

18.1: Introduction to Confined Spaces

Introduction

Confined Spaces are encountered on many types of jobsites. OSHA defines a confined space as one that has limited or restricted means of entry or exit, is large enough for an employee to enter and perform work, and is not designed for continuous employee occupancy. OSHA also classifies permit-required confined spaces. The spaces meet the definition of a confined space as above, but have one or more of the following:

1. The potential to contain hazardous atmospheres.
2. Contains materials that have the potential to engulf the entrant.
3. Has an internal configuration with inwardly converging walls or floors that slope downward.
4. Contains other recognized serious safety or health hazards.

Examples of Confined Spaces

Examples of confined spaces include **silos, vats, hoppers, utility vaults, tanks, sewers, pipes, access shafts, truck or rail tank cars, aircraft wings, boilers, manholes, manure pits and storage bins. Ditches and trenches** may also be a confined space when access or egress is limited, as well as attic and subfloor crawl spaces or other spaces subject to the accumulation of hazardous atmospheres.

Permit-Required Written Program

If employers have permit-required confined spaces that employees will enter, then they must develop a written PERMIT SPACE program. In addition, if contractors are hired by the employer, they must be made aware of permit spaces and permit space entry requirements, any identified hazards, and precautions or procedures to be followed when in or near permit spaces.

Required components

Some of the required components of the written permit space program that the employer must ensure are carried out are:

1. Identify & evaluate permit space hazards.
2. Test conditions in the Confined space before entry begins and monitor the space during entry.
3. Perform appropriate atmospheric testing for oxygen combustible gases or vapors, and toxic gases or vapors.
4. Means to prevent unauthorized entrance into confined spaces.
5. Means to verify acceptable entry conditions.
6. Identify employee job duties.
7. Provide the required PPE for entrants.
8. Ensure at least one attendant is stationed outside the confined space at all times.
9. Implement proper procedures for summoning rescue and emergency services.

Permit system requirements

An important part of a confined space program is a workable system for issuing confined space entry permits. The permit system must provide means for:

1. Issuance of a permit, signed by the entry supervisor and verifying that pre-entry preparations have been completed and that the space is safe to enter. The duration of the permit must not exceed the time required to complete the work.
2. Use of permits that contain the atmospheric test results, tester's initials, name and signature of entry supervisor, name of permit space to be entered, names of entrant, attendant and supervisor, purpose of entry, control measures, such as lockout/tagout that need to be taken, name & phone number of rescue services, date and duration of entry, acceptable entry conditions, communication procedures, additional permits required, such as: hot work, special equipment or procedures required, and any other information needed to ensure employee safety.

Training and Education

Employer requirements

Employers must ensure that all workers who are required to work in confined spaces be adequately trained. Training must occur before the initial assignment, if job duties change, if there is a change in the permit space program, or when the employee shows

deficiencies in his or her job performance.

Rescue team member training

Training is also required for rescue team members, including CPR and first-aid training. Upon completion of training, employees must receive a certificate of training containing the employee's name, the name of the trainer, and the date of the training.

Job Duties

Authorized Entrant

The authorized entrant is the employee who is permitted to enter the permit-required confined space. The entrant's duties are as follows:

1. Know the space hazards including the signs of exposure.
2. Use the required and appropriate PPE.
3. Maintain communication with authorized attendant.
4. Exit from permit space as soon as ordered by attendant and when signs or symptoms of exposure exist.
5. Alert the attendant when a prohibited condition exists.

Authorized Attendants

The attendant is the employee who stands by, at the entrance to the confined space, while an entrant is inside. The attendant's duties are as follows:

1. Remain outside the space during the entry unless relieved by another authorized attendant.
2. Perform non-entry rescue when necessary.
3. Know existing and potential space hazards.
4. Maintain communication with authorized entrant.
5. Order evacuation of space when a prohibited condition exists or when worker shows signs of exposure.
6. Summon rescue and emergency services when necessary.
7. Ensure that unauthorized personnel do not enter spaces.
8. Inform authorized entrants and entry supervisor of entry by unauthorized persons.
9. Perform no other duties that interfere with the attendant's primary duties.

Entry Supervisor

The entry supervisor is the person who takes the responsibility of implementing the procedures of the confined space program. The responsibilities of the entry supervisor are to

1. Know the space hazards and the signs or symptoms of exposure.
2. Verify that the required emergency plans, permits tests and procedures have been followed before allowing entry.
3. Terminate entry and cancel permits when entry is complete or the entry conditions change.
4. Ensure unauthorized entrants are promptly removed.
5. Ensure that entry procedures remain consistent with the entry permit and that acceptable entry conditions are maintained.

Emergencies

The last part of the standard contains provisions for the summoning of rescue squads or emergency services in the event that there is a problem during the entry. The standard requires that:

1. The rescue squad be trained in the proper use of PPE and rescue equipment and be properly equipped to perform the rescue.
2. All rescuers must be trained in first-aid and CPR and at least one rescue team member must be currently certified as such. The rescue team must practice rescue exercises annually under actual rescue conditions.
3. Entrants who must enter a permit space must wear a chest or full body harness with a retrieval line attached to the center of the back near the shoulder level, or above their heads. Wristlets may be used where the use of a chest or body harness is infeasible or creates a greater hazard.
4. The other end of the retrieval line must be connected to a mechanical device or a fixed point outside the permit space. If the space contains a vertical depth of five feet or more, a mechanical device must be available to retrieve personnel.
5. SDS sheets, for the substances in the confined space(s), must be available to the medical facility treating the exposed entrant.

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