Not designed to be occupied

Oregon OSHA's guide to confined space safety

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Department of Consumer and Business Services

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About this guide

Not designed to be occupied is an Oregon OSHA Standards and Technical Resources Section publication.

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Table of Contents

Introduction

Confined spaces are harmless as long as they are not occupied. However, when workers enter a confined space to inspect equipment, fix leaks, or do construction work, they can encounter toxic gases, corrosive chemicals, flammable solvents, or machines that start unexpectedly. If something goes wrong, a confined space can be difficult or impossible to exit. Also would-be rescuers can share the fate of those they were trying to rescue.

This guide explains how to identify confined spaces and how to protect general-industry and construction workers who may need to enter them.

About Oregon OSHA's confined space rule

Oregon OSHA's confined space rule – **437-002-0146** – protects general industry and construction industry employees who enter confined spaces that have serious or life-threatening hazards.

What 437-002-0146 requires you to do:

- Survey your workplace to identify confined spaces and permit spaces
- Inform employees about the location of the permit spaces and the hazards associated with those spaces
- Keep unauthorized employees out of the spaces
- Prepare a written permit space program to protect employees who must enter a permit space
- Include a catalog of your permit spaces in your written program that describes why they are permit spaces
- Ensure that any equipment is used in accordance with the manufacturer's instructions and that your employees who use the equipment have been trained
- Ensure that employees who work around permit spaces are trained so they understand the presence, location, and hazards associated with the spaces, and they are aware of your permit space program
- Have a signed agreement with another rescue service provider if your employees will not provide rescue services

Exceptions to 437-002-0146

The rule does not apply to:

- Construction work covered in Subdivision 3/P, Excavations (except for existing and new sanitary sewers connected to an existing sanitary sewer).
- Construction work covered in Subdivision 3/S, Underground Construction, Caissons, Cofferdams, and Compressed Air (except for sewers).
- Enclosed spaces covered in 1910.269 in Subdivision 2/R, Electric Power Generation, Transmission, and Distribution (except when 1910.269 requires compliance with 437-002-0146).
- Manholes and vaults covered in 1910.268(o) in Subdivision 2/R, Telecommunications (except when those provisions are insufficient to make the space safe to enter).
- Welding in confined spaces covered in Subdivision 2/Q, Welding, Cutting, and Brazing (when the only hazards are related to welding).
- Grain bins, silos, tanks, and other grain storage structures covered in 1910.272 in Subdivision 2/R, Grain Handling Facilities.
- Diving operations covered in Subdivision 2/T, Commercial Diving Operations.

Key sections of 437-002-0146

Oregon OSHA's confined space rule has 13 sections:

1. Purpose and application
2. Exceptions
3. Definitions
4. Evaluation
5. Permit-required confined space entry programs and permits
6. Permit entry
7. Equipment
8. Personnel
9. Rescue
10. Alternate entry
11. Training
12. Multi-employer worksites
13. Records

Key sections of Oregon OSHA's confined space rule: 437-002-0146

	4 Evaluation	5 Permit-required confined space entry programs and permits	6 Permit entry	7 Equipment	8 Personnel	9 Rescue	10 Alternate entry	11 Training	12 Multi-employer worksites	13 Records
For spaces that are:										
Confined spaces	✓									
Permit-required confined spaces	✓	✓	✓	✓	✓	✓		✓	✓	✓
Never entered	✓									
If you only:										
Use alternate entry procedures	✓			✓			✓	✓		✓
Have other employers enter your space	✓								✓	✓
Are a rescue service provider		✓	✓	✓	✓	✓		✓		✓

Common questions about 437-002-0146

Q: I have a permit space program for my facility that meets the requirements for federal OSHA's confined space rule, 1910.146, and my employees follow those requirements when they enter permit spaces. Are the requirements for 1910.146 and 437-002-0146 the same?

A: Many of the requirements are the same; however, there are also more requirements under 437-002-0146.

Identical requirements under 1910.146 and 437-002-0146

- Definition of a confined space
- Definition of a permit space
- Requirement for a written program when employees enter a permit space
- Roles, responsibilities, and training of entrants, attendants, and entry supervisors
- Requirement that unauthorized people do not enter a permit space
- Process for entering, performing work, and exiting a permit space
- Information required on the entry permit (1910.146 requires the duration of the entry; 437-002-0146 requires starting and stopping times)
- Requirement for pre-planning nonentry and entry rescues
- Training requirements, annual practice, and qualifications of rescue personnel
- Host employer and contractor responsibilities

More requirements under 437-002-0146

- Include a catalog of your permit spaces in your written program that describes why they are permit spaces.
- Ensure that any equipment is used in accordance with the manufacturer's instructions and that employees who use the equipment have been trained.
- Ensure that employees who work around permit spaces are trained so that they understand the presence, location, and hazards associated with the spaces, and they are aware of your permit space program.
- Have a signed agreement with another rescue service provider if your employees will not provide rescue services.

Q: We enter a confined space under the alternate entry procedures in 1910.146(c)(5) or reclassify the space according to 1910.146(c)(7). Are these requirements included in Oregon OSHA's confined space rule?

A: No. Oregon OSHA's confined space rule does not include these requirements. Under Oregon OSHA's rule, workers can use alternate entry procedures to enter a permit space without a permit (documentation is required to verify safe entry) and attendants, an entry supervisor, and rescue services are not required. See Page 12 in this guide for more information on alternate entry procedures.

What is a confined space?

A confined space is a space that meets **three conditions**:

1. **It is large enough and so configured that an employee can fully enter the space and perform work.**

A space that is just large enough for a person to squeeze into, but not perform any work, is not a confined space. Similarly, a space that is too small for a person to enter completely is not a confined space.

2. **It has limited or restricted means for entry, exit, or both.**

If a person must contort his or her body to enter or move around inside a space, it probably has a limited means of entry and exit. Climbing through a porthole to enter a space or crawling through a tunnel toward an exit are examples of spaces that have limited means of entry and exit. Another way of measuring limited means of entry and exit is to determine how difficult it would be to remove an injured person from the space; if there is a need for a technical rescue to remove an injured person, you probably have a limited means entry and exit. Evaluate each space on a case-by-case basis.

3. **It is not designed for continuous human occupancy.**

What is the primary function and purpose of the space? A space that is designed for periodic occupancy is not the same as a space that is designed for continuous occupancy.

The presence of a fixed ladder, lighting, or ventilation does not always mean that the space was designed for continuous occupancy. Is the space designed for a person to work there or is it designed to house and protect equipment that needs to be monitored or occasionally maintained? For example, a space may have lighting for periodic occupancy that may be necessary to safely enter and exit, read gauges, or perform maintenance or repairs. Similarly, ventilation may be necessary to keep equipment from overheating or to provide fresh air for temporary job assignments or tasks. In both cases, the work performed is intermittent or temporary.

Examples of confined spaces

Spaces with depth and open tops	Spaces with narrow openings
Pits	Ship compartments
Wells	Silos
Vats	Pipes
Bins	Tunnels
Hoppers	Tanks
Degreasers	Casings
Kettles	Sewers

Evaluate the space

1. Is the space large enough to enter fully and perform work?
2. Is there limited means of entry and exit that hinders the ability to escape?
3. Is the space not designed for continuous occupancy, and is it unsuitable for occupancy under normal operating conditions without safety and health considerations?

If you answered **yes** to all three criteria, **you have a confined space.**

If you answered **no** to any of the three criteria, **the space is not a confined space** and Oregon OSHA's confined space rules do not apply. You can enter the space after addressing any safety and health hazards.

What is a permit space?

A permit space is a confined space that has one or more of the following characteristics:

- It has, or could have, a hazardous atmosphere.
- It contains material that could trap or bury a person.
- It is shaped so that a person could become trapped or asphyxiated.
- It has other safety or health hazards that could harm a person.

Hazards in permit spaces

Most accidents in permit spaces happen when workers and untrained rescuers do not recognize hazards in the spaces or they do not control the hazards before they enter. Never assume a permit space is safe to enter.

Permit spaces can have two types of hazards: hazardous atmospheres and physical hazards.

Hazardous atmospheres

A hazardous atmosphere affects the air in the space and can cause death, acute illness, or impair the ability of workers to escape. Hazardous atmospheres include:

- Corrosive atmospheres. Corrosive atmospheres accumulate from some manufacturing processes and biological or chemical reactions. Some cause immediate damage to the skin and eyes; some have no immediate effect, but cause cancer with prolonged exposure.
- Flammable or explosive gases, liquids, vapors, mists, fibers, or dusts. Flammable gases such as acetylene, butane, propane, hydrogen, and methane are common in permit spaces. Grain, nitrated fertilizers, and ground chemicals can produce combustible dusts.
- Inert gases used to remove oxygen. Inert gases can cause oxygen deficiency; examples include nitrogen, helium, steam, Freon, argon, and carbon dioxide.
- Oxygen deficiency. Oxygen-deficient atmospheres (oxygen concentration less than 19.5 percent) affect heart rate, muscle coordination, and breathing. Unprotected workers cannot survive in an oxygen-deficient atmosphere.
- Oxygen enrichment. Oxygen-enriched atmospheres (oxygen concentration more than 23.5 percent), which can be caused by welding and from the improper use of oxygen for breathing air, increase the risk of fire or explosions.
- Toxic dusts, mists, fumes, smoke, vapors, fibers, or gases. These can be released by manufacturing processes, stored materials, and work tasks.

A hazardous atmosphere that poses a threat to life, would cause irreversible adverse health effects, or that would interfere with an individual's ability to escape from a confined space is called immediately dangerous to life or health (IDLH).

Some hazardous atmospheres (hydrogen fluoride gas and cadmium vapor, for example) may cause serious health effects that result 12 to 72 hours after exposure.

Air-monitoring equipment: Trained employees can use an air-monitoring meter to test for hazardous atmospheres. However, they must first calibrate the meter and use it according to the manufacturer's instructions. Inaccurate instruments can expose workers to excessive levels of toxic gas or an oxygen-deficient atmosphere. The only way to guarantee that an instrument will detect gas accurately is to test it.

"Bump test" your air-monitoring meter every day – before you use it. A bump test verifies that an air-monitoring meter is properly calibrated. You perform a bump test by exposing the meter to a known concentration of test gas. Compare the instrument reading to the actual quantity of gas present. If the instrument's response is within an acceptable tolerance range of the actual concentration, then the meter is calibrated properly.

A site safety officer uses an air-quality monitor.

Physical hazards

Physical hazards come in many different forms and can cause death or serious physical harm. Examples include:

- **Access problems.** In an emergency, entrants may not be able to exit quickly.
- **Absorbed chemicals.** Chemicals can be absorbed through the skin or other tissues or membranes such as the eyes.
- **Corrosive chemicals.** Corrosive chemicals can cause severe eye or skin damage if exposed workers are not wearing protective clothing or eyewear.
- **Falling objects.** Objects can fall into the space because topside openings are unguarded or improperly guarded.
- **Illumination problems.** Poor lighting makes it difficult for workers to enter, work in, and exit a permit space.
- **Inwardly converging surfaces.** Inwardly converging walls and downward sloping floors that taper to a smaller cross section can trap a worker.
- **Material that could trap or bury a person.** Loose materials drawn from the bottom of storage bins can suffocate or bury a worker. Liquids or materials that are suddenly released into the space can have the same effect.
- **Mechanical, electrical, hydraulic, and pneumatic energy.** Mechanical and hydraulic equipment can move unexpectedly. Workers servicing mechanical and hydraulic equipment can be seriously injured or killed if the energy is not properly controlled.
- **Noise.** Noise interferes with essential communication between workers in a confined space and those who are monitoring their work on the outside. High noise levels can impair hearing and cause hearing loss. Permit spaces can amplify sounds produced by tools and equipment.
- **Radiation.** Sources of radiation include x-rays, isotopes, lasers, and welders.
- **Slippery surfaces.** Wet, slippery surfaces increase the risk of falls. Leaks, spills, and condensation are common in permit spaces.
- **Extreme temperatures.** Hot environments put workers at risk for heat stress, especially when they do strenuous work or are wearing protective clothing. Cold environments make their tasks more difficult to accomplish.

Eliminating physical hazards

Ways to eliminate physical hazards in a confined space include:

- Locking out or tagging out equipment (following the requirements in 1910.147, Lockout/Tagout)
- Blanking and blinding piping systems
- Physically separating piping systems from the space

Always evaluate the space in its normal state before eliminating hazards.

Evaluating confined spaces and permit spaces: 437-002-0146(4)

Identify all enclosures at your workplace that have the characteristics of a confined space and evaluate each one to determine if it is a confined space and if it has hazards that make it a permit space.

Do not allow any employees to enter a confined space until it has been fully evaluated.

At workplaces where confined spaces are being built, host employers or controlling contractors do not need to evaluate confined spaces unless:

- One of their employees will enter the space
- An employee of an employer responsible to the host employer or controlling contractor will enter the space
- A host employer or controlling contractor assumes control over the space

If your workplace has a permit space, your employees must know where it is located, that it is hazardous, and that it is a permit space.

- Allow employees to observe the evaluation of the space.
- Identify the space as a permit space. You can use signs, labels, or tags to identify the space.
- When conditions within the space change, re-evaluate it.
- Prevent unauthorized employees from entering the space.

If someone else will enter a permit space under your control (employees of another employer, for example), inform them:

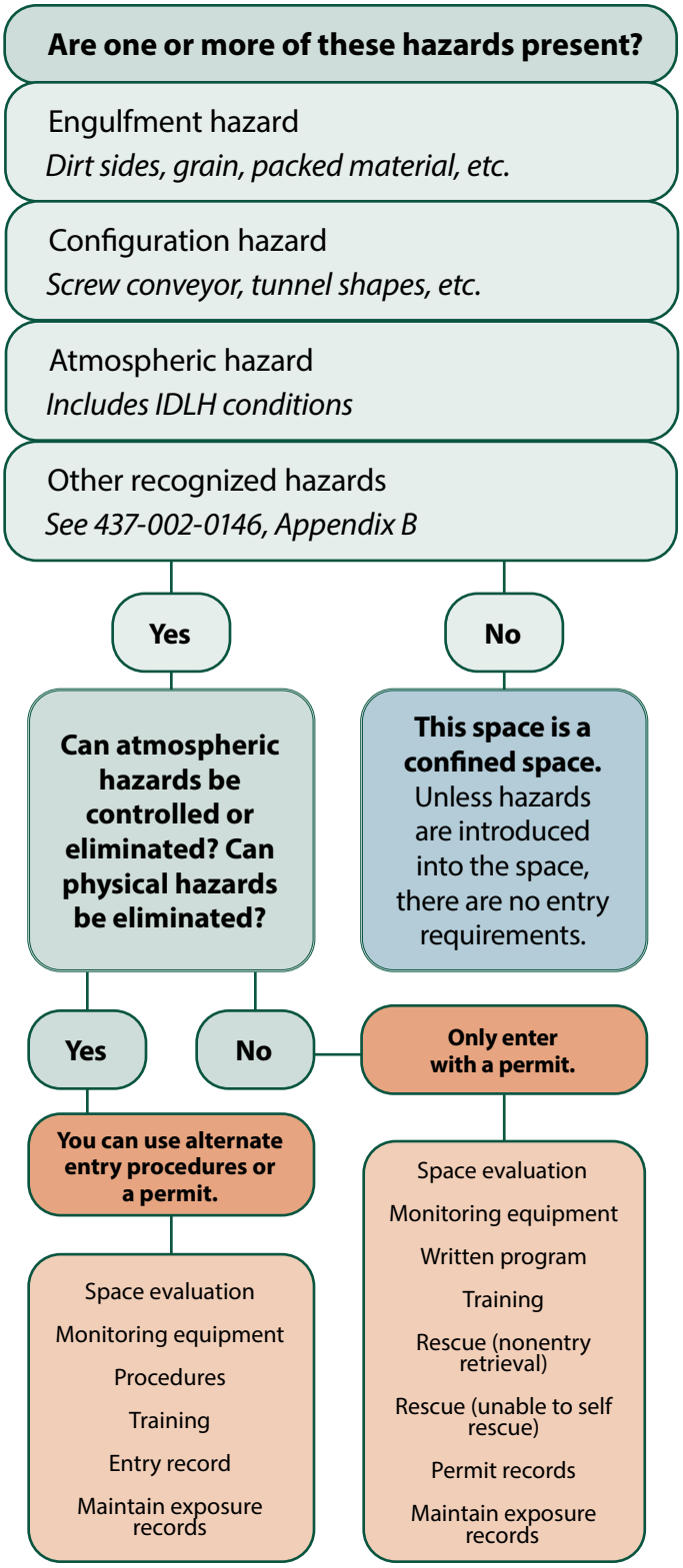
- About all hazards or potential hazards in the spaces
- If the spaces have been evaluated before and what that evaluation discovered
- What your precautions or procedures are for entering the spaces

If your employees will enter a permit space, they must follow the requirements of your written permit space program.

If you have mobile employees, you must determine whether there are confined spaces at the sites where they will be working. If confined spaces are present, the space must be evaluated to identify any physical or atmospheric hazards that make it a permit space.

The permit space program and the entry permit: 437-002-0146(5)

You determined you have a confined space.



If your employees will enter a confined space that has one or more of the hazards shown in the chart on Page 6, the space is a permit space and you must prepare a written permit space program before they enter. Entry occurs when any part of a worker's body enters the space opening.

- An entry permit is required if atmospheric and physical hazards cannot be controlled or eliminated.
- You can use alternate entry procedures to enter a permit space if all physical hazards can be eliminated and all atmospheric hazards can be eliminated or controlled with continuous forced air ventilation.

Requirements for a written permit space program

A written permit space program must include:

- A procedure for issuing an entry permit
- Provisions for training employees about the written program and entry permits
- Measures taken to prohibit unauthorized employees from entering permit spaces
- The roles of entrants, attendants, entry supervisors, rescuers, and those who test or monitor the atmosphere in the space
- Provisions for training employees about their roles
- Duties of designated employees
- Instructions for identifying and evaluating hazards
- Methods for eliminating or controlling hazards
- Instructions for using and maintaining equipment
- Instructions for coordinating entry with another employer
- Procedures for concluding entry and canceling the entry permit

At fixed sites, the written program must include a list of all of your permit spaces (or the types of permit spaces if you have several of the same kind). For example, if you have sewer manholes, you do not have to include each one on the list; identify them as "sewer manholes," describe how to recognize them, and describe the hazards that make them permit spaces.

Employees must have access to the written pemit space program before entering a permit space.

Requirements for the entry permit

The entry permit describes acceptable entry conditions and verifies that a permit space is safe for workers to enter. No one can enter a permit space until a completed entry permit verifies that the hazards in the space have been eliminated or controlled. An entry supervisor must sign the entry permit, post it on the space where employees can see it, and cancel it after the work is finished.

The entry permit must include the following information:

- Description of the space that will be entered
- Purpose of the entry
- Entry date and the start and stop times of the work
- Hazards associated with the space
- Acceptable entry conditions
- Results of tests and monitoring performed to evaluate hazardous atmospheres
- Names or initials of the testers and the date the tests were performed
- Measures used before entry to isolate the space and eliminate or control hazards
- Names of entrants and attendants
- Name of the current entry supervisor
- Signature of the entry supervisor
- Communication procedures necessary for entrants and attendants to maintain contact during the entry
- Equipment necessary for safe entry
- Rescue services available and contact information for the service providers
- Permits for other work in the space (such as hot work)
- Description of problems encountered during entry

You must also develop a procedure for issuing an entry permit that describes how to:

- Evaluate the space's hazards
- Evaluate work-related hazards
- Identify safe entry conditions

Employees must have access to the completed permit before they enter a permit space so they can confirm that pre-entry preparations have been completed.

You must review an entry permit when there is any reason to believe employees are not protected. Situations that require a review include:

- Unauthorized entry
- When a new hazard is identified
- When a condition prohibited by the permit occurs during entry
- When an injury or near miss occurs during entry
- When an employee reports concerns about the permit's effectiveness or the procedure for issuing the permit

When you revise a permit, do not allow anyone into the affected space until the revisions are complete.

Permit entry: 437-002-0146(6)

Before workers enter a permit space, you must ensure that the hazards associated with the space have been eliminated or controlled. A completed entry permit verifies that hazards have been eliminated or controlled and the space is safe. The entry supervisor must certify that the space is safe to enter, sign the entry permit, and post it on the space so that authorized entrants can see it.

Establishing safe entry conditions

Essential conditions for safe entry include:

- Guarding the space. Use warning signs or barriers to keep out unauthorized people and to protect entrants from falling objects.
- Isolating the space. Disconnect, lock out, or tag out hazardous equipment in the space. If you lock out equipment, remember that "lock out" includes testing to ensure the lockout method works.
- Testing the space for hazardous atmospheres. Test the atmosphere from outside the space for all potential atmospheric hazards, which may include oxygen; flammable gases, dusts, or vapors; toxic gases or vapors; and corrosive atmospheres. Provide entrants with test results. Re-test the space if an entrant believes that initial testing was inadequate.
- Eliminating or controlling hazardous atmospheres. Eliminate or control the hazards in the space, then document the method and the steps necessary to eliminate or control the hazards. Allow entrants to observe testing, monitoring, and any other activity necessary to eliminate or control hazards.
- Providing necessary equipment. Ensure that entrants have the equipment they need to do their jobs (including rescue equipment) and that they know how to use the equipment.
- Planning for emergencies. Attendants must know how to respond to emergencies, including who to contact and how to remove entrants.

Maintaining safe entry conditions

When work begins inside the space, you must ensure safe conditions are maintained until the work is finished.

Essential conditions for maintaining safe entry include:

- Monitoring activity inside and outside the space. Attendants must constantly monitor the space for hazards while employees are inside.
- Maintaining communications between attendants and entrants. Attendants and entrants must keep in contact with each other. They must know what communications equipment to use and how to use it.
- Keeping unauthorized people away from the space. The entry supervisor and the attendants are responsible for keeping people away.

If the space must be evacuated, do not allow re-entry unless you do either of the following:

- Evaluate the conditions in the space to ensure it is safe for re-entry and ensure that the permit notes the evacuation
- Issue a new entry permit

An example of a confined space sign requiring the use of a permit.

Equipment necessary for entering a permit space: 437-002-0146(7)

The following equipment must be available to employees when they enter permit spaces:

- Testing and monitoring equipment
- Ventilating equipment to maintain acceptable entry conditions
- Communication equipment, such as a two-way radio, for communication between the attendant and entrants, and to initiate a rescue
- Appropriate lighting, so they can see and can exit the space quickly in an emergency
- Barriers or shields to protect them from hazards outside the space such as pedestrians and vehicles
- Ladders or similar equipment so they can enter and exit the space
- Rescue equipment, if they are unable to self-rescue in an emergency
- Appropriate personal protective equipment

The equipment must be available to the employees at no cost, must be used in accordance with the instructions from the manufacturer, and the employees must be trained to use it properly.

Employees' duties and responsibilities: 437-002-0146(8)

Working in a permit space involves entrants, attendants, and entry supervisors. Before anyone enters, you must designate who has each of these duties.

Entrants are the employees you allow to enter a permit space. Attendants monitor the entrants' activities from outside the space. The entry supervisor ensures that attendants and entrants follow entry procedures.

Entrants must

- Know about hazards that they may face during entry and the signs, symptoms, and consequences of exposure
- Communicate with the attendants so the attendants can monitor their status and warn them when they need to evacuate
- Tell the attendants about hazardous conditions in the space or symptoms of exposure
- Leave the space immediately when:
  - An order to evacuate is given by an attendant or the entry supervisor
  - An entrant recognizes any warning sign or symptom of exposure to a dangerous situation
  - An entrant detects a dangerous or hazardous condition
  - An evacuation alarm is activated

Attendants must

- Know the hazards entrants may face during entry and the signs, symptoms, and consequences of exposure
- Be aware of the behavioral effects of hazards on entrants
- Keep an ongoing count of entrants and ensure that the count identifies who is in the space
- Remain outside the space during entry operations until relieved by another attendant
- Communicate with entrants to monitor their status and to alert them if they need to evacuate
- Summon emergency responders as soon as entrants need to escape from the space
- Perform nonentry rescues following your established rescue procedure
- Do nothing that would interfere with monitoring and protecting an entrant
- Monitor activity inside and outside the space and order an immediate evacuation when:
  - There is a hazardous condition in the space
  - An entrant's behavior is affected by exposure to a hazard
  - A situation outside the space could endanger the entrants
  - It is not possible to perform the duties required of an attendant

An attendant can monitor more than one space at a time if the duties for one space do not interfere with duties for another space. If an attendant's attention is focused on one space – during a rescue, for example – all other spaces that the attendant is monitoring must be evacuated or another attendant must take over those duties.

When unauthorized people approach or enter a permit space while entry is under way, attendants must:

- Warn them to stay away from the space
- Tell them that they must exit immediately if they have entered the space
- Inform the authorized entrants and the entry supervisor if unauthorized people have entered the space

You can give attendants authority to remove unauthorized people who attempt to enter a space during entry operations as long as the attendants do not enter the space.

Entry supervisors must

- Know the hazards that entrants may face during entry, including the signs, symptoms, and consequences of exposure
- Understand how to control or eliminate hazards associated with the space
- Verify that all tests specified by the entry permit have been conducted and that all procedures and equipment specified by the permit are in place before signing the permit and allowing entry to begin
- Inform entrants and attendants about the hazards and conditions associated with the space and the methods used to eliminate or control the hazards
- Terminate the entry and cancel the entry permit as required by the entry procedure
- Verify that rescue service providers are available and that they can be contacted in an emergency
- Remove unauthorized people who enter or who attempt to enter the space during entry operations
- Re-evaluate conditions in the space whenever responsibility for an entry operation is transferred, new hazards are identified, or when the work performed in the space changes

Performing rescues: 437-002-0146(9)

Before you authorize employees to enter a permit space, you must ensure that trained emergency responders will be available if an entrant needs help. Responders must be able to reach the site promptly and know how to deal with the emergency. You can use an on-site rescue team or a third-party rescue service, as long as the responder meets your needs in an emergency. Third-party rescue services must agree, in writing, to provide the service. (Emergency responders are not required when you use alternate entry procedures.)

Those who do not understand permit space hazards or who respond inappropriately are often the victims in many permit space accidents. Keep in mind that many fire departments are not equipped to respond to permit space emergencies.

Firefighters who are not on your designated rescue team and who respond to emergency (911) calls for a confined space rescue must comply with Subdivision 2/L, 437-002-0182, Oregon Rules for Fire Fighters.

Developing a rescue procedure

Before your employees enter a permit space, you must have a procedure for removing them when they are unable to self-rescue. The procedure must include the process for summoning rescue services and transporting injured entrants to a medical facility. Safety Data Sheets (SDS) must be kept at worksites. If an entrant is exposed to a hazardous substance, that written material must be made available to the treating medical facility.

Performing nonentry rescues

Use nonentry rescue methods and equipment, unless they would increase the overall risk to an entrant. Each entrant must use a chest or full-body harness with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at a similar point that makes it possible to remove the entrant from a confined space. Equipment such as wristlets or ankle straps may be used if a chest or full-body harness is not feasible. The other end of the retrieval line must be attached to a mechanical device or to a fixed point outside the space so that the rescue can begin immediately. A mechanical device must be available to retrieve entrants from permit spaces greater than five feet deep.

Designate a rescue person or team to perform rescues in a timely manner. Response time is based on the hazards associated with the space. For example, immediately dangerous to life or health (IDLH) hazards require an immediate response and responders must be available on site for the duration of the entry. All rescuers must be trained in basic first aid and cardiopulmonary resuscitation (CPR) and at least one rescuer must have a valid first-aid card.

Rescuers must practice nonentry rescues at least once every 12 months. Practice rescues must include:

- Every type of space in which the rescue team might perform rescues
- Removing people or mannequins from the actual permit spaces or from a space that has similar characteristics

Performing entry rescues

Consider entry rescues only when a nonentry rescue would increase the overall risk to an entrant or is not feasible.

Third-party rescue services must be capable of performing all necessary rescue operations.

Designate a rescue team that can respond in a timely manner, can rescue entrants efficiently, and has the appropriate equipment. Ensure that the rescue team has:

- Information about the hazards it may encounter during a rescue
- Access to the permit spaces it needs to enter
- Appropriate personal protective equipment (PPE)
- Any other equipment necessary for safe entry

According to the rule, rescuers must practice performing permit space rescues prior to entry and no more than 12 months before an entry. Rescues must involve removing people or mannequins from the actual permit spaces or from spaces that have similar characteristics. Rescuers must have the same training as entrants, attendants, and entry supervisors. All rescue team members must be trained in basic first aid and CPR and at least one rescuer must have a valid first aid card.

Mobile workers and rescue

When your workers are mobile, they do not need to do an annual practice rescue (either entry or nonentry) if the rescue team does a practice rescue in the space that needs to be entered. The rescue team must have access to the space before the entry because it needs to develop a rescue plan and practice before the actual entry. If the team has access to a space similar to the one that needs to be entered, they can use that space for the practice rescue instead.

Third-party rescue service providers

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

- Agrees to provide the service
- Is capable of performing all necessary rescue operations
- Is trained in first aid and CPR and at least one member has a valid first-aid card

Third-party rescue service providers must:

- Obtain the evaluation information about every permit space they may need to enter
- Be familiar with procedures necessary to remove entrants from permit spaces in an emergency or when they are not able to self-rescue
- Use the entry permit to identify all physical and atmospheric hazards in the space and determine the procedure to follow for entering the space

Alternate entry: 437-002-0146(10)

What is alternate entry?

Alternate entry is a set of specific procedures for entering a permit space without an entry permit; however, the space remains a permit space under alternate entry. The following sections of 437-002-0146 apply under alternate entry:

- Evaluation, 437-002-0146(4)
- Equipment, 437-002-0146(7)
- Alternate entry, 437-002-0146(10)
- Training, 437-002-0146(11)

Employees may enter a permit space under alternate entry only after you do one of the following:

- Eliminate all physical hazards and hazardous atmospheres in the space so that conditions that caused the hazards no longer exist
- Eliminate all physical hazards in the space and control all hazardous atmospheres with continuous forced-air ventilation

Alternate entry procedures

Develop and implement alternate entry procedures that address:

- The hazards associated with the space
- The methods used to eliminate the hazards
- The methods used to ensure that the hazards have been eliminated
- The methods used to test the space for all hazardous atmospheres
- The methods used to determine if unsafe conditions occur before or during entry
- The criteria and conditions for evacuating the space
- The methods for training employees in these procedures
- The methods for ensuring employees follow these procedures

Ensure that all employees who enter:

- Have the opportunity to observe the activities required to comply with the alternate entry procedures
- Have an effective means of communication, such as a two-way radio, cellphone, or voice (if other employees are present) to request help in an emergency

Documenting alternate entry

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 or the bump test 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.

Alternate entry in continuous systems

Alternate entry cannot be used to enter a permit space that is a continuous system (such as a sewer) unless you isolate the area to be entered from the rest of the space or you demonstrate and document that the hazardous conditions do not exist within the entire system during the entry.

Alternate entry with continuous forced air ventilation

When using ventilation to control hazardous atmospheres:

- Use only properly calibrated direct-reading meters to test the atmosphere
- Ensure that direct-reading instruments are used and tested according to the manufacturer's instructions

- Test the space for hazardous atmospheres before entering
- Ensure that employees do not enter the space until testing has verified that all hazardous atmospheres are controlled by ventilation
- Perform continuous monitoring for all hazardous atmospheres while employees are in the space

Rescue procedure not required under alternate entry

There is no requirement for a rescue procedure when workers enter a confined space under alternate entry because hazards in the space have been eliminated or controlled.

Evacuating a permit space under alternate entry

Employees must immediately evacuate a space:

- When monitoring indicates the presence of a hazardous atmosphere
- When a direct-reading meter used for monitoring fails
- When continuous forced air ventilation fails
- When a new hazard is identified or conditions in the space change

When a space is evacuated, it cannot be re-entered unless the conditions that caused the evacuation are corrected. Re-entry must be treated and documented as a new entry.

Training employees: 437-002-0146(11)

Training employees involved in permit space work

Train employees involved in permit space activities so they acquire the understanding, knowledge, and skills necessary to safely perform their duties and their assigned responsibilities.

Training is required for new employees and for all other employees:

- Before an employee is assigned permit space duties
- Before there is a change in an employee's assigned duties
- When there is a new permit space hazard for which an employee has not been trained
- When there are changes to the written permit space program
- When a review of an entry permit identifies problems with an entry
- When there is a deviation from established procedures or an employee's knowledge of the procedures is inadequate

Record each employee's training, including the employee's name, the trainer's signature, the training date, and the employee's responsibilities. Employees must be able to inspect their training records.

Awareness training for employees

Awareness training is required for employees who work in areas (or who may work in areas) where permit spaces are present. The purpose of awareness training is to ensure that employees understand that their employer has permit spaces, there is a process for entering the spaces, and that they can identify the spaces.

Awareness training is not required for employees when the exposure to those spaces is negligible – such as office workers walking in a parking lot that has a sewer manhole or entering a building with a baghouse near it – as long as those employees have no other exposures to permit spaces. Awareness training is also not required when the entrances to all permit spaces are locked and access would require extraordinary means (such as a chop saw or cutting torch).

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)

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

Entry operations at multi-employer worksites: 437-002-0146(12)

Before someone else's employees enter permit spaces under your control

Tell their employers know about the hazards of those spaces and about any precautions or procedures that you require to protect your employees.

When your employees are working in a space, and someone else's employees will be working in or around that space, coordinate entry operations with the other employers so your employees are not exposed to hazards created or discovered by the other employees, and vice-versa.

After the operations are finished, discuss any hazards that employees created or encountered.

After your employees enter someone else's permit space

Tell whomever is in control of that space (it might be a property owner or a general contractor) about the precautions and procedures you followed and about any hazards that you or your employees found during entry.

Recordkeeping: 437-002-0146(13)

Permit entry

Keep canceled entry permits for at least one year from the date the permit expires. Review permits within one year of their cancellation to ensure that the procedures for issuing them are still effective and the information on them still protects employees who enter the space.

Alternate entry

Keep the entry document where the space is located for the duration of the entry; after the entry, there is no requirement to keep it. However, the document may be helpful when you review the effectiveness of your confined space program.

Oregon OSHA Services

Oregon OSHA offers a wide variety of safety and health services to employers and employees:

Appeals

- **503-378-3272**
- Discusses Oregon OSHA's requirements and clarifies workplace safety or health violations.
- Discusses abatement dates and negotiates settlement agreements to resolve disputed citations.

Conferences

- **503-378-3272; oregon.conferences@dcbs.oregon.gov**

Hosts, co-hosts, and coordinates conferences throughout Oregon that enable employees and employers to learn and share ideas with local and nationally recognized safety and health professionals.

Consultations and Evaluations

- **503-378-3272; 800-922-2689; consult.web@dcbs.oregon.gov**
- Offers no-cost, on-site safety and health assistance to help Oregon employers recognize and correct workplace safety and health problems.
- Provides consultations in the areas of safety, industrial hygiene, ergonomics, occupational safety and health programs, assistance to new businesses, the Safety and Health Achievement Recognition Program (SHARP), and the Voluntary Protection Program (VPP).

Oregon OSHA Services *(continued)*

Enforcement Information

- **503-378-3272; 800-922-2689; enforce.web@dcbs.oregon.gov**
- Offers pre-job conferences for mobile employers in industries such as logging and construction.
- Inspects places of employment for occupational safety and health hazards and investigates workplace complaints and accidents.
- Provides abatement assistance to employers.

Public Education and Training

- **503-947-7443; 888-292-5247, Option 2; ed.web@dcbs.oregon.gov**

Provides workshops and materials covering management of basic safety and health programs, safety committees, accident investigation, technical topics, and job safety analysis.

Standards and Technical Resources

- **503-378-3272; 800-922-2689; tech.web@dcbs.oregon.gov**
- Develops, interprets, and gives technical advice on Oregon OSHA's safety and health rules.
- Publishes safe-practices guides, pamphlets, and other materials for employers and employees.
- Manages the Oregon OSHA Resource Center, which offers safety videos, books, periodicals, and research assistance for employers and employees.

Need more information? Call your nearest Oregon OSHA office.

Salem Central Office
350 Winter St. NE
Salem, OR 97301-3882

Phone: 503-378-3272
Toll-free: 800-922-2689
Fax: 503-947-7461
en Español: 800-843-8086
Website: osha.oregon.gov

Bend
Red Oaks Square
1230 NE Third St., Suite A-115
Bend, OR 97701-4374
541-388-6066
Consultation: 541-388-6068

Eugene
1500 Valley River Drive, Suite 150
Eugene, OR 97401-4643
541-686-7562
Consultation: 541-686-7913

Medford
1840 Barnett Road, Suite D
Medford, OR 97504-8293
541-776-6030
Consultation: 541-776-6016

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200 SE Hailey Ave.
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541-276-9175
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Durham Plaza
16760 SW Upper Boones
Ferry Road, Suite 200
Tigard, OR 97224-7696
503-229-5910
Consultation: 503-229-6193

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1340 Tandem Ave. NE, Suite 160
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Oregon OSHA
Department of Consumer and Business Services

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