Excavation Safety

Dig Safely During National Safe Digging Month

April is National Safe Digging Month which raises awareness of the safe ways to excavate to prevent injuries and save lives. Municipal highway, DPW, water, and sewer departments routinely excavate earth to install or repair infrastructure. The process of moving earth can be dangerous due to several hazards. As a result, OSHA has standards on safe excavation practices that protect workers.

OSHA defines an excavation as any manmade cut, cavity, trench, or depression in an earth surface that is formed by earth removal. A trench is a narrow excavation, in relation to its length, made below the surface of the ground. Typically, a trench is deeper than it is wide, but that width when measured from the bottom is no greater than 15 feet. Every trench is an excavation, but not every excavation is a trench.

Excavation Hazards

In 2022, there were 39 nationwide deaths caused by full or partial trench excavation cave-ins. According to OSHA, this is an increase of 14 from the previous year. Among excavation-related deaths in OSHA's 2022 Accident Search were electrocution, a case of heat stroke, someone struck by a falling concrete pipe, and a fall into a trench. These deaths could have been prevented if current OSHA standards on trench and excavation safety had been followed. OSHA's excavation standards are covered in Part 1926, Subpart P of the 29 Code of Federal Regulations which includes 1926.650-652 and Appendixes A-F. Many other preventable injuries were sustained by workers entering, working in, and exiting excavation sites as well.

The hazards of trenching and excavation are well documented. One is the weight of soil. A cubic yard can weigh about 3,000 pounds, or as much as a car. Soil can be so heavy that it can crush a person and kill them within minutes of a trench collapse. Even if a person's head and arms are above the dirt, the sheer weight of the soil restricts breathing and heartbeats.

Other dangers include the volatility of excavations, changing soil conditions, equipment placement, atmospheric hazards, and weather. For example, water accumulation from weather or groundwater can weaken the soil and lead to a cave-in. This can happen before the excavation has begun, or more dangerously, during an excavation.

Excavation Hazards (cont.)

When soil conditions change midstream, they create extreme hazards and often require the job to be shut down until stable conditions allow for safe excavation reentry. Soil conditions can change rapidly and often faster than one can react to them, making escape impossible. Hazards can also stem from:

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

For additional information on excavation hazards, watch the following OSHA video by clicking here.

Protective Measures

OSHA requires protective systems for excavations five feet or deeper unless the excavation is composed entirely of stable rock. A protective system is required for excavations shallower than five feet if a competent person finds any indication of a potential cave-in. A competent person is an individual chosen by a municipality, who can identify existing and predictable hazards and is authorized to take prompt corrective measures to eliminate them. There are four main protective systems.

- 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.

The UDig NY Certified Excavator Program in Safe Digging Best Practices (CEP) has set a new standard for training New York State professional excavators on the proper procedures of excavation. When a person has completed the CEP, they are certified by the One Call Center for five years, demonstrating a fundamental understanding of the Safe Digging Best Practices that should be used per the Common Ground Alliance Best Practices and New York State Code Rule 753. More information can be found here. For another training resource, visit *Safety Source Online* and watch "Trenching and Shoring – Excavation Safety (SSC003E)." To access their online training videos, please contact compalliancemarketing@wrightinsurance.com for a user ID and password.

For additional information on excavation safety or training, please contact the Comp Alliance Director of Loss Control, Robert Blaisdell at rblaisdell@wrightinsurance.com.