

## EXCAVATION

**General Rules**

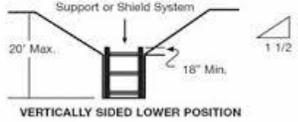
- ✦ An excavation is any manmade cut, cavity, trench or depression in the earth that was formed by the removal of earth. **PRIOR TO EXCAVATING**, make sure that all underground utilities such as sewer lines, telephone lines, fuel, electrical power lines, and water lines have been identified and properly marked.
- ✦ A **competent person will be assigned** to each excavation in which employees **MUST** enter and work. A competent person will not be necessary if employees **DO NOT** have to enter the excavation.
- ✦ Prior to the start of work or entry, inspect excavations, adjacent areas, and protective systems daily, and as needed throughout the work shift, and after every rainstorm, or other hazard-increasing occurrence. Document required daily inspections on the Winger Trench & Excavation Safety Checklist.
- ✦ A trench collapse may contain 3 to 5 cubic yards of soil. A cubic yard of soil weighs approximately 2700 lbs. or about as much as a mid-size automobile.
- ✦ When employees are working in an excavation, materials, spoils and equipment **SHALL** be kept at least 2 feet from the edge of the excavation.
- ✦ Employees **SHALL NOT** work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.
- ✦ All excavations, openings, obstructions, and hazards created by employees **SHALL** be properly guarded to protect other employees and the general public.
- ✦ Employees are **NEVER** to be positioned under digging or lifting equipment as that exposes them to falling loads.
- ✦ When employees are required or permitted to cross over excavations, walkways or bridges with standard guardrails will be provided.
- ✦ A trench should be opened in lengths in which work can be completed and the trench closed at the end of the day.
- ✦ When trenches have to be left open overnight, they **SHALL** be covered with suitable materials and/or barricaded during non-working hours.
- ✦ Barrier protection or immediate backfilling will be provided for any unattended or remotely located excavation.
- ✦ Barriers should be placed at least 6 feet away from edge of excavation if possible.
- ✦ Ladders, steps, ramps, or other safe means of access or egress for any excavation deeper than 4 feet is required. Whatever safe means of egress is used, it will be located at intervals with no more than 25 feet of lateral travel distance from employees.
- ✦ An earth ramp may be considered a safe mean of egress only if employees are able to walk the ramp in an upright manner when entering or exiting the trench.
- ✦ Ladders **MUST** extend at least 3 feet above the top of the excavation and be anchored securely on the top and bottom.

**Hazardous Atmospheres**

The air quality **MUST** be tested with a calibrated air monitor before and during occupancy of an excavation 4 feet or deeper where an oxygen-deficient or flammable atmosphere exists or could reasonably be expected to exist or when controls are used to protect employees from a hazardous atmosphere.

**Trench Shoring/Shield Systems**

- ✦ Classifying the soil by accepted methods and if necessary, reclassifying the soil after changed conditions. Unless appropriate tests have been made, the competent person **MUST** assume type C soil is present and protect accordingly. Class C is most commonly found on Winger jobsites.
- ✦ When shoring or shield systems are used, the system installation process **SHALL** progress as the excavation progresses and should follow as closely as possible to the equipment performing the excavation.
- ✦ Employees and subcontractors will be protected from the hazard of cave-in when entering or exiting the areas protected by the shields.
- ✦ Employees and subcontractors are not allowed in the shield when it is being installed, removed or moved vertically.
- ✦ Trenches 5 feet deep or greater require a protective system unless the excavation is made entirely in stable rock. If less than 5 feet deep, a competent person may determine that a protective system is not required.
- ✦ 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 in accordance with 1926.652 (b).
- ✦ All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½ :1.



Meeting Date: \_\_\_\_\_  
 Supervisor: \_\_\_\_\_

Trainer: \_\_\_\_\_  
 Location: \_\_\_\_\_

**Attendees: (Please print clearly)**

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# WEEKLY SAFETY MEETING

## EXCAVATION QUIZ

1. Prior to any excavation, all underground utilities must be located and marked. True or False? \_\_\_\_\_
2. Class \_\_\_\_\_ is the most common type of soil found on Winger jobsites.
3. A trench collapse may contain \_\_\_\_\_ to \_\_\_\_\_ cubic yards of soil that can potentially weigh as much as \_\_\_\_\_ pounds.
4. Before entering a trench or excavation, a Daily Excavation Checklist must be completed by a designated competent person. True or False? \_\_\_\_\_
5. Winger employees will not work in excavations where water has or is accumulating. True or False? \_\_\_\_\_
6. When employees are working in an excavation, materials, spoils and equipment **SHALL** be kept at least \_\_\_\_\_ feet from the edge of the excavation.
7. Ladders, steps, ramps, or other safe means of access or egress for any excavation deeper than \_\_\_\_\_ feet is required.
8. Ladders must extend at least \_\_\_\_\_ feet above the top of the excavation.
9. Where oxygen deficiency or hazardous atmosphere exists, or could reasonably be expected, atmospheres must be tested before employees enter and during occupancy of an excavation deeper than \_\_\_\_\_ feet.
10. When must the air quality be tested when entering an excavation if oxygen deficiency or hazardous atmosphere exists or be expected to exist?
  - A. Only before entry
  - B. Only during occupancy
  - C. Before entry and during occupancy
  - D. Never
 \_\_\_\_\_
11. When trenches have to be left open overnight, they **SHALL** be covered with suitable materials and/or barricaded during non-working hours. True or False? \_\_\_\_\_
12. Barricades need to be placed a minimum of \_\_\_\_\_ feet away from the edge of the excavation.
13. Trenches \_\_\_\_\_ feet deep or greater require a protective system, such as a trench shield, unless the excavation is made entirely in stable rock.
14. Employees and subcontractors are not allowed in the trench shield when it is being installed, removed or moved vertically. True or False? \_\_\_\_\_
15. All excavations 20 feet or less in depth, which have vertically sided lower portions, shall be shielded or supported to a height at least \_\_\_\_\_ inches above the top of the vertical side.
16. All such excavations shall have a maximum allowable slope of \_\_\_\_\_.



Printed Name: \_\_\_\_\_ Trained by: \_\_\_\_\_

Signature: \_\_\_\_\_ Trained by Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Location: \_\_\_\_\_