



## Excavation Safety Quick Guide

*This guide is intended to be a reference document only. Refer to Subpart P of the OSHA standards for the excavation regulation.*

**Each employee in an excavation 5 feet deep must be protected from cave-ins by an adequate protective system. Protective systems include sloping/benching, shoring or shields (trench boxes). OSHA requires that one visual test and one manual test of the soil be conducted to determine soil classification.**

A **Competent Person (CP)** is one who is able to recognize and predict hazards and has the authority to take corrective measures. The excavation standard requires that CP have specific training in and knowledge of soil analysis, the use of protective systems and the requirements of the OSHA Excavation Standard.

The CP will:

- Conduct daily inspections before work begins, during the day and after any hazard causing occurrence.
- Conduct daily inspections of protective systems, unsanitary conditions and testing for hazardous atmospheres or conditions when there is reasonable cause to believe they exist.
- Determine the degree to which actual slopes are reduced due to surcharge loading, operating equipment or traffic.
- Monitor the equipment and operations of water removal.

The CP may:

- Design structural ramps used by employees only. Structural ramps used by equipment will be designed by a Registered Professional Engineer only.

### Warning Signs of Failure:

- Tension Cracks, Ground Settlement
- Changes in Wall Slope, Trench Wall Bulge
- Spalling, Sloughing, Cracking, Popping Sounds
- Water Seeping, Piping of Fine Soils

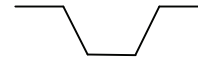
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### Type A Soil is:

- Cohesive soil with unconfined compressive strength exceeding 1.5t/sq ft
- Cemented soils

### Type A Soil is **not**:

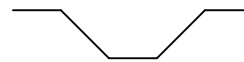
- Soils which are fissured or subject to vibration from heavy traffic, pile driving or similar activities.
- Soil that has been previously disturbed.
- Sloped, layered system dipping into the excavation on a 4H to 1V or greater.



**Type A**  
**53 degree slope**  
**3/4:1 bench**

### Type B Soil is:

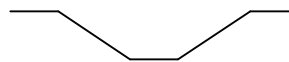
- Cohesive soil with unconfined compressive strength of .5 – 1.5 t/sq ft (medium to stiff clay)
- Granular cohesionless soils including angular gravel, silt, silt loam, sandy loam
- Previously disturbed soils except those which would otherwise be classified as type C
- Dry rock that is not stable
- Soil that meets type A soil testing but is fissured to subject to vibration
- Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than 4H:1V but only if the material would otherwise be classified as Type B



**Type B**  
**45 degree slope**  
**1:1 bench**

### Type C soil is:

- Cohesive soil with an unconfined compressive strength of .5 t/sq ft or less
- Granular soils including gravel, sand and loamy sand
- Submerged soil or soil from which water is freely seeping
- Submerged rock that is not stable
- Material in a sloped layered system where the layers dip into the excavation or a slope of 4H:1V or steeper



**Type C**  
**34 degree slope**  
**1.5:1 bench**

1. All protective systems at depths of 20' or greater must be designed by a RPE
2. Spoil pile must be kept at least 2' from the edge of the trench
3. Ladders, ramps or stairways must be provided for egress at 4' in depth and travel to an egress point must be limited to 25'.

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