

# THEY'RE NOT DESIGNED TO BE OCCUPIED!



How to  
work safely  
in a permit-  
required  
confined  
space



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## Introduction

If you store grain, process raw materials, or work in a large manufacturing plant, you're probably familiar with the term, *confined space*.

Many of our workplaces have confined spaces — enclosed spaces that are difficult to enter and exit, large enough to work in, but not designed to be occupied. Nevertheless, workers need to enter them from time to time. For example, they may need to inspect equipment, fix leaks, do construction work, or rescue someone.

The interior of a confined space may be relatively safe *or* it may contain life-threatening hazards — such as equipment that starts without warning, toxic gases, corrosive chemicals, or flammable solvents.

**The purpose of this guide** This guide focuses on confined spaces that may contain life-threatening hazards — the so-called *permit-required confined spaces*, or *permit spaces*. Its purpose is to help you, your coworkers, or your employees work safely in permit spaces. It answers the following questions:

- ▼ What is a permit space and how can I identify one?
- ▼ What is §1910.146, the permit-required confined-space standard for general industry, and why is it important?
- ▼ What do I need to know to work safely in a permit space?
- ▼ What is a permit-space program, and do I need one for my workplace?

It also offers a generic written permit-space program that you can use to develop a written program for your workplace.

## What is a permit-required confined space ?

**What is a confined space?** A confined space has all of the following characteristics:

- ▼ It has a restricted opening that makes entry and exit difficult.
- ▼ It's large enough for one to enter completely.
- ▼ It's not designed to be occupied.

**Characteristics of a permit space** A permit space is a confined space that may contain life-threatening hazards. No one can enter a permit space without first completing a written entry permit. (Shown on Page 14.)

A permit space has all of the characteristics of a confined space and one or more of the following characteristics:

- ▼ It has – or could have – *an atmospheric hazard*.
- ▼ It contains material that could trap or bury an *entrant*.
- ▼ It's shaped so that an entrant could become trapped or asphyxiated.
- ▼ It has any safety or health hazard.

**Examples of confined spaces** Most confined spaces are designed to hold substances such as liquids, gases, and loose materials, or to house equipment. Though they come in many sizes and shapes, most can be classified in one of two ways: those with depth and open tops and those with narrow openings. The table below gives examples of each.

OPEN-TOPPED AND DEEP SPACES	SPACES WITH NARROW OPENINGS
pits	ship compartments
wells	silos
vats	pipes
hoppers	tunnels
bins	utility vaults
degreasers	casings
kettles	sewers

**The meaning of "permit required"** Anyone who enters a permit space must first fill out a written permit that verifies that the hazards in the space have been eliminated or controlled and that the space is safe to enter. An entry supervisor must sign the permit and post it on the space so that workers can see it, then cancel it when work in the space is finished.

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**Atmospheric hazard:** A hazard that affects the air in a permit space.

**Entrant:** A person who enters a permit space.

## What is §1910.146 and why is it important?

**What is §1910.146?** *OSHA Occupational Safety and Health Standards' §1910.146* protects general industry workers who enter permit spaces. It requires employers to do the following:

- ▼ Survey their workplace to identify permit spaces.
- ▼ Inform employees about the location of each permit space and its hazards.
- ▼ Keep unauthorized workers out of permit spaces.
- ▼ Develop a written program that ensures the safety of any employee who must enter a permit space.

In 1998, federal OSHA revised §1910.146 and adopted the following changes:

- ▼ Gives authorized representatives access to the same information as employees regarding permit spaces and the permit-space program.
- ▼ Requires employers to provide employees or their authorized representatives with the opportunity to observe monitoring of confined spaces.
- ▼ Clarifies the criteria for selecting and evaluating a rescue team or service.
- ▼ Ensures employee participation in developing and implementing the permit-space program.
- ▼ Adds a non-mandatory appendix to guide employers in choosing appropriately trained and equipped rescuers.

**Why is §1910.146 important?** Permit spaces are complex environments that may contain many different hazards. Workers can die in permit spaces because they don't know about hazards or because they use the wrong procedures to control hazards. In fact, many of those who have died in permit spaces were trying to rescue others.

You probably wouldn't board a commercial aircraft — even for a short flight — if you knew that the pilot and the maintenance crew ignored take-off procedures. Nor would you squeeze into a confined space if you knew that your coworkers had ignored procedures to eliminate or control the hazards.

§1910.146 is important because it requires you, your coworkers, and your employees to follow safe work practices. If you follow those practices, you'll know when permit-space hazards exist and you'll use the right procedures to eliminate or control them.

**Where to get a copy of §1910.146** If you're a general-industry employer and your workplace has a permit space, you'll need a copy of §1910.146. Review it carefully. Keep in mind that this guide is intended to help you and your employees work safely in permit spaces — it doesn't take the place of §1910.146.

You can request §1910.146 from our Resource Center (see inside back cover), or you can download it from our Web site at [www.orosha.org](http://www.orosha.org).

What do I need to do to work safely in a permit space?

This section describes eight critical activities that are part of the entry process — the activities that take place as workers prepare to enter and exit a permit space.

They're critical activities because they ensure that those who enter a permit space can work and exit unharmed.

In addition, these activities lay the foundation for an effective *permit-space program*.



## Eight critical activities:

- ▼ Identify the permit spaces
- ▼ Identify the hazards in the spaces
- ▼ Decide if workers will enter
- ▼ Eliminate or control the hazards
- ▼ Establish entry procedures
- ▼ Train workers for entry operations
- ▼ Make sure workers know their responsibilities
- ▼ Plan for emergencies

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A **permit space program** is an employer's plan for protecting workers within the entry process. See Page 20, *What is a permit space program, and do I need one?*, for more information.

## Identify the permit spaces at your workplace.

**T**he first thing you should do is identify all enclosures at your workplace that have the characteristics of a confined space. (A confined space is difficult to enter and exit and large enough for one to enter completely, but not designed to be occupied.)

**Evaluate the spaces for hazards** Next, evaluate each confined space to determine if it's a permit space. Keep in mind that a permit space has one or more of the following characteristics:

- ▼ Contains — or could contain — an atmospheric hazard.
- ▼ Contains material that could trap or bury an entrant.
- ▼ Is shaped such that an entrant could become trapped or asphyxiated.
- ▼ Contains any safety or health hazard that could harm an entrant.

Your evaluation should identify all existing or potential hazards in each space. Be especially careful when evaluating a confined space that could contain an atmospheric hazard! The only way to identify an atmospheric hazard is to test for it from outside the space. Never assume a confined space is hazard-free. If you're not sure how to test for a hazardous atmosphere, give us a call.

**Inform employees about permit spaces** If your workplace has a permit space, employees must know where it's located, that it's hazardous, and that it's a permit space. You can post a sign, such as the one below, to inform them.



Identify the hazards in the spaces.

**Permit-space hazards:** *atmospheric and non-atmospheric* Those who enter a permit space face two kinds of hazards: *atmospheric* and *non-atmospheric*. Atmospheric hazards affect the air in the space and can be flammable, toxic, corrosive, or asphyxiating.

Non-atmospheric hazards, on the other hand, include many different conditions, including mechanical dangers, loose materials, excessive noise, extreme temperatures, low light, and difficult access.

**Atmospheric hazards** The table below identifies common atmospheric hazards, describes how they occur, and highlights why you should be concerned about them. Always check atmospheric hazards in the following order: oxygen deficiencies or displacement, flammable atmospheres, toxic atmospheres, and corrosive atmospheres.

COMMON ATMOSPHERIC HAZARDS		
Hazard	How it occurs	Why you should be concerned
Oxygen deficiency (less than 19.5 percent oxygen)	Chemical or biological reactions consume oxygen.	Oxygen-deficient atmospheres affect heart rate, muscle coordination, and breathing. Eventually, they lead to death.
Oxygen enrichment (greater than 23.6 percent)	Results from welding tasks and from the improper use of oxygen for breathing air.	Oxygen-enriched atmospheres increase the risk of fire or explosions.
Flammable atmospheres	Fuel, oxygen, and a source of ignition cause fires and explosions.	Flammable gasses such as acetylene, butane, propane, hydrogen, and methane are common in permit spaces. Grain, nitrated fertilizers, and ground chemicals can produce combustible dusts.
Toxic atmospheres	Accumulates through some manufacturing, biological, or chemical reactions. Released during work or tasks such as welding and cleaning.	Many manufacturing processes, stored materials, and work tasks produce toxic gases, vapors, or dusts.
Corrosive atmospheres	Accumulates from some manufacturing processes, biological or chemical reactions.	Corrosive substances destroy living tissue. Some cause immediate damage to skin and eyes; some have no immediate effect, but cause cancer with prolonged exposure.

**Non-atmospheric hazards** The table below identifies common non-atmospheric hazards, describes how they occur, and explains why you should be concerned about them.

COMMON NON-ATMOSPHERIC HAZARDS		
Hazard	How it occurs	Why you should be concerned
Engulfment	Loose materials drawn from the bottoms of storage bins can suffocate or bury an entrant. Liquids or materials are suddenly released into the space.	Liquid or loose materials can trap or bury a worker in seconds.
Mechanical and hydraulic energy	Mechanical and hydraulic equipment start or move unexpectedly.	Entrants servicing mechanical and hydraulic equipment can be seriously injured or killed if the energy isn't properly controlled.
Noise	Permit spaces amplify sounds produced by tools and equipment.	Noise interferes with essential communication between entrants and attendants.
Falling objects	Objects fall into the space because topside openings are unguarded or improperly guarded.	
Extreme temperatures	The permit space's location and the equipment it contains make it very hot or cold.	Hot environments put workers at risk for heat stress, especially if they're doing strenuous work or wearing protective clothing — cold environments make tasks more difficult to accomplish.
Slippery surfaces	Leaks, spills, and condensation make walking surfaces slippery.	Wet surfaces are usually slippery. They increase the risk of falls.
Corrosive chemicals	Corrosive chemicals are stored in the space, or entrants use them to do tasks.	Corrosive chemicals can cause severe eye or skin irritation if exposed workers are not wearing protective clothing.
Access problems	Confined spaces are difficult to enter and exit.	In an emergency, entrants may not be able to exit quickly.
Illumination problems	Most permit spaces are dark places.	Poor lighting makes it difficult for workers to enter, exit, and work in a permit space.

**Keep in mind** Most permit-space accidents happen for the following reasons:

- ▼ Workers haven't been properly trained to recognize permit-space hazards.
- ▼ Hazards aren't eliminated or controlled before workers enter the space.
- ▼ Rescuers are inexperienced or improperly trained.

**Getting help** If you need help identifying permit-space hazards, talk to your workers' compensation insurer or give us a call.

Decide if workers will enter a permit space.

If you have a permit space at your workplace, will workers enter it? Are they contract workers or your employees?

**If workers don't need to enter** Even if workers don't need to enter a permit space, you must make sure that they're aware of the space and know about its hazards. You can do that by placing a danger sign like this one → on the space, or permanently securing the entrance to the space — welding it shut, for example.

**If workers need to enter** The table below shows what you must do before employees or contract workers enter a permit space at your workplace.



IF	THEN
Only contract workers enter	You must tell the contractor about the hazards in the space, that the contractor must have a written permit-space program that meets §1910.146 requirements, and about any special precautions necessary to protect those working in or near the space.
Contract workers <i>and</i> your employees enter	You must have a written permit-space program that describes how you will eliminate or control the permit-space hazards and ensure the safety of those who enter the space. You must coordinate entry operations with the contractor so that the contract workers and your employees work safely together.
Only your employees enter	You must have a written permit-space program that describes how you will eliminate or control the permit-space hazards and ensure the safety of those who enter the space.

Eliminate or control the hazards in the space.

**B**efore allowing workers to enter a permit space, you must either eliminate all hazards in the space *or* control them so that the workers can accomplish their tasks and leave the space safely.

The table below summarizes the options and gives an example of each.

IF	THEN	EXAMPLE
The space has no atmospheric hazards <i>and</i> you can eliminate all other hazards.	<i>You can reclassify the space as a non-permit space.</i> You must eliminate all hazards in the space before workers enter and for the entire time they are in the space. You must document how you eliminated the hazards and certify the space hazard-free.	You need to enter a mixing tank that has no atmospheric hazards but does have mixing paddles that could start automatically. You must lock out and/or tag out the mixing-paddle hazard before you enter.
The space has only an atmospheric hazard <i>and</i> you can control it with forced-air ventilation.	<i>Workers can enter the space under alternate procedures:</i> You must keep the space hazard-free with continuous forced-air ventilation before workers enter and for the entire time workers are in the space. You must have test and inspection data that show forced-air ventilation will keep the space hazard free.	You need to enter a utility vault. You've monitored the space for oxygen displacement and enrichment, flammable atmospheres and toxic atmospheres. You've determined an atmospheric hazard exists — for example oxygen deficiency. Your test and inspection data show that continuous forced-air ventilation will increase oxygen content to 19.5 percent. You periodically monitor the atmosphere in the space to ensure forced-air ventilation maintains safe entry conditions.
You can't eliminate hazards in the space.	<i>You must follow your written permit-space program.</i> The program must include the method for controlling the hazards, procedures for entry operations, and an <i>entry permit</i> verifying that the space is safe to enter.	You need to enter a sewer system that contains pockets of methane and hydrogen sulfide, but you can't eliminate these hazards with forced-air ventilation.

**Getting help** Talk to your workers' compensation insurer, or give us a call if you need help determining how to eliminate or control permit-space hazards.

**Non-permit space:** The space is safe to enter and employees can work in it without a permit as long as it is hazard free.

**Alternate procedures:** Specific procedures that allow workers to enter and work in a permit space without a permit if continuous forced-air ventilation controls the hazards.

**Establish entry procedures.**

**B**efore workers enter a permit space, you must have safe work procedures covering all phases of the entry process. You must also complete an entry permit that verifies the permit space is safe for workers to enter.

**Before workers enter the space** The table below summarizes pre-entry activities and procedures.

ACTIVITY	ESTABLISH PROCEDURES TO ENSURE THAT
Guard the space	Workers place warning signs or barriers to keep out unauthorized persons and to protect entrants from falling objects.
Isolate the space	Workers disconnect, lock out, or tag out hazardous equipment in the space. Identify who will isolate the space and who will inform entrants about hazardous equipment.
Eliminate or control atmospheric hazards	Workers eliminate or control the hazards in the space. Include the method and the steps necessary to eliminate or control the hazards.
Test the space for atmospheric hazards	The entry supervisor tests for atmospheric hazards in the following order: first for oxygen, then for flammable gases, and finally for toxic gases. Employees must be able to observe the test.
Identify necessary equipment	Entrants have the equipment they need to do their tasks (including rescue equipment) and they know how to use the equipment.
Contact emergency responders	Attendants know how to respond to emergencies, including the following: whom to contact, how to remove entrants, and how to perform first aid and CPR.
Complete and post the entry permit	The entry supervisor certifies that the space is safe to enter, signs the entry permit, and posts it on the space so that authorized entrants can see it.

**While workers are in the space** The table below summarizes activities and procedures during entry operations:

ACTIVITY	ESTABLISH PROCEDURES TO ENSURE THAT
Maintain communications	Attendants and entrants keep in contact with each other. They must know what communications equipment to use and how to use it effectively.
Keep out unauthorized persons	The entry supervisor and authorized attendants know how they will keep unauthorized persons away from the space.
Monitor the space for hazards	Authorized attendants continuously monitor the permit space atmosphere while workers are inside.

**Establish entry procedures.**

**After workers leave the space** The table below summarizes activities and procedures that complete entry operations:

ACTIVITY	ESTABLISH PROCEDURES TO ENSURE THAT
Cancel the entry permit	The entry supervisor cancels the permit when entrants finish entry operations or when a condition arises that isn't identified on the permit.
Return the space to service	Workers return the space to service properly after entrants exit.
File the permit	All problems encountered by entrants are recorded and that the permit is kept on file for at least one year.

**The entry permit** The entry permit documents acceptable entry conditions and verifies that the space is safe for workers to enter. It contains the following information:

- ▼ Location of the space.
- ▼ Purpose of entry.
- ▼ Entry date and the time workers enter the space.
- ▼ Authorized entrants' names.
- ▼ Authorized attendants' names.
- ▼ Entry supervisor's name and signature.
- ▼ Hazards in the space.
- ▼ How workers will control hazards so that the space is safe to enter.
- ▼ Acceptable entry conditions.
- ▼ Testing data and testers' initials, certifying that the space is safe to enter.
- ▼ Names of emergency responders and instructions for contacting them.
- ▼ Communication procedures used by authorized entrants and attendants.
- ▼ A list of all equipment necessary to ensure entrants' safety.
- ▼ A description of any other permits entrants need to work in the space.

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**Enter:** Technically, entry occurs when any part of a worker's body moves through the opening of the space.

# A sample entry permit

CONFINED SPACE ENTRY PERMIT

Permit number \_\_\_\_\_ Date \_\_\_\_\_

**Location and Description of Confined Spaces**

**Purpose of Entry**

Scheduled Start	Day	Date	Time	a.m. p.m.	Scheduled Finish	Day	Date	Time	a.m. p.m.
-----------------	-----	------	------	--------------	------------------	-----	------	------	--------------

**Employee(s) in charge of entry:**  
 Entrants \_\_\_\_\_ Attendants \_\_\_\_\_

**Pre-Entry Authorization** *(Check those items below which are applicable to your confined space permit.)*

<input type="checkbox"/> Oxygen-Deficient Atmosphere	<input type="checkbox"/> Engulfment	<input type="checkbox"/> Energized Electrical Equipment
<input type="checkbox"/> Oxygen-Enriched Atmosphere	<input type="checkbox"/> Toxic Atmosphere	<input type="checkbox"/> Entrapment
<input type="checkbox"/> Welding/Cutting	<input type="checkbox"/> Flammable Atmosphere	<input type="checkbox"/> Hazardous Chemical

Note: If welding/cutting operations are to be performed, attach form (3039) to entry form.

**SAFETY PRECAUTIONS**

<input type="checkbox"/> Self-Contained Breathing Apparatus	<input type="checkbox"/> Lifelines	<input type="checkbox"/> Signs Posted
<input type="checkbox"/> Air-Line Respirator	<input type="checkbox"/> Respirators	<input type="checkbox"/> Clearance Secured
<input type="checkbox"/> Fire-Retardant Clothing	<input type="checkbox"/> Lockout/Tagout	<input type="checkbox"/> Lighting
<input type="checkbox"/> Ventilation	<input type="checkbox"/> Fire Extinguishers	<input type="checkbox"/> Ground Fault Interrupter
<input type="checkbox"/> Protective Gloves	<input type="checkbox"/> Barricade Job Area	
<input type="checkbox"/> Remarks _____		

**ENVIRONMENTAL CONDITIONS**

Tests to be taken	Date/Time	Re-Testing	Date/Time
Oxygen _____ %	_____ a/p	Oxygen _____ %	_____ a/p
Lower Explosive Limit _____ %	_____ a/p	Lower Explosive Limit _____ %	_____ a/p
Toxic Atmosphere _____		Toxic Atmosphere _____	
Instruments Used _____		Instruments Used _____	

Employee conducting safety checks signature \_\_\_\_\_

Remark on the overall condition of the confined space: \_\_\_\_\_

**ENTRY AUTHORIZATION** — All actions and/or conditions for safe entry have been performed.

Person in charge of entry \_\_\_\_\_ Please print

**ENTRY CANCELLATION** — Entry has been completed and all entrants have exited permit space.

Person in charge of entry \_\_\_\_\_ Please print

**Train workers for entry operations.**

**T**raining and educating workers is the most effective way to ensure that they can identify permit-space hazards, follow entry procedures, and respond appropriately in an emergency.

**Training requirements** Those who do permit-space work must understand procedures for entry, know how to control hazards, and know their roles in an emergency. They must receive training in the following situations:

- ▼ Before their permit-space duties are assigned or changed.
- ▼ When there is a change in permit-space operations that presents a hazard for which they haven't been trained.
- ▼ When they don't follow entry-permit procedures.

**Training must be certified** If you authorize workers to enter a permit space, you must certify that they have been trained. The certification must contain each worker's name, the trainer's signature, and the training dates. It must be available for workers or authorized representatives to review.

Trainers should understand all parts of §1910.146 and have experience with the types of permit spaces employees will enter.



**Make sure workers know their duties and responsibilities.**

**W**orking in permit spaces is a team effort involving authorized *entrants*, *attendants*, and *supervisors*. These key players' activities are critical to a safe, successful project.

**Authorized entrants** Authorized entrants are those permitted by an employer to enter a permit space.

Entrants have the following duties and responsibilities:

- ▼ Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- ▼ Using equipment properly.
- ▼ Communicating regularly with the attendant.
- ▼ Notifying the attendant immediately of hazardous conditions.
- ▼ Leaving the space immediately during a hazardous condition or when the attendant orders an evacuation.

**Authorized attendants** Authorized attendants are those who monitor entrants' activities from outside the space. Attendants have the following duties and responsibilities:

- ▼ Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- ▼ Knowing how many entrants are in permit space.

- ▼ Staying out of the space during entry operations.
- ▼ Keeping in contact with entrants.
- ▼ Ordering an evacuation for a hazardous condition.
- ▼ Keeping unauthorized persons away from the space.
- ▼ Activating rescue procedures.

**The entry supervisor** The entry supervisor makes sure attendants and entrants follow entry-permit procedures. The entry supervisor is responsible for the following:

- ▼ Knowing the permit-space hazards, including the symptoms and consequences of exposure.
- ▼ Verifying that the entry permit is accurate and current.
- ▼ Stopping entry operations and canceling the entry permit when permit-space work is done or during a hazardous condition.
- ▼ Ensuring that responders will be available in an emergency.
- ▼ Removing any unauthorized person who enters the space.
- ▼ Ensuring that entry operations are consistent if another authorized person must replace an attendant or an entrant.

**Plan for emergencies.**

**B**efore you authorize workers to enter a permit space, you must be sure that experienced emergency responders will be available if an entrant needs help. Responders must be able to reach your worksite promptly and know how to deal with the emergency effectively.

Most permit-space fatalities are caused by those who don't understand permit-space hazards or who respond inappropriately during emergencies.

Most fire departments are not equipped to respond to permit-space emergencies.

**Employer's responsibilities** Employers must tell emergency responders about any permit-space hazards they may encounter during an emergency, must ensure that responders can reach the space promptly, and must allow responders to practice rescues at all on-site permit spaces.

**Responders' responsibilities** Emergency responders have the following responsibilities:

- ▼ Have the equipment necessary to perform rescues and know how to use it.
- ▼ Be trained as rescuers and as authorized entrants.
- ▼ Practice simulated rescues at least once a year at each on-site permit space.
- ▼ Keep their first-aid and CPR training up to date.

**On-site or off-site responders?** You can choose either an on-site or an off-site responder. It's important only that the responder meet your needs in an emergency. Use the table on the following page to help you decide.

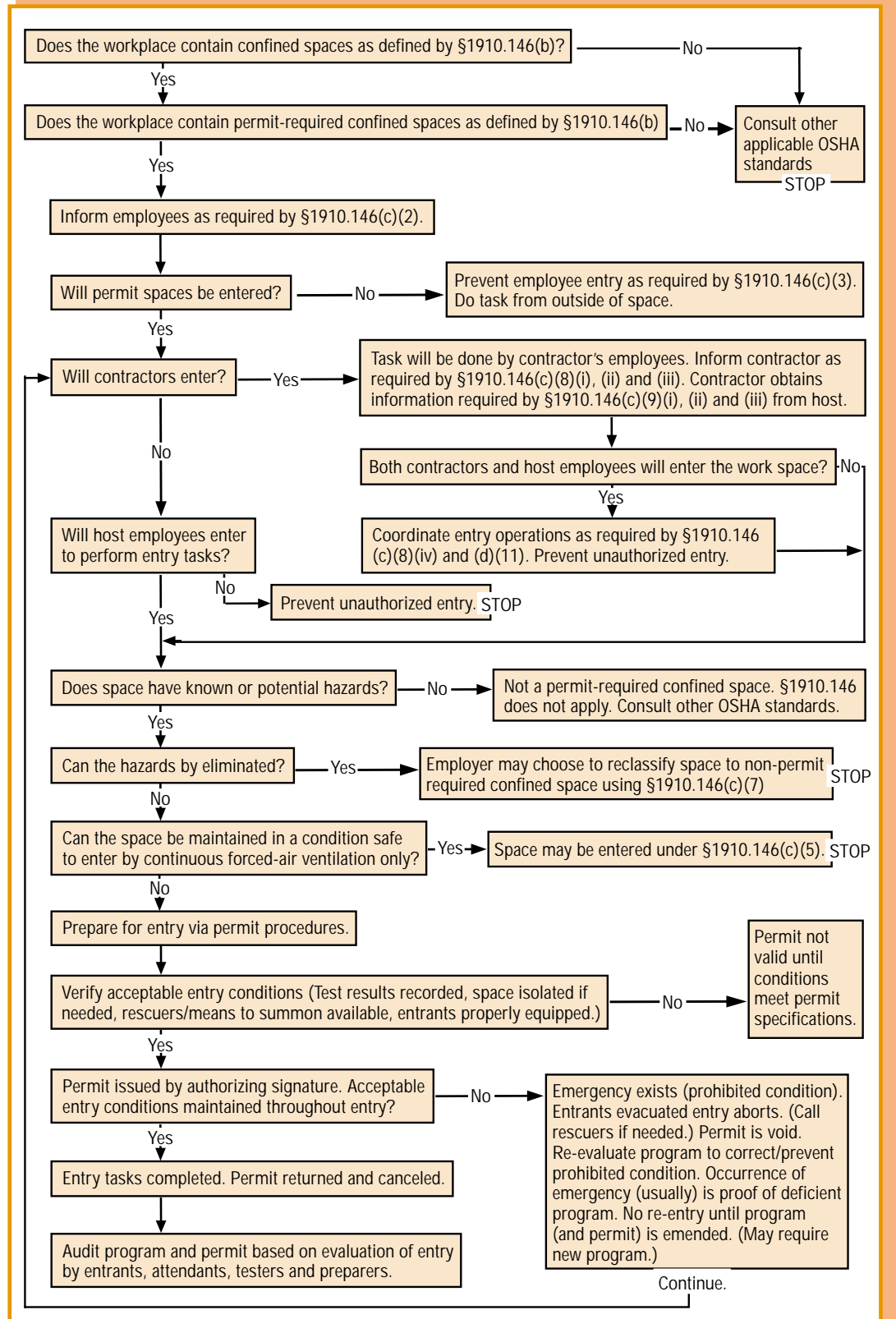
Plan for emergencies.

CHOOSING AN EMERGENCY RESPONDER	
Steps to Take	Considerations
Identify your needs	Do you anticipate emergencies requiring immediate action (if ventilation fails, for example)? Or less-than-immediate action (if the most serious accident would cause a fracture or abrasion)?
Interview them	Meet with the responders to find out if they can provide the emergency service you need. Posting an emergency-response number 911 for example isn't enough.
How quickly can they reach your site?	The response time must be appropriate to the type of potential injury; responders must be standing by when employees are working under potential IDLH ( <i>immediately dangerous to life and health</i> ) conditions.
Will they be available when you need them?	The responders must be available any time your workers need to enter a permit space.
How will you contact the responders?	Do you have a way for an authorized attendant or an entry supervisor to reach responders immediately?
Can they do technical rescues?	Do they have the technical knowledge and equipment to perform rope work or elevated-rescue work?
Can they do medical evacuations?	Do your responders have the skills and equipment for medical evacuations?
Are they trained as permit-space entrants?	Can the responders recognize the signs, symptoms, and consequences of exposure to a hazardous atmosphere in a permit space at your workplace?
Do they know how to test the atmosphere in a permit space?	For example, do they know how to determine whether the atmosphere is <i>immediately dangerous to life and health</i> ?
Will they understand the information on your entry permit?	For example, will responders understand the ventilation and atmospheric testing data on the entry permit?

**IDLH (Immediately Dangerous to Life or Health):** atmospheric concentration of any toxic, corrosive, or asphyxiate substance that poses an immediate threat to life or would interfere with one's ability to escape from a permit space.

A diagram of the entry process

The diagram below describes the permit-space entry process from start to finish.



## What is a permit-space program, and do I need one?

**What is a permit-space program?** A permit-space program is an employer's plan for protecting workers who need to enter a permit space.

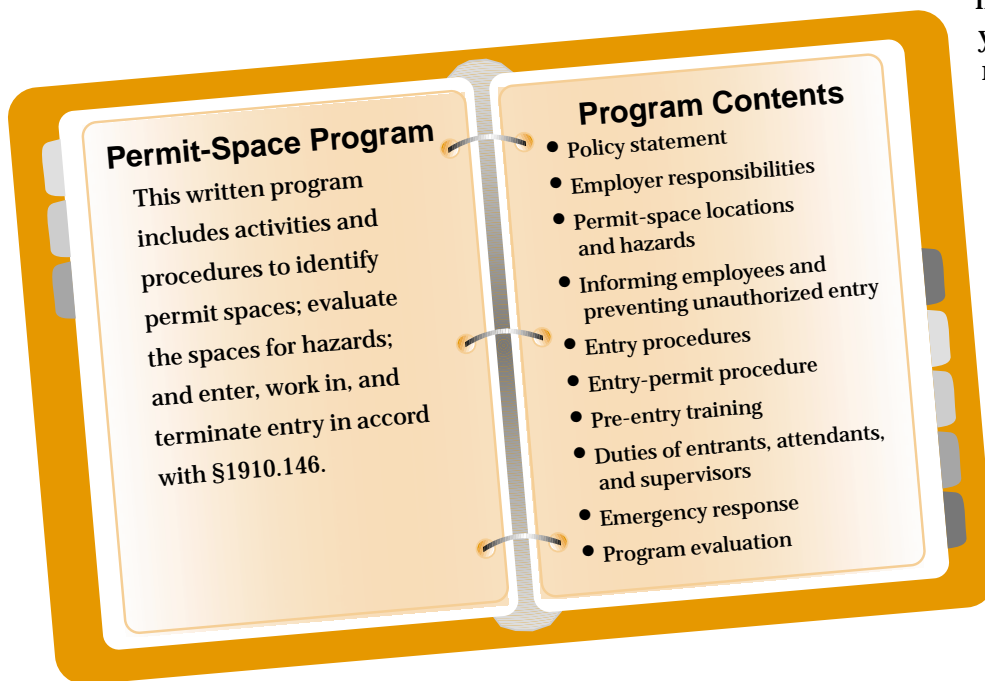
A written permit-space program documents the plan's activities and puts them in writing.

These activities should cover all aspects of working in or near permit spaces — from identifying the locations of the spaces to evaluating the program's effectiveness.

**Does your workplace need a written program?** If workers need to enter a permit space at your workplace, you must have a written permit-space program. This guide highlights the activities you should include in a written program. (§1910.146 covers them in detail.)

**Developing a program for your workplace** Your written permit-space program doesn't need to be a massive document. It should clearly tell what activities and procedures will ensure the safety of those who work in permit spaces at your workplace. It must be available for employees to review.

We've included a generic program that you can use to develop a program for your workplace. Make it an effective one. It should reflect the needs of your workplace and ensure the safety of your coworkers or employees.





# A generic permit-space program

- ◆ How to use this generic program
- ◆ Policy statement
- ◆ Employer responsibilities
- ◆ Permit-space locations and hazards
- ◆ Informing employees and preventing unauthorized entry
- ◆ Entry procedures
- ◆ Entry-permit procedure
- ◆ Pre-entry training
- ◆ Duties of entrants, attendants, and supervisors
- ◆ Emergency response
- ◆ Program evaluation

# How to use this generic program

Your written permit-space program documents activities and procedures that will ensure the safety of those who work in permit spaces at your workplace.

- First, think about the characteristics of the permit spaces at your workplace, the tasks that workers need to accomplish in and around the spaces, and the workers' experience in permit spaces.
- Then, use this generic program to help you develop, organize, and document the activities that form your own program.
- Remember, this is just an outline for *your* program. It's not complete until you include all the activities and procedures that make it unique to your workplace.

**This generic program has the following parts:**

- **Policy statement**
- **Employer responsibilities**
- **Permit-space locations and hazards**
- **Informing employees and preventing unauthorized entry**
- **Entry procedures**
- **Entry-permit procedure**
- **Pre-entry training**
- **Duties of authorized entrants, attendants, and supervisors**
- **Emergency response**
- **Program evaluation**

# Policy statement

[            Company name            ] is committed to a safe and healthful workplace for its employees. The purpose of this written program is to identify permit spaces at this workplace and to ensure that all employees will enter, work in, and exit permit spaces safely.

# Employer responsibilities

[ Company name ] will do the following to ensure the health and safety of those who work in and around permit spaces.

- Identify all permit spaces
- Inform employees of the location and the hazards in permit spaces
- Prevent unauthorized persons from entering permit spaces
- Train entrants, attendants, entry supervisors, and in-house emergency responders
- 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
- [ Company name ] designates the following persons to implement and manage the permit-space program.

PERSON'S NAME OR POSITION	RESPONSIBILITY
	<b>Overall program.</b> Overall implementation and maintenance of the written program, including employee certification or training that satisfies the requirements of 1910.146.
	<b>Permit-space locations.</b> Location and identification of all confined spaces at this workplace.
	<b>Training.</b> Ensure that authorized entrants, attendants, entry supervisors, and on-site emergency responders are properly trained and have periodic refresher training.
	<b>Emergency response.</b> Ensure that emergency responders are informed of all permit-required confined spaces at the workplace and have access to the spaces for drills and other training exercises.
	<b>Equipment.</b> Ensure that all equipment for authorized attendants and entrants is properly maintained and is available when needed.

# Permit-space locations and hazards

[ Company representative's name ] has surveyed the workplace and identified the following permit spaces, the hazards in the spaces, and the method(s) necessary to eliminate or control the hazards.

**Non-permit spaces – no atmospheric hazards**      These spaces have no atmospheric hazards and all other hazards have been eliminated. Employees can enter and work in them without a permit as long as the spaces are hazard-free.

LOCATION OF SPACE	HAZARD	HOW HAZARD WAS ELIMINATED	PERSON CERTIFYING THAT THE SPACE IS HAZARD FREE

**Non-permit spaces – atmospheric hazards**      These spaces have atmospheric hazards that can be eliminated with continuous forced-air ventilation before workers enter. Employees can enter and work in them without a permit as long as they are hazard-free.

LOCATION OF SPACE	ATMOSPHERIC HAZARD	PERSON CERTIFYING THAT THE SPACE IS HAZARD FREE

**Permit-required spaces**      These spaces have atmospheric hazards that cannot be eliminated with continuous forced-air ventilation. Employees can enter them **ONLY** under the entry-permit procedures established in this written program.

LOCATION OF SPACE	HAZARDS	METHOD OF CONTROLLING HAZARDS	RESCUE METHOD

# Informing employees & preventing unauthorized entry

[ Company name ] will use the following methods to inform employees about each permit space in the workplace and to prevent unauthorized workers from entering them.

LOCATION OF SPACE	METHOD TO INFORM	METHOD TO PREVENT ENTRY

# Entry procedures

All employees involved in entry operations must follow the procedures below for each phase of the entry process.

Before employees enter the space

ACTIVITY	PROCEDURES
Guarding the space	[Identify procedures]
Isolating the space	[Identify procedures]
Eliminating or controlling atmospheric hazards	[Identify procedures]
Testing the space for atmospheric hazards	[Identify procedures]
Identifying necessary equipment	[Identify procedures]
Contacting emergency responders	[Identify procedures]
Completing and posting the entry permit	[Identify procedures]

While employees are in the space

ACTIVITY	PROCEDURES
Maintaining communication	[Identify procedures]
Keeping out unauthorized persons	[Identify procedures]
Monitoring the space for hazards	[Identify procedures]

After employees leave the space

ACTIVITY	PROCEDURES
Canceling the entry permit	[Identify procedures]
Returning the space to service	[Identify procedures]
Filing the permit	[Identify procedures]

# Entry-permit procedure

No employee will enter a permit-required confined space without first completing an entry permit and having the entry supervisor sign the permit. The steps of the entry-permit procedure include the following:

STEP	ACTION
1	Obtain an entry permit from [location or person] before entering the space.
2	Accomplish all pre-permit activities required for entering the space, including atmospheric testing, controlling hazards, having required equipment on hand, and providing for emergency services.
3	Complete all items on the entry permit.
4	Have the entry supervisor authorize and sign the permit. If any item on the permit is checked as "NO" (meaning not yet completed or available), the permit will not be signed.
5	Attach a copy of the entry permit outside the confined space. Keep it there until the entry operations are finished and the supervisor cancels it.
6	Proceed with entry operations.

# Pre-entry training

Only trained and qualified employees will be authorized as entrants, attendants, entry supervisors, or in-house emergency responders. Training will ensure that they have the understanding, knowledge, and skills to perform their duties safely. Workers must receive training:

- Before their duties are assigned or changed.
- When their work presents a hazard for which they haven't been trained.
- When they do not follow entry procedures.

The table below certifies the following employees have received pre-entry training.

EMPLOYEE NAME	TYPE OF TRAINING	TRAINER'S SIGNATURE	TRAINING DATE

# Duties of authorized entrants, attendants, and supervisors

Working in permit spaces is a team effort involving authorized entrants, attendants, and supervisors. Their duties and responsibilities are shown below.

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		
Determine that acceptable entry conditions are maintained.			X
Exit from the permit space immediately given 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 non-entry 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	

# Emergency response

## Non-entry rescue requirements

Non-entry rescue is the preferred method for rescuing an entrant from a permit space. Employees must use retrieval systems to rescue an entrant unless the equipment would increase the entrant's risk of injury.

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 non-entry rescue equipment.
- Monitoring the emergency and informing responders about the number of victims, their condition, and the hazards in the space.

## Entry rescue requirements

Only responders designated by [ Company name ] can enter a permit space during an emergency. Each emergency responder must know how to do the following:

- Use personal protective and rescue equipment.
- Perform assigned rescue duties.
- Perform basic first aid and CPR.

Each rescue team member must practice a permit-space rescue at least once every 12 months.

## Summoning off-site responders

[ Company representative's name ] has made arrangements with the following off-site responder to provide rescue and emergency services:

Name of responder: \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Approximate response time: \_\_\_\_\_

[ Company representative's name ] has informed [ Name of off-site rescue service ] of the hazards they may encounter if they are summoned.

[ Company representative's name ] also has provided the rescue service access to permit spaces to develop appropriate rescue plans and practice rescues.

# Program evaluation

Within one year of an entry operation, [ Company representative's name ] must review canceled entry permits to identify program deficiencies. The review must be sooner if there is reason to believe that the program does not adequately protect employees. Actions to correct deficiencies must be documented and affected employees must be retrained.

