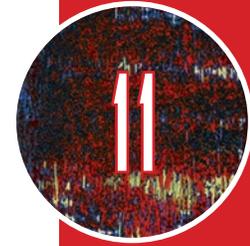


CONFINED SPACES

Confined spaces have potential to be dangerous places. Serious injuries and even death can result when workers enter a space with hazardous conditions and have difficulty getting out. Knowledge of these areas, and procedures for working in and around them, are important for the safety of employees.

Storage tanks, utility vaults, scale pits, air handling equipment, and crawl spaces are examples of possible confined spaces facility maintenance employees may encounter. It is important to understand what defines a confined space. More important is understanding and identifying what makes a space a more hazardous “permit-required” confined space and what should be done to make entry safe.



CONFINED SPACES



CONFINED SPACE

To be considered a confined space, an area needs to have the following three characteristics:

1. It is large enough that an employee may enter. If the space is not large enough to allow someone inside, it is not considered a confined space.
2. It has a restricted means for entry or exit. This would include small or drop-down openings, ladders or anything that makes it difficult to get into or more important out of the space.
3. It is not designed for continuous employee occupancy. The space is only occasionally entered and not used on a routine basis. Often this space has poor lighting or ventilation.

PERMIT-REQUIRED CONFINED SPACE

A permit-required confined space meets the criteria above, plus has at least one of the following characteristics:

- Contains or has the potential to contain a hazardous atmosphere. This could include a flammable, toxic or oxygen-deficient atmosphere. Consideration should be given to confined spaces that have the potential to develop a hazardous atmosphere. For example, when opened, it could fill with carbon monoxide or other gases from the surrounding environment.
- Contains a material that could engulf an entrant. This is typically a dry bulk material, such as salt or sand; however, trenches and excavation also present the possibility of collapse or flooding.
- Has a design that could trap an entrant. This includes sloping floors or inwardly converging walls.
- Contains other recognized safety or health hazards. Electrical, fall, heat, noise and moving parts hazards are all examples of conditions that qualify.

If an area qualifies as a permit-required confined space, these steps should be taken:

1. Employees must be notified of the presence of the permit-required confined space. This can be accomplished through the use of identifying signage and training.



A permit-required confined space may have a design that could trap an entrant.

2. Determination must be made whether the space will be made enterable or worked in by employees. If not, measures must be taken to prevent entry into the space. If the space needs to be entered, a series of procedures must be followed and incorporated into a written program. As required by OSHA, the written program must include all of the following:*

- Implement necessary measures to prevent unauthorized entry.
 - Identify and evaluate permit space hazards before allowing employee entry.
 - Test atmospheric conditions in the permit space before entry operations and monitor the space during entry.
 - Perform appropriate testing for the following atmospheric hazards in this sequence: oxygen, combustible gases or vapors, and toxic gases or vapors.
 - Establish and implement the means, procedures and practices to eliminate or control hazards necessary for safe permit-space entry operations.
 - Identify employee job duties.
 - Provide and maintain, at no cost to the employee, personal protective equipment and any other equipment necessary for safe entry and require employees to use it.
 - Ensure that at least one attendant is stationed outside the permit space for the duration of entry operations.
 - Coordinate entry operations when employees of more than one employer are working in the permit space.
 - Implement appropriate procedures for summoning rescue and emergency services, and preventing unauthorized personnel from attempting rescue.
 - Establish in writing and implement a system for the preparation, issue, use and cancellation of entry permits.
 - Review established entry operations annually and revise the permit-space entry program as necessary.
 - Implement the procedures that any attendant who is required to monitor multiple spaces will follow during an emergency in one or more of those spaces.
3. Entry permits must be obtained and displayed outside of the permit-required confined space when work is being performed. These permits require that pre-entry precautions have been followed and are signed by the entry supervisor.
 4. All employees required to enter the permit-required space must be trained to ensure that they have the understanding, knowledge and skills to work safely in this environment.
 5. If rescue service personnel cannot respond in a timely manner (within three to four minutes) in the event of an emergency, trained individuals must be on hand with appropriate rescue equipment and valid first-aid, CPR certification. Any authorized person entering the permit-required space must also be equipped with a chest harness and retrieval line or other equivalent rescue gear.



Many serious injuries and deaths have occurred when unprepared individuals attempt to rescue someone from a permit-required confined space without proper training or equipment. Employees should be made aware that only trained rescue service personnel are to retrieve an individual.

Further safety rules and regulations regarding confined spaces can be primarily found in OSHA Standard 29 CFR1910.146, Permit-required Confined Spaces.

*From "Permit-Required Confined Spaces," OSHA.gov.



PERMIT-REQUIRED CONFINED SPACE (PERMIT SPACE) CHECKUP

ITEM	YES	NO	ACTION ITEM
Are all confined spaces identified as "permit required" or "nonpermit required"?			
If permit spaces are not meant to be entered, are they secured to prevent entry?			
If the confined space is below ground and near areas where motor vehicles will be operating, is it possible for vehicle exhaust or carbon monoxide to enter the space?			
Is the confined space checked for decaying vegetation or animal matter, which may produce methane or sulfurous gases?			
Are all permit spaces labeled as appropriate?			
Is there a written permit-required confined space entry program in place, and is it up to date?			
Are affected employees trained in permit space procedures?			
Is adequate illumination provided for the work to be performed in the permit space?			
Are appropriate tests performed to check for hazardous atmosphere or substances at various elevations in the permit space before entry?			
Are all impellers, agitators or other moving parts and equipment inside permit spaces locked out if they present a hazard?			
Are all lines to a permit space that contain inert, toxic, flammable or corrosive materials valved off, and disconnected or separated before entry?			
Is either natural or mechanical ventilation provided prior to permit space entry?			
Whenever combustion-type equipment is used in a permit space, are provisions made to ensure the exhaust gases are vented outside of the enclosure?			
Is the atmosphere inside the permit space frequently tested or continuously monitored during work?			
Is approved respiratory equipment required if the atmosphere inside the permit space cannot be made acceptable?			
Is all portable electrical equipment used inside permit spaces either grounded and insulated or equipped with ground fault circuit interrupter protection?			



CONFINED SPACE CHECKUP CONTINUED

ITEM	YES	NO	ACTION ITEM
Are entry permits displayed outside the permit-required confined space when work is being done inside?			
Is each authorized entrant equipped with a retrieval line and harness (or effective alternative) before entering the permit space?			
Is there a trained and equipped standby employee positioned outside the permit space whose sole responsibility is to monitor the work in progress, sound an alarm if necessary and render assistance?			
Are employees or emergency responders trained and equipped to respond to emergency situations in a timely manner?			