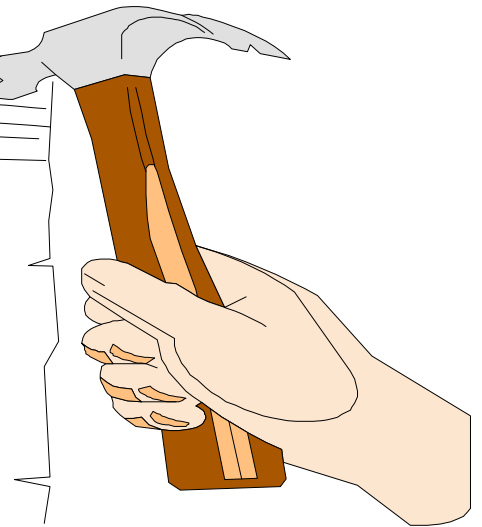


# T E A C H T O O L S

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## *#22 - Confined Spaces*

*provided by:*

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# Confined Space



## Suggested Activities—

- Distribute copies of your city's written confined space safety program.
- Show barriers and signs for a permit-required confined space.
- Show and review a confined space permit.
- Demonstrate the different roles of attendants and authorized entrants using qualified demonstrators.

For additional information, refer to the Background text below.

## Background—

Approximately 1.6 million general-industry workers each year enter confined spaces—boilers, sewers, tank cars, silos, etc. In a recent year, nearly 13,000 of them were injured—over 5,000 seriously, including at least 60 deaths. OSHA believes that compliance with its Permit-Required Confined Spaces Standard (29 CFR 1910.146) can prevent many of these accidents.

The Permit-Required Confined Spaces Standard focuses on areas with immediate health or safety risk—from toxic, explosive, and asphyxiating atmospheres to possible engulfment by liquid or small particles such as grain or sawdust. Employers are required to identify all such spaces in their workplaces, prevent unauthorized entry into these spaces, and develop a program for authorizing and protecting those who will interact with these spaces. The authorization/protection program must include:

- A policy on entry permits—what permits must cover, who will be responsible for issuing (and canceling) them, and how long they have to be kept.
- Control and monitoring of hazardous conditions in confined spaces.
- Standby “attendants.”
- Arrangements for rescue and other emergency services.
- Communication of hazards to workers (including contractors' employees).
- Appropriate training and equipment for authorized entrants, attendants, and “entry supervisors.”

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## Identification Comes First—

The identification of confined spaces is the first task your city must undertake to assure compliance. A confined space is one that's big enough for employees to enter, but which has limited means of entry/exit and is not designed for continuous employee occupancy. However, not every confined space presents the hazards that would make a permit necessary for entry. It becomes a permit-required space if it presents or has the potential for any recognized serious hazard. Of specific concern are hazards relating to:

- Atmospheric conditions—the presence of toxic substances, risk of fire/explosion, or a danger of asphyxiation due to lack of oxygen.
- Engulfment—being immersed or buried in the contents of the space (as by grain in a silo).
- Configuration—an interior shape, such as sloping floors, that could cause the worker to slip or fall, possibly into a space too tight to get out of, or into adjacent machinery.

## Getting with the Program—

OSHA estimates that there are at least 240,000 workplaces in which confined spaces do present such potentially serious hazards. In addition to methods of identifying permit-required spaces, city programs must cover ways to prevent unauthorized entry and to ensure the safety of authorized entrants. These prevention measures include:

- Testing and monitoring conditions inside the space.
- A system for preparing, issuing, using, and canceling entry permits.
- Stationing an attendant outside permit spaces during entry.
- Procedures to summon rescuers and prevent unauthorized personnel from attempting rescues (Would-be rescuers have accounted for almost half of the past fatalities in confined spaces!)
- Coordinated entry for all employees—including contract workers. (It is the “host” employer’s responsibility to provide information to the contractor on the potential hazards and on the permit program.)
- Procedures for concluding entry operations and canceling the permits.
- Review of the entire permit program as needed, but at least annually.
- Appropriate signs and barriers to inform and protect exposed employees not involved in the entry operation.

## Persons Involved—

A number of different individuals or teams are involved in assuring that the entry and the work inside the confined space are carried out safely from beginning to end.

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Entry supervisors authorize entry and prepare/sign written entry permits. Entry supervisors first make sure that all necessary tests have been conducted and that rescue services are available and can be readily contacted. The entry supervisor also has the responsibility to:

- Bar or remove unauthorized individuals from confined space.
- Make sure acceptable conditions are maintained when the shift changes or a new entry supervisor takes over.
- Terminate entry and cancel permits when work is completed or other circumstances warrant.

Authorized entrants actually enter the permit-required confined space to perform various tasks—cleaning, maintenance, and occasionally hot work. They must:

- Be alert to conditions around them (e.g., odors, changes in temperature) and any physical side effects they may develop (e.g., drowsiness, irritated eyes or throat). Conditions need to be communicated to the attendant.
- Use protective and other equipment properly.
- Exit promptly when a “prohibited condition,” physical side effect occurs, or when ordered to evacuate by an authorized person or an alarm.

Attendants’ primary duties are to monitor and protect the safety of authorized entrants. They must not perform other duties that would interfere with their duties. They must also:

- Maintain a continuous count and identification of authorized entrants.
- Communicate with entrants as needed to monitor their condition.
- Monitor activities inside and outside of the permit space.
- Order an exit and/or summon rescuers when necessary (possibly even perform a non-entry rescue themselves).
- Prohibit unauthorized entries.
- Remain at their post until relieved.

Rescue personnel may be city employees or from other agencies. In either case, they must know the configurations and potential hazards of each permit-entry space, develop appropriate rescue plans for each, and participate in simulated rescue operations.

## Information and Training—

All employees falling into any of the categories related to permit-required confined space entries must be provided with information and training that will give them the understanding, skills, and knowledge to carry out their jobs safely.

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Training for all employees should include the hazards of confined spaces and the effects and consequences of potential exposures. Employees will also need more specialized information and training specific to their duties.

- Entry supervisors must know how to perform appropriate tests and monitoring, how to determine acceptable and prohibited conditions, and proper permitting and entry procedures.
- Authorized entrants must be able to recognize signs and symptoms of exposure, how to use any needed equipment, how to communicate with and alert attendants, and how to exit as promptly as possible when necessary.
- Attendants must know how to monitor activities and conditions of the space and the entrants, how to order exit or summon rescue services, and how to perform a non-entry rescue.
- Rescue personnel need to have the same information as authorized entrants. The employer must provide on-site teams with proper personal protective and rescue equipment, and training in how to use it. They must also have first-aid training, including CPR, and must practice simulated rescues at least once every 12 months. Outside services must be permitted access to comparable permit spaces so they can develop rescue plans and practice rescues. Hospitals and treatment centers must be provided with any information that may assist in the treatment of rescued employees.

After the required initial training, refresher training must be provided whenever duties change, the hazards in the space change, or evaluation indicates that there are inadequacies in an employee's knowledge.

### The Permits—

While there is no required permit "form," the regulations say that the following information must appear on the permit:

- Identification of the space;
- Purpose of entry;
- Date and duration of the permit;
- List of authorized entrants;
- Names of the current attendants and entry supervisor;
- List of any hazards in the permit space;
- List of measures to isolate the permit space and eliminate or control the hazards;
- Acceptable entry conditions;
- Results of tests (initialed by the employees who performed them);
- Rescue and emergency services available, and how to summon them;
- Communication procedures for attendants/entrants;
- Required equipment (e.g., respirators, communications devices, alarms); and
- Any other necessary information or other permits needed (such as for hot work).

## Permit-Required Confined Space Checklist

|  | Yes                      | No                       |
|--|--------------------------|--------------------------|
| Does your operation have any permit-required confined spaces, in terms of the following existing or potential hazards:   |                          |                          |
| —Atmospheric conditions (toxic substances, lack of oxygen, risk of fire or explosion)?   | <input type="checkbox"/> | <input type="checkbox"/> |
| —Configuration (interior shape that could cause a worker to fall or get stuck)?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Engulfment (presence of liquid or granular material that could cause drowning, burial, asphyxiation)?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Do you regularly review the standards regulating entry into non-permit confined spaces?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are confined spaces re-evaluated periodically to see if hazards have developed that would identify them as permit-required spaces?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Do identified permit-required spaces have to be entered to perform jobs?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are such spaces entered by your city employees?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Do contract employees enter in place of, or in addition to, city employees?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have such contract employees received all necessary information about conditions and characteristics of the space?   | <input type="checkbox"/> | <input type="checkbox"/> |
| If contract and “host” employees are involved in projects, are entry operations coordinated?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Are there arrangements to keep unauthorized employees out of the confined spaces?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Are appropriate warning signs and barriers erected in the entry area?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have all exposed employees been trained in potential hazards of confined spaces?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Has appropriate training been conducted for:   |                          |                          |
| —Authorized entrants?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Attendants?   | <input type="checkbox"/> | <input type="checkbox"/> |
| —Entry supervisor(s)?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Any in-house rescue/emergency teams?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have all participants in entry operations received information/training regarding:   |                          |                          |
| —The hazards that might exist in the space?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Signs, symptoms, and consequences of exposure?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Proper use of all required protective and other equipment?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —How to maintain communication with other members of the team?   | <input type="checkbox"/> | <input type="checkbox"/> |
| —The importance of preventing unauthorized entry?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Any additional skills their particular assignment requires?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is refresher or supplementary training provided when hazards or duties change?   | <input type="checkbox"/> | <input type="checkbox"/> |
| Is refresher or supplementary training provided when there is any indication that employees do not have the knowledge necessary to perform safely?                         | <input type="checkbox"/> | <input type="checkbox"/> |
| Have procedures been established for both non-entry and entry rescue?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have on-site rescue personnel been trained in:   |                          |                          |
| —The same material as authorized entrants?   | <input type="checkbox"/> | <input type="checkbox"/> |
| —Basic first aid?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Cardiopulmonary resuscitation (CPR)?  | <input type="checkbox"/> | <input type="checkbox"/> |
| —Simulated rescue operations, at least once a year?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have off-site rescue services had access to permit spaces to develop and practice rescue plans?  | <input type="checkbox"/> | <input type="checkbox"/> |
| Have arrangements been made to provide all appropriate information to any medical facility that might treat a worker injured or exposed during a confined space operation? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is the written program available for inspection by employees and their authorized representatives?   | <input type="checkbox"/> | <input type="checkbox"/> |