

TOOLBOX TALK #25

TRENCHING AND EXCAVATION SAFETY

Many of us can remember incidents involving unprotected workers and trench cave-ins. Unfortunately, some of those incidents have tragic endings.

One worker was killed in a collapse after removing a trench shield to retrieve a shovel.

Another worker died after returning to an unprotected trench to grab a pack of cigarettes that had fallen from his pocket and a cave-in occurred.



OSHA defines an excavation as “any man-made cut, cavity, trench or depression formed by earth removal.” A trench is “a narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet.” The agency points out that one cubic yard of soil can weigh up to 3000 pounds – approximately the weight of a small car.

The fatality rate for excavation work is 112% higher than the rate for general construction, OSHA data shows. The agency lists “employee injury from collapse” as the primary hazard of excavation work and includes “no protective system” among the leading causes of worker injuries.

The OSHA standard for trenching and excavation requires protective systems for trenches that are 5 feet deep or deeper, unless the excavation is in stable rock. A registered PE must design protective systems for trenches over 20 feet deep or approve tabulated data prepared for the system. Three primary options for protective systems include:

- Sloping (or benching). Cutting back the trench wall at an angle inclined away from the excavation.
- Shoring. Installing aluminum hydraulics or other types of supports to prevent cave-ins.
- Shielding. Using trench boxes or other supports to prevent cave-ins.

Serious injuries and fatalities in excavation work often result from one of two circumstances. Either there’s no shoring at all or the contractor misapplies the shoring system – doesn’t install it properly or doesn’t do a job hazard analysis before they begin shoring.