

BIE SAFETY ADVISOR

Is 911 Your Confined Space Rescue Plan?

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 physical and atmospheric hazards including toxic substances, electrocutions, explosions, and asphyxiation. Construction workers often perform tasks in such spaces.

OSHA has developed a standard for Confined Spaces in Construction (29 CFR 1926 Subpart AA). A **confined space** is a space that meets **all** of the following criteria, **1**) Is large enough for a worker to enter, **2**) Has limited means of entry or exit and **3**) Is not designed for continuous occupancy. A **permit required confined** space or permit space is a confined space that has one or more of the following characteristics, **1**) Contains or has a potential to contain a hazardous atmosphere or **2**) Contains a material that has the potential for engulfing an entrant or **3**) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or **4**) Contains any other recognized serious safety or health hazard.

One provision of the standard requires employers to develop and implement procedures for summoning rescue or emergency services in permit-required confined spaces. An employer who relies on local emergency services for assistance is required to meet the requirements of §1926.1211 — *Rescue and emergency services*.

OSHA recognizes that not all rescue services or emergency responders are trained and equipped to conduct confined space rescues. When employers identify an off-site rescue service, it is **critical** that the rescuers can protect their employees. The emergency services should be familiar with the exact site location, types of permit-required confined spaces and the necessary rescue equipment.

For Employers

Calling emergency responders to provide rescue services can be a suitable way of providing for rescues in a permit-required confined space. Pre-planning will ensure that the emergency service is capable, available and prepared.

Prior to the start of the rescue work operation, employers must evaluate prospective emergency

responders and select one that has:

- Adequate equipment for rescues, such as: atmospheric monitors, fall protection, extraction equipment, and self-contained breathing apparatus (SCBA) for the particular permit-required confined spaces.
- The ability to respond and conduct a rescue in a timely manner based on the site conditions and is capable of conducting a rescue if faced with potential hazards specific to the space such as:
 - Atmospheric hazards (e.g., flammable vapors, low oxygen)
 - Electrocution (e.g., unprotected, energized wires)
 - Flooding or engulfment potential
 - Poor lighting
 - Fall hazards
 - Chemical hazards
- Agreed to notify the employer in the event that the rescue team becomes unavailable.

Employers must also: **Inform** the emergency responders of potential hazards when they are called to perform a rescue at the worksite; and **Provide** emergency responders with access to all permit-required confined spaces. Such access may include: information on access routes, gates or landmarks, a project site plan if necessary and GPS coordinates if in a remote location. Additionally, employers should ensure that: the most efficient means to contact emergency responders is available, any changes to the project site conditions are communicated to the rescue service; and emergency responders are willing to visit the site and conduct a joint training exercise with the employer.

For more information on confined spaces in construction, visit:

<https://www.osha.gov/confinedspaces/index.html#standard>

Information for this article was obtained from <https://www.osha.gov/Publications/OSHA3849.pdf>



Confined Spaces

Many construction sites have the potential to have confined spaces. Examples of confined spaces include manholes, storage tanks, boilers, vaults and pipelines. Confined spaces may present a hazard to entrants and safe entry procedures and practices must be strictly adhered to ensure safe entry. All entry into confined spaces must be in accordance with a confined space entry program and permit specific to the space you will be entering.

Confined Spaces

A space must meet all of the following criteria to be considered a confined space:

- A space that is large enough to bodily enter
- A space that has limited means of entry or exit
- A space not designed for continuous employee occupancy

Permit Required Confined Space

Means a confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential for engulfing an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross--section, or.
- Contains any other recognized serious safety or health hazard.

Confined Space Hazards

Atmospheric Hazards

- Oxygen concentration below 19.5% or above 23.5%.
- Flammable gas greater than 10% of the Lower Explosive Limit (LEL), Atmospheres exceeding the OSHA Permissible Exposure Limit (PEL),
- Airborne combustible dust that obscures vision at 5ft. or less.

Configuration Hazards

- Internal configurations that could entrap or asphyxiate an entrant by inwardly converging walls or floors that taper to a smaller cross-section
Example: hoppers, bins and tanks
- Engulfment Hazards Where there is a potential for a liquid or solid material to drown, capture or asphyxiate an entrant. Examples include water, grains and soils.

Other Hazards

Other hazards may include electrical hazards, mechanical hazards, chemical hazards, steam hazards, extreme temperatures, slippery floors, poor and noise.

Confined Space Entry Procedures

- All personnel involved with the entry must have received confined space training covering confined space hazards, employee responsibilities, confined space safety equipment and safe entry procedures.
- Prior to entry, the space must be assessed for all real and potential hazards and the applicable permit must be completed.
- Eliminate all hazards prior to entry when feasible. Utilize Lock/Tag/Verify procedures when required.
- Complete and record pre-entry air quality measurements. Continuously monitor the space during entry.
- Obtain and set up all safety equipment including air monitors, barricades, and ventilation equipment when required.
- Utilize a trained Attendant.

