

# Safe Work in Trenches

## Hazard Alert



Most trenches are dug to lay pipe or place footings. It is easy to try to work fast in a trench and get out without taking safety steps. **Don't.** Each year, more than 40 construction workers are killed in trenches.

### The Hazards

A trench is a *confined space* with many special problems. **Most deaths in trenches are from cave-ins.** Other risks are falls, electrocution, being struck by falling objects (or a backhoe), and bad air. Bad air can hurt your breathing, help cause a fire, or poison you. **Many workers die trying to rescue other workers.**

### Protect Yourself

**OSHA says your contractor must train you** about the hazards and how to protect yourself.

**If a trench will be dug, the contractor must name a competent person.** (OSHA says a competent person knows the OSHA excavation standard,\* is trained in soil analysis and protective systems, can identify hazards, and has authority to stop them right away.)

**OSHA has special rules** to protect workers in trenches (and all excavations). You must follow the OSHA rules unless:

- The trench is in stable rock, *or*
- The trench is less than 5 feet deep and a competent person finds no reason to expect a cave-in.

### A competent person must inspect a trench:

- **Before every shift**
- If bad air is expected — such as, the trench is in a sewer or near a dump or stored chemicals
- After anything that can increase hazards, such as:
  - Every rainstorm
  - Vibration (such as, from a passing truck or train)
  - The trench wall moves, causing cracking, scaling, or bulging
  - A heavy load near the trench moves or gets heavier.

### BEFORE YOU WORK IN A TRENCH:

**Get a competent person to OK it.**

**Make sure all equipment is in good condition.** This includes water pumps and ventilators.

**You must have a way to get out,** like a ladder (within 25 feet of you), if the trench is 4 feet deep or more.

**The contractor must have all utilities marked before digging.** The contractor must call utility companies and shut off all electricity, gas, and water pipes in the trench. Do not use a boom near overhead power lines. If you must operate a boom, ask the competent person to make sure power has been cut off and the lines have been grounded.

*(Please turn the page.)*

**If bad air is expected, OSHA says there must be a rescue plan and rescue equipment on the job site.** Rescue teams must have special training. The best way is to follow OSHA rules for rescues from confined spaces.\*

**If bad air is expected, a competent person must test the air:**

- OSHA says the air must have 19.5 to 23.5% oxygen.
- OSHA says substances that can burn or explode — like gasoline or methane — should be at less than 20% of the lower explosive limit (or lower flammability limit). (The industry says 10%.)
- Check the air for toxics like chlorine, carbon monoxide, sewer gases, and hydrogen sulfide. These **toxics can kill**. Carbon monoxide has no smell. Hydrogen sulfide smells like rotten eggs. The competent person will decide if blowers can keep the air safe.

**A competent person must check the soil.** This check helps the competent person choose the right worker-protection system.

- A trench can be in stable rock, or type A, type B, or type C soil. Stable rock and type A soils are the safest. Most soils are type B. Sand and trenches with water are type C soils.
- Water in a trench means workers are in danger.
- Clay can be type A, B, or C soil; it depends on how much water is in the clay. **Many cave-ins happen in clay, because people think it looks safe.**

**WHEN YOU WORK:**

You will need to use **sloping, benching, shoring, or a trench box** to prevent injuries or deaths.

**Keep the spoil pile 2 feet or more** from the edge of the trench.

Prevent materials, rocks, or soil from falling into the trench; use barriers, if needed.

**A competent person should test the air as often as needed to make sure it is safe.**

**IF A TRENCH CAVES IN:**

**Get out of the trench. Call 911** (or emergency services). Help your co-workers from **outside** the trench, if you can.

**Never go into a trench that is caving in or has bad air — even to rescue co-workers. You can be killed.**

For more information, call your local union, the Center to Protect Workers' Rights (CPWR) (301-578-8500 or [www.cpwr.com](http://www.cpwr.com)), the National Institute for Occupational Safety and Health (1-800-35-NIOSH or 1-800-356-4674 or [www.cdc.gov/niosh](http://www.cdc.gov/niosh)), or OSHA (1-800-321-OSHA or [www.osha.gov](http://www.osha.gov)). Or check the website [www.elcosh.org](http://www.elcosh.org).

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\*The OSHA trench standard is in the Code of Federal Regulations: 29 CFR 1926.656, 651, and 652. The confined space standard is 29 CFR 1910.146