

**Commonwealth Scaffold, LLC**  
**Permit Required Confined Spaces Program and Training Materials**

Effective Date: 12/14/2012  
Revision #:



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# Permit Required Confined Spaces Program and Training Materials

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## Reference Standard

Occupational Safety and Health Administration; Permit Required Confined Spaces, Subpart J, 29 CFR 1910.146

## Purpose

This procedure establishes minimum procedures to be used for classifying confined spaces and for safe entry into those spaces.

## Scope

This procedure applies to all of our company employees, all contractors and vendors performing work on company property, and all other individuals who are visiting or have business with our company.

## Responsibilities

- Management is responsible for development and review of this program. Management is also responsible for appropriate employee training.
- Management and supervisors are responsible for enforcement of this program.
- Employees shall comply with all procedures outlined in this policy.
- Contractors and vendors shall comply with all procedures outlined in this policy.

## Definitions

**Acceptable Entry Conditions:** Conditions that must exist in a permit space to allow entry and ensure that employees involved with a permit required confined space entry can safely enter and work within the space.

**Attendant:** An individual stationed outside one or more permit spaces who monitors the authorized entrant(s) and who performs all attendant duties assigned in our program.

**Authorized Entrant:** An employee who is authorized by us to enter a permit space.

**Confined Space:** A space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means of entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults and pits are spaces that may have limited means of entry); and
- Is not designed for human occupancy

**Contractor:** A non-company employee being paid to perform work in our facility.

**Entry Permit:** The written or printed document that is provided by our facility to allow and control entry into a permit space and that contains information specified in this written program.

**Entry Supervisor:** The person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required. The entry supervisor can also serve as an entrant or attendant.

**Hazardous Atmosphere:** An atmosphere that may expose employees to the risk of death, incapacitation, impairment of abilities to self rescue (escape unaided from a permit space), injury, or acute illness from one or more of the following:

- Flammable gas, vapor, or mist in excess of 10% of the Lower Flammable Level (LFL);
- Airborne combustible dust at a concentration that meets or exceeds its LFL (Can be approximated where the dust obscures vision at a distance of 5 feet or less);
- Atmospheric oxygen concentration below 19.5% or above 23.5%;
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in 29 CFR 1910 Subpart G, Occupational Health and Environmental Control or in Subpart Z, Toxic and Hazardous Substances; or
- Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH).

**Non-Permit Confined Space:** A space that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm.

**Permit-Required Confined Space:** A confined space that has one or more of the following characteristics:

- Contains or has the 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.

**Retrieval System:** Equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from a confined space.

**Vendor:** A non-company employee being paid to perform a service in our facility.

## Procedures

### Space Evaluation

All permit required confined spaces in our facility are identified (see Appendix A). We will continue to evaluate all new equipment and process changes to ensure that no additional permit-required spaces are created.

### Space Marking

All permit required confined spaces will be conspicuously marked with a warning sign at each potential entry point. A sign reading "DANGER--PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" or using other similar language.

### Written Program

We will maintain and update this written program. It is available to all employees and their representatives for review.

### Non-Permit Required Confined Spaces

Entry into non-permit required confined spaces is not regulated by this procedure. Employees are always required to evaluate the potential hazards of all jobs prior to beginning work. If any questions or concerns arise during the evaluation, the employee should discuss the issue with his or her supervisor or the program administrator.

### Alternate Procedures

Permit required confined spaces can be reclassified as non-permit required spaces as described below:

If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit space for as long as the non-atmospheric hazards are eliminated.

The program administrator, using properly calibrated direct-reading instrumentation, will test for oxygen content, flammable gases and vapors, and potential toxic air contaminants. Readings will be taken in the order listed in this paragraph. Acceptable readings include:

- Oxygen Content: Between 19.5% and 23.5%
- Flammable Gases/Vapors: Below 10% of the lower flammable limit
- Toxic Air Contaminant: "Any air conditions defined as a hazardous atmosphere" by this policy

Testing shall be done from the exterior of the entrance to the space. At no time will any portion of an employee's body break the plane of the entrance to the space to conduct atmospheric testing. If entry into the space is required to conduct testing or eliminate hazards, entry shall be done in accordance with permit space entry procedures outlined in this policy.

If, after testing is complete, it is determined there are no atmospheric hazards or any other hazards that could potentially cause injury or harm, the space can be reclassified as a non-permit space and eliminated from the permit-space entry procedures. The atmosphere will be monitored continuously during the entry. This reclassification may remain in force as long as atmospheric hazards are not present.

## **Permit-Required Confined Space Entry**

### **Preparation of the Space**

1. An entry supervisor will be assigned to complete the permit (see Appendix B)
2. The following steps will be completed and checked off as applicable on the permit:
  - All connecting lines, ducts and pipes connected to chemical, gas and utility sources will be broken and capped or blanked;
  - Heating devices (e.g. jackets, coils, mantels, etc.) will be rendered safe either through line breaking/blanking or electrical lockout/tagout;
  - All mechanical, hydraulic and electrical hazards (e.g. agitators, machine drives, electrical lines, etc.) will be controlled through lockout/tagout;
  - The space will be rinsed and/or dried if there is a build-up of hazardous or slippery material on the walls of the space;
  - The space will be cooled down to 110 degrees Fahrenheit or less;
  - Safe access to the space will be provided;
  - Any open entrances will be appropriately blocked to prevent accidental entry;
  - Adequate lighting will be provided either through low voltage lighting or through 110 Volt plugged into a Ground Fault Circuit Interrupter (GFCI);
  - The space will be metered, in the order listed, to determine the following:
    1. Oxygen content:  $\geq 19.5\%$  and  $\leq 23.5\%$
    2. Lower Explosive Limit:  $\leq 10\%$
    3. All chemical exposures less than the OSHA PEL and/or other exposure guidelines used by our facility; and
    4. For vertical entries, the retrieval system will be set-up at the entry point.

### **Permit Completion**

- The permit will be completed by the entry supervisor (See Appendix B).

- All information requested on the permit will be completed by the entry supervisor or NA (not applicable) will be written in.
- The time of permit issuance will always be written in. In no case will a permit remain valid for more than 8 hours. If the job runs past 8 hours, a new permit will be issued.
- Expired permits will be returned to the program administrator.

### **Personnel Preparation**

- An entrant(s) and attendant(s) will be assigned. All personnel involved with the entry and their representative can observe all aspects of the preparation.
- The Rescue Service will be notified that an entry will be taking place.
- Proper personal protective equipment will be selected and obtained for the entrant. The rescue service will also have access to an adequate supply of the required PPE for a rescue team and a stand-by team.
- Communication methods will be selected based on the size, location and characteristics of the space.
- The entry supervisor will brief the entrant(s) and attendant(s) on all aspects of the job.
- At any time, the entry supervisor, the entrant and/or the attendant can cancel the permit and cause the entry to be either postponed or stopped due to a safety concern.

### **Entry**

- All required equipment for entry including: communication, lighting, access, safety and rescue as well as the tools needed to accomplish the job will be available at the entrance.
- Continuous space atmosphere monitoring will be established either by the attendant or by the entrant.
- The attendant will stay in the immediate area of the entrance to the space and will stay in contact with the entrant.
- The entry supervisor will formally approve the entry to begin. At any time during the job the entry supervisor, entrant or the attendant can cancel the permit and cause the entry to be either postponed or stopped due to safety concerns.
- The attendant will document meter readings at intervals decided upon by the entry supervisor, but not longer than one hour. When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.
- The attendant will immediately communicate any exterior condition to the entrant that could affect her/his safety (e.g. fire alarm, severe weather, etc.).

### **Entry Completion**

- The entry permit will be closed out by listing the time of space exit and any other pertinent information.
- The Rescue Service will be notified that the entry is complete.
- The entry closure will be replaced.
- Blanked and capped piping, tubing, ducts etc. will be re-attached.
- Disconnected hydraulic, mechanical and/or electrical equipment will be reattached.
- Lockout/tagouts will be released.
- Operating personnel for the space will be notified that it can be returned to production (if applicable).
- All safety and entry equipment will be cleaned and returned to storage locations.

- The cancelled permit will be returned to the program administrator.

## **Duties of Personnel**

### **Entry Supervisor**

The entry supervisor will:

- Know and understand the hazards that may be faced during entry, including information on the signs or symptoms, and consequences of the exposure.
- Verify, by checking that: the appropriate notations have been made on the permit; all tests specified by the permit have been conducted; and all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
- Terminate the entry and cancel the permit when reasons for entering the space have been completed or when an unacceptable condition within the space or outside the space is detected.
- Verify that rescue services are available and that the means of calling the rescue service is operable. The entry supervisor will ensure that the attendant knows the method for summoning help if rescue is required.
- Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
- Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

### **Entrant**

All entrants will know the following:

- Hazards that may be faced during entry, including information on the mode, signs, or symptoms, and consequences of the exposure.
- Proper use of equipment as required above.
- Means and methods of communication so the attendant can properly monitor work of entrants and so the attendant can provide warning for evacuation.
- To alert the attendant whenever the entrant recognizes warning signs or symptoms of exposure to a dangerous situation, or the entrant detects a condition that would warrant immediate evacuation.
- To exit from the permit space as quickly as possible whenever:
  - An order to evacuate is given by the attendant or the entry supervisor;
  - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
  - The entrant detects a prohibited condition; or
  - An evacuation alarm is activated.

### **Attendant**

All attendants will:

- Know the hazards that may be faced during entry or while in the space, including information on the mode, signs or symptoms, and consequences of the exposure to suspected hazards.
- Be aware of possible behavioral effects of hazard exposure in authorized entrants.
- Continuously maintain an accurate count of authorized entrants in the permit space and ensure that the means used to identify authorized entrants is precise at all times.

- Remain outside the permit space during entry operations until relieved by another authorized attendant(s). Note: When the employer's permit entry program allows attendant entry for rescue, attendants may enter a permit space to attempt a rescue if they have been trained and equipped for rescue operations.
- Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space when conditions warrant an immediate evacuation.
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
  - o If the attendant detects a hazardous condition;
  - o If the attendant detects a change in the behavior of any authorized entrant which would suggest an exposure to a hazard;
  - o If the attendant detects a situation outside the space that could endanger the authorized entrants; or
  - o If the attendant cannot effectively and safely perform all the duties required as outlined in this policy;
  - o Summon rescue and other emergency services as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- Do the following when unauthorized person(s) approach or enter a permit space while entry is underway:
  - o Warn the unauthorized person(s) that they must stay away from the permit space;
  - o Advise the unauthorized persons they must exit immediately if they have entered the permit space; or
  - o Inform the authorized entrants and the entry supervisor, if unauthorized person have entered the permit space.
- Perform non-entry rescue (rescue attempts that do not cause the attendant to break the plane of the entry to the space) when it is determined a rescue of entrants is required.
- Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

### Rescue Service

Our facility has made arrangements with: **(Emergency Service for Permit Required Confined Space Entry)** \_\_\_\_\_ to provide entry rescue service.

We will meet with the rescue service and review the following:

- Our list of Permit Required Confined Spaces
- The hazards of the spaces
- Procedures for entry
- Equipment available on site
- Our training program

### Contractors

Any contractor who will be engaged in a permit required confined space entry must, at a minimum, follow this procedure. Whenever a contractor will be involved in a permit required confined space entry, a written plan for the entry will be submitted to the program administrator prior to the work being scheduled. The

program administrator, or a designated employee who has been trained as an entry supervisor, will approve the contractor written plans.

### Training

Training will be provided for all personnel who are attendants, entrants or entry supervisors as follows:

- Before the employee is assigned duties relating to permit required confined space entry;
- Before the employee's assigned duties change;
- Whenever there is a change in operations that presents a hazard that the employee has not been trained in previously; or
- Whenever there is an indication that the procedure is not being followed safely and/or when there are indications that employee practices or knowledge do not meet the requirements.

All training will be certified in writing with the employee's name, the signature or initials of the trainer, and the date of training in addition to an outline of material presented. The certification shall be available for inspection by employees and their authorized representatives.

Revision History Record:

Revision Number	Section	Revised By	Description
0	NA	NA	Original document.



# Appendix A

## Permit Required Confined Space Inventory

# Permit Required Confined Space Inventory

Space

Location

Hazard

# Appendix B Entry Permit

# Confined Space Entry Permit

Date and Time Issued: \_\_\_\_\_

Date and Time Expires: \_\_\_\_\_

Job site/Space I.D.: \_\_\_\_\_

Job Supervisor: \_\_\_\_\_

Equipment to be worked on: \_\_\_\_\_

Work to be performed: \_\_\_\_\_

Attendant personnel: \_\_\_\_\_

1. Atmospheric Checks: Time \_\_\_\_\_  
Oxygen \_\_\_\_\_ % (</=23.5%and>/= 19.5 %)  
Explosive \_\_\_\_\_ % L.F.L. (</= 10%)  
Toxic \_\_\_\_\_ PPM (less than PEL)

2. Tester's signature: \_\_\_\_\_

3. Space preparation (blanking lockout, etc.)	<u>Hazard</u>	<u>Preparation/Isolation</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Ventilation: N/A Yes No  
Mechanical ( ) ( ) ( )  
Natural Ventilation only ( ) ( ) ( )

5. Atmospheric check **after** isolation and ventilation:

Time: \_\_\_\_\_

Oxygen: \_\_\_\_\_ (</=23.5%and>/= 19.5 %)

Explosive: \_\_\_\_\_ L.F.L. (</= 10%)

Toxic: \_\_\_\_\_ PPM Allowable PEL: \_\_\_\_\_

Time \_\_\_\_\_ Testers signature: \_\_\_\_\_

6. Communication procedures: \_\_\_\_\_

7. Rescue team contact procedure: \_\_\_\_\_

8. Rescue service notified, rescue procedure reviewed: \_\_\_\_\_



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Be safe and healthy on the job at Commonwealth Scaffold, LLC with these helpful tips provided by Allied Insurance Brokers, Inc..



## Working Safely in Confined Spaces

A confined space incident is not very common, but it can be the most deadly of all worksite accidents. That's because the hazards tend to be misunderstood and underestimated. And many confined spaces fatalities involve not one, but two victims: the worker and the rescuer. Knowing the difference between a confined space and a permit-required confined space is important for your safety when working in these environments.

### Confined Spaces

A confined space refers to a space that has limited openings for entry and exit, has unfavorable natural ventilation which could contain or produce dangerous air contaminants, and is not intended for continuous employee occupancy.

Examples of confined spaces include:

- Storage tanks
- Ship compartments
- Pits
- Silos
- Vats
- Degreasers
- Boilers
- Ventilation and exhaust ducts
- Sewers
- Tunnels
- Underground utility vaults
- Pipelines

### Permit-Required Confined Spaces

A permit-required confined space includes one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere; contains material that could engulf an entrant; has a design that could cause an occupant to become trapped or asphyxiated; and/or contains other serious health or safety hazards.

Examples of permit-required confined spaces include:

- Sewers
- Rendering plants
- Workplaces where portable tanks are fabricated and serviced

### Safety Considerations

When working in either location:

- Follow all Occupational Safety and Health Administration (OSHA) regulations regarding confined and permit-required confined spaces.
- Review and follow Commonwealth Scaffold, LLC's written procedures.
- Make sure you clearly understand the difference between confined and permit-required confined spaces.
- Don't enter a permit-required confined space without proper training and a permit to enter.
- Identify and eliminate any obvious physical hazards prior to entering.
- Monitor for oxygen content, flammability, toxicity and explosive hazards as soon as you enter.
- Use fall protection, rescue, air-monitoring, ventilation, communication and lighting equipment according to specific entry procedures.
- Maintain contact, visually or via phone or two-way radio, with a trained attendant at all times.
- Make sure to call for help immediately if you need assistance while working.



There are special safety considerations to follow when working in confined or permit-required confined spaces.

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# PERMIT REQUIRED CONFINED SPACE INSTRUCTOR NOTES

The following provides a useful preparation outline for use by trainers presenting the Permit Required Confined Space Entry program presentation to employees.

## Training Objectives

- Review the Permit Required Confined Space Entry program and train employees in proper facility procedures
- Train employees to recognize the hazardous conditions inherent in confined space entry and foster proper decision making to ensure safety

## Before Training

- Read the OSHA standard and the model Permit Required Confined Space Entry Program
- Understand that this program does not make use of an in-house rescue team, although it is allowed under the OSHA standard.
- Contact your local fire department to determine if they will agree to be your Rescue Service of record. It is strongly recommended to get the Rescue Service agreement in writing. You are asked to review the rescue team information with the students.
- Complete the written procedure by adding the name of your Rescue Service.
- Be familiar with the equipment that is used for entry. Of special importance is:
  - Harnesses and or wristlets
  - Communication equipment
  - Retrieval devices
  - Meters and air sampling devices
  - Ventilation equipment
  - PPE used
  - Lighting equipment
- OSHA requires that a retrieval device be used for most vertical entries—DO NOT use regular cranes, forklifts or come-alongs
- Be prepared to discuss the various spaces and hazards present in your plant

## Introduction for Training

- Begin by stressing the overall importance of safety in your facility
- Review with students that Permit Required Confined Space Entry can actually expose employees to potentially fatal hazards -it is a safety procedure in which every requirement must be followed all the time.
- Give examples of facility confined spaces and the hazards
- As a ground breaker, you can ask employees what experience they have had with confined spaces

## General Guidelines

- Stress the importance of the bullet points on these slides
- Stress the importance of the individual employee being committed to his/her own safety
- Be sure to be open to questions or comments

## Training Notes

- Be sure that students have hands-on experience operating all the equipment used for entry

- Show students the permit and be sure that they understand how it is to be completed and where it will go after the job is terminated
- Discuss the emergency procedures including:
  3. Call immediately when an emergency is suspected
  4. How to notify external resources (e.g. fire department) and internal resources (e.g. supervisor, HR resource, etc.)
  5. How to escort the rescue service into the facility as quickly as possible
  6. The attendant must NEVER attempt an entry rescue: s/he will become part of the problem rather than part of the solution

### **Conclusion**

- Review the importance of safety in your facility
- Review the important points listed on the "Conclusion" slide

### **Student Exercise**

At the conclusion of training, the following activities will demonstrate the employees' understanding of the topic:

1. Do a mock preparation of a confined space entry
2. Explain and demonstrate the operation of entry equipment
3. Complete a permit for a mock entry



## PERMIT REQUIRED CONFINED SPACE QUIZ

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_

**Place a check mark on the line with the best answer for each of these 10 questions:**

Permit Required Confined Spaces always contain a potential hazard to life or health:

- a.  True
- b.  False

Confined Spaces are not designed for:

- a.  Lunch facilities
- b.  Human occupancy

Normal room air contains \_\_\_ percent oxygen:

- a.  20.9%
- b.  99%

Too little oxygen can cause the loss of ability to self-rescue:

- a.  True
- b.  False

Lower Flammable Limit (LFL) above this percent is hazardous:

- a.  10%
- b.  99%

Toxic Chemical concentration must be below the Permissible Exposure Limit (PEL):

- a.  True
- b.  False

By using \_\_\_\_\_ we can determine that the atmosphere is safe:

- a.  A fire extinguisher
- b.  An air sampling meter

To prevent engulfment we can:

- a.  Disconnect, cap or blind pipes, ducts and hoppers
- b.  Wear a rain coat

If an entrant is involved in an emergency, what can the attendant do:

- a.  Enter the space to provide assistance
- b.  Attempt non-entry rescue

If the attendant even suspects an emergency what should s/he do:

- a.  Call the Rescue Service
- b.  Wait one minute then assess the situation again

