Trenching and Excavation Safety



What’s at Stake?

Dig a hole in the ground and you have made an excavation. Excavations can be any size: wide, narrow, deep, or shallow.

A trench is an excavation, too, if it isn’t more than 15 feet (4.5 meters) wide at the bottom. And, if you install forms or other structures in an excavation that reduce its width to less than 15 feet, measured at the bottom, the excavation is also considered a trench.

Most regulations require that if you work in an excavation that is five feet deep (or deeper), your employer must protect you trench collapse, cave-ins and other trenching and excavation hazards. Also, if a competent person determines there is a potential for an excavation to cave-in, you must be protected regardless of its depth.

What’s the Danger?

Trenching and excavation work is inherently dangerous. In fact, it is one of the most hazardous types of work done in the construction industry. Injuries from excavation work tend to be of a very serious nature and often result in fatalities.

Hazards of trenching and excavation work include:

- Cave-in or collapse
- Falling into the excavation or trench.
- Electrical shock from cable or wire contact.
- Exposure to toxic gases.

How to Protect Yourself

6 easy ways to stay safe working in and around excavations and trenches

1. Check it out

- Dig safely:
    - Dig from firm ground.
    - Move the spoil pile to at least 2 feet (.6m) from the edge, behind a barrier or to another location; in some Canadian provinces, 3 feet (1 m) is the minimum.
    - Keep machinery movement to a minimum to reduce vibration which can increase

the soil movement in the trench.
- Daily checks by a competent person – no matter how deep the excavation is.
- Because of weather, site activity and other conditions, some excavations require more frequent checks.
- Knowing the soil type(s) of an excavation is important because some are more likely to collapse than others.
- Check for pipes, cables, power lines etc., and isolate them if possible.

2. Going in

- Trenches over 5 feet (1.5m) must have protective systems. These systems can include:
  - Sloping trench walls.
  - Walls shored up with timber and hydraulic jacks.
  - Prefabricated support systems, such as trench boxes and shields.
- Check protective systems regularly through your shift and report concerns.
- Wear your PPE.
- Do not walk or work under overhanging machinery.

3. Just breathe

- Protect yourself and check that gas and oxygen levels are being monitored and that a ventilation system is in place.
- Know the signs and symptoms of oxygen deprivation and any hazardous gases that could be present in the excavation.
- Speak up and ask questions if you have concerns.

4. Stay dry

- Check water pumps are in place and working if necessary.
- Report any water leaking into the trench.
- Report any leaks in any hydraulic protective support systems.
- Water and leaks can weaken the trench walls and make it more likely to collapse.

5. Getting out

- Keep the exit pathway clear.
- Know your exit routes and method:
  - Ladders must be placed within at least 25 feet (7.6 m) of workers and protected by the support system. Steps and ramps may also be used for entry and exit.
- Know where emergency equipment is.
- Wear a safety harness and lifeline as required.

6. Keep out

- Take note of warning signs, guardrails and barriers around the excavation or trench.
- Stay away from machinery working around the excavation or trench.
- Take note of alarms to evacuate the trench.

Final Word

Trenches and excavations are dangerous places to work. There are several hazards that can develop quickly including, cave-ins and gas build-up. It is essential that all workers take responsibility for checking the area they are working in, reporting any changes or concerns quickly and appropriately and keeping themselves and others safe.