

Safety Training for the Construction Industry

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Volume 47 Issue 14 April 1, 2024

Subscription

# Protect Yourself from Trench Collapse

A trench can collapse in seconds. If the walls of the trench give way, heavy soil will engulf anything or anyone in its path. Dirt is heavier than you think. One cubic yard can weigh up to 3,000 pounds—or roughly the weight of a small car. This tremendous weight can crush you, causing broken bones and internal injuries. Even if you're not completely buried in the collapse, you could still suffocate because the weight of the soil will prevent you from taking a breath.

Common causes of trench collapse include: excavating near existing structures, unstable soil conditions, heavy rainfall or water accumulation, and lack of proper shoring or sloping techniques. Recognizing these dangers is a first step in preventing injuries and deaths.

Every year, about 40 workers die in trenching accidents. But trenching can be done safely, and accidents and deaths can be prevented, if you follow safe work practices.

- Before excavation work begins, the competent person must determine the soil type and stability.
- Don't enter a trench 5 feet or deeper unless there's a competent person on the jobsite, the trench has been inspected, protective systems are in place, and your supervisor and the competent person say it's safe to do so.
- To prevent collapse, be sure to 1) slope or bench trench walls, 2) shore trench walls with supports, or 3) shield trench walls with trench boxes.

- Regularly inspect trench supports and shoring systems throughout the workday.
- Monitor weather conditions closely, especially during periods of heavy rainfall. Manage water accumulation in the trench.
- Wear all the necessary PPE including your hard hat, steel-toe boots, and high-visibility clothing at all times.
- For safe access and egress in trenches that are 4 feet deep or deeper, you need a ladder, stairs, or ramp within 25 feet of every worker.
- Keep spoil piles, materials, and heavy equipment away from the edge of the trench so they don't fall in on top of you or cause the trench to collapse.

Before you start digging a trench, review the emergency response plan for this jobsite so you know what to do if there is a collapse. Your first 2 steps will most likely be:

- To immediately call 911 for help.
- And to stay out of the trench. If you jump into a trench to rescue someone but you don't have the right training or equipment, you could become a victim, too.

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Some trenches may need to be monitored for hazardous atmospheres that could make you sick.

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Volume 47 Issue 15 April 8, 2024

### Air Quality

No matter what kind of work you do, you have to breathe. Do you ever stop to think about the air you're breathing and whether it's safe for you to breathe it? There are many different kinds of air pollution that can occur on a construction project. Today we'll talk about two of the most common: dust and harmful fumes.

**Construction activities often generate dust,** and while dust is as common as dirt, it's a mistake for you to consider it harmless. Dust can contain particles that pose significant respiratory risks. Hazardous types of dust include silica dust, wood dust, and metal dust.

**Construction materials and processes can also produce harmful fumes.** Some common sources of fumes are: welding, solvents, paints, fuels, and exhaust from gasoline or diesel engines. Long-term exposure to these fumes can lead to serious health issues.

Air quality isn't usually tested and monitored on most jobsites, but you can look for indications that you might need respiratory protection, for instance:

- Outward signs of poor air quality include dust clouds or haze in the air and unpleasant or strong smells or odors.
- Physical symptoms caused by poor air quality include coughing, sneezing, throat irritation, shortness of breath, difficulty breathing, headaches, and dizziness.
- The label or SDS calls for respiratory protection.

Follow these safe work practices to avoid breathing harmful dusts and fumes:

- Attend training that will help you recognize air quality hazards. Learn how to use PPE properly.
- Improve air circulation by using exhaust fans and ventilation systems.
- Use dust collection systems for tools like saws and grinders. When you can, work outside when you're creating a lot of dust.
- Wet down dusty areas before you start work to minimize airborne particles.
- Wear the necessary respiratory protection for the hazard, and make sure it fits properly. In a dusty area, you may only need a simple N95 mask. If there are dangerous fumes in the air, you'll need a respirator with the right filter or cartridge.
- Wear tight-fitting goggles to prevent eye irritation from dust and fumes.
- Schedule work that produces lots of dust for times of day when there aren't as many people in the area.
- Take your breaks in well-ventilated areas with clean air to reduce your overall exposure.

#### **SAFETY REMINDER**

Earbuds aren't hearing protection and bandanas aren't respiratory protection.

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Volume 47 Issue 16 April 15, 2024

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## Take the Long Way

You've been through training, so you know the hazards of your job and the proper procedures for working safely. But sometimes you might be tempted to skip steps or cut corners. Maybe you want to get home to see your family, or a subcontractor is waiting for you to finish your work so they can get started. In these moments, it's crucial to resist the urge to take shortcuts. Instead, prioritize safety and take the long way by: using safe work practices, completing all necessary steps, and avoiding danger. The long way will take a little more time now, but it will produce better quality, prevent accidents, and take less time in the long run. Here are some examples:

Don't walk into danger. Walking through exclusion zones, jumping over trenches, and climbing up the crossbracing of a scaffold can lead to accidents. Always go the right way and use approved access points to prevent falls and other injuries.

Get the right tool. Taking the time to walk over to the gangbox to get the right tool is inconvenient. But taking that walk significantly reduces the risk of accidents caused by using tools the wrong way. A few extra minutes spent getting the right tool can prevent hours of downtime in the emergency room.

Wear the appropriate PPE. You might save a little time if you skip the PPE, but you'd be exposed to hazards including head injuries, cuts, crush injuries, burns, falls, and maybe worse. Take the time to put on your hard hat, gloves, safety shoes, and eye protection.

Maintain personal protective equipment. Maintenance always takes time away from production, but it's time well spent. Cleaning your safety glasses means you can see clearly and could avoid a fall. Changing the cartridge in your respirator could keep you out of the hospital.

Inspect tools and equipment. Before starting any job, take time to inspect tools, equipment, and vehicles thoroughly. Get problems fixed before you start working so you can finish without interruptions.

Stock and refill first-aid kits regularly. In the event of an injury, not having the right medical supplies could lead to a much worse outcome.

Use proper lifting techniques. It takes a few extra seconds to lift properly. It might take a few extra minutes if you wait for someone to help you with a heavy load. And that little bit of extra time could prevent a back injury and the pain and time off work that come with it.

Clean as you go. Keeping your work area clean and organized is essential to preventing slips, trips, falls, and potential fires. Notice when there's just too much stuff sitting around. Stop working for a few minutes to clean up, put away tools, and store extra materials.

#### SAFETY REMINDER

A shortcut could cut your life short. So take the long, safe way, and go home healthy and in one piece!

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Volume 47 Issue 17 April 22, 2024

### Understanding the Hierarchy of Controls

Construction work is dangerous. When you walk onto the jobsite, you need to prioritize safety and control the hazards you face. The hierarchy of controls helps you understand the actions you can take to control hazards. The hierarchy describes 5 different types of controls that are ranked from the top down. At the top is total hazard elimination, and at the bottom is lowering your risk of exposure. When the most effective controls aren't practical, you still have other solutions to use. The ultimate goal is to minimize your exposure to hazards and create a safer work environment.

**Elimination:** At the top of the hierarchy is elimination, since it's the most effective way to deal with hazards. This involves completely removing the hazard from the jobsite. For instance, traffic is a serious hazard during road repairs. If we can close the section of road that's being repaired, the hazard is eliminated because there is no traffic. Elimination may not be practical or possible.

**Substitution:** If elimination isn't feasible, the next best option is substitution. This means replacing a hazardous substance, process, or tool with a safer alternative. For example, you might be able to use water-based paint instead of oil-based paint. It's safer to use water-based paint because you don't need to use dangerous solvents to clean brushes and rollers. Pay close attention to the hazards and dangers created by the substitute. Don't simply swap one hazard for another unless 1) there's a good reason or 2) the overall risk goes down.

**Engineering controls:** This is the next level in the hierarchy and it involves designing the workspace or equipment to minimize hazards. Engineering controls can include physical barriers, ventilation systems, equipment guards, or other safety features. By physically changing the work environment, engineering controls prevent you from coming into contact with the hazards.

Administrative controls: Administrative controls are the next line of defense. These controls include work practices, policies, procedures, and training. The goal is to change where, when, and how you work. Examples include rotating tasks so you spend less time exposed to a hazard, scheduling more frequent breaks to stretch, providing additional training, and limiting access to hazardous areas. Administrative controls rely on human behavior—people have to choose to follow the rules—which makes them less reliable than the controls higher up in the hierarchy.

**Personal Protective Equipment:** At the bottom of the hierarchy is PPE. It's the last option because it relies on people choosing to use it, and because you're exposed to the hazard if it fails. But just because it's at the bottom doesn't mean it's not important. Hard hats, safety glasses, hearing protection, and respirators are crucial safety equipment. PPE is your last line of defense. Wear your PPE!

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The best approach often involves a combination of controls.

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Volume 47 Issue 18 April 29, 2024

### Working While Distracted

Construction sites are busy and loud. In order to work safely, you have to stay focused on your work and be aware of your surroundings all the time. If you get distracted, you're more likely to miss something, overlook a problem, or make a mistake. Any of those can lead to property damage, accidents, injuries, and fatalities.

Distractions that you don't control. It's difficult to concentrate on a jobsite. You're constantly bombarded with distractions like: noises from tools and equipment, bright sunlight, people talking or yelling, back-up alarms, smelly chemicals and exhaust, flashing lights, radio calls, plan changes, and people and machines moving around.

Distractions that you do control personally. Here are a few examples: your smartwatch, your phone, itchy or uncomfortable clothes, sweat running into your eyes, pain, hunger, being too hot or too cold, financial troubles, relationship problems, sick relatives, or worrying about a call from your doctor.

Some distractions are helpful and can save your life. In general, you want to minimize and ignore distractions so you can focus on getting your work done safely and effectively. But your safety might depend on noticing a back-up alarm or someone yelling at you to get out of the way. Try to get rid of distractions that are obviously unhelpful, such as your phone or the sun shining in your eyes. Train yourself to carefully filter helpful distractions like a back-up alarm or the smell of smoke.

#### Here are some ways to help manage distractions:

- Turn off your phone and leave it in your vehicle or your locker. If you do keep it with you, turn off notifications. And turn off notifications on your smartwatch or fitness tracker.
- Take regular breaks. Changing what you're doing and where you are can help you maintain your focus when you get back to work. Drink some water and eat a healthy snack.
- Make personal calls, send texts, and talk with co-workers in designated break areas. Don't use your phone while you work. Talking or texting while walking on a jobsite can be deadly.
- Manage distractions caused by the weather. Pay attention to the weather forecast so you're prepared for the day. Have a pair of safety glasses with tinted lenses to reduce glare on sunny days. Keep rain gear in your vehicle so you can stay dry if it pours.
- Make sure the PPE you wear is comfortable and allows you to move so it doesn't distract you.
- Do your best to put your worries and your excitement about personal issues aside when you get to work.

#### **SAFETY REMINDER**

You need to strike a balance between paying attention to important warnings and ignoring distractions.

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