

SAFETY ORIENTATION FOR EXCAVATION WORKERS

Every excavation job is different: soil, work zone characteristics, near by structures, utilities, nothing is ever the same. Because of this, an effective worker safety orientation is necessary.

According to the Bureau of Labor Statistics (BLS), the most reported type of workers who get injured and killed, are new hires. These times listed for the amount of experience and time on project is often less than a couple of weeks, sometimes days.

Worker safety orientation for excavations includes, but is not limited to:

- An identification of specific job-site hazards and an explanation of the safe guards to take;
- Information on the limitations and proper uses of protective systems, and;
- A briefing on the emergency action plan for the site.

The content of a safety orientation talk is important, also the energy and commitment you bring to it. People rapidly sense whether you're serious or just going through the motions. Always leave time at the end of the orientation to sum up and reinforce key points.

Effective worker safety orientation talks:

- Uses examples from personal experience;
- Employs actual tools or equipment for illustrations, and;
- Encourages participation from workers.

Safety Orientation Checklist

Worker safety orientation for excavations should include, but not be limited to:

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|--|--|
| <input type="checkbox"/> Surface Encumbrance Hazards | <input type="checkbox"/> Hazardous Atmospheres |
| <input type="checkbox"/> Utility Contact & Damage Prevention | <input type="checkbox"/> Fall Protection |
| <input type="checkbox"/> Access & Egress | <input type="checkbox"/> Protective System Use and Limitations |
| <input type="checkbox"/> Work Zone & Equipment Safety | <input type="checkbox"/> Emergency Response/Action Plan |

Training Accomplishment

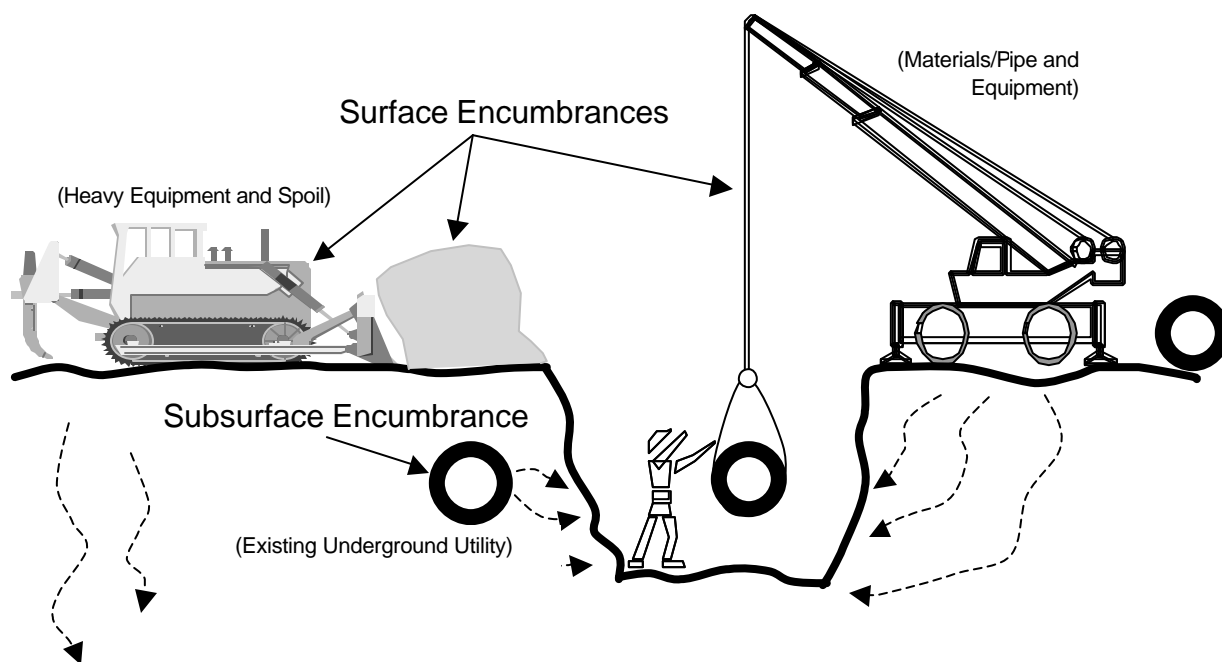
TOOL BOX TALK - SURFACE ENCUMBRANCE HAZARDS (PAGE 1 OF 2)

Hazard Identification...(how workers get hurt)

An encumbrance is anything that creates a hazardous surcharge load on the sides of an open cut trench or excavation and could cause it to cave-in injuring or killing those inside, these things include:

- Equipment/vehicles
- Spoil
- Pipe
- Sources of vibration
- Trench box and/or other protective systems, or parts thereof
- Underground utilities
- Foundations
- Streams
- Water tables
- Transformer vaults
- Geological anomalies

Poor planning and not taking into consideration work area characteristics prior to start of job often account for surface encumbrance hazards.



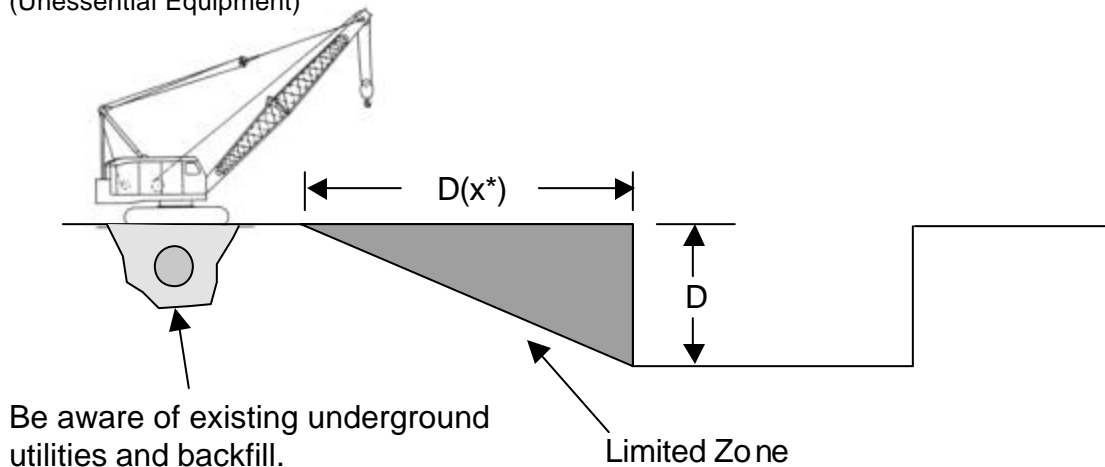
TOOL BOX TALK - SURFACE ENCUMBRANCE HAZARDS (PAGE 2 OF 2)

Hazard Elimination/Control...(how to keep workers safe)

- ❑ Establish a zone around the excavation and allow only essential equipment near the edge (see below). The size and area of the zone is based on soil type and anticipated surcharge loads. Treat this area with limited access, allowing only essential equipment and materials in. By defining this sensitive area, a point of inspection can be referenced.
- ❑ Characterize all equipment and materials associated with the work. Select protective systems and control measures to protect against anticipated surcharge loads (weight, sources of vibration, etc.).
- ❑ Perform daily inspections of the excavation to identify surcharge loads and provide the necessary protection to safeguard employees.
- ❑ Remove employees from excavations who are exposed to hazardous surcharge loads that cannot be eliminated or safeguarded.

LIMITED ZONE AROUND EXCAVATIONS

(Unessential Equipment)



TOOL BOX TALK – UTILITY CONTACT & DAMAGE PREVENTION (PAGE 1 OF 2)

Hazard Identification...(how workers get hurt)

- Not locating underground utilities prior to opening an excavation.
- Not knowing the rules, regulations and best practices for underground utility damage prevention.
- Not protecting, supporting or removing underground installations as necessary to safeguard workers.
- Hitting an underground installation...

Contributing Hazards...(underground utility locating complications)

- Utilities range from steel, cast iron and ductile iron pipes to clay, polyethylene, polyvinyl chloride, and fiberglass reinforced plastic pipes making them difficult to locate.
- Cable may be copper or fiber optic.
- Conduits have different shapes, compositions, densities, and diameters, and their depths may be as little as 0 to 0.5 meter or in excess of 50 meters.
- Some lines (usually local telephone, electric and gas lines) may be stacked vertically in a common trench. Multiple lines may be grouped in a single conduit or duct bank. Multiple utilities may be grouped in common utility tunnels often called utilidors.
- T-Connections and looped service lines near utility boxes often go undetected.

TOOL BOX TALK – UTILITY CONTACT & DAMAGE PREVENTION (PAGE 2 OF 2)

<i>Hazard Elimination/Control...(how to keep workers safe)</i>
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- ❑ Locate all underground installations by notifying the one-call system in your State and follow all local policies and procedures for utility locates.
- ❑ Become familiar with locating technologies and all their uses and limitations.
- ❑ Have utilities mark the location of all underground installations and the contractor is to mark the proposed excavation.
- ❑ Keep all documentation on the job-site showing proof that the one-call was made in the required time.
- ❑ Pothole along the trench path to visually expose all utilities.
- ❑ Observe all established tolerance zones while digging.
- ❑ If you have a suspicion, even after the locations of buried utilities have been determined, hand dig with extreme care. Many cables are buried side by side.
- ❑ Equipment with the potential to contact an underground installation can be identified and safe work practices established. Allow only qualified person to operate any equipment.
- ❑ Protect, support or remove underground utilities as necessary to safeguard employees.

TOOL BOX TALK – ACCESS & EGRESS (PAGE 1 OF 2)

Hazard Identification...(how workers get hurt)

- Excavations that are 4 feet or more in depth with no safe means of access or egress.
- Workers that are more than 25 feet from a means of egress (escape).
- Slipping back in the excavation or being injured when trying to lift oneself up due to a lack of safe egress.
- Being exposed to cave-in hazards while entering or leaving an excavation.
- Climbing out of excavation using unsupported ramps, too steep of a ramp or using a rope tied with knots to *hike* one's way out.
- Structural ramps used for equipment not designed by a competent person qualified in structural design and/or not used in accordance with that design.
- Using step ladders in a closed position and leaning them against the wall of the excavation or trench.
- Using poorly built job-made ladders or other make-shift devices.
- Laying ladders down and using them as ramps and walkways.
- Riding the excavator bucket out of the trench is strictly prohibited.



TOOL BOX TALK – ACCESS & EGRESS (PAGE 2 OF 2)

Hazard Elimination/Control...(how to keep workers safe)

- ❑ Make sure that a safe means of access and egress is provided for excavations deeper than 4 feet.
- ❑ Make sure that a safe means of egress is provided every 25 feet laterally in trenches.
- ❑ Ensure that only a competent person qualified in structural design oversee the construction of any ramp.
- ❑ When using portable extension ladders to gain access and egress to trenches, follow all ladder safety rules (see FIGURE 2c-1).
- ❑ Job-made ladders must be constructed according to ANSI A14.4 – Safety Requirements for Job-Made Ladders.
- ❑ Ladders are to be used with caution around electrical lines, especially metal ladders.
- ❑ Provide a safe means of access and egress for all excavations.
- ❑ Do not allow workers to be exposed to cave-in hazards when entering or leaving an excavation; when using trench shield, position ladder inside box.
- ❑ Ladders are used inside trench shields.
- ❑ Ramps and stairways are often used for larger excavations.

