Trench Safety

Safety Meeting Packet

Trenches are a source of serious injury and death when the proper precautions are not taken. Cave-ins often occur without warning, and a small amount of soil (one cubic yard) can weigh 3,000 pounds, quickly trapping workers.

According to OSHA, a trench is a narrow excavation below surface level that is generally deeper than it is wide. The overall width at the bottom of the excavation site, including any structure or forms, must be 15 feet or less to be considered a trench. Any other man-made cut, cavity or depression formed by earth removal is considered an excavation.

Protective Systems

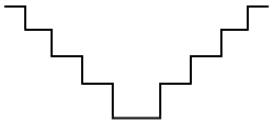
A trench is required to have a protective system installed unless the trench is excavated entirely in stable rock or is less than five feet deep. Additionally, an OSHA defined 'competent person' must have indicated that there are no signs of a potential cave-in. A competent person is a person who can identify hazards or unsanitary, hazardous, or dangerous working conditions and is authorized to take measures to eliminate them. Trenches that are 20 feet deep or more must have a protective system designed by a registered professional engineer or based on data prepared or approved by a registered professional engineer in accordance with OSHA standards.

When selecting a system to protect employees working in the trench, soil type must be considered. OSHA divides soil into three distinct types, A, B, and C, in descending order of stability. For additional information on soil classification, review 29 CFR 1926, Subsection P, Appendix A.

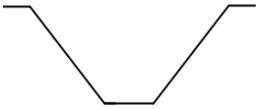
Benching and Sloping

Sloping and benching are excavation techniques used to prevent against cave-ins and are designed without needing to insert a support system.

'Benching' involves excavating the sides of a trench into a stair-step pattern. Benching is only recommended for soil types A and B.



'Sloping' is the excavation of the sides of a trench to create a sloped surface. The angle of the slope is variable, based off the type of soil, environmental conditions, and surcharge loads.



For more detailed information on sloping or benching the sides of a trench, review 29 CFR 1926, Subpart P, Appendix B.

Support Systems

Support systems are structures, such as shielding or shoring, that are designed to provide support to the sides of an excavation, an adjacent structure, or an underground installation.

Shields, also called trench boxes or trench shields, are structures designed to withstand the force of a cave-in. They can be portable or permanent, and may be built on-site if it is done in accordance with OSHA requirements. Shields must be installed in a way that restricts lateral or other dangerous movement if there is a sudden lateral load applied to the shield.

Shoring systems are metal hydraulic, mechanical, or timber systems designed to support the sides of an excavation and prevent a cave-in. Shoring requirements vary by material type and can be found in 29 CFR 1926, Subpart P, Appendices C, D, and E.

Entry and Exit

Trenches, in addition to having the appropriate protective systems in place, must provide workers with adequate access in and out of the trench. If the trench is more than four feet deep, an exit must be within 25 feet or less, laterally, of any employee.

Trench Conditions

Once the trench is excavated and properly protected, the conditions within the trench must remain safe for workers.

Water

Employees working in the trench must be protected against water accumulation. If the work area interrupts the natural drainage of surface water, ditches, dikes, or other means must be used to prevent water from entering the trench. Water removal equipment may be used to control water accumulation, but must be monitored by a competent person to ensure that the equipment is operated properly.

Air Quality

The atmosphere in a trench that is deeper than four feet must be tested prior to workers entering the area. This is even more of the case if there is, or is reasonably expected to be, a hazardous atmosphere or oxygen deficiency (less than 19.5% oxygen). Employers must take adequate protective measures, including respiratory protection and ventilation, to protect employees from atmospheric hazards.

Surface Safety

Several precautions must be taken on the surface to protect workers from cave-ins and other trench-related hazards. Materials should be kept away from the edge of the trench to prevent them from falling into the trench and striking another worker.

OSHA requires that materials and equipment be kept at least two feet from the edge of any excavation. Retaining devices may be used instead of or in conjunction with the two-foot requirement, and must sufficiently keep materials from falling into the trench.

Walkways shall be used when workers or equipment can cross over the excavation. If the walkway is six feet or more above the lower level, guardrails are required.

If equipment is used to lift or dig material on the site, a worker must never work under a raised load. This prevents an employee from being struck by the equipment, the load being moved, or any spillage from the load.

Emergency rescue equipment must be readily available and attended when hazardous conditions exist or may reasonably be expected to develop. The equipment may include a breathing apparatus, safety harness and line, or basket stretcher.

Inspections

Excavations, their adjacent areas, and protective systems must be inspected by a competent person prior to the start of each work shift and as needed throughout the shift to identify any potential cave-in hazards, failure of protective systems, or hazardous atmospheres or conditions. The area must also be inspected following a hazard-increasing occurrence, like a rainstorm, to ensure that the trench remains safe.

For additional information, please review OSHA standards:

- 29 CFR 1926, Subpart P - Excavations
- 29 CFR 1926.800 – Underground Construction

Trench Safety

Safety Meeting Attendance Acknowledgement

Company Name _____

Department / Division _____

Meeting Date & Time _____ _____ ☐ AM ☐ PM

Meeting Location _____

Name & Title of Individual Conducting Meeting _____

Key Meeting Discussion Points / Important Reminders:

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Internal Procedures Reviewed:

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By signing this document, you confirm your attendance at the meeting and acknowledge the issues addressed above!

Employees in Attendance		
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(Sign):	(Sign):	(Sign):
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Employees not present: _____

Suggestions/Recommendations to improve workplace safety and health: _____

Actions Taken: _____

Manager/Supervisor: _____ Date: _____

Disclaimer:

The information provided above was assembled using multiple resources. However, these materials do not contain ALL the information available regarding the required safety standards under local, provincial, state, or federal law for your industry.