



SAFETY FOOTWEAR ARTICLE

When it comes to safety footwear, put your best foot forward

The human foot and ankle contain 26 bones, 33 joints and more than a hundred muscles, tendons and ligaments. In fact, feet are second only to hands in the number of bones they contain: hands have 27 each and feet have 26 each. Between them, your hands and feet contain more than half of the bones in your entire body. Damage to only one bone, joint or other part of the foot or ankle can sideline a worker, so keeping feet safe on the job is a critical component contributing to productivity, compliance with regulations and the company's bottom line.

Having the right personal protective equipment (PPE) for feet varies from job to job and industry to industry, but 85% of the potential hazards in a workplace are addressed with the standards found in EN ISO 20345:2021. As the name indicates, these standards were just updated in 2021, which means they now address the advent of new materials such as polyurethane, which allows shoes to be much lighter, and workers' requests for more attractive shoes that fit well for both men and women.

EN ISO 20345:2021 includes detailed standard parameters for PPE footwear to be classified as "safety" gear and contains many changes, some considered to be major while others are deemed to be minor. Two of the primary changes are in these areas:

- Technical: new test standards for slip resistance (EN ISO 13287) and level of protection required for toe caps and anti-puncture/perforation inserts (EN ISO 22568)
- Societal: to allow for legal coverage of orthopaedic variations

(To order a copy of the complete standard document, please visit <https://www.iso.org/standard/73222.html>)

WHAT IS YOUR RISK?

Before determining what type of safety footwear will best suit workers' needs, it's helpful to undertake a risk assessment. If you don't have such an assessment at hand, now is the perfect time to perform one.

The results will help you focus in on the hazards in your work environments, which will enable you to choose the best types of safety footwear your workers require, as there are many styles and options available, from full-coverage boots to others that look much like ordinary athletic shoes.

If you haven't planned to do so, it's a really helpful idea to consult your workers as part of your assessment. They come into contact with your workplace hazards every day and are in the best position to let you know what they feel is dangerous, and to what degree. They can also bring other suggestions to the process, such as identifying how often they may work in wet or slippery conditions, or if there is some element of shoe construction – like more breathable materials or more padded insoles – that would make them more comfortable on the job. They can contribute ideas that may not be immediately obvious to you, and it's also great to get their opinions upfront to help with their buy-in later in terms of helping to maintain compliance.

Here are some of the risks that should be taken into consideration:

1. Wet or slippery conditions
2. Electrostatic build-up (be sure to determine if this is a regular hazard or only exists at certain times under specific conditions)
3. Potential for cuts and punctures in the workplace
4. What types of objects might fall, including their weight and from what height they would likely fall
5. Presence of chemicals
6. Extreme temperatures (both cold and heat can be hazards to foot health, not to mention worker comfort)
7. Outdoor or indoor use – or both
8. How shoes will be stored when not being worn, or if they can be worn outside work?
9. Other considerations brought forward by your workers

WHAT IS INCLUDED IN THE EN ISO 20345: 2021 STANDARD?

EN ISO 20345: 2021 is quite comprehensive. Here are a few examples of what's included.

More stringent requirements for **toe protection**, now required for all types of safety footwear. A minimum weight is specified for the protection level that safeguards toes from dropped items, as well as a compression test to protect against any objects rolling over the foot.

More detailed requirements for **slip-and-trip protection**, since statistics show that slips, trips and falls account for over a third of workplace injuries to feet and ankles. Slip-resistance ratings are specified for a variety of conditions and possible lubricant-type spills (glycerol, soap solution, etc.), and a tripping checklist is also provided.

Minimum requirements for **electrical exposure**, such as conductive properties, anti-static protection from build-up in the body to shock potential, electrical insulation and so on.

Protection from **penetration** resulting from nails and other sharp implements or process materials or tools. Penetration force is specified and must be provided in one of two ways: a stainless steel or aluminum insert in the sole, or a Kevlar-type insole.

Impact/energy absorption is something we all experience as we stand and walk, and for workers who spend much of their time on their feet it's important that their footwear provides the appropriate cushioning to protect heels and ankles as well as the soles of the feet. Of course, this also impacts posture overall, which extends the protection of workers' feet to safeguard most of their musculoskeletal structure.

Resistance to or complete **protection from water** or other non-corrosive liquids is also important not only from a slippage perspective (when there is liquid inside a shoe, the wearer's foot can slip within the shoe, leading to nasty sprains or even breaks) as well as being a contributor to worker comfort.

Temperature protection from both heat and cold; without adequate insulation, feet can be susceptible to hypothermia or frostbite and when it comes to heat, protection must be provided for workers who are working both inside and outside in frigid temperature or people who are working in cold storage environments.

Comfort. If safety footwear isn't comfortable, it may be worn improperly (not laced completely, worn with non-standard orthopaedic insoles, etc.) or worse, not worn at all. Safety footwear should not need to be "broken in" to be comfortable – shoes or boots should be comfortable from the start. You could also offer workers the opportunity to try out different options on the job to find what suits them best. As mentioned earlier, involving them in the decision of selecting their own safety gear increases the probability that they will wear it as required.

MAINTAINING SAFETY FOOTWEAR AND COMPLIANCE

Once your workers have their appropriate footwear, it's important to also ensure that this essential safety gear is cared for conscientiously. Workers should be trained to examine their gear before and after each wear to ensure it is in good working order. If workers are allowed to wear their safety footwear outside work, are asked to clean their own footwear or if you have other expectations related to how they are responsible for their gear, this should be made very clear with examples and training provided, if appropriate. When not worn, safety footwear should be stored in a clean, dry environment.

An effective safety footwear maintenance process should include:

- Checking for faults, damage, dirt, wear and tear
- Cleaning to avoid build-up of dirt or other contaminants (referring to manufacturer's instructions)
- Testing for damage to important seams and surfaces
- Repair, if necessary/possible
- Clear parameters for replacement when damaged beyond repair and/or no longer in compliance with the standards they are intended to meet

NOW YOU'RE ON THE RIGHT FOOT

While it might seem like just yet another box to check when it comes to ensuring that your workers' safety footwear meets EN ISO 20345: 2021, it actually is a good investment both for your company's balance sheet as well as keeping the organization compliant with current regulations. Most importantly, though, a robust safety footwear program keeps your workers safe and healthy. Protect all those bones, joints, muscles, tendons, and ligaments with the right shoes for the job – and the right shoes for your workers.