

TerranearPMC Safety Share

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Week of September 23, 2019 – Safety Shoes

Safety shoes?! “Why do I need to wear safety shoes?” Debby was perturbed. She was assigned to work in the field trailer – a double wide. Yes, the work at the site was construction while heavy equipment was always present. But Debby was working in a trailer. She wasn’t going to be installing scaffolds or placing dry wall on frames. And she certainly wasn’t going to be driving a front-end loader, forklift or dump truck. Yet, she was being required to wear safety shoes. She was speaking to the safety guy ...or rather safety woman, Ethyl Mercaptan.

“I mean, when I worked at other construction projects, all I needed was a hard hat. And if I stepped outside the trailer to talk to any of the guys, I would just put on a pair of safety glasses. That’s it!”

She was adamant and she had no problem voicing her opinion to Ethyl, who just stood there letting Debby finish her prepared speech. Debby was confident that she could persuade Ethyl that safety shoes were above and beyond practical requirements.

Safety professionals have heard these words before. Many times. Debby continued.

“I didn’t need to do this at other projects.”

Now, it was Ethyl’s turn. And she knew she just had to just cut through the mustard and forget about getting into a debate.

Ethyl pulled out a substantial document and turned to a page that was filled with signatures.

“Debby, did you read the site-specific health and safety plan?”

“Of Course, I did” as Debby pointed to a specific line on the page that was glaring at her. “There’s my signature.”

Ethyl continued. “Your signature indicates that you read and understood the safety and health requirements for working here.” Debby was ready to interject, but before she could get a sound out of her mouth, Ethyl was quick to continue. “And furthermore, your signature says that you agree to comply to the requirements. And that includes wearing the required PPE. Safety glasses, hard hat, and safety shoes. And when you walk into the actual work area, a high visibility vest – which has been furnished for you - as well as the hard hat and safety glasses – all provided for you and that includes safety shoes, right?” She hesitated. “These items are all required...Debby, they are not optional. They are required.”

Debby couldn’t let it go. “Come on, Ethyl. Are safety shoes really going to protect me from a truck rolling over my foot?”

So, here’s the question.... Does Debby have a point?

The fact is safety shoe requirements are specified by OSHA in the regulation, 29 CFR 1910.136.

“The employer shall ensure that each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, or when the use of protective footwear will protect the affected employee from an electrical hazard, such as a static-discharge or electric-shock hazard, that remains after the employer takes other necessary protective measures.”



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29 CFR 1910.136, specifies that safety shoes shall meet the performance criteria established by the American Society for Testing and Materials (ASTM F2413-18) and shall be evaluated for:

- Impact resistance
- Compression resistance
- Metatarsal protection
- Conductive protection
- Electric hazard resistance
- Static dissipative properties
- Puncture resistance

The employer has the responsibility to first meet the requirements for impact resistance and compression resistance. Then the requirements of additional criterion such as metatarsal protection, conductive protection, electric hazard resistance, static dissipative properties and protection against punctures can be met; providing their associated hazards have been identified for the specific work tasks.

ANSI specifies that safety shoes shall meet the impact resistance for a force of 75 foot-pounds. The toe area must provide a minimum interior height clearance of 0.5 inches in men's footwear and 0.468 inches in women's footwear. The interior height clearances are the same for compression resistance, and the footwear is designed to protect the wearer from compressive forces of 2,500 foot-pounds.

So maybe Debby does have a point. While safety shoes are designed to protect against compression and impact, can they really protect against a piece of heavy equipment that weighs several tons rolling over your foot? One may bring up the same argument for hard hats as well. After all, will a hard hat protect a head when contacted by a heavy item falling over 20 feet? Maybe only in "Roadrunner and Coyote" cartoons, but not in real life situations. This is one of the reasons why PPE is always the last resort to protect workers. By removing a hazard or applying engineering controls or to employ proper work practices (in this case, that would be to maintain a safe distance from heavy equipment), we can effectively prevent a serious injury such as having feet run over by a forklift.

According to the most recent data from the U.S. Bureau of Labor Statistics, the U.S. workforce suffered approximately 100,000 occupational foot injuries in 2016 that averaged 10 days away from work. If you add up the cost of OSHA fines plus the loss in productivity caused by an injury, not to mention potential workers' compensation as well as the possibility of an additional hire, lack of foot protection can become very costly to a company.

Safety shoes are designed to protect us from a host of hazards such as falling and flying objects, punctures, cuts, electrical hazards (when designed per ASTM standards), slips, trips and falls, fatigue, burns and weather extremes. Of course, no one type of PPE can protect against everything, but they can lessen the severity when we encounter a hazard. The shortcoming of Debby's argument is that she is insinuating that she can predict when an incident will happen. If she really thinks this, then Ethyl's retort to her can be to suggest that she should visit a worker who has suffered a permanent injury from a work-related incident and ask if on the day of his/her injury, was he/she expecting to get hurt.

Safety is something that happens between your ears, not something you hold in your hands – Jeff Cooper

