

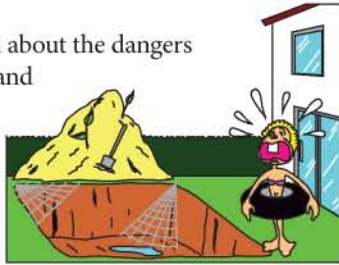
Inspection

Changing conditions and time itself can make a previously safe trench hazardous. Keep a constant eye on the condition of the trench and the equipment you are using.

It's Not Child's Play

Watching children at play in a sandbox will give you an understanding of their fascination with moving earth and heavy equipment. Unfortunately, sometimes children don't know to stay away from the real thing.

Talk to your children about the dangers of heavy equipment and trenches. Explain that the workers who work in trenches have special equipment and knowledge to help them stay safe. Children can easily get hurt in these areas.



Sometimes, adults don't know when to stop either. If you need to do any work to your house or cottage that requires you to dig a trench (such as sewer lines), you may be getting in over your head.

Hire Professionals—They will be safe, and do a better job.



Think About Others

Trenches can be completely safe if you use proper equipment, follow legislation, and use safe work procedures. Make sure you and your co-workers work as a team to protect each other.

You also need to make sure other people cannot be injured in trenches. Never leave an unprotected trench open. Barricade, fence, or backfill it. You may save the life of a child.



For more information, refer to current applicable Occupational Health and Safety Legislation.



The Alberta Construction Safety Association's mission is to provide quality advice and education for the construction industry that will reduce human suffering and financial costs associated with workplace incidents. This brochure is part of a series, *The Toolbox Brochures*, which are available on a variety of safety topics. If you have any questions or comments please contact:



Edmonton Tel: 780-453-3311
Toll Free Line: 1-800-661-2272
Fax: 780-455-1120
Toll Free Fax: 1-877-441-0440
E-mail: edmonton@acsa-safety.org

Calgary Tel: 403-291-3710
Toll Free Line: 1-800-661-6090
Fax: 403-250-2852
Toll Free Fax: 1-877-258-5881
E-mail: calgary@acsa-safety.org

Fort McMurray
Tel: 780-715-2157
Fax: 780-715-1684
fortmcmurray@acsa-safety.org

www.acsa-safety.org

To order more brochures, contact the above.

Safe Trenching, Excavating and Ground Disturbance



Making Safety A Way Of Life



The Alberta Construction Safety Association

It is Preventable

All incidents and deaths related to trenching and excavating are preventable. Some of the factors that contribute to incidents are:

- Inadequate hazard assessments
- Improperly sloped walls
- Incorrect shoring materials

When to Add Protection

Under no circumstance should you enter a trench and/or excavation deeper than 1.5 m (5 feet) unless it is properly sloped or shored.

Equip Yourself with Knowledge

With underground facilities, the smallest incident can cause incredible destruction. You can prevent disasters by following these basic steps:

- Plan your work.
- Call before you dig.
- Hand-expose facilities.

Both excavators and owners of buried facilities are responsible for preventing damage to underground facilities. Make sure you do your part.

Contact Alberta 1Call — 1-800-242-3447

What Can Happen to You?

If you enter an unsafe trench or excavation, not only can you cause suffering to yourself, but you can also cause suffering to your family and friends. Some effects of being trapped in a trench may include:

- Internal injuries
- Lifelong disabilities
- Financial losses
- Possible death due to suffocation (soil weight)

ARE YOU WILLING TO TAKE THIS RISK?

Common Hazards When Trenching and Excavating

- Contact with underground and/or overhead facilities
- Equipment
- Cave-ins
- Hazardous gases
- Collection or seepage of water
- Use of inadequate materials
- Failure to install safeguards
- Soil types
- Surcharge loading

Are You Prepared for the Unexpected?

No one can predict a trench or excavation cave-in, but when a cave-in does happen, you have only seconds to respond. The development of an emergency response plan for a rescue must be included in the site hazard assessment.

Soil Classifications

How you secure a trench depends on the soil type. Make sure you know what type it is (refer to current OH&S Legislation):

Hard and compact—soil that can only be excavated by machinery and shows no sign of cracks after excavation.

Likely to crack or crumble—soil that can be excavated with hand tools, shows signs of cracking after excavation, and has low to medium moisture content.

Soft, sandy, or loose—soil that is easily excavated with hand tools and will run or shift if unsupported.

If an excavation contains soil of more than one type, the employer must operate as if all of it is the soil type with the least stability.

Get a Professional

When designing the construction of a safe trench and/or excavation, nothing can take the place of experience and knowledge.

If you have any doubts, get additional help. A small doubt could signal a large catastrophe.

Sloping

Use the applicable legislation to find the sloping angle for your specific job. For reference, see this chart for 45-degree angle slopes:

Width of Trench Across Top To Give 45-Degree Cut-Back			
Bottom Width	1.2 m	1.8 m	2.4 m
Depth (Metres)	Width Across Top (Metres)		
2.1	5.4	6.0	6.6
3.1	7.4	8.0	8.6
4.0	9.2	9.8	10.4
4.9	11.0	11.6	12.2
5.8	12.8	13.4	14.0
6.7	14.6	15.2	15.8
7.6	16.4	17.0	17.6
8.5	18.2	18.8	19.4

Shoring

Read the manufacturer's specifications to determine proper installation procedures and how the shoring is designed to be used. Each type of shoring can be different:

- Lumber
- Air
- Hydraulic
- Cages
- Other methods designed by engineers

Remember—always stay in the protected area of the trench. Even one step out is too many.