

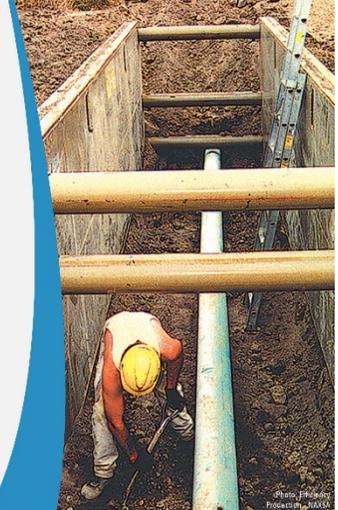


Construction Safety: Trenching and Excavation

SLOPE or bench
trench walls,

SHORE trench walls
with supports, or

SHIELD trench
walls with trench boxes



Trenching and excavation can be dangerous tasks and are one of the most hazardous types of work performed in construction. Due to the potential dangers, trenching and excavation have extensive safety requirements that should always be adhered to.

Last month two men were trapped and killed in a trenching accident in Windsor, CO. This event serves as a solemn reminder that it is so important to keep safety top of mind on any construction site, especially when working with trenches or excavations.

Dangers of Trenches and Excavations

OSHA defines a trench as "a narrow underground excavation that is deeper than it is wide and is no wider than 15 feet" and an excavation as "any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal." Any excavation site can be dangerous, and trenches are particularly dangerous largely because of the risk of cave-ins. If not properly executed, trenches and excavations can be extremely unstable.

In addition to cave-ins other hazards that pose a threat at trench and excavation sites include falls, falling loads, hazardous atmospheres or gases, and mobile equipment accidents.

OSHA Standards and Requirements

To protect yourself and your workers when trenching and excavation operations are occurring, be sure to follow OSHA's requirements and suggestions. Here are the basics according to [OSHA's Trenching and Excavation Safety Fact Sheet](#).

- Trenches are required to be inspected daily and as conditions change by a competent person prior to worker entry.
- Safe access and egress to all excavations are required in any excavation 4 feet deep or greater.
- Trenches 5 feet deep or greater require a protective system – unless they are made entirely in stable rock. Protective systems include sloping, shoring, and shielding, which we discuss a bit more below, but the best method for any given excavation is dependent upon multiple factors.
- Trenches 20 feet deep or greater require that the protective system utilized be designed and/or approved by a registered professional engineer.
- Keep heavy equipment away from trench edges.
- Keep surcharge loads at least 2 feet from trench edges.
- Know where underground utilities are located.
- Ensure there is no standing water or other hazards in the trench.
- Test for low oxygen, hazardous fumes, and toxic gases.
- Do not work under raised loads.

Protective Systems: Slope It, Shore It, Shield It

To determine what protective system works best requires examination and analysis of a myriad of factors, but there are three main methods that are used: sloping, shoring, and shielding. According to OSHA, "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. [And] Shielding protects workers by using trench boxes or other types of supports to prevent soil cave-ins." Utilizing these methods is not only a requirement that OSHA enforces, which if not followed could result in fines, but also a matter of protecting workers' lives.

Sources:

OSHA, "[Trenching and Excavation: Overview](#)"

OSHA, "[OSHA Fact Sheet: Trenching and Excavation Safety](#)"