BCCSA
BC Construction Safety Alliance

TOOLBOX TALK

DISCUSS WITH CREWS	mm/dd/yyyy

EXCAVATION AND SHORING GUIDELINES

Topic Overview

It is mandatory that any trench or excavation more than 1.2 m (4 feet) deep is properly sloped or shored to comply with the occupational health and safety regulation. No employee shall enter any trench or excavation that is not properly sloped or shored.

Definitions

EXCAVATION	Any cut, cavity, trench, or depression in the earth's surface resulting from rock or soil removal.
PROF. ENGINEER	A professional engineer registered in the province of BC.
SHORING	A mechanical system that provides support to the sidewalls of an excavation or trench. The system must conform to the occupational health and safety regulations or be designed by a professional engineer.
SLOPE	The angle at which the side of a trench or excavation is cut to maintain soil stability.
SPOIL PILE	The material removed from an excavation or trench.
TRENCH	An excavation less than 3.7 m (12 feet) wide at the bottom, more than 1.2 m (4 feet) deep and of any length.

Hazards to be aware of

Machine Rollovers

Machine rollovers can occur at any moment if the operator isn't being safe. Rollovers may be caused by the ground giving out beneath the machine. Other causes include traveling too quickly, traveling on a too-steep slope, and traveling with attachments improperly lowered.

Contact with Power Lines

While regulations dictate that machines must stay at least 20 feet away from nearby power lines, electrocution kills many excavator operators. Generally, contact occurs when operators fail to check if they have enough overhead clearance.

Maintenance Errors

When operators fail to properly maintain their machines, they put themselves and those nearby at risk. Even a misplaced lock pin could make a heavy component come loose and crush someone. In addition to misplaced components, unauthorized changes to the machine threaten its overall operational or structural integrity.

Trenching Accidents

Trenching accidents occur when the ground cannot support the changes in pressure caused by excavation. The weight of the machine can cause loose dirt to shift, which in turn can tip the machine.

Buckets or Debris

Falling debris poses a significant risk to both the excavator operator and nearby pedestrians. Material from a load could dislodge and strike workers or civilians located too close to the machine. Likewise, the debris could strike operators if they use an open cab excavator.

EXCAVATION AND SHORING GUIDELINES

Safety Tips

- Prior to commencing any excavation or trench, all underground utilities must be located, and their positions identified.
- Exercise extreme caution and care when excavating or trenching in the vicinity of underground utility systems; the final 30 cm (1 foot) around an existing utility must be excavated by hand.
- Excavation work must be completed in accordance with the written instructions of a professional engineer if the excavation is more than 6 m (20 feet) deep.
- Above-ground hazards such as trees, buildings, boulders, and utility poles that encroach on the excavation need to be removed or secured.
- Proper access for the excavation or trench must be provided. If ladders are used, they must be placed every 8m (25 feet) and must extend 1m (3 feet) above the excavation or trench.
- Spoil piles must be placed:
    - 60 cm (2 feet) back from the edge of a trench.
    - 1.2 m (4 feet) back from the edge of an excavation.
- Barricades or warning devices must be erected to protect the public and other workers from the excavation or trench, if applicable.
- Frozen ground does not eliminate the need for shoring or sloping unless certified by a professional engineer.
- Water must not be allowed to accumulate in the excavation or trench.
- The safe limits of approach for overhead electrical lines must be observed when excavating or trenching in the vicinity of overhead power lines. If safe limits cannot be maintained, then the utility company must be notified so that the line can be de-energized.
- Employees in an excavation must not work under the suspended bucket of the excavating machine or any load being placed by the machine.
- Supervisors must have a pre-job meeting, including review of the job hazard assessment, with workers prior to commencing work on site.
- Follow WorkSafeBC requirements. Make sure that you and your employees are fully aware of the regulations pertaining to excavation.
- Prohibit equipment and employees from working above anyone working in the trench or excavation.
- Keep water out of the excavation. Use pumps to remove water from the excavation, and do not allow employees to be in any excavation or trench that has water accumulating in it. Water affects the integrity of the excavation.
- Never leave the excavation open when work is not being performed in the area. Use barricades, fencing, and signage to protect both employees and anyone passing by from falling into the excavation or driving into it.
- Always use the “One Call” service to ensure there are no utilities in proposed excavation areas or have utilities properly marked prior to digging. Look at as-built drawings when they are available for the area in which the excavation is occurring.
- When there is a chance for a hazardous atmosphere in an excavation that employees are entering, perform gas testing, including any low points where gases can collect.

Resources

https://www.worksafebc.com/en/health-safety/hazards-exposures/excavations

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LOCATION		**DATE**	
PRESENTED BY		**TIME**	

Review previous Workplace Inspections

Review previous Accident/Incident/Near Misses

Other Safety Issues or Suggestions made by Staff

Attendance Record

NAME	SIGNATURE	NAME	SIGNATURE

TOOLBOX MEETING REVIEWED	NAME (PRINT)	SIGNATURE	DATE
MANAGEMENT REP			
WORKER REP			