

## **TOOLBOX TALK #21**

### **EXCAVATION HAZARDS AND PROTECTIONS**

The hazards of trenching and excavation are well-established. One is the sheer weight of soil. A cubic yard can weigh about 3000 pounds. That's as much as a car. The weight of soil is so heavy that it will crush you. You could die in minutes from a trench collapse, even if your head and arms are above the dirt. Another danger is the volatile nature of a trench or excavation. For example, water accumulation – from weather or from underground – can weaken the soil and lead to a cave-in. A change can happen in a moment's notice. It's going to happen faster than you can react. A lot of workers think they can get out faster than they actually can. Hazards also stem from:

- Construction equipment and machinery
- Buried electrical or gas lines
- Gases and fumes



OSHA requires protective systems for excavations 5 feet or deeper, unless the excavation is entirely composed of stable rock. For excavations shallower than 5 feet, a protective system is required if a competent person finds any indication of a potential cave-in. The main protective systems are:

- Sloping: Cutting back the trench wall at an angle that's inclined away from the excavation.
- Benching: Forming one or a series of horizontal levels or steps into the sides of an excavation, usually with vertical or near-vertical surfaces between levels.
- Shoring: Installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.
- Shielding: Using trench boxes or other supports to prevent cave-ins.

Workers should never enter a trench until it has been inspected. Once they're in it, they should stay inside the protected areas only. Some types of soil are stable and some are not. When digging a trench, it's important to know the type of soil you're working with so you know how to properly slope, bench or shore the trench. The four types of soil defined by OSHA are stable rock, type A, B and C soils. The competent person is the one to look to for classifying the soil.