

What is a Confined Space?

A confined space does not necessarily mean a small, enclosed space. It could be rather large, such as a ship's hold, a fuel tank or a pit.

One of the first defining features of a confined space is it's large enough to allow an employee to enter and perform work. The second defining feature is it has limited means of entry or exit. Entry may be obtained through small or large openings and usually there is only one way in and out. The third defining feature is that confined spaces are not used for continuous or routine work.

Permit or not

All confined spaces are categorized into two main groups: non-permit and permit-required. Permit-required confined spaces must have signs posted outside stating that entry requires a permit. In general, these spaces contain serious health and safety threats including:

- Oxygen-deficient atmospheres
- Flammable atmospheres
- Toxic atmospheres
- Mechanical or physical hazards
- Loose materials that can engulf or smother

Although the danger in a confined space is obvious, the type of danger often is not. For example, a confined space with sufficient oxygen might become an oxygen-deficient space once a worker begins welding or performing other tasks.

These are some of the reasons confined spaces are hazardous:

- Lack of adequate ventilation can cause the atmosphere to become life threatening because of harmful gases.
- The oxygen content of the air can drop below the level required for human life.
- Sometimes a confined space is deliberately filled with nitrogen as a fire prevention technique. Nitrogen cannot sustain human life, so you must use respiratory protection.
- Many gases are explosive and can be set off by a spark.
- Even dust is an explosion hazard in a confined space. Finely-ground materials such as grain, fibers and plastics can explode upon ignition.
- Confined spaces often have physical hazards, such as moving equipment and machinery.
- Tanks and other enclosed confined spaces can be filled with materials unless the flow process for filling it is controlled.

Before entering any confined space you must test the atmosphere to determine if any harmful gases are present. There must also be radio contact with an attendant outside the confined space and a rescue team at the ready in case of an emergency.

What confined spaces do we have around our workplace? Which are permitted? Can any of them be reclassified?

Source: <http://safetytoolboxtopics.com/Confined-Space/what-is-a-confined-space.html>

October Vivid Courses:

Custodial: Catch Up

Office: Catch Up

Operations: Confined Spaces

Excavation, Trenching, & Shoring

Trenching and Excavation Safety

Excavation and trenching are among the most hazardous construction operations. OSHA defines an excavation as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. A trench is defined as a narrow underground excavation that is deeper than it is wide, and is no wider than 15 feet (4.5 meters).

Dangers of Trenching and Excavation

Cave-ins pose the greatest risk and are much more likely than other excavation related accidents to result in worker fatalities. Other potential hazards include falls, falling loads, hazardous atmospheres, and incidents involving mobile equipment. Trench collapses cause dozens of fatalities and hundreds of injuries each year.

Protect Yourself

Do not enter an unprotected trench! Trenches 5 feet (1.5 meters) deep or greater require a protective system unless the excavation is made entirely in stable rock. Trenches 20 feet (6.1 meters) deep or greater require that the protective system be de-signed by a registered professional engineer or be based on tabulated data prepared and/ or approved by a registered professional engineer.

Protective Systems

There are different types of protective systems. Sloping involves cutting back the trench wall at an angle inclined away from the excavation. Shoring requires installing aluminum hydraulic or other types of supports to prevent soil movement and cave-ins. Shielding protects workers by using trench boxes or other types of supports to prevent soil cave-ins. Designing a protective system can be complex because you must consider many factors: soil classification, depth of cut, water content of soil, changes due to weather or climate, surcharge loads (eg., spoil, other materials to be used in the trench) and other operations in the vicinity.

Competent Person

OSHA standards require that trenches be inspected daily and as conditions change by a competent person prior to worker entry to ensure elimination of excavation hazards. A competent person is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees and who is authorized to take prompt corrective measures to eliminate or control these hazards and conditions.

Access and Egress

OSHA requires safe access and egress to all excavations, including ladders, steps, ramps, or other safe means of exit for employees working in trench excavations 4 feet (1.22 meters) or deeper. These devices must be located within 25 feet (7.6 meters) of all workers.

General Trenching and Excavation Rules

- Keep heavy equipment away from trench edges.
- Keep surcharge loads at least 2 feet (0.6 meters) from trench edges.
- Know where underground utilities are located.
- Test for low oxygen, hazardous fumes and toxic gases.
- Inspect trenches at the start of each shift.
- Inspect trenches following a rainstorm.
- Do not work under raised loads.

Source: https://www.osha.gov/Publications/trench_excavation_fs.html