



Policy No. 023
Policy Name: Trenching and Excavating
Control Date: 12/3/98 Rev. 08/2006

1.0 Scope and Application

This policy contains safety requirements to protect County employees during work in excavations and/or trenches. This policy complies with Chapter 32 (Public Employee Safety and Health) of the Wisconsin Administrative code as promulgated by the Wisconsin Department of Commerce and 29 CFR Part 1926.650 (Excavations) as promulgated by the U.S. Occupational Safety and Health Administration.

2.0 Responsibilities

Risk Manager: Support and management of this policy.
Department Heads: Implementation of policy.
Supervisors: Ensure policy is adhered to by all employees. Supervisors are designated as a “Competent Person” for the purposes of this policy.
Employees: Follow requirements contained in this policy.

All employees are responsible for complying with the requirements contained in this policy. Failure to abide by these requirements may subject the employee to disciplinary action, up to and including discharge.

3.0 Departmental Policies and Requirements

This policy represents minimum excavating and trenching requirements. Department Heads may develop more specific procedures to be followed in their respective departments.

4.0 Definitions

Competent Person: Supervisor who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Excavation: Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Trench: A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 m).



Trench (cont.) If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet (4.6 m) or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

5.0 Training

Employees engaged in excavation and trenching type activities shall receive instruction in these requirements at the time of their initial assignment. Department Heads will ensure that Supervisors receive appropriate training such that they meet the criteria of a “competent person”.

6.0 Documentation Requirements

None.

7.0 General Requirements

- a) All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.
- b) The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation.
- c) Diggers hotline shall be contacted at least 72 hours prior to performing all work to locate underground utilities. Facility blueprints shall be referenced for all private utilities that may exist on the property where excavating work is to be performed.
- d) When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means. While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.
- e) Employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.
- f) No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain



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in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

- g) When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
- h) Walkways shall be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with 29 CFR 1926.502(b) shall be provided where walkways are 6 feet (1.8 m) or more above lower levels.

8.0 Access and Egress

- a) Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person. Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in accordance with the design.
- b) Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.
- c) Structural members used for ramps and runways shall be of uniform thickness.
- d) Cleats or other appropriate means used to connect runway structural members shall be attached to the bottom of the runway or shall be attached in a manner to prevent tripping.
- e) Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.
- f) A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet (1.22 m) or more in depth so as to require no more than 25 feet (7.62 m) of lateral travel for employees.



9.0 Hazardous Atmospheres

- a) Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation shall be tested before employees enter excavations greater than 4 feet (1.22 m) in depth.
- b) Adequate precautions shall be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation.
- c) Adequate precaution shall be taken such as providing ventilation, to prevent employee exposure to an atmosphere containing a concentration of a flammable gas in excess of 20 percent of the lower flammable limit of the gas.
- d) When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure that the atmosphere remains safe.

10.0 Emergency Rescue Equipment

- a) Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.
- b) Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

11.0 Protection From Hazards Associated With Water Accumulation

- a) Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.



- b) If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.
- c) If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person and compliance with paragraphs (a) and (b) above.

12.0 Stability Of Adjacent Structures

- a) Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures for the protection of employees.
- b) Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:
 - A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
 - The excavation is in stable rock; or
 - A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
 - A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.
- c) Sidewalks, pavements and appurtenant structure shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures.

13.0 Protection Of Employees From Loose Rock Or Soil

- a) Adequate protection shall be provided to protect employees from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.



- b) Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

14.0 Inspections

- a) Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.
- b) Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

15.0 Protection From Cave-Ins

- a) Each employee in an excavation shall be protected from cave-ins by an adequate protective system designed in accordance with 29 CFR 1926.652 except when:
- Excavations are made entirely in stable rock; or
 - Excavations are less than 5 feet (1.52 m) in depth and examination of the ground by a competent person provides no indication of a potential cave-in.

Supervisors shall consult the applicable regulation for more detailed requirements and are required to ensure that all sloping, benching and shoring activities comply with the specifications put forth in 29 CFR 1926 Subpart P; Appendices A through F.



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b) When protective systems are required (e.g.: greater than 5 feet deep) for excavations or trenches, the walls of the excavation or trench must be one of the following:

- Sloped for stability.
- Cut to create stepped or benched grades.
- Supported by a system made with posts, beams, shores or planking and hydraulic jacks.
- Supported by a trench box to protect workers in an excavation or trench.

Additionally:

- Excavated materials must be at least 2 (two) feet away from the edge of the excavation or trench.
- An exit ladder must be within 25 feet of workers.

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End Policy