TOOLBOX TALK #38

TRENCH SHORING DESIGN – PART 2

Sloping Designs
OSHA provides 4 similar options for sloping and benching systems. Contractors can follow the sloping and benching guidelines provided in the OSHA standards for excavations up to 20 feet deep. Anything over that, they have to have site-specific designs.

Option 1 spells out the allowable angle for the slope using either a general formula or Appendix B of the standards.
Option 2 refers contractors to Appendices A and B for the maximum allowable slopes and allowable configurations for sloping and benching systems.
Option 3 allows contractors to use tabulated data on slopes and benching that has been compiled by a professional engineer.
Option 4 requires a PE to design the sloping and/or benching system if the trench parameters aren't covered in appendices or tabulated data.

The PE's Role
PE's look at all of the conditions for the site and come up with a shoring or sloping design that will work for that specific location. Working with an experienced engineering team can speed the process. Many shoring rental companies can assist with this. As engineers, PE's can come up with a solution for just about anything because they have "lots of tools in the shed". Most of the time, it's just what the contractor prefers, and how they want to approach it. Since contractors are the ones installing it, engineers prefer to rely on their experience and preferences. In addition to providing custom shoring and sloping design plans, engineering consultants can perform a variety of other design services. These include utility support design plans, traffic deck design plans, traffic control design plans, pipe plug blocking plans, sewer bypass design plans, and dewatering design plans.

Inspecting Equipment
Once a trench protection system has been selected and installed, contractors want to be confident that the shoring and shielding equipment they have implemented to protect their workers is doing its job. This is where inspections come in. OSHA mandates every job site to have a competent person who has been trained to inspect trenches and to identify existing and predictable hazards or dangerous working conditions in the surrounding area. The competent person is responsible for overseeing all aspects of the excavation, including the inspection of the shoring and shielding equipment. This entails a daily check at a minimum. It is also necessary to do an inspection every time there is a change in conditions. The change could be a rainstorm, for instance, that can directly affect the stability of the soil. It is essential for the competent person to continually monitor jobsite conditions and reclassify the soil if necessary.