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Division of Occupational Safety and Health California Department of Industrial Relations

Trenching Safety

Over a five year period, 26 California workers were killed and 207 others injured in trench cave-ins. In almost every instance, the cause of these accidents was a failure to properly shore or slope the trench.

Before Excavating:

Obtain a permit

Obtain a permit from the Division of Occupational Safety and Health (DOSH) if workers are required to enter an excavation that is 5 feet or deeper.

Notify of excavation and locate hidden obstructions

At least 2 working days before starting excavation, notify all Regional Notification Centers and any non-member subsurface installation owners of the excavations. Only qualified persons shall locate subsurface installations. If excavation is within 10 ft. of a high priority subsurface installation, the owner and the excavator must meet onsite before excavation. All subsurface installations revealed shall be physically supported, protected or removed for employee safety.

Beware of disturbed ground

Trenches in disturbed soil may require additional sheeting and bracing, as will hard compact ground, if there is filled ground nearby.

For example, a trench wall which is near another previously filled trench is unstable, although it might appear to be hard compact material.

Daily Inspection:

A competent person must inspect the trench and protective systems daily before the start of work and through-out the day as conditions change. Competent person is defined as one who must demonstrate:

- ◆ knowledge of the provisions pertaining to excavations, trenches and earthwork
- ◆ knowledge of soil analysis as required in the provisions pertaining to excavations, trenches and earthwork
- ◆ knowledge of the use of protective systems
- ◆ authority to take prompt corrective action on the job as conditions warrant
- ◆ ability to recognize and test for hazardous atmospheres.

What conditions influence the kind and amount of shoring you need?

1. Depth of trench

If the trench is five feet deep or more it must be shored or sloped.

If there is a possibility of soil movement, even shallower trenches have to be shored.

If you have doubt about it, shore/slope the trench.

2. Soil Classification

The less stable the soil, the more liquid the soil, the more you need to protect yourself against cave-in.

3. Changing weather conditions

Hardpacked soil can become soupy/unstable after a rain.

Trenches which are safety sloped or shored in dry weather can become deathtraps when it is wet. Thawing soil can also become unstable quickly.

4. Heavy loads in area

Don't park heavy equipment next to a trench. Nearby structures—such as buildings, curbs, trees and utility poles—exert stress on trench shoring.

5. Vibration

If you are digging a trench near a roadway or where other operations create vibration, make certain the shoring/sloping design reflects these conditions.

Other Considerations:

Every trench is a possible trap for hazardous atmospheres. When in doubt, test and ventilate.

Resources:

Title 8, California Code of Regulations, Sections [1539-1543](#). These and other Construction Safety Orders can be reviewed at: <http://www.dir.ca.gov/Title8/sub4.html>

Cal/OSHA Pocket Guide for the Construction Industry and other educational materials can be obtained from Cal/OSHA website <http://www.dir.ca.gov/dosh/puborder.asp>, or Cal/OSHA District Office.

Note: The information provided is not meant to be either a substitute for or legal interpretation of the occupational safety and health regulations. Readers are cautioned to refer directly to Title 8 of the *California Code of Regulations* for detailed information regarding the regulation's scope, specifications, and exceptions and for other requirements that may be applicable to their operations.