

Job Name: _____ Job Site Location: _____

Date: _____ Time Started: _____ Time Finished: _____ Foreman/Supervisor: _____

Topic 154: Safe Excavating and Shoring Operations (Part B)

Introduction: Excavation, trenching, and shoring operations are statistically some of the most hazardous jobs in the construction industry. However, most of these hazards can be eliminated from the jobsite by proper work and safety techniques. All persons involved in excavation and shoring operations must be properly trained in safe work methods and practices and be able to recognize unsafe conditions when they occur.

The most common hazards of excavation and shoring operations are:

- Death by suffocation or crushing
- Tools or equipment striking utilities
- Materials or tools falling into the trench
- Personnel falling into the trench
- Personnel working too close together
- Hazardous atmospheres

Death by suffocation or Crushing – Proper sloping, benching, or support systems of trench walls will prevent cave-ins. All of these systems must be designed by a competent person or qualified engineer following OSHA guidelines. In addition, these precautions should be observed:

- **Manufactured material** and equipment must be installed and used in accordance to manufacturer’s recommendations.
- **Shoring systems** should be inspected regularly; workers should report any damaged or defective equipment immediately
- **Workers should watch** for any flaking or signs of collapse of trench walls or bulges in shoring or shields which would indicate a potential for cave-in.
- **If any part** of a support system is in question, evacuate personnel from the trench immediately; work should not be resumed until problem is resolved by a competent person.
- **Workers should** not climb or step on any part of a support system.
- **Support systems** should be carefully removed one member at a time, beginning with the lowest components and progressing upward; backfill immediately after removal of support systems.



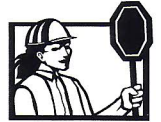
Material, Equipment, or tools falling into the trench –

- **Excavated material must** be kept at least 2 feet from the trench and should be kept a distance equal to the height of the pile away from the trench.
- **Have equipment operators** rake loose material from trench walls, slopes, and benches as they dig.
- **As the excavation progresses,** erect safety barricades or barriers along the trench edges.
- **Have equipment operators** place excavated boulders and large material to the outside of piles, away from the trench.
- **No employee is permitted** underneath loads handled by digging or lifting equipment, and must stand clear of loading operations.
- **If an equipment operator** can not see the personnel in the trench, use a spotter when loading or unloading material from the trench.
- **Do not work** on slopes or benches at a level above other workers. Do not place tools or equipment on trench edge.



Personnel Falling into the Trench –

- **Keep hands free** for climbing when using ladders to climb into or out of the trench, do not hand carry tools or equipment on ladders.
- **Use walkways** to cross trenches, do not attempt or leap from one side of the trench to the other.
- **Keep areas** on trench edges free of trip hazards.
- **Always approach** trench edges cautiously.
- **Always wear** appropriate Personal Protective Equipment around excavation operations.
- **Ensure that ladders** are provided for easy access and egress.



Personnel working too close together in trenches – cause hazards of being struck by another worker’s tool or caught in the same mishap. Personnel in trenches must be spaced adequately and safe intervals must be maintained. Add additional ladders for quick access and egress.

Hazardous Atmosphere – toxic or flammable gases or low oxygen atmospheres may be encountered in deep trenches. If either are encountered or are suspected to exist, atmosphere must be tested before any personnel are allowed to enter. If fuel burning equipment is being used in or around trenches, precautions must be taken to ensure exhaust fumes are not being inhaled by workers in the trench.



Tools or equipment striking underground utilities and power sources – utilities must be located and marked before excavation operations are initiated. When trenches approach the estimated location of underground utilities, the exact location must be determined (usually hand digging). When exposing utilities, use extreme caution; hand tools such as picks and shovels can easily puncture electrical cables or rupture gas lines; never apply lateral force. While the excavation is open, utilities which have been exposed must be protected, supported, or removed as necessary to safeguard employees.

Conclusion: Suspend operations and evacuate workers if any hazard is suspected or spotted in an excavation. Situations must be immediately reported and resolved before work resumes. Do not take chances in trenches. Follow these requirements for safe excavation and shoring operations.

Work Site Review

Work-Site Hazards and Safety Suggestions: _____

Personnel Safety Violations: _____

Employee Signatures:

(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness.)

These guidelines do not supercede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.