

MAFES Dawg Tracks

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MISSISSIPPI STATE UNIVERSITY™
MS AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

Trenching & Excavation

Excavation is any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A trench is defined as a narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet.

Dangers of Trenching and Excavation

Cave-ins pose the greatest risk and are much more likely than other excavation related accidents to result in worker fatalities. Other potential hazards include falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment. Trench collapses cause dozens of fatalities and hundreds of injuries each year.

Protect Yourself - Do not enter an unprotected trench! **Trenches 5 feet deep or greater require a protective system** unless the excavation is made entirely in stable rock. Trenches **20 feet deep or greater require that the protective system be designed by a registered professional engineer** or be based on tabulated data prepared and/ or approved by a registered professional engineer.

Protective Systems - Designing a protective system requires consideration of many factors, including: soil classification, depth of cut, water content of soil, weather and climate, and other operations in the vicinity. There are different types of protective systems:

1. Sloping involves cutting back the trench wall at an angle inclined away from the excavation. Sloping the sides of the excavation to an angle not steeper than 1½:1 (for every foot of depth, the trench must be excavated back 1½ feet).

Max. Slope (H:V) 1-1/2 : 1
Slope Angle (Degree): 34



2. Shoring requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.



3. Shielding protects workers by using trench boxes or other types of supports to prevent soil cave-ins.



Access and Egress

Safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4 feet or deeper.

General Trenching and Excavation Rules

- ✓ Keep heavy equipment away from trench edges.
- ✓ Keep surcharge loads at least 2 feet from trench edges.
- ✓ Know where underground utilities are located.
- ✓ Test for low oxygen, hazardous fumes and toxic gases.
- ✓ Inspect trenches at the start of each shift.
- ✓ Inspect trenches following a rainstorm.
- ✓ Do not work under raised loads.

For more info contact – Leslie Woolington
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Sources:
https://www.osha.gov/Publications/trench_excavation_fs.html
<https://www.forconstructionpros.com/business/construction-safety/trench-shoring-shielding/>