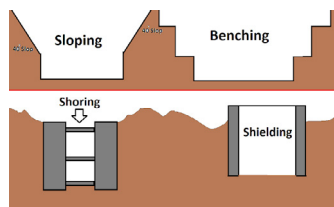


FACT SHEET: Excavation, Trenching, and Shoring

Safe Practices and Guidelines



An excavation refers to a human-made alteration in the earth's surface by removing soil or other materials. A trench is a narrow excavation made below the ground surface, typically with a greater depth than width. The width of a trench, measured at the bottom, does not exceed 15 feet. Besides cave-ins, there are other potential hazards, such as falls, falling loads, hazardous atmospheres, and incidents with mobile equipment. Two cubic yards of soil can weigh approximately 6,000 pounds, equivalent to the weight of a compact automobile. An unsecured trench poses a significant risk of fatality. Avoid entering an unsecured trench.

NEED TO KNOW:

Workers have the right to:

- Working conditions that do not pose a risk of serious harm. Receive information and training about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA.

TRENCH SAFETY MEASURES:

Trenches five feet deep or greater require a protective system unless the excavation is made entirely in stable rock. A competent person may determine that a protective system is unnecessary if the trench is less than five feet deep. Trenches 20 feet deep or greater require that the protective system be designed by a registered professional engineer or based on tabulated data prepared and/or approved by a registered professional engineer per 1926.652(b) and (c).

SOIL TYPES:

- **TYPE A:** The most stable soil composed of clay, silty clay, clay loam, and sandy clay. It does not crumble and is hard to break up when dry.
- **TYPE B:** Composed of silt, silty loam, sandy loam, and granular cohesive solids, including angular gravel (crushed rock). Little to no clay content and crumbles easily when it is dry.
- **TYPE C:** The least stable soil. Composed of granular soils, including sand, gravel, loamy sand, submerged soil, and rock.

PROTECTIVE SYSTEMS:

- **BENCHING** protects workers from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels. Benching cannot be done in Type C soil.
- **SLOPING** involves cutting back the trench wall at an angle inclined away from the excavation. Shoring requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.
- **SHORING** is designed to prevent collapse, whilst shielding is only designed to protect workers should collapse occur.
- **SHIELDING** protects workers by using trench boxes or other supports to prevent soil cave-ins. Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, the water content of the soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity.

KEY SAFETY PRECAUTIONS:

OSHA mandates that all excavations, including trenches deeper than four feet, must provide safe access and exit options such as ladders, steps, ramps, or other suitable means for employees. These devices should be positioned within a 25-foot radius of all employees.

- **NEVER** walk around the edge of a trench.
- Keep heavy equipment away from trench edges.
- Identify other sources that might affect trench stability.
- Keep excavated soil (spoils) and other materials at least 2 feet (0.6 meters) from trench edges.
- Know where underground utilities are located before digging.
- Inspect trenches at the start of each shift.
- Inspect trenches following a rainstorm or other water intrusion.
- Test for atmospheric hazards such as low oxygen, hazardous fumes, and toxic gases when >4 feet deep.
- **DO NOT** work under suspended or raised loads and materials.
- Inspect trenches after any occurrence that could have changed conditions in the trench.
- Ensure that personnel wear high visibility or other suitable clothing when exposed to vehicular traffic.

MORE INFO:



ADDITIONAL RESOURCES:

- OSHA: [Excavation and Trenching Standard](#) 29 CFR 1926 Subpart P Appendix A-F; OSHA: [Competent Person](#) 29 CFR 1926.32 Definitions; LA One Call: [Louisiana 811](#)