

# Excavation Safety by the Numbers



From 2011 to 2018, the Bureau of Labor Statistics (BLS) reports that 166 workers died in trench collapses. In 2019, OSHA reported 24 workers died while working on trenching and excavation projects.

OSHA 1926.652(a)(1) requires each employee in an excavation be protected from cave-ins by an adequate protective system unless the excavation is made entirely in stable rock or the excavation is less than five feet in depth and an examination of the ground by a competent person provides no indication of a potential cave-in.

Additional numbers to consider when working in an excavation include:

- **18 inches** – Tolerance zone on either side of an underground utility mark that requires hand digging to locate the marked utility lines.
- **2 feet** – Distance equipment, surcharge, spoils, or other materials must be set back from the excavation wall edge.
- **2 feet** – Depth level of excavation materials permitted below members of a support or shield if the system is designed for the full depth of the trench and there's no loss of soil from behind or below the system.
- **3 feet** – Length a ladder must extend above the top of the excavation wall or protective system.
- **4 feet** – Excavation depth when a safe means of egress such as a ramp, ladder, or stairway must be provided.
- **4 feet** – Excavation depth when the atmosphere must be tested if oxygen deficiency or hazardous atmosphere does or is reasonably expected to exist.
- **6 feet** – Depth of an obscured excavation that requires fall protection.
- **10 feet** – Vertical distance required to be maintained when working around 50,000-volt power lines.
- **20 feet** – Maximum depth OSHA allows for the use of benching, sloping, or timber and aluminum hydraulic shoring as a means for an excavation protective system.
- **20 feet** – Depth an excavation protective system must be designed by a registered professional engineer.
- **25 feet** – Maximum lateral travel to a safe means of egress while working in an excavation.
- **19.5 percent** – Minimum amount of oxygen that must be present before employees can enter an excavation that's greater than 4 feet in depth.

