

MEDIA FACT SHEET

TRENCHES – RISKS AND PREVENTION

The Problem for Construction Workers

Each year, construction workers are injured or killed when the walls of the trench they are working in collapse. In 2016, 33 workers were killed in trench collapses and there were 70 reported injuries.¹

One cubic yard of dirt can weigh 3,000 pounds or more. As a result, survival time in a collapsed trench can be as little as a minute if the victim is buried and there are no air pockets. This means that sometimes, not even immediate rescue can save the victim. Asphyxiation can occur when soil blocks the worker's nose and mouth and/or crushes their chest.²

Following the Occupational Safety and Health Administration's (OSHA) release of the 1989 excavation and trenching standard, trench fatalities declined.³ However, in recent years they have begun to increase. From 2015 to 2016, for example, fatalities doubled.⁴ The absence of a protective system such as shoring, shields, or sloping has been found to be the leading cause of these fatalities.²

Injuries and Fatalities are Preventable

In 2015, OSHA published [Trenching and Excavation Safety](#), which describes employer requirements for preventing cave-ins and other hazards. There are a number of standards, but in general, OSHA requires employers to⁵:

- Provide cave-in protection (e.g., trench boxes, shoring, etc.) for trenches more than 5 feet deep to protect workers in the event of unexpected shifts in the soil that could cause the walls to collapse.
- Keep excavated soil (spoil pile) and other materials and equipment at least two feet from the edge of the trench.
- In trenches that are 4 feet or deeper, provide escape routes, such as a ladder, ramp, or stairway in close proximity (never more than 25 feet away) to where work is being performed.
- Designate a competent person* to perform daily inspections of the trench and adjacent area for signs of hazardous conditions that could result in a cave-in or other injuries. Inspections also need to be conducted after a rainstorm or other hazardous event.

- Test for other hazards such as low oxygen, hazardous fumes, and toxic gases before workers enter an excavation that is more than 4 feet deep.
- Prohibit workers from entering an excavation where water has accumulated or is accumulating unless adequate precautions are taken to protect workers.

CPWR Research and Resources

- **Trench Hazard Alert Card** – a brief, image-driven handout on trench-related hazards, the employer's responsibility, and how to work safely. Available in [English](#) and [Spanish](#).
- **Trench Safety Toolbox Talk** – a short discussion guide for use by foremen or supervisors to raise worker awareness and discuss site-specific actions to prevent a trench incident or fatality. Available in [English](#) and [Spanish](#).
- [Strategies to Prevent Trenching-Related Injuries and Deaths](#) – A 2006 study that used data, interviews with industry stakeholders and safety experts, and observations from site visits to develop new ways to improve trenching safety.

Other Resources

- [Preventing Worker Deaths from Trench Cave-ins](#) – National Institute for Occupational Safety and Health [NIOSH], 2011
- [Trenching and Excavation Safety](#) – OSHA Fact Sheet, 2011
- [Ohio worker's death highlights grim 2016 national stat: trench collapse fatalities have more than doubled](#) – OSHA, 2016

* OSHA defines a "competent person" as "one 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."⁵

About CPWR

CPWR - The Center for Construction Research and Training [CPWR] is a 501(c)3 non-profit dedicated to reducing injuries, illnesses, and fatalities in construction, and currently serves as NIOSH's National Construction Center. Through research, training, and service programs, CPWR works in partnership with industry stakeholders, safety and health professionals, academics, and key government agencies, to identify and find solutions for occupational hazards and improve the safety and health of construction workers. For more information, please visit: www.CPWR.com

References

¹U.S. Bureau of Labor Statistics. *Census of Fatal Occupational Injuries (CFOI) - Current and Revised Data*. <https://www.bls.gov/iif/oshcfoi1.htm>. Accessed March 23, 2018. The data is for the private sector construction industry.

²National Institute for Occupational Safety and Health [NIOSH], 2011. *Preventing Worker Deaths from Trench Cave-ins*. <https://www.cdc.gov/niosh/docs/wp-solutions/2011-208/pdfs/2011-208.pdf>

³Occupational Safety and Health Administration [OSHA], 2007. *Regulatory Review of 29 CFR 1926, Subpart P: Excavations*. https://www.osha.gov/dea/lookback/excavation_lookback.pdf

⁴OSHA, 2016. *Ohio worker's death highlights grim 2016 national stat: trench collapse fatalities have more than doubled*. <https://www.osha.gov/news/newsreleases/region5/11172016>

⁵OSHA, 2015. *Trenching and Excavation Safety*. <https://www.osha.gov/Publications/osa2226.pdf>