



MONTANA MUNICIPAL INTERLOCAL AUTHORITY

PO Box 6669
Helena MT 59604-6669

RISK MANAGEMENT BULLETIN

Please distribute to all appropriate personnel.

DATE: May 8, 2019

RM Bulletin #01-19

TO: MMIA Member Cities and Towns

RE: Trenching and Excavation Safety Page 1 of 2

Nationally workplace fatalities related to trenching and excavation have tripled since 2014 according to the Occupational Safety and Health Administration. Trench collapses, or cave-ins, pose a great risk to workers' lives. When done safely, trenching operations can limit worker exposure to cave-ins and other potential hazards including falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment.

Employers, including municipalities, must comply with the trenching and excavation requirements of 29 CFR 1926.651 and 1926.652. This bulletin includes highlights from those standards and the OSHA Fact Sheet on Trenching and Excavation Safety. To view the full 1926 Subpart P standards, visit: <http://www.osha.gov/laws-regs/regulations/standardnumber/1926>

Trench Safety Measures

Trenches 5 feet (1.5 meters) deep or greater require a protective system unless the excavation is made entirely in stable rock. If less than 5 feet deep, a competent person may determine that a protective system is not required.

Trenches 20 feet (6.1 meters) deep or greater require that the protective system be designed by a registered professional engineer or be based on tabulated data prepared and/or approved by a registered professional engineer in accordance with 1926.652 (b) and (c).

Competent Person

The Occupational Safety and Health Standards require, before any worker entry, that employers have a competent person inspect trenches daily and as conditions change to ensure elimination of excavation hazards. A competent person is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to workers; soil types; and protective systems required, and who is authorized to take prompt corrective measures to eliminate these hazards and conditions.

Protective Systems

There are different types of protective systems. Designing a protective system is complex and requires consideration of many factors including: soil classification, depth of cut, water content of soil, changes caused by weather or climate, surcharge loads (e.g., spoil, other materials to be used in the trench) and other operations in the vicinity. Any system used must meet the required performance criteria of the standards.

- **Benching** – means a method of protecting workers from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels. *Benching cannot be done in Type C soil (as defined in 1926 Subpart P Appendix A). Type C soil is common throughout Montana.*
- **Sloping** – involves cutting back the trench wall at an angle inclined away from the excavation. The angle **may not be steeper than 1 ½:1** (for every foot of depth, the trench must be excavated back 1 ½ feet) unless the employer uses one of the options listed in 1926.652 (b) (1) (i) or 1926.652 (b) (1) (ii).
- **Shoring** – requires installing hydraulic rams or other types of supports to prevent soil movement and cave-ins.
- **Shielding** – protects the workers by using trench boxes or other types of supports to prevent soil cave-ins.



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Access and Egress

- Know where underground utilities are located before digging.
 - Use 811 services for locates, and have a copy of the 811 ticket readily available.
- Conduct a personal protective equipment (PPE) assessment for each task workers will be performing, and provide the necessary PPE.
- Keep heavy equipment away from trench edges.
- Keep excavated soil (spoils) and other materials at least 2 feet (0.6 meters) from trench edges.
- Identify other sources that might affect trench stability.
- Provide ladders, steps, ramps, or other safe means of egress for workers working in trench excavations 4 feet (1.22 meters) or deeper.
 - Means of egress must be located so as not to require workers to travel more than 25 feet (7.62 meters) laterally within the trench.
- Test for atmospheric hazards such as low oxygen, hazardous fumes and toxic gases when > 4 feet deep.
- Inspect trenches at the start of each shift.
- Inspect trenches following a rainstorm or other water intrusion.
- Inspect trenches after any occurrence that could have changed conditions in the trench.
- Do not work under suspended or raised loads and materials.
- Utilize traffic control devices to prevent the motoring public from entering the work area and to separate traffic from the work to reduce vibration of the soil.
- Ensure that personnel wear high visibility or other suitable clothing when exposed to vehicular traffic.

Additional Resources

- 1) For additional resources on trenching and excavation safety including the Trenching and Excavation Safety Publication, Trench Safety QuickCard, Trench Safety Posters, and more, please visit:
<https://www.osha.gov/pls/publications/publication.athruz?pType=Industry&pID=213>
- 2) Contact MMIA's risk management team at riskmgmt@mmia.net or (406) 443-0907.
- 3) Contact Montana Department of Labor and Industry's Safety and Health Bureau at (406) 494-0324 or visit <http://erd.dli.mt.gov/safety-health/onsite-consultation>