

Confined Spaces - What You Need to Know

Confined space entry is one of the leading causes of occupational fatalities in the United States. Experts in the area of confined space awareness believe confined space deaths typically occur for two reasons. First, employers and workers fail to recognize and control the hazards associated with confined spaces; and secondly, they are inadequate or incorrect in their emergency response, resulting in the death of the initial entrant, the would-be rescuer or both.

A person can bodily enter a confined space, that is not conducive to "continuous occupancy." This is referred to as a permit space. A permit space has a potential or actual threat: hazardous atmosphere, engulfment, entrapment and/or suffocation. Some examples of permit space are:

- Chemical storage tanks
- Pipelines and lift stations
- Tunnels and waste water tanks
- Air handling units and catch basins
- Furnaces and sewers
- Boilers and underground
- Retention basins and manholes
- Valve pits, grain bins and waste storage pits.

What Are the Usual Hazards of a Permit Space?

- Engulfment
 - Liquids and loose solids like grain, sand and other granular substances
 - Inadvertent opening of in-feed and/or out-feed lines
- Oxygen deficiency
- Oxygen enrichment and flammable gases and vapors
- Combustible dust
- Chemicals
 - Hydrogen sulfide
 - Carbon Monoxide from internal combustion engines
- Electrical and mechanical hazards
- Poor visibility and biohazards
- Noise

- Radiation
- Extreme temperatures.

A non-permit space, on the other hand, has no actual or potential hazards because they have been removed or eliminated. Typical examples are:

- Utility closets
- Cable vaults
- Storage vaults
- Utility sub-basements
- Trenches (in most cases).

How Can Hazards Be Controlled or Eliminated?

Purging, flushing, and ventilating are some of the ways to remove or manage atmospheric hazards. Forced air ventilation, however, doesn't necessarily do away with the dangers. Atmospheric testing is also a common procedure. Hazards must be checked in the following sequence: oxygen content, combustibility/flammability and atmospheric toxicity. Material Data Safety Sheets outline safety procedures while working with chemicals in confined spaces.

What This Means For Counties

County leads should know the types of hazards as well as signs and symptoms associated with them. They should always use the necessary equipment, communicate with and alert others of possible/actual dangers and leave the permit space as soon as a prohibited condition is recognized. They should also know the types of hazards as well as signs and symptoms associated with them. It may be necessary for all groups to learn the entry procedures and hazards. The CTSI Loss Prevention Team is able to provide the necessary training.

For more information, contact CTSI at 303-861-0507.