

KSU Facilities Safety Bulletin

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Confined Space Overview

Confined spaces - such as manholes, crawl spaces, and tanks - are not designed for continuous occupancy and are difficult to exit in the event of an emergency. People working in confined spaces face life-threatening hazards including toxic substances, electrocutions, explosions, and asphyxiation.

Confined spaces are enclosed or partially enclosed spaces of a size such that a worker can squeeze entry for performing assigned work through a narrow opening—they're tough to get in and out of, tight spaces. These spaces are normally only entered to perform specific tasks and then barricaded to prevent unauthorized access.

Many confined spaces are also poorly ventilated, so the release of vapors which might otherwise be released into the open air can create an oxygen-deficient, toxic, combustible, or otherwise harmful atmosphere. Exposure to these atmospheres can result in immediate asphyxiation, acute or chronic poisoning, or impairment that can result in injury. Asphyxiation is the leading cause of death in confined spaces. Confined spaces can also pose the hazard of asphyxiation or other injury from engulfment in the materials within the space, such as grain or sawdust within a silo.

Confined spaces kill when several unexpected situations develop.

Oxygen deficiency is one probable factor contributing to confined space accidents. This is when the air in a confined space is consumed by chemical or biological reactions, diluting the percentage of oxygen in the immediate atmosphere to below 21%, causing increasingly negative physiological responses as that percentage declines.

Oxygen displacement is another killer in confined spaces. Typically, this is when inert gas is present at levels that remove oxygen from the chamber, essentially crowding out the normal air we breathe and replacing it with, say colorless, odorless gases like nitrogen or carbon dioxide, creating a situation of complete suffocation for workers.

Source:
<https://vividlearningsystems.com/courses/5-minute/confined-spaces-overview>

October Vivid Courses

Custodial: Confined Space Overview

Office: Catch up

Operations: Confined Space Overview
Excavation, Trenching and Shoring Safety

Excavation, Trenching and Shoring Safety

Before you begin any excavation, trenching, and shoring activities, you need to take specific steps to setup the site to avoid the accidental disruption of utilities, and assure the stability of adjacent structures—you need to engineer some controls and take precautionary measures. For examples, you need to ensure your safe access into and out of the excavation and avoid the hazards of contaminated atmospheres, falling materials, and the collapse of excavation walls, through the use of protective systems. There's a lot that can go wrong with these scenarios, so awareness and preparedness are, as usual, critical priorities for protecting the workforce.

Prior to opening an excavation, you must take the proper steps to protect yourself, other employees, and any underground equipment. One of the first steps is for your employer to determine the location of utility installations, such as sewer, telephone, fuel, electric, and water lines, or any other underground installations. Most areas have a 'call before you dig' local resource for locating problem dig areas, so that's a good number to have and share with your team; if excavation work is a daily part of your business, that number should be memorized.

To ensure your safety, the excavation must have a proper method of access and escape. Depending on the size of the excavation, this can include structural ramps, stairs, or ladders, used only by authorized employees; it is important to clearly mark areas to keep non-participants, like other contractors on a job site, out and away for excavation operations.

Source:
<https://vividlearningsystems.com/courses/osha/excavation-trenching-and-shoring-safety>