

# UNITED SAFETY SOLUTIONS

P: 715.254.0638  
F: 715.254.0630



826 Bloom Rd  
Eagle River, WI 54521

## TRENCHING AND EXCAVATION

OSHA	Trenching and Excavation	Regulation 29 CFR 1926.650, 651, 652
Course:	Hours Instruction	Prerequisites:
Hours:	Class Room	Fee:
Hours:	Field Instruction	CE Credits:

Trenching and excavation work presents serious risks to all workers involved. Excavating is recognized as one of the most hazardous construction activities. Excavation cave-ins cause serious and often fatal injuries to workers in the United States, a fatality rate 112% higher than for general construction. Trench collapses cause dozens of fatalities and hundreds of injuries each year. Additional excavation hazards include falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment.

OSHA defines an **excavation** as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A **trench** is defined as a narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet. Trenches 5 feet deep or greater require a protective system unless the excavation is made entirely in stable rock. Trenches 20 feet 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.

OSHA requires that workers in trenches and excavations be protected, and that safety and health programs address the variety of hazards they face. Proper safety training can drastically reduce this statistic, which is why OSHA requires that a "**competent person**" be present at every job site, defined as someone that "by way of training or experience, is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them, taking prompt corrective measures to eliminate or control these hazards and conditions." Because conditions change, OSHA standards require that trenches be inspected daily by a competent person prior to worker entry to ensure elimination of excavation hazards.

### Designing a protective system is complex and considers many factors:

- Soil classification
- Depth of cut
- Water content of soil
- Changes due to weather or climate
- Surcharge loads (eg., spoil, other materials to be used in the trench)
- Other operations in the vicinity

### There are different types of protective systems:

- **Sloping** involves cutting back the trench wall at an angle inclined away from the excavation.
- **Shoring** requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins.
- **Shielding** protects workers by using trench boxes or other types of supports to prevent soil cave-ins.

# UNITED SAFETY SOLUTIONS

P: 715.254.0638  
F: 715.254.0630



826 Bloom Rd  
Eagle River, WI 54521

## **General Trenching and Excavation Rules:**

- Keep heavy equipment away from trench edges.
- Keep surcharge loads at least 2 feet from trench edges.
- Identify location of underground utilities.
- Test for low oxygen, hazardous fumes and toxic gases.
- Inspect trenches at the start of each shift.
- Inspect trenches following a rainstorm.
- Do not work under raised loads.

## **Who Should Take This Course:**

- All employers, supervisors, operators and workers whose job duties require them to be in or around trenching and excavation work.
- Anyone who works in or around trenches, holes, or below-ground areas

## **Examples of job types include:**

- Equipment / machinery operators
- Laborers
- Underground tank removal or maintenance
- Utility workers
- Oil and gas workers
- Safety officers
- Civil engineers

## **Course Objectives:**

The course is designed to focus on effective communication between all levels of workers, identifying specific responsibilities adhering to the relevant legislation, and classifying potential hazards using hazard assessments and control measures for safe excavation and the prevention of underground facility damage.

## **Excavation and trenching best practices include:**

- Pre-excavation
- Excavation
- Post excavation

This course details the general and specific requirements for excavating and trenching in accordance with OSHA construction regulations, including:

- Terms and Definitions
- Engineering Controls
- Personal Protective Equipment
- Soil Terminology, Classification and Testing
- Excavation support systems
- Shoring and Sheet piling and Shoring Alternatives
- Sloping and Benching

# UNITED SAFETY SOLUTIONS

P: 715.254.0638  
F: 715.254.0630



826 Bloom Rd  
Eagle River, WI 54521

- Hazards of Excavations and Trenching: Assessment and Controls
- Understanding what OSHA's Standard Requires
- Safe Trenching and Excavation Work Practices
- Types Of Trench Protection Systems
- General Regulations and Requirements For Trenching and Excavation Work

## **United Safety Solutions Course Covers:**

Through discussion and activities, our professionals will break down the regulations into terms you can understand. You'll learn practices and procedures that will keep you in compliance and protect yourself and employees. You will:

- Empower your employees to identify - and avoid - potential dangers
- Assess situations where a cave in could occur and how a cave-in may occur
- Correct working hazards that exist
- Reduce injuries throughout your worksite
- Save on workers' comp and related costs
- Describe differences between excavations and trenches
- Learn the general requirements and Competent Person responsibilities
- How soil is tested
- Getting in and out of an excavation
- Using the right Protective System during excavation work
- Materials Handling and Mechanized Equipment
- Hazardous Atmospheres
- Relevant legislation
- Environmental protection and assessment
- Emergency Response Planning
- The four types of trench collapses and the causes of each type
- Inspection of trench and protective systems
- Spoil-pile placements
- Safe Access / Egress
- Includes a safe practice checklist.
- Helpful links for additional information on trenching and excavation regulations

It is our recommendation that workers be retrained on Trenching and Excavation Safety at least every three years.

## **Certification:**

Successful completion requires 80% on both classroom and practical skills.

Upon successful completion, participants receive a wallet card, documentation to satisfy OSHA.