that they are comfortable. There should be plenty of toe room (at least ½”) while wrapping the rest of the foot comfortably. Pay attention to pinch spots or spots that rub too much. Pay special attention to the heel and ankle, they should be snug. Insoles can add to your comfort as well. Make sure that you make allowances for thick socks, especially in cold environments. If you are going to be in a cold environment, make sure that your footwear is rated for the temperatures that you will be encountering.



Frostbite

The above photo was taken from the Naval Safety Center website at http://www.safetycenter.navy.mil/photo/archive/archive_1-50/photo18.htm

Care of safety footwear – Taking proper care of your footwear isn’t just a matter of saving money but not having to replace your boots or shoes as often; properly cared for footwear will also protect better. If your footwear is not waterproof (rubber, PVC, Neoprene, etc...) then apply a waterproofing to it as soon as you get it. Cleaning the boots / shoes regularly will make any nicks, scrapes, tears or punctures obvious. Damages boots/ Shoes should be replaced.

Want more information? You can get the ASTM F2412-05 Standard Test Methods for Foot Protection (replaces the ANSI Z41-1999 Standard) and the ASTM F2413-05 Standard Specification for Performance Requirements for Foot Protection from the astm website at: <http://www.astm.org/Standards/>