

# Great Western Painting

## Cal/OSHA Trenching/Shoring/Excavations

### EXCAVATING, TRENCHING & SHORING

#### Excavations

#### General Requirements

#### Requirements for Protective Systems

#### Requirements for Protective Systems, Appendix A

#### Requirements for Protective Systems, Appendix B

#### Requirements for Protective Systems, Appendix C

#### Requirements for Protective Systems, Appendix D

#### Requirements for Protective Systems, Appendix E

#### Requirements for Protective Systems, Appendix F

**Note: A DOSH permit is required if employees are required to enter an excavation that is 5 feet or deeper.**

Excavating involves any earth removal which creates a cut, cavity, trench, or depression in the earth's surface. A trench is 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. 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 or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.

Prior to excavating, surface encumbrances that may create a hazard to employees will be removed or supported and subsurface installations, such as sewer, telephone, fuel, electric, water lines, or any other subsurface installations that reasonably may be expected to be encountered during excavation work, shall be determined by the excavator prior to opening an excavation.

Utility companies will be contacted, advised of the proposed work, and asked to establish the location of underground installations.

If the utility company cannot respond to this request within 24 hours and/or the exact location of the underground installations cannot be determined, actual work may begin provided that:

- a. extreme caution is observed.
- b. detection equipment or other acceptable means are used to locate the approximate location of the utility installation.
- c. as the approximate location is approached, the exact location will be determined by safe and acceptable means before proceeding.

In open excavations, underground installations will be protected, supported or removed as necessary to protect employees.

To ensure employee safety, the competent person will ensure that during excavating work in trenches there is:

- a. Documentation that employees who are involved in the excavation operation and exposed to excavation operation hazards have been trained in the excavator notification and excavation practices.
- b. appropriate access and egress for personnel and/or equipment such as stairs, ramps and ladders so as to require no more than 25 feet of lateral travel for employees in trenches four (4) feet or more deep.
- c. employee protection for head injury. All employees must wear hard hats.
- d. Protection provided by placing and keeping such materials or equipment at least 2 feet 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.
- e. employee protection from vehicular traffic such as barricades, ground guides for operators of equipment with a limited view, away sloping grades, etc..
- f. no exposure to falling loads.
- g. no danger to employees from water accumulation.
- h. no danger from cave-in. Shoring, a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation, will prevent cave-ins.
  1. Shoring is not required for trenches less than five (5) feet deep if an examination by a competent person determines the soil has no potential for a cave-in. In this situation, vertical sides are allowed.
  2. Once a trench is over 20 feet deep, protective systems, which may include shoring, must be designed by a registered professional engineer.
  3. 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.
- i. a method to prevent mobile equipment from falling into the excavation such as barricades. Ground guides will be used if the equipment operator does not have a clear view of the edge. If possible, the grade should slope away from the excavation.
  1. 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.

**Note: 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.**

If the atmosphere is dangerous or likely to be dangerous, testing will be done as often as needed and emergency rescue equipment..

When a hazardous atmosphere does exist, appropriate respiratory protection will be used and a rescue plan developed which includes having an attendant outside the hazardous area with appropriate equipment and training.

- a. Testing and controls shall be put in place to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions.
- b. 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.
- c. 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.

**Note: Whenever internal combustion engine-driven equipment is operated inside a shaft, a ventilation system shall be provided.**

## **PROTECTIVE SYSTEMS**

Except when an excavation is made entirely in stable rock or it is less than 5 feet in depth and a competent person finds no indication of potential cave-in, employees in an excavation will be protected from cave-in by protective systems.

All employees involved with excavating are to review these standards and understand:

- a. The extensive degree of basic data, design, and knowledge that goes into employee protection during excavating projects.
- b. That 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.
- c. The soil condition -- specifically moisture content -- and how that impacts on stability during excavations.

- d. The absolute need for a competent person to be on site at all times during excavating work to visually and manually test soil conditions as work progresses and to maintain a safe site.

### **DAILY INSPECTIONS**

Prior to work and as needed throughout the shift, a **competent person** will conduct daily inspections of excavations, adjacent areas and protective systems to find evidence of a developing cave-in situation; failure of protective systems; hazardous atmosphere; or other hazardous conditions.

Inspections shall also be made after every rain storm or other hazard increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

### **FALL PROTECTION**

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. Where employees or equipment are required or permitted to cross over excavations over 6-feet in depth and wider than 30 inches, walkways or bridges with standard guardrails shall be provided.

### **Responsibilities of Competent Person**

The competent person's responsibilities include:

- a. Conducting inspections of the excavations, adjacent areas, and protective systems before the start of work; and, as needed throughout the shift; and at least daily for potential cave ins, failures, hazardous atmospheres, or other hazards.
- b. Taking prompt corrective action or remove employees from recognized hazards.

Additionally, the competent person must be able to demonstrate the following:

- a. The ability to recognize all possible hazards associated with excavation work and to test for hazardous atmospheres. If appropriate, test will be conducted for air contaminants (oxygen, flammable gases, etc.) and provide ventilation when necessary..
- b. Knowledge of the current safety orders pertaining to excavation and trenching.
- c. The ability to analyze and classify soils.
- d. Knowledge of the design and use of protective systems.
- e. The authority and ability to take prompt corrective action when conditions change.

Before work begins, the competent person will ensure that employees are protected from hazards associated with water accumulation.

Employees are not work allowed 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.

If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations will be monitored by the competent person to ensure proper operation.

Lastly, If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means will 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.

# Great Western Painting

## JOB SITE CHECKLIST [Excavating]

Job Site Identification: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
(Signature of Competent Person)

Check appropriate box:

Yes No NA

### Postings

- |   |                          |                          |                          |
|---|--------------------------|--------------------------|--------------------------|
| a. Cal-OSHA Form 3165   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Cal-OSHA Form 300A (February 1 to April 30)                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Emergency Phone Numbers<br>(Hospital - Emergency Response - Main Office) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

### Excavating

- |  |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|
| a. Designated competent person on site<br>(Must have authority to stop work)   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Underground utilities located, marked, utilities notified   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Daily inspection by competent person for hazards  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. <u>Excavation: Depth less than 5 feet</u>   |                          |                          |                          |
| 1. Inspection by competent person to ensure no indication<br>of potential cave-in  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. <u>Excavation: Depth greater than 5 feet</u>  |                          |                          |                          |
| 1. Sloping   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Benching  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Working within a protective device  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| a. Excavation of earth material may be dug 2 feet<br>below the bottom of the shield if there are no<br>indications while the trench is open of possible<br>loss of soil from behind or below the shield. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. <u>Excavation: Depth greater than 20 feet</u>   |                          |                          |                          |
| 1. Protective systems designed by professional engineer  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Engineering documentation on-site; readily available  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Egress (Depth 4 feet or greater)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 1. Ladder accessible within 25' of lateral movement  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Ladder extends 3' above edge of excavation  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Ladder inspected for defects  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

	<u>Yes</u>	<u>No</u>	<u>NA</u>
h. Spoil pile maintained a minimum of 2' from excavation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Water accumulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Loads are not suspended above employees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Defective cables; chains; slings removed from service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Traffic control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1. Warning signs and barricades in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Flagmen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Vests (reflective is required when exposed to public traffic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Equipment</u>			
a. Inspected before use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Defective items tagged and removed from service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Powered Equipment</u>			
a. Inspected before use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Protected from overhead electrical hazards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>General Job Site</u>			
a. First aid kits available and stocked	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Adequate restrooms facilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Potable water available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Temporary Electrical Wiring</u>			
a. Extension cords inspected & free of defects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Ground fault circuit interrupters (GFCI) in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. All equipment properly grounded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Temporary wiring clear of employee & vehicular traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Personal Protective Equipment (PPE) Required</u>			
(Note: Serviceable equipment available & training received)			
a. Hard Hats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Eye protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Appropriate, approved, work shoes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Items specific to this job site</u>			
a. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>