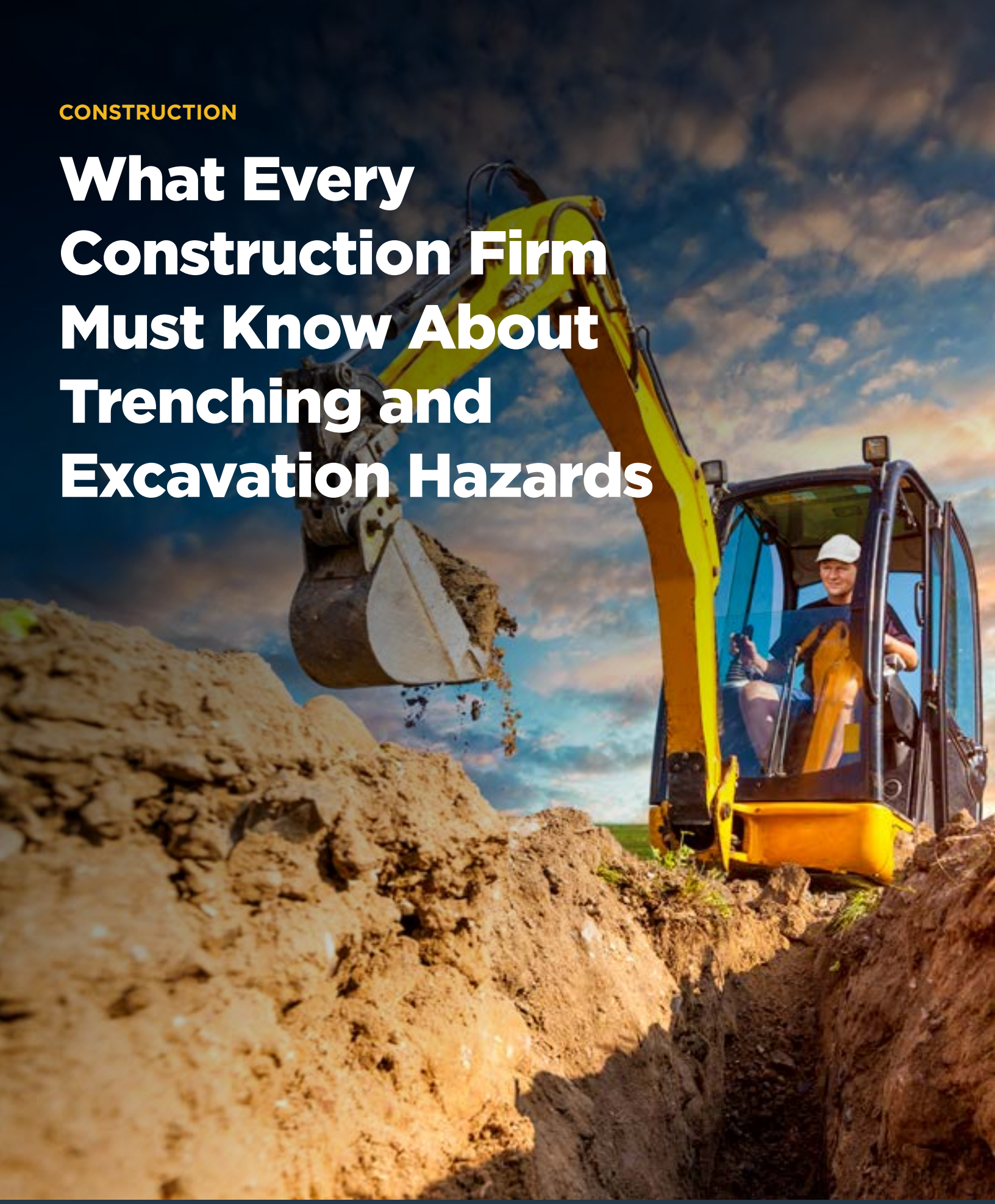
CONSTRUCTION

What Every Construction Firm Must Know About Trenching and Excavation Hazards



Trenching and excavating remains one of the most hazardous activities conducted at construction sites. Yet injuries and deaths from these activities are also among the most preventable. Ensuring that all workers thoroughly understand trenching and excavating safety protocols and enforcing the use of such protocols at each and every site is the key to preventing compensable injuries or deaths from cave-ins, electrocution and other risks.

The deaths of two workers in June 2022 at a central Texas project exemplifies the importance of following trenching and excavation guidelines. The pair, aged 29 and 39, died after the 20-foot-deep unprotected trench they were working in collapsed. It was a wholly preventable incident: The two trench shields that could have protected them sat unused beside the trench.[1]

Due to the increasing number of deaths related to trenching and excavations, the Occupational Safety and Health Administration (OSHA) announced enhanced oversight of excavation and trenching safety compliance in July 2022. With this expanded oversight, OSHA expected to conduct 1,000 trench inspections in 2022 and even more in 2023. Even so, 39 workers died in trench or excavation work in 2022, compared to 15 fatalities in 2021. By April 2023, two trench collapse fatalities had occurred.[2]

Understand the risks

Excavation and trenching are common construction tasks, necessary for projects such as laying utility lines or outlining a building's foundation. The work is labor- and time-intensive, and ripe for risky shortcuts.

Workers involved in excavation and trenching face a variety of hazards:

Collapses. Cave-ins or collapses from excavations that aren't properly sloped and correctly shored up.

Danger from unidentified utility lines. Hitting a non-insulated power line can cause electrocution. A gas line struck during an excavation might explode. Damaged water lines can cause contamination and flooding and lead to cave-ins.

Crushing hazards. Workers can fall into non-fortified trenches — and so can equipment and excavated loads, which can fall in and strike workers.

Suffocation. Excavated areas may have diminished oxygen and/or toxic atmospheres.

[1] Occupational Safety and Health Administration, "Alarming rise in trench-related fatalities spurs US Department of Labor to announce enhanced nationwide enforcement, additional oversight," July 14, 2022.
[2] U.S. Department of Labor Blog, "Protecting Workers from Trenching Hazards," April 5, 2023

The pre-planning factor

Every job involving excavation and trenching needs to be pre-planned. Accidents occur when pre-planning is lacking — and that lack of preparation can also slow an operation down and add to project costs.

To adequately plan for excavation or trenching, a safety evaluation must be conducted by an individual capable of identifying existing and predictable hazards, and able to consider:[3]

- Soil classification.
- Surface and ground water, and location of the water table.
- Physical condition of nearby structures.
- Utilities, above and underground.
- Weather.
- System and equipment needs, including quantity of shoring and protective systems and ladders.

OSHA guidelines for safe excavation

Slope it. Shore it. Shield it. These are key, easy-to-remember OSHA guidelines. More specifically though, the standards cover a wide range of safeguards to protect workers from cave-ins and falls.

For most trenching and excavating, standard protective systems will suffice. For more complex jobs, such as deep excavations, sites with unusual weather and climate influences or locations with variable water content in the soil, the protective system used must be designed for the particular risk according to OSHA specifications.

OSHA also stipulates safe access and exit from the trenching areas, which generally requires the use of steps and ramps. Means of exiting should be spaced so that no worker must move laterally more than 25 feet within the trench. A warning system, such as barricades, is also required to guard against mobile equipment being operated too close to less stable edges of excavated areas.

[3] Occupational Safety and Health Administration, Trenching and Excavation Safety, accessed August 30, 2023.

Specific risks of water and atmospheric hazards

While trench collapses from a lack of basic safety measures are the most common risk to this aspect of construction work, other risks exist.

Water accumulation can create an unstable trench, undermining the stability of the excavation and making it more difficult for workers to exit. When water pools, OSHA requires the use of diversion ditches or dikes to prevent it from entering the trench and to allow for adequate drainage.

Oxygen deficiency is another risk for excavations exceeding five feet in depth. Excavations or trenches in landfill areas or near hazardous material storage sites can also be subject to unhealthy air quality conditions that must be addressed before work begins.

Solutions include providing workers with proper respiratory protection or ventilation, as well as providing emergency equipment, such as rescue breathing apparatus, a safety harness and line and a basket stretcher to evacuate workers if a respiratory incident occurs.

OSHA also requires maintenance of protective systems. Systems that aren't properly maintained can fail and pose hazards. Construction firms should conduct regular examinations of protective equipment and ensure that manufactured materials and equipment are used and maintained according to the manufacturer's recommendations.

Inspections count

Regular inspections are essential to keep trenching and excavation areas safe for everyone. Inspections should be conducted daily, at the start of each shift, and immediately after a rainstorm or other water intrusion, or any other occurrence that could have altered conditions in the trench.

Contact HUB International's **construction insurance** specialists to learn more about protecting your workers and organization from trenching and excavation risks.

Trenching and excavation violations can have catastrophic results. A minor injury resulting from a failure to adhere to OSHA protocols can result in fines — and increased insurance rates. A major incident could result in a worker death, significant penalties and even manslaughter charges against the construction firm owner.[4]

[4] The Occupational Safety and Health Administration, "Facing manslaughter charges in worker's 2021 trench collapse death, Colorado contractor who willfully ignored federal law surrenders to police," January 26, 2023.

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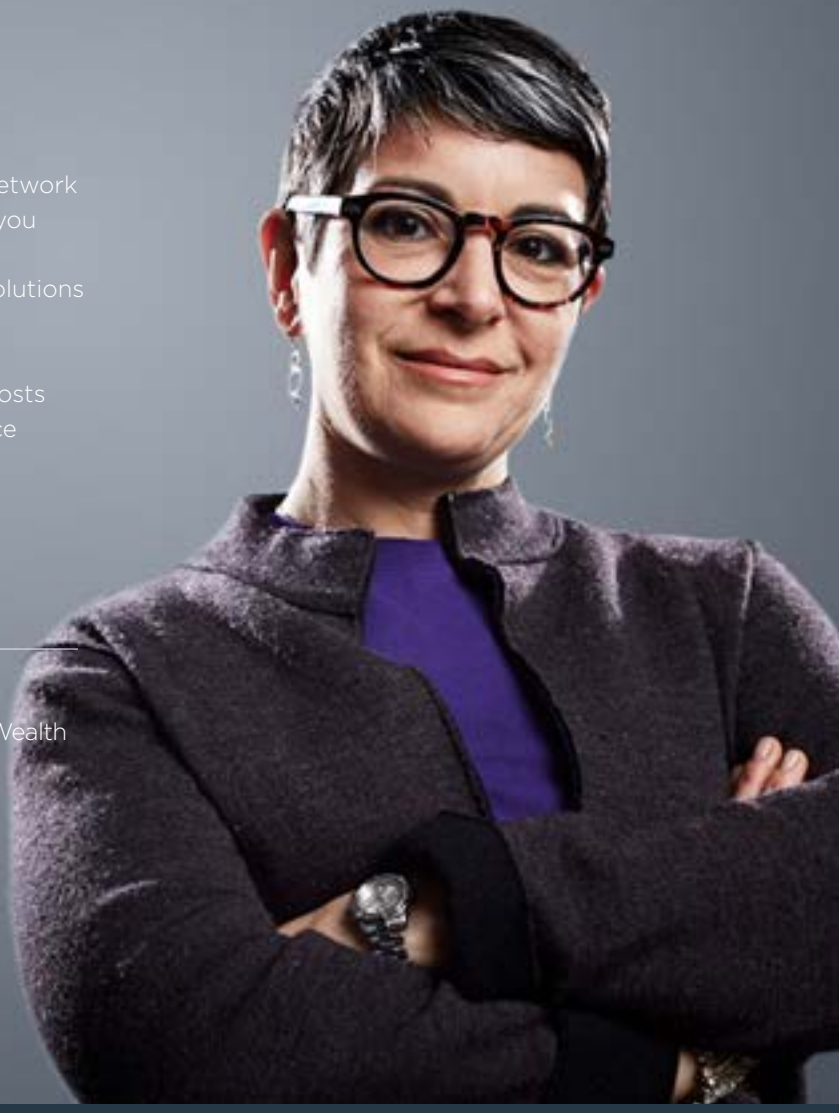

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