

Confined Space Program

Purpose

The purpose of this written Confined Space Program is to establish practices and procedures to protect workers from the hazards of entry into a confined space. When workers enter a confined space to perform inspection, repair, maintenance, or construction work, they can encounter hazards ranging from toxic gases, harmful or corrosive chemicals, flammable solvents, or physical hazards such as machinery that starts unexpectedly. All these hazards can result in life-threatening exposures. This program also helps us identify all permit spaces in our workplace and ensure that all authorized employees will enter, work in, and exit the spaces safely. This written program follows the requirements set by OSHA.

Cruz Construction Company, Inc. will do the following to ensure the health and safety of those who work in and around permit spaces:

- Evaluate each confined space to determine if it has the characteristics of a permit space
- Develop a catalog of all permit spaces
- Inform all employees of the location and the hazards in each permit space
- Prevent unauthorized persons from entering a permit space
- Train entry supervisors, authorized entrants, and attendants so that they have the skills necessary to fulfill their duties
- Provide all necessary equipment for permit-space work at no cost to employees, maintain the equipment, and ensure that employees use the equipment properly
- Inform contractors about the permit-space program and coordinate entry operations

Responsibilities

Cruz Construction Company, Inc. designates the following persons to manage the permit-space program:

Person's name or position	Person's responsibility
Jennifer Croke, Office Manager	Manage the overall program. Implement and maintain the written program, including employee certification or training that satisfies the requirements of 437-002-0146
Job Foreman/Superintendent	Identify permit-space locations. Location and identification of all permit spaces at this workplace
Billy Dunn, General Manager	Train employees. Ensure entry supervisors, authorized entrants, attendants, and on-site emergency responders are properly trained and have periodic refresher training. Ensure all other affected employees have awareness training

Job Foreman/Superintendent	Plan for emergencies. Ensure emergency rescue is available and responders are informed about all permit spaces at the workplace and have access to the spaces for drills and training exercises.
Head Mechanic	Provide equipment. Ensure all equipment for authorized entrants and attendants is properly maintained and is available when needed

Not following your assigned responsibility could result in loss of life and other injuries or illnesses and may lead to disciplinary action.

Confined space identification and evaluation

We will provide training and support materials on how to identify the hazards associated with confined and permit spaces and that employees must not enter until fully evaluated.

When feasible, permit spaces must be labeled accordingly. However, the configuration of some confined spaces does not easily allow for the installation of a warning sign. For example, all sewer and storm drains that are entered through a manhole are to be considered permit-required confined spaces, whether labeled or not. Our employees must not rely solely on warning signs.

In instances where labeling a space is necessary, the label should include the words:

- “Danger”, and
- “Confined Space”, and
- “Enter By Permit Only”, or “Entry Permit Required”, or “Permit Required”, or “Permit Required Prior To Entry” or similar.

Controlling employer requirement

Before any worker from another employer enters any of our permit-required confined spaces **Job Foreman/Superintendent will** provide information regarding your evaluation and determination to the respective employer, including:

- That the workplace contains permit spaces and can be entered only when the applicable requirements of this rule are met
- Of the identified hazards and your experience with each permit space they will enter
- Of any precautions or procedures you require to protect employees in or near spaces where the work will be performed

Coordination of entry operations with these other employers and vendors should take place to ensure every person involved remains safe, and that different operations do not interfere with each other.

Once other workers have completed their operations, **Job Foreman/Superintendent** will verify the program followed during the permit-space entry, and any hazards confronted or created.

Mobile employees

If any mobile work is being performed at locations or businesses other than ours which are controlled by someone other than us, this section explains how we will address this issue. **Job Foreman/Superintendent** will make every attempt to determine if our employees will need to work in the confined spaces at their assigned work location. This initial information should come from the host employer or controlling contractor. Even with this information, our mobile employees or lead worker there will also need to be trained at a level where they can perform their own confined-space evaluation. Using Appendices I as noted below, a new evaluation should be conducted of any potential spaces to be entered in order to categorize the space and properly identify the hazards.

Based on this evaluation, we will need to develop safe entry procedures using either appendices II or III (dependent upon initial determinations and work to be performed). All of this confined space program is still applicable to these operations.

When we conclude our entry operations at these other locations, the entry supervisor on site must inform the controlling contractor and host employer about the precautions and procedures you followed and any hazards that were present or that developed during entry operations.

Evaluation

The following chart contains the identified and evaluated areas that have the characteristics of a confined space. This chart can be used for future evaluations as well.

When conditions within a confined or permit space change significantly, the space must be re-evaluated.

Procedures for entering a permit space

If only workers of other employers (contract workers) will enter the space:

Job Foreman/Superintendent will inform the contractor about all hazards in the space, the permit-space program, and company safety rules.

Job Foreman/Superintendent will review and discuss each contracted job with the contractor before the work begins.

The contractor will inform **Job Foreman/Superintendent** about the permit-space program that the contractor will follow. If the contractor's permit-space program is less effective than the company's program, the contractor will follow the company's program.

If contract workers and our employees will enter the space:

Job Foreman/Superintendent will coordinate entry operations with the contractor so that contract workers and company employees work together, following this company's permit-space program.

If only our employees will enter the space:

1. Pre-entry procedure

- Obtain an entry permit.

- Specify the acceptable conditions for entering the permit space. If the potential for a hazardous atmosphere has been identified in the confined space evaluation, entry into a permit space is prohibited until the atmosphere has been determined to be safe. Initial testing must be performed from a safe location outside of the space. If direct reading instrumentation is used, it must include those for oxygen content, flammability, and toxic gases, in that order. The percentage of oxygen for entry must not be less than 19.5 percent or more than 23.5 percent at normal atmospheric pressure. The atmosphere in the space should be continuously monitored.
- Provide authorized entrants with the opportunity to observe any monitoring or testing of the space.
- Isolate the permit space from sources of hazardous energy. Disconnect hazardous equipment from the sources of hazardous energy, whenever possible. All chemical and steam pipes, treating agents, and lines must be blanked or removed. Electrical isolation must be accomplished by locking out circuit breakers or disconnects in the "off" position with a key-type lock. The key must remain with the authorized entrant. If more than one person enters the space, a group lockout procedure is allowed (ref. The control of hazardous energy, 1910.147).
- Eliminate or control other physical hazards identified for the permit space.
- Purge, flush, or ventilate the space to eliminate or control atmospheric hazards. Initial testing of the atmosphere must be performed from outside the space. Continuous ventilation must be maintained in the space.
- Ensure that entrants have the equipment they need to do their jobs (including rescue equipment) and they know how to use the equipment.
- Set up barriers, if necessary, to protect entrants from external hazards.
- Post a warning at the entrance to the space that says: WARNING, PERMIT-REQUIRED CONFINED SPACE. ENTRY BY PERMIT ONLY.
- If special equipment is required for entry, the appropriate information may be included on the signs; for example: RESPIRATOR REQUIRED FOR ENTRY or LIFELINE REQUIRED FOR ENTRY.
- Verify that conditions in the space are safe for the planned duration of entry and the work to be performed.
- Complete and sign the entry permit to authorize entry into the permit space.
- Display the completed entry permit at the time of entry so that authorized entrants can confirm that pre-entry preparations have been completed.

2. Conditions during entry

- All electrical equipment in the space must be properly grounded.
- The space must have adequate lighting.
- All unauthorized persons must be kept away from the space.
- Welding and burning equipment other than torches and hoses must not be taken into the space. Gas cylinders or welding machines must remain outside the space. They must be blocked if they are on wheels. All welding equipment must have quick shutoffs that are under control of the attendant. When gas welding or cutting is suspended, the gas supply must be turned off at the cylinder and the torch removed from the confined space. For more information on welding and cutting in confined spaces please refer to OSHA's Welding Standard.

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- The attendant must know how to shut down welding and burning equipment when entrants perform hot work.
- If entrants need a ladder to enter a permit space, the ladder must be secure and must not be removed when they are in the space.
- Entrants must leave the permit space immediately when any of the following occurs:
 1. An order to evacuate is given by the attendant or entry supervisor.
 2. An entrant recognizes any warning sign, such as the monitor alarm or symptom of exposure.
 3. An evacuation alarm is activated.
 4. An entrant is unable to communicate with the attendant.
 5. An entrant recognizes any other physical hazards that are unsafe.
- An attendant immediately outside the space must monitor authorized entrants. The attendant must have a means of continuous communication with entrants.
- If entrants are injured or become ill, the attendant must contact **Jennifer Croke, Office Manager**.

3. Procedure following entry

- The entry supervisor will terminate entry and cancel the entry permit when entry operations have been completed or an emergency occurs in or near the space.
- **Cruz Construction Company, Inc.** will retain each canceled entry permit for at least one year to evaluate the permit-space program.

Completing the entry permit

Before employees enter a permit space, the entry supervisor must complete and sign an entry permit that verifies the permit space is safe for employees to enter. The entry permit must be posted at the permit-space entry and include the following information:

- Location of the permit space
- Purpose of entry
- Entry date and the time employees will enter
- Authorized entrants' names
- Authorized attendants' names
- Entry supervisor's name and signature
- Hazards in the space
- How hazards will be controlled so that the space is safe to enter
- Acceptable entry conditions
- Testing data and testers' initials that certify the space is safe to enter
- Names of emergency responders and instructions for contacting them
- Communication procedures used by entrants and attendants



- A list of all equipment, including PPE, necessary to ensure entrants' safety
- A description of any other permits that entrants need to work in the space

The procedure for completing an entry permit:

- Obtain an entry permit before employees enter the space.
- Accomplish all pre-permit activities required for entering the space.
- Complete all items on the entry permit.
- Sign the permit. If any item on the permit is checked as "NO" (meaning not yet completed or available), the permit must not be signed.
- Attach a copy of the entry permit outside the confined space. Keep it there until the entry operations are finished and the entry supervisor cancels it.

Duties of entrants, attendants, and entry supervisors

Authorized entrants, attendants, and entry supervisors have the following duties and responsibilities:

Duty/responsibility	Entrant	Attendant	Supervisor
Keep unauthorized entrants away from the space.		x	x
Remove unauthorized individuals who enter or who attempt to enter the permit space.			x
Communicate with entrants, monitor their status, and tell them when to evacuate.		x	
Inform the entrants and the entry supervisor if unauthorized persons enter the permit space.		x	
Communicate with the attendant regularly.	x		
Remain outside the space during entry operations until relieved by another attendant.		x	
Know the number and identity of authorized entrants.		x	
Use all equipment properly.	x	x	
Determine that acceptable entry conditions are maintained.		x	x

Duty/responsibility	Entrant	Attendant	Supervisor
Order entrants to evacuate the space in an emergency.		x	
Exit from the permit space immediately upon an order to evacuate, an alarm warning, or a sign of a hazardous condition.	x		
Know permit-space hazards, including the mode, symptoms, and consequences of exposure.	x	x	x
Notify the attendant of any signs or symptoms of exposure to a hazardous condition	x		
Terminate the entry and cancel the permit when entry operations are finished or if a prohibited condition arises.			x
Verify that entry conditions are acceptable before signing the permit and allowing entry.			x
Perform nonentry rescues if necessary.		x	
Verify that rescue services are available and the means for summoning them are effective.			x
Summon emergency responders when entrants need their services.		x	

Alternate procedure for entering a permit space

For more information on what it means to eliminate a hazard see OSHA's definitions in the Confined Space Standard.

If the space has physical hazards that can be eliminated, or atmospheric hazards that can be controlled by forced-air ventilation, or both, our employees can enter the space if they create procedures that accomplish the following:

- Identify the hazards of the space.
- Identify and follow the methods to eliminate the hazards; verify that the methods used successfully eliminated those hazards.
- When you have hazards that can be controlled with continuous forced-air ventilation, identify those atmospheric hazards. Test the air within the space with direct-reading instruments before entering the space to ensure that all identified hazards are adequately controlled. The oxygen content must be between 19.5% and 23.5% but should also be within 0.1% of the oxygen level outside of the space. Ensure that all other identified atmospheric hazards are absent before entering the space. Continuously monitor the space during the entire duration of the entry.
- When using a direct-reading instrument to test the air, ensure that it passes a "bump test" at the beginning of the work shift it will be used.
- Ensure that any condition in the space that makes it unsafe to remove the entrance cover is eliminated before the cover is removed.
- Ensure the entrant has an effective means of communication while in the space.
- Set up barriers, if necessary, to protect entrants from external hazards.
- Follow the written program and obtain an entry permit if it is necessary to enter the space to eliminate hazards or to test the space for atmospheric hazards.
- Document each entry and include:
 - The location of the space
 - The hazards associated with the space
 - Measures taken to eliminate the hazards
 - Measures used to control hazardous atmospheres (when applicable)
 - The name of direct-reading instruments used to test the atmosphere and the calibration date (when applicable)
 - The results of atmospheric testing (when applicable)
 - The entry date
 - The duration of the entry
 - Any conditions that caused the evacuation of the space
 - The name, title, and signature of the person responsible for ensuring that the space is safe to enter
- Keep the document where the space is located for the duration of the entry.

- Document any deviation from alternate entry procedures.

Training employees

Cruz Construction Company, Inc. will train all authorized entrants, attendants, and entry supervisors so that they have the understanding, knowledge, and skills necessary to perform their jobs.

Training will be provided in the following manner:

- Before the employee is first assigned duties
- Before there is a change in the employee's assigned duties
- When there is a change in permit-space operations that presents a hazard for which the employee has not been trained
- When there is a change in the confined-space program or when a performance audit shows deficiencies.
- When there is a deviation from the established procedures or when employee knowledge of the procedures is inadequate.

Cruz Construction Company, Inc. will certify that employees have been trained by recording each employee's name, the type of training, the trainer's signature, and the training date. The record will be available for inspection by employees and their authorized representatives.

Provide awareness training to all employees who work in areas where permit spaces are present.

Repeat awareness training when there is a change in the written program and when there are new or previously unidentified permit spaces.

Awareness training must explain:

- The written permit-space program
- How to recognize a permit space
- How entry is authorized by the entry permit
- How entry is authorized by the alternate entry procedures (if used)

Rescue and emergency services

Nonentry rescue

Nonentry rescue is the preferred method for rescuing an entrant from a permit space. A retrieval system must be available to retrieve entrants from vertical permit spaces that are more than five feet deep. The retrieval system must be used to rescue an entrant unless the equipment would increase the entrant's risk of injury. Each authorized entrant must use a properly attached chest harness or full-body harness. Entrants may use wristlets if chest or full-body harnesses put them at a greater risk of injury in an emergency. The other end of the retrieval line must be attached to a personnel retrieval system outside the permit space so that rescue can begin immediately.

If an entrant could be exposed to a substance for which a safety data sheet (SDS) is required to be kept, that SDS must be made available to the medical facility that treats the entrant after retrieval from the space.

Entry rescue

On-site rescue and emergency services

Employees will not enter a permit space to respond to an emergency unless they have been properly trained and equipped. If a permit-space rescue is necessary, the attendant is responsible for doing the following:

- Summoning emergency responders
- Attempting to rescue entrants using only nonentry rescue equipment
- Monitoring the emergency and informing responders about the number of victims, their condition, and the hazards in the space

Only properly equipped, trained employees are permitted to enter a permit space during an emergency. Each employee who will enter a permit space in an emergency must do the following:

- Complete training required to establish proficiency as an authorized entrant.
- Complete training in basic first aid and CPR.
- Complete training in use of personal protective and rescue equipment.
- Use appropriate personal protective and rescue equipment.
- Perform assigned rescue duties during a permit-space emergency.
- Practice a permit-space rescue at least once every 12 months. Drills can be performed in simulated, confined spaces that do not contain physical or atmospheric hazards.

Third-party rescue and emergency services

When a third-party rescue service is used, ensure that the service:

- Agrees to provide the service
- Can perform all necessary rescue operations
- Is trained in first aid and CPR and at least one member is certified in first aid and CPR

Program evaluation

At least once a year, **Jennifer Croke, Office Manager and Billy Dunn, General Manager** will review canceled entry permits to identify if there are any program deficiencies. The review must be done sooner if there is reason to believe that the program does not adequately protect employees. Actions to correct deficiencies will be documented and affected employees will be retrained.

Recordkeeping

Keep canceled permits for at least one year from the date the permit expires for review. In addition, OSHA standard 1910.1020(d)(1)(ii) states "Employee exposure records." Each employee exposure record shall be preserved and maintained for at least thirty (30) years."

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Appendix I: Confined space evaluation form

Basic information	
Your name:	Date:
Location of space:	
Description of space:	
Tasks performed in this space:	

Initial confined space determination		
	Yes	No
SIZE: Is the space large enough to fully enter to perform work?		
ENTRY/EXIT: Is there limited means of entry and exit that could hinder the ability to escape? Doorways and other portals through which a person can walk are normally not considered restricted means for entry or exit.		
Occupancy: Is the space NOT designed for continuous human occupancy?		

ATTENTION: If the answer to all three of these questions is "yes" then this is a confined space. Continue the evaluation

Permit-required confined space determination		
	Yes	No
HAZARDOUS ATMOSPHERE: Does the space contain or have a potential to contain a hazardous atmosphere? Examples: combustible dusts, flammable mixtures, or oxygen deficiency that may expose employees to the risk of death, incapacitation, or acute illness		
ENGULFMENT: Does the space contain a material that has the potential for engulfing an entrant? Examples: liquids or granular solids		
CONFIGURATION: Does the space have an internal configuration such as inwardly converging walls or a sloping floor that could trap or asphyxiate an entrant?		
OTHER HAZARDS: Does the space contain another serious safety or health hazard? Examples: radiation, noise, electricity, and moving parts of machinery		

ATTENTION: If the answer to **any** of these questions is "yes," then this is a permit space. Continue the evaluation.

Initial evaluation of this permit-required confined space (Existing hazards or work processes and equipment which introduce new hazards)							
Known/Potential Hazard	Yes	No	N/A	Known/Potential Hazard	Yes	No	N/A
Extreme temperature				Welding/hot work/ignition sources			
Entrapment				Electrical			
Harness or lifeline snag points				Confined-space signage posted			
Mechanical				Inert gas			
Noise				Abrasive blasting			
Vibration				Use of solvents or chemicals			
Pressurized lines				Use of internal combustion engine			
Tripping/slipping hazards				Painting or coating			
Unguarded equipment				Demolition activities			
Radiation				Other equipment not approved for confined spaces			
Other hazard:				Other hazard:			



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Appendix II: Confined space entry permit

Permit date:	Work shift:	Expires:
Time started:	Space entered:	
Purpose of entry:		

ATTENTION: If any hazards are noted prior to or during entry that are not listed on this form, cancel entry, evacuate the space, and report to your supervisor.

Names of trained and authorized individuals	
Entry Supervisor	
Entry Attendant	
Authorized Entrant	
Authorized Entrant	

Emergency contact information	
Emergency Responder	
Contact Person	
Phone Number	

Pre-entry checklist		
OK	Needs action	
		Before entering the permit space, the supervisor or designee must notify the rescue team. Conditions immediately dangerous to life or health (IDLH) require at least one rescue team member located outside of the space.
		A minimum of two employees must be assigned to the work involving permit space entry. One employee must remain outside the permit space at all times.
		The surrounding area must be surveyed to show that it is free of hazards such as drifting vapors from tanks, piping, sewers, or vehicle exhaust.
		Those responsible for operation of the gas monitor have been trained.
		Gas monitor calibration tests and functional test (fresh air calibration) have been performed this shift on the gas monitor by: (Employee Name)
		The atmosphere will be continuously monitored while the space is occupied, if required by entry procedure.

Possible atmospheric and physical hazards	Yes	No	N/A
Lack of oxygen			
Combustibles (gases, vapors, dusts)			
Toxic gases/vapors			
Mechanical exposure			
Electrical hazards			
Chemical exposures			
Engulfment			
Entrapment			
Temperature extremes (potential cold stress or heat stress)			
Noise			
Other nonatmospheric hazards			

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Pre-entry requirements								
Requirements	Yes	No	N/A	Requirements	Yes	No	N/A	
Lockout/tagout/de-energize				Contractor employees involved				
Pipes broken or capped or blanked				Fall arrest harness/lifeline/tripod				
Purge or flush or drain				Personal Protective Equipment				
Ventilation (natural or mechanical)				<input type="checkbox"/> Hardhat <input type="checkbox"/> Gloves <input type="checkbox"/> Safety glasses <input type="checkbox"/> Respirator <input type="checkbox"/> Other: (Define Type)				
Secure area								
Safe lighting								
Non-sparking tools					<i>Other PPE (Define Type)</i>			
Communication method (Define Type)				Hot work permit (Define precautions to be followed)				
(other procedures to be followed)				(other procedures to be followed)				

Air-monitoring instruments	
Manufacturer, Model Name & #:	Calibration Date:

Space-monitoring results		Test 1		Test 2		Test 3		Test 4	
Continuously Monitor and Record Periodically	Permissible Entry Levels	Time Initial		Time Initial		Time Initial		Time Initial	
Percent oxygen	19.5% to 23.5%								
Combustible gas	Less than 10% LEL								
Hydrogen Sulfide	5 ppm								
Carbon Monoxide	25 ppm								
Other gas									
Other gas									

This permit has been terminated for the following reason:			
Work completed	Canceled	Time	Other reason for cancelation
<input type="checkbox"/>	<input type="checkbox"/>		

Supervisor's signature _____

Time _____

Date _____

Return this completed permit to **Billy Dunn, General Manager** for review. File and retain for one year.



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Appendix III: Alternate entry procedure and form

Location of Space:	Work Scope:
Entry Date:	Duration of entry:

ATTENTION: If any hazards are noted prior to or during entry that are not listed on this form, cancel entry, evacuate the space, and report to your supervisor.

Entrants					
Physical hazards		Atmospheric hazards			
		Oxygen Deficiency			
		H2S			
		Explosive atmospheres			
		Carbon Monoxide			
List each action required to eliminate physical hazards in the space				Initial when completed	
Hazard	Required Action:				
Ventilation (type)					
Is ventilation required? YES <input type="checkbox"/> NO <input type="checkbox"/>					
If "Yes," type of ventilation:			Amount of ventilation (cfm or AC/hr):		
Air monitoring					
Substance	Units	Permissible Levels		Initial Results	Peak During Entry
O2	%	19.5	23.5		
LEL	%	10			
H2S	ppm	5			
CO	ppm	25			
Air-Monitoring Instruments					
Manufacturer, Model Name & #:			Calibration Date:		
Additional notes about the space and entry (including whether evacuation was necessary)					
Person responsible for ensuring the space is safe to enter using alternate entry procedure					
Name:			Job Title:		
Signature:					