USTs and Safety

How To Improve Site Safety

- Train employees on safety
- It has to be more than an afterthought
- Continuous reminders
- Site supervisors must buy in and enforce
- Everything you knowingly do (safe or not), you have justified it to yourself.

Safety Concerns

- Excavations
- Crushing, caught in-between, vehicles
- Suspended loads
- Slips and falls
- Bad air
- Explosion

Weight of Soil

One cubic foot (12”x 12”x 12”) weighs between 90 to 140 pounds.

One cubic yard (36”x 36”x 36”) weighs as much as a small pickup truck.

Every employee working in a trench or excavation over 5 feet deep must be protected from a cave-in by a protective system:

- Sloping or benching walls
- Shoring to support walls
- Shields to protect occupants inside when walls cave-in

Competent Person

As applied to excavations the CP must:

- Be knowledgeable about the excavations standard
- Be capable of identifying hazards
- Have the authority to take immediate action
- Know how to classify soil type
- Know how to select and use shoring, shields, and/or sloping

Inspections

Excavations, adjacent areas, and protective systems must be inspected by a competent person:

- Daily – prior to work
- As needed during work
- After rainstorm or other hazard increasing occurrence

Where hazards are identified corrective action must be implemented.

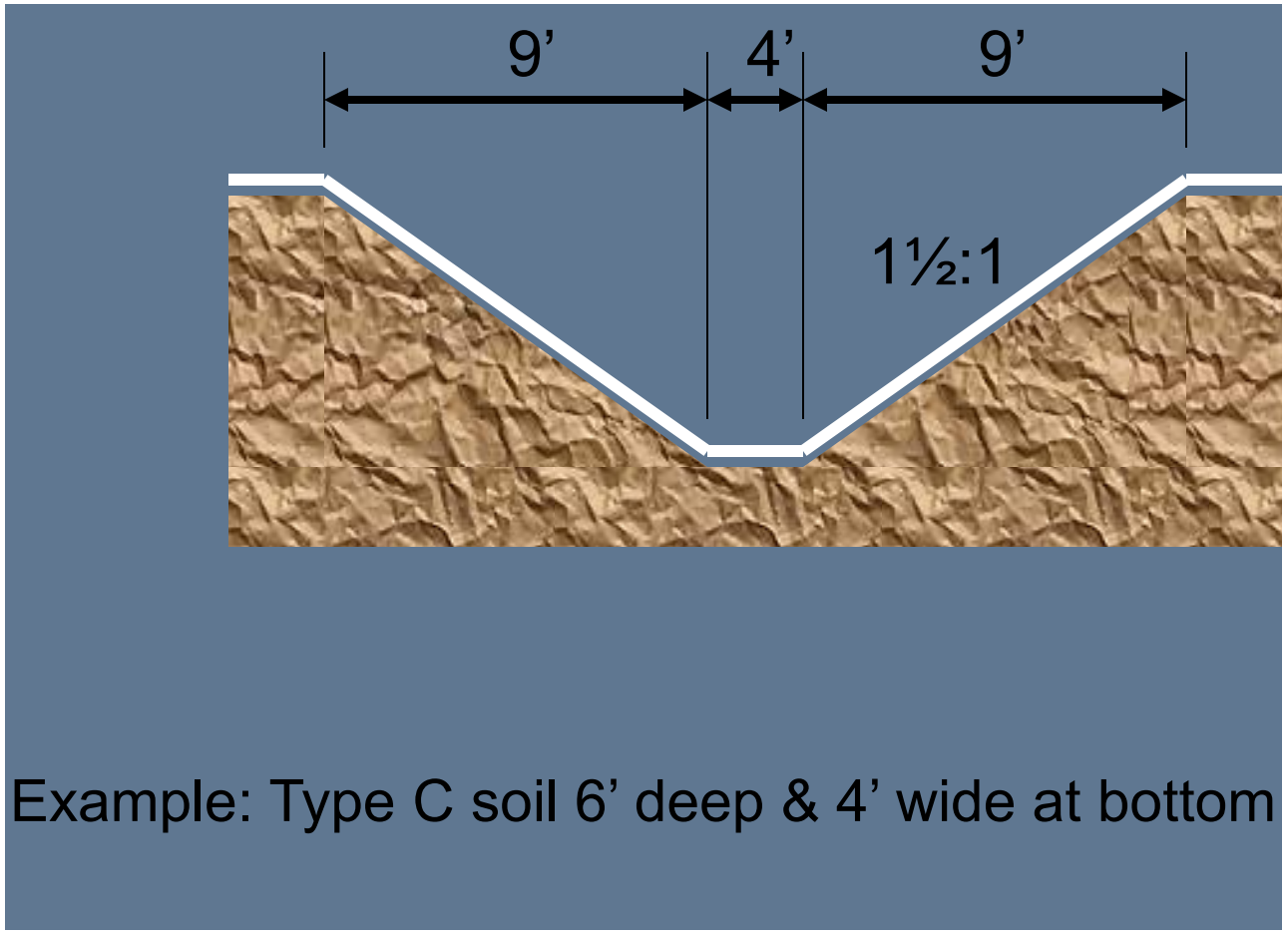
Always document inspections.

Is there a competent person at this site?

What type of soil is This?

Questions an OSHA Inspector is likely to Ask.

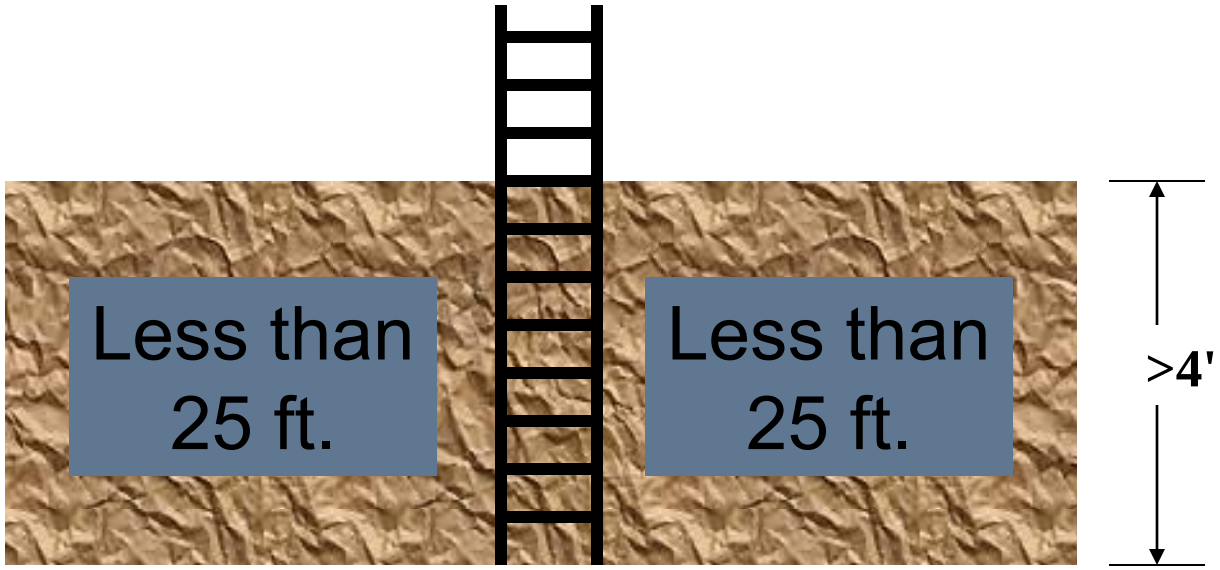
Sample Sloping Calculation



Example: Type C soil 6’ deep & 4’ wide at bottom

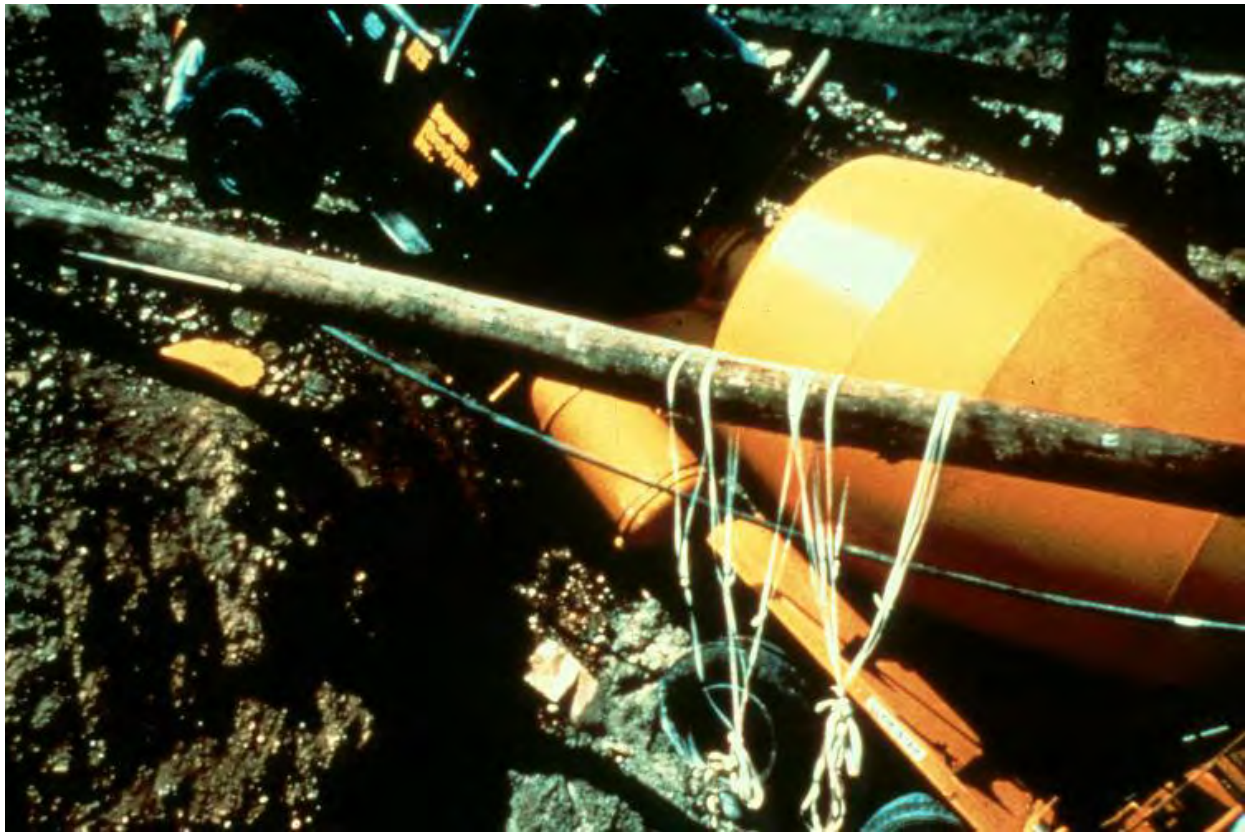
Access and Egress

There must be at least one safe way to get in and out of excavations within 25 feet of each worker.



Mobile Equipment

Use barricades, stop logs, grading away from the excavation, or a spotter.



Hazardous Atmospheres

A hazardous atmosphere is:

- Oxygen deficient
- Flammable
- Toxic
- Poisonous
- Corrosive, or
- Otherwise hazardous

Excavations greater than four 4-feet deep, which could contain a hazardous atmosphere, must be tested before anybody enters.

- Test from outside the trench
- Oxygen must be at least 19.5% but should be 20.9%
- Flammables levels less than 10% LEL
- Toxic materials less than PEL/TLV

Potentially Hazardous Atmosphere

When a hazardous atmosphere exists or could be expected to exist the air must be checked with an air monitor.

Lifting properly

Appendix A – Soil Classification

- Soil definitions
- Soil tests based on site and environmental conditions
- Descriptions of visual and manual tests for classifying soils
- Soil classification determined by the competent person

Portable trench box - NOT

Shade for a hot day - NOT

Employer's Responsibility

Employer's have a responsibility to provide a safe place to work, which includes confined and enclosed spaces. Every work area or jobsite must be safe.

OSHA General Industry Standard

Permit Required Confined Space Standard (1910.146) requires:

- Identification and control of hazards before entry begins
- Establish and implement entry procedures
- Training for entrants, attendants, and supervisors
- Written entry permits

Definition: Confined Space

An enclosed space with the following characteristics:

- Has limited or restricted means of entry and exit,
- Is large enough for a person to enter,

AND

- Is not designed for continuous human occupancy.

Why do people die in confined spaces?

- They are not trained to enter the space
- They trust their senses (sight & smell)
- They underestimate the dangers
- They let their guard down
- They attempt a rescue without proper training

Confined Space Fatalities

- 65% of the victims die due to an unsafe atmosphere in the space
- 25% of the victims die in a space that was “ready-to-kill” from the time it is opened
- 29% of the victims are foremen, supervisors, or managers
- 60% of the victims were attempting a rescue

BAD AIR Will incapacitate YOU

Quickly

- 20,000
- Gas Meters
- Oxygen Deficient
- Hydrogen Sulfide
- Carbon monoxide
- Carbon dioxide

Which would you rather have?

Is 19.5% Oxygen “Safe?”

- What’s 1% in parts per million?
- 10,000
- Are there any gasses at 10,000 ppm that could harm you?
- Hundreds
- How many gasses does your meter read?
- Carbon Monoxide is deadly at 500ppm
- ALWAYS TEST THE ATMOSPHERE

Which would you rather have?

If you must enter a confined space do it the right way!