

MIOSHA Fact Sheet



Excavation Training by the Numbers

Excavation-related accidents have a 112% higher fatality rate than the overall rate for construction. This fact highlights the need to ensure employees exposed to excavation hazards understand how to protect themselves.

To raise awareness of excavation hazards and the MIOSHA rules that provide requirements on how to protect employees, we have created this fact sheet to highlight some of the key numbers to remember when working in and around excavations. Additional information can be found in the MIOSHA Construction Standard [Part 9, Excavation, Trenching, and Shoring](#). Specific rules identified below include the applicable rule number(s) for ease of reference.

- 0 – **Zero** employees allowed under loads. – Construction Standard [Part 15, Excavators, Hoists, Elevators, Helicopters, and Conveyors](#). *Rule 1526(3)*

- 1 – At least **one** competent person must perform an ongoing inspection of an excavation or trench. *Rule 932(4)*

- 2 – For any excavation, an employee will enter, spoils and materials must be kept at least **two** feet back from the excavation's edge. *Rule 933(2)*

- 3 – Miss Dig must be contacted prior to starting an excavation **three** days before excavating. Remember that a positive response must be confirmed before digging can commence. Employers are required to locate public utilities in the area of a proposed excavation before digging per *Rule 931(1)*. If utilities are to be exposed, they must be located by hand digging or other 'soft' methods (e.g., vacuum excavation.) Find more help for locating underground utilities by calling 811 or visiting www.missdig.org. *Rule 931*

Ladders used to access an excavation must extend not less than **three** feet above the top of the excavation. *Rule 933(4)*

- 4 – An excavation **four** feet or more in depth and occupied by employees shall have either a ladder or a ramp to provide means of access and egress. *Rule 933(4 and 5)*

When the potential for a hazardous atmosphere exists in an excavation more than **four** feet deep, the atmosphere shall be tested before an employee enters the excavation. *Rule 934(a)*

LEO is an equal opportunity employer/program.



Consultation Education and Training Division
530 W. Allegan Street • P.O. Box 30643 • Lansing, Michigan 48909-8143
www.michigan.gov/miosha • (517) 284-7720
(CET Fact Sheet #0183 • Revised 2/29/2024)



- 5** – Excavations more than **five** feet deep must be shored, sloped, or otherwise protected. *Rule 941(1)*

Excavations less than **five** feet in depth must be protected if hazardous earth movement may be expected. *Rule 941(2)*

When benching a side of a trench, the height of the lower bench shall not be more than the lesser of **five** feet or width of the trench measured at the bottom. *Rule 944(3)*

- 6** – Excavations that are **six** feet or more in depth and are not readily seen because of plant growth or other visual barrier must be protected by guardrails, fences, or barricades. Construction Standard [Part 45, Fall Protection](#). *Rule 1926.501(b)(7)*

Design and use of all traffic control devices protecting employees must adhere to Part 6 of the 2011 Michigan Manual on Uniform Traffic Control Devices (MMUTCD). A link to the MMUTCD Part 6 can be found at www.michigan.gov/mdot. Construction Standard [Part 22, Signals, Signs, Tags, and Barricades](#). *Rule 42223(1)(b)*

- 10** – A minimum **ten** feet clearance shall be maintained from energized overhead electrical lines (including excavators, dump trucks, materials, personnel, and ladders). Construction Standard [Part 1, General Rules](#). *Rule 115(4 and 5)*

- 19.5** – Less than **19.5%** oxygen in an excavation is hazardous and employers must take precautions to protect employees. *Rule 934(a and b)*

- 20** – Concentration of flammable gas in excess of **20%** of the lower flammable limit (LFL) requires precautions to be taken to prevent employee exposure. *Rule 934(c)*

Protective systems for excavations more than **20** feet deep must be designed by a registered professional engineer. *Rule 942(8)*

- 25** – A point of egress (ladder, ramp, etc.) must not be more than **twenty-five** feet from any employee in an excavation. *Rule 933(4)*

For more information regarding excavation safety, please visit MIOSHA's Excavation and Trenching webpage: www.michigan.gov/mioshatrenching.

For questions, to request training, or for more information about MIOSHA services, contact the MIOSHA Consultation Education and Training Division at 517-284-7720 or complete a Request for Consultative Assistance at www.michigan.gov/cetra.