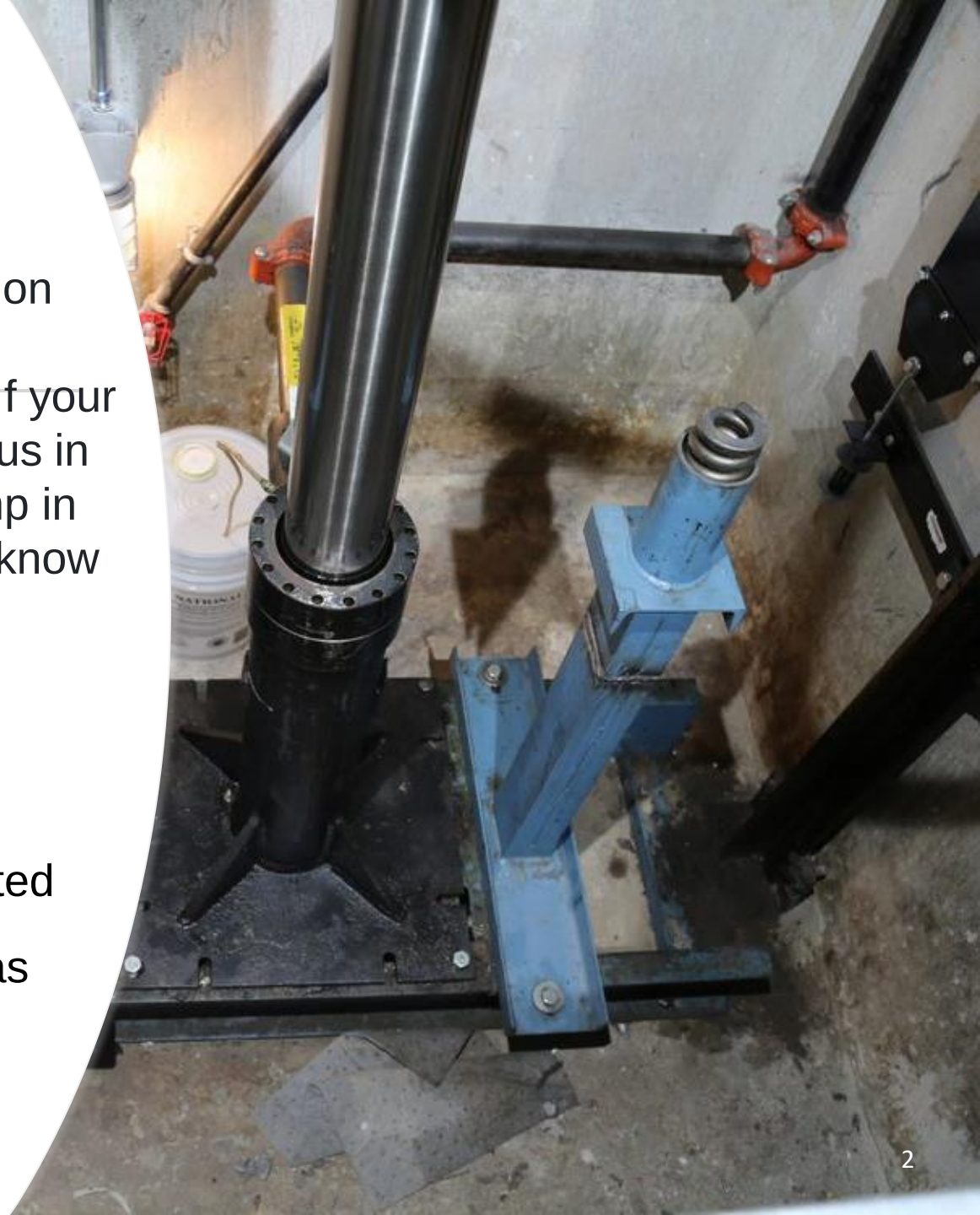
Confined Spaces In Construction 1926 Subpart AA

Confined Spaces

Many buildings and construction sites contain areas that are considered confined spaces. If your co-worker became unconscious in an elevator pit, would you jump in to rescue them? How do you know the air in that space is safe to breath?

This training will help you understand the risks associated with confined spaces and the procedures your employer has in place to protect you and those around you.



Confined Spaces

Objectives:

By the end of this session, students will be able to:

- Identify Confined Spaces and determine if they are Permit Required Spaces
- Identify the most common Confined Space hazards
- Know responsibilities of entrants, attendants, entry supervisors, contractors
- Understand the requirements for Rescue & Emergency Services

Confined Spaces

OSHA defines confined spaces as a space that:

(1) Is large enough and so configured that an employee can bodily enter it;

(2) Has limited or restricted means for entry and exit; and

(3) Is not designed for continuous employee occupancy.

Examples:

- Boilers
- Sewers
- Tunnels
- Manholes
- Tank cars
- Diked areas
- Storage bins
- Vaults
- Wells
- Pumping stations
- Water meter chambers
- Open top spaces more than 4 ft. deep
- pits (such as elevator, escalator, pump, valve or other equipment)
- Transformer vaults
- Storm drains
- Turbines

Confined Spaces

CFR 1926 Subpart AA—Confined Spaces in Construction §1926.1203 General requirements.

Elevator shafts and pits, escalator and moving walk wellways and pits, dumbwaiters, and many other conveyances meet the requirements of confined space if they have the following 3 things:

1. Limited entrance and exit:

- The need to use a ladder to exit
- A door that is difficult to open or a doorway that is too small to exit walking upright
- Obstructions such as pipes, conduit, or materials that a worker would need to crawl over or squeeze around

Confined Spaces

2. Large enough for bodily entry:

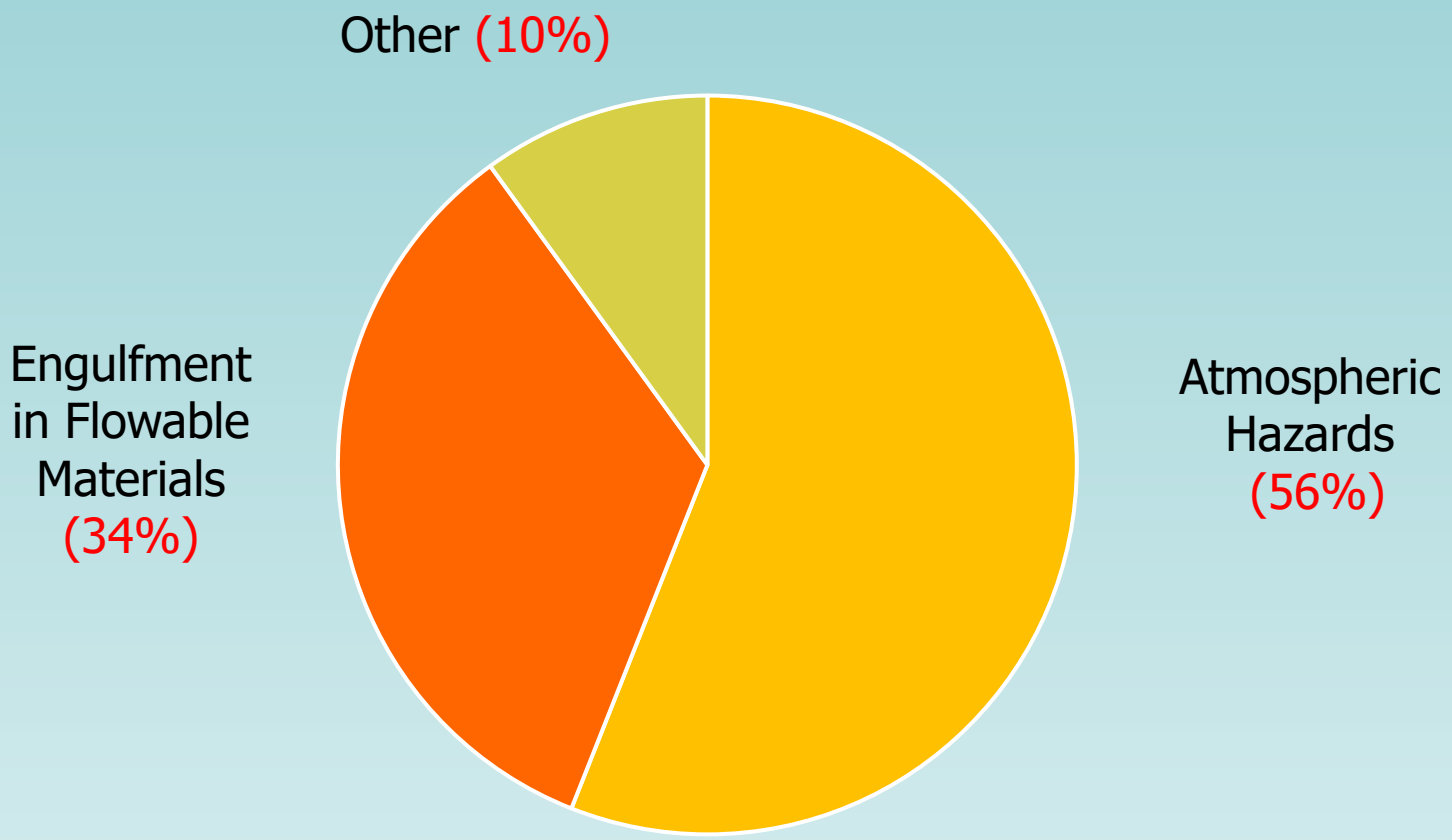
- A person can fit inside the space.

3. Not intended for continuous occupancy:

- Space is not designed with features such as ventilation, lighting, and sufficient room to work and move around.

Confined Spaces

Confined spaces often *contain* hazards.



Confined Space Deaths

Many confined space deaths are would-be rescuers.

Confined Spaces

Atmospheric Hazards

They can suffocate you, poison you, or cause an explosion.

Confined spaces may have:

- No air movement
- Harmful build-ups of gases, vapors, or dusts
- Ordinary products which can become deadly

Normal oxygen in air is 20.9%

- Oxygen enrichment happens when oxygen is added to a space causing oxygen above 23.5%
- Oxygen deficiency happens when oxygen is consumed or displaced. It's life threatening below 19.5%
- An oxygen level between 19.5% and 23.5% is considered safe, but trained workers will find out if toxic vapors are displacing oxygen.

Confined Spaces

OSHA Regulates Confined Spaces in 1910 General Industry AND 1926 Construction:

The Construction Standard 29 CFR 1926 - Subpart AA requires employers to determine:

- What kinds of spaces their workers are in
- What hazards could be there
- How those hazards should be made safe
- What training workers should receive and
- How to rescue those workers if anything goes wrong

OSHA also regulates confined spaces in construction under 29 CFR 1926 Subpart J:

1926.352(g)	Fire prevention measures associated with use of fuel gas and oxygen in confined spaces.
1926.353(b)(1)	Requirement for exhaust ventilation when welding, cutting, or heating in confined spaces.
1926.353(b)(2)	Requires airline respirators and a standby person whenever the means of access is blocked by ventilation equipment.

Confined Spaces

Construction & General Industry Differences:

There are 5 key differences:

- More coordinated activities when multiple employers on site
- Competent person must evaluate the work site and ID confined spaces and permit confined spaces
- Allows for suspension of permit and re-entry
- Continuous atmospheric monitoring when possible
- Continuous monitoring of engulfment hazards

There are 3 clarifications: employers must…

- Eliminate hazards if entering CS without permit system
- Get advanced notice if local emergency service is unavailable to rescue for a period of time
- Provide training in an understandable language

Confined Spaces

The previous slide mentions the Permit System. It is referring to Permit Required Confined Space, or PRCS.

To be classified as a permit required confined space, the space being entered must contain at least one of the following:

- Hazardous atmosphere
- Material that could engulf a person
- A shape that could trap or asphyxiate someone
- Any other recognized safety hazard

Other hazards which may exist in confined spaces include falling objects, slips, trip and fall hazards, sloping floors or converging walls, poor lighting, extreme heat or cold, electrical hazards, mechanical hazards, biological hazards, and any other hazard that will prevent a worker from self-rescue.

Confined Spaces

Permit Required Confined Space cont.

Conveyance pits, hoistways, cartops, and machinery spaces are potentially a permit required confined space.

Knowing what to look for is the key to saving your life.

If the area you need to access meets the criteria to be designated as a permit space, your employer must develop practices and procedures to protect employees from the hazards of entry into that space.

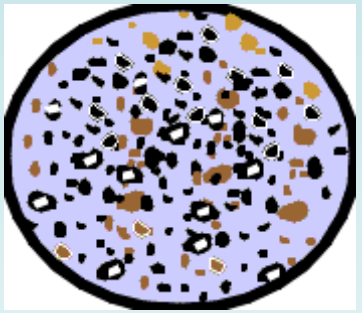
Confined Spaces

Permit Required Confined Space cont.

Atmospheric Hazards

Atmospheric hazards in permit-required confined space are very serious.

- **Lack of oxygen**
- **Oxygen enrichment**
- **Gases**
- **Vapors**
- **Dusts in the air**



Confined Spaces

Permit Required Confined Space cont.

Atmospheric Hazards (con't)

They can suffocate you, poison you, or cause an explosion.

Permit-required confined spaces may have:

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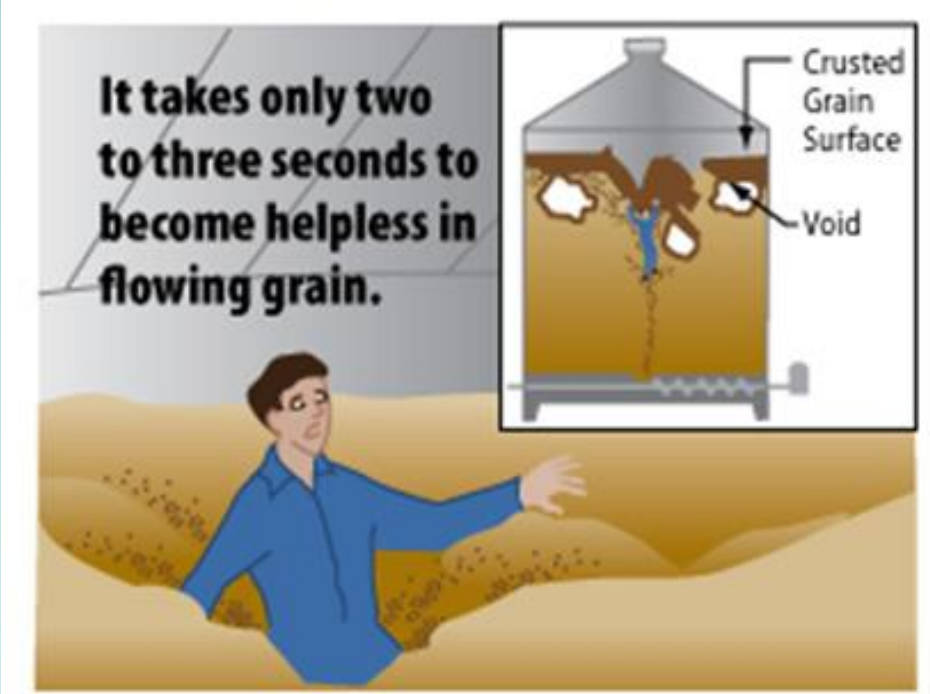
Confined Spaces

Permit Required Confined Space cont.

Engulfment

A liquid like water or a flowable solid like grain or sand can *engulf* you. You may drown or be suffocated.

A pocket of air can form below a hardened upper layer of grain. The layer can give way causing a worker to be buried / engulfed.



Source: OSHA, 2011b

Confined Spaces

Other Permit-Required Confined Space Hazards

These hazards can injure you or keep you from escaping:

- Space narrows
- Corrosive chemicals
- Noise
- Electricity
- Poor lighting
- Extreme heat or cold
- Falling objects
- Falls
- Mechanical hazards

Confined Spaces

Reclassification of a Permit Required Confined Space

1926.1203(g) states:
A space classified by an employer as a permit-required confined space may only be reclassified as a non-permit confined space when a competent person determines that all of the following requirements have been met.

(1) If the permit space poses no actual or potential atmospheric hazards and if all hazards within the space are eliminated or isolated without entry into the space (unless the employer can demonstrate that doing so without entry is infeasible), the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated or isolated.

(2) The entry employer must eliminate or isolate the hazards without entering the space, unless it can demonstrate that this is infeasible. If it is necessary to enter the permit space to eliminate or isolate hazards, such entry must be performed under §1926.1204 through 1926.1211. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.

Confined Spaces

Reclassification of a Permit Required Confined Space cont.

(3) The entry employer must document the basis for determining that all hazards in a permit space have been eliminated or isolated, through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification must be made available to each employee entering the space or to that employee's authorized representative; and

(4) If hazards arise within a permit space that has been reclassified as a non-permit space, each employee in the space must exit the space. The entry employer must then reevaluate the space and reclassify it as a permit space as appropriate in accordance with all other applicable provisions of the standard.

Remember, if a Permit Required Confined Space is to be reclassified as a Confined Space, all hazards must be eliminated without entering the space. The employer must provide documentation showing the location of the space, that the hazards have been eliminated, the date, and the name of the person making the determination.

Confined Spaces

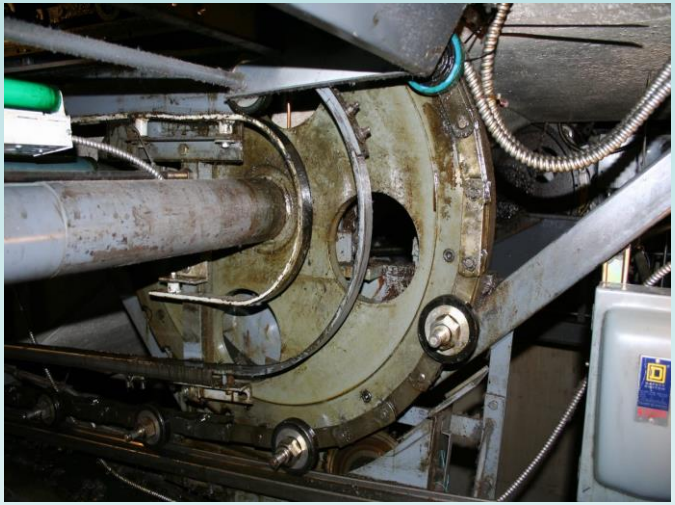
So, what is a permit-required confined space?

This space?

This?

How about here?

Here?

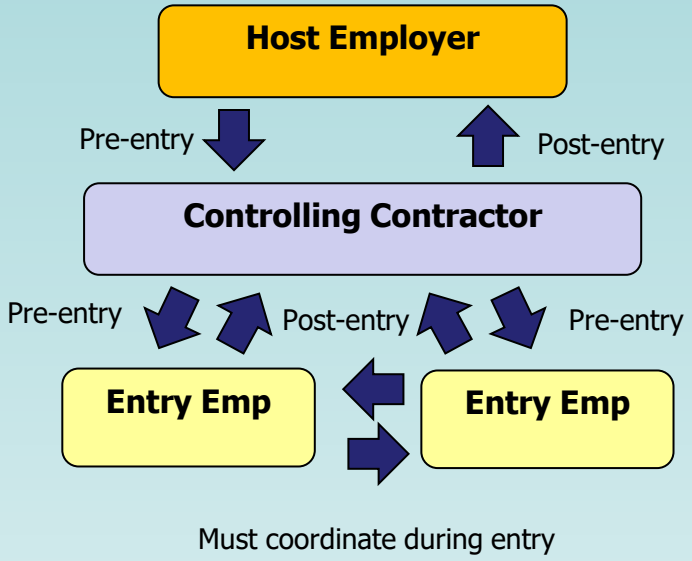


Confined Spaces

Who is Responsible for Confined Space Work?

Controlling contractor is primary point of contact.

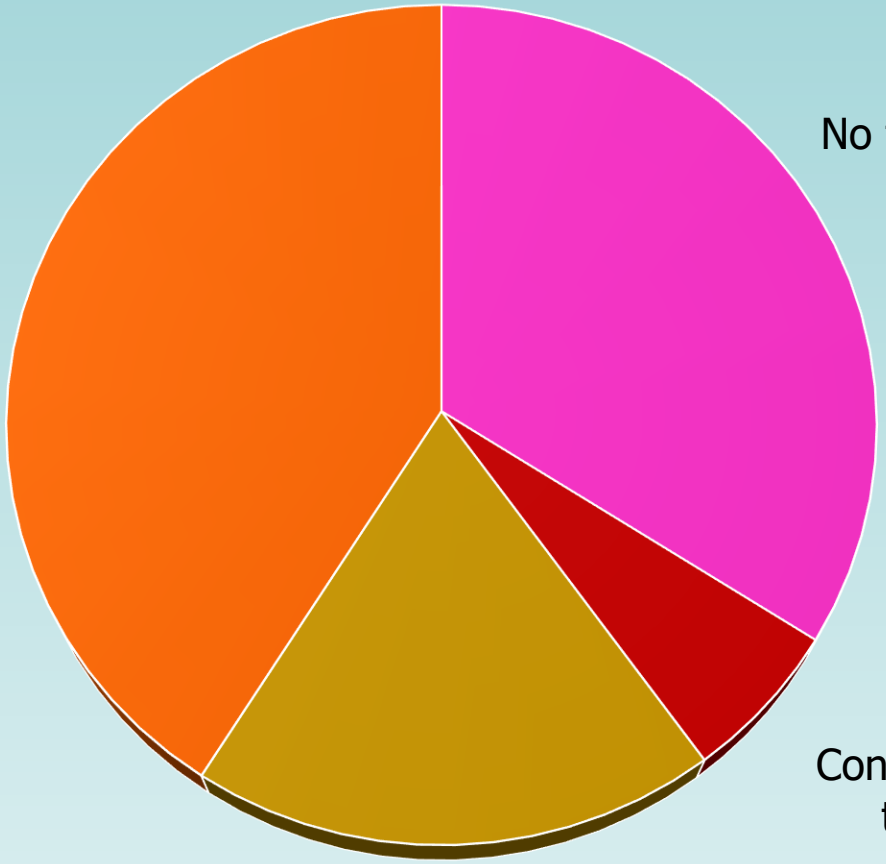
- It's all about communication
- Host employer must provide info about spaces pre entry
- Controlling Contractor must pass on info to entry employers pre-entry
- Entry employers must tell each other about hazards and inform the controlling contractor as well
- Everyone must communicate before and after entry



Confined Spaces

Training is Required Before Confined Space Work

Many workers have little or no training



Confined Space Deaths

75% of those killed had no training or only on-the-job training.

Confined Spaces

Three Types of Workers

Authorized entrant, attendant, and supervisor

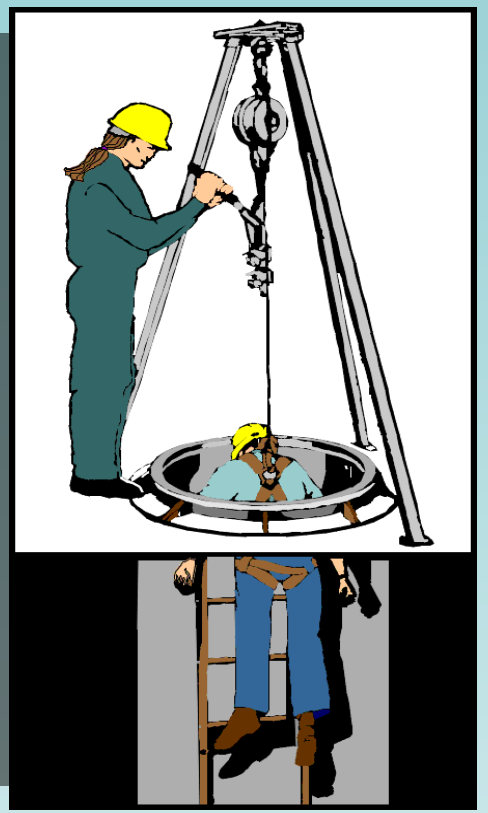
Authorized entrant must:

- Know the hazards you may face during entry, including symptoms, signs, and consequences of exposure
- Properly use all required personal protective equipment
- Communicate with the attendant as necessary to enable the attendant to monitor your status and alert entrants of any need to evacuate
- Alert the attendant whenever you detect any warning sign or symptom of exposure to a dangerous situation or a prohibited condition
- Exit from the space as quickly as possible when the attendant tells you to do so, when you recognize any warning sign, when you detect a prohibited condition, or when you hear the evacuation alarm

Confined Spaces

The Attendant

The attendant must:



- Know hazards that may be faced during entry
- Know possible behavioral effects of the hazards
- Continuously maintain accurate count of entrants
- Remain outside space during entry operations until relieved
- Communicate with entrants to monitor their status and alert them of need to evacuate
- Monitor activities inside and outside of space
- Summon rescue and emergency services when necessary
- Warn unauthorized persons to stay away
- Perform non-entry rescues per employer's procedure
- Perform no duties that interfere with your primary duty to monitor entrants

The Entry Supervisor

The entry supervisor has overall responsibility for the entry.

Entry supervisor must:

- Know hazards that may be faced during entry
- Verify that acceptable conditions for entry exist
- Terminate entry when prohibited condition arises
- Verify that rescue services are available
- Remove unauthorized persons who enter or attempt to enter during the entry operations
- Determine that acceptable entry conditions are maintained

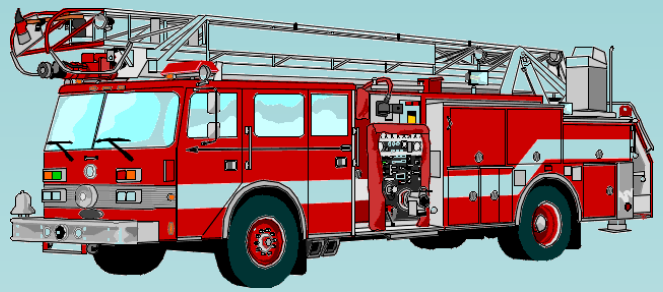
Confined Spaces

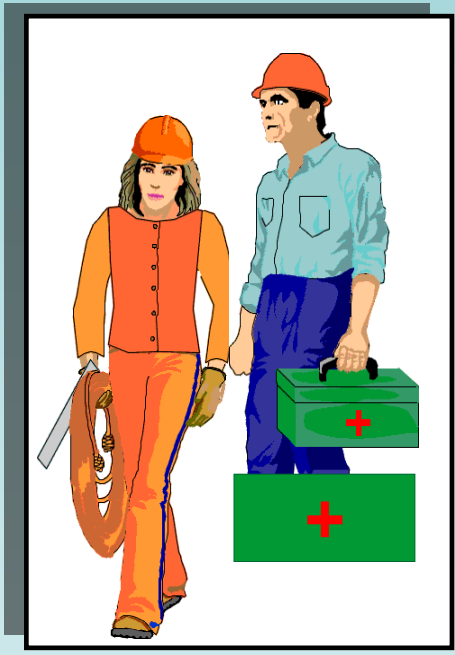
The Rescue Team

May be onsite (coworkers)

or

offsite (fire dept.)





Rescue team must:

- Be properly trained in procedures and PPE use
- Practice rescues at least annually from similar space
- Be trained in basic first aid and CPR, one currently certified
- Use retrieval equipment, if it does not increase hazard
- Your contractor may choose to use offsite rescue team; for example, the local fire department - but they must be properly trained and equipped
- They must also arrange to be notified if offsite responders will be unable to respond for a period of time because of another emergency or training

Confined Spaces

Some things to consider the next time you go to a jobsite…

Does that escalator truss or elevator pit meet the conditions of a confined space or permit space?

What about the hoistway?

A dumbwaiter pit or shaft? LULA? Rack and pinion hoist?

Confined Spaces

Summary:

You should now be able to recognize confined space and permit required confined space and identify the hazards associate with each classification. Your employer must provide you with training if you will enter these spaces.

Contractors, entrants, entrant supervisor, and rescue personnel have requirements and responsibilities that must be followed. If one fails we all fail, and that means someone doesn’t make it home to their loved ones today.

Rescue personnel may be onsite or the local fire department. They must be available and must be trained in confined space rescue.

Understand the risks associated with confined spaces and the procedures your employer must have in place to protect you and those around you.

Test Your Knowledge

A confined space is defined as:

a. Having limited way out
b. Not designed for continuous occupancy
c. Is large enough to enter the space
d. All of the above

d. All of the above

All confined spaces must be permit-required:

a. True
b. False

b. False

Test Your Knowledge

Who must terminate entry permit:

a. Rescue personnel
b. Entry Supervisor
c. Entrant
d. None of the above

b. Entry Supervisor

All confined spaces are permit-required:

a. True
b. False

b. False

Confined Spaces

Through the Alliance between OSHA's 10 Regional Offices and the Elevator Contractors of America (ECA), Elevator Industry Work Preservation Fund (EIWPF), International Union of Elevator Constructors (IUEC), National Association of Elevator Contractors (NAEC), National Elevator Industry Educational Program (NEIEP), and National Elevator Industry Inc. (NEII), collectively known as The Elevator Industry Safety Partners, developed this Confined Spaces Hazard Industry Specific Training for informational purposes only. It does not necessarily reflect the official views of OSHA or the U.S. Department of Labor. May 2021

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Confined Spaces