


# CSA Protection

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## NEW CSA METATARSAL PROTECTION REQUIREMENTS

Beginning in June 2011 all safety footwear boasting metatarsal protection will now have to undergo testing and certification to be able to be sold as CSA Z195-09 compliant for metatarsal protection.

Therefore all CSA Z195-09 compliant safety footwear with Metatarsal protection will now be marked using the  logo. In STC's case we will have a few variants of this logo in order to include our usual CSA Z195-09 GRADE 1 Toe and plate protection and ESR (Electro-static Resistance). Here is what you will see on our footwear in the near future to be able to easily recognize our CSA Z195-09 compliant Metatarsal protective footwear:



## Test methods

Testing for certifying metatarsal guards in footwear is in form of impact testing, not dissimilar to that of impact testing done on the protective toe caps in footwear. Impact testing on Grade 1 protective toes is done with a dropped weight of 22.7 kg with an impacting point, referred to as the striker, being a vertical cylinder 25mm in diameter and 50-75mm in length. At point of impact the striker must be travelling at a speed of 3.32m/s (about 12 km/h) to impact the toe cap creating 125 Joules of energy.

For impact testing on metatarsal guards, the impact is done with the same 22.7 kg dropped weight, however, the striker in this case is a horizontal cylinder 25.4mm in diameter and 152mm in length. The other difference from the protective toe impact testing is also the speed or energy at which the metatarsal guards are impacted. The

required speed for metatarsal guards is 2.99m/s (10.8 km/h) in order to create an impact at 101.7 Joules of energy.

Impact testing of both protective toes and metatarsal guards is done with these items in boot form so as to best replicate real life situations.

## Measuring Results

As you can guess however, certifying protective toe caps and metatarsal guards is more than simply creating an impact and accepting it. These items actually have to be able to protect the foot inside the boot.

For metatarsal protection measuring results is simple. Before impact, we place a form in the shape of a foot inside the boot with a cut out designated area where we place a 25mm X 25mm X 50 mm long block of plasticine in that area. After the boot is impacted we remove the foot form and measure the height of the plasticine at the lowest point. By measuring the height of the plasticine this will give us the amount of space remaining inside the boot at the absolute lowest point during impact. The minimum required height of the plasticine (including the base thickness of the foot form) for a size 9 boot is 24.4mm.

We, at STC, believe this new CSA Metatarsal Protection requirements is a major and welcome improvement in the regulation since there previously was no official test. But, rest assure we were doing those test way before the changes were made to the registration. It is important that the end consumer look for the CSA Metatarsal Protection Logo, not only for is safety but also because there will be inspector in the field who will look for it. Work safe!

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