

HAZARD ALERT

CPWR
THE CENTER FOR CONSTRUCTION
RESEARCH AND TRAINING

CONFINED SPACES



What is a confined space?

A confined space is a space that:

- ▶ is not designed for people to work in, but is large enough for a worker to enter; and
- ▶ has limited or restricted ways to get in and out.

Examples of confined spaces are:

- ▶ **Boilers**
- ▶ **Some HVAC equipment**
- ▶ **Crawl spaces**
- ▶ **Tanks**
- ▶ **Equipment rooms**
- ▶ **Vaults**
- ▶ **Manholes**
- ▶ **Vessels**
- ▶ **Pipes**

The Occupational Safety and Health Administration (OSHA) calls a confined space that contains a serious health or safety hazard, such as lack of oxygen or excessive heat, a **permit-required confined space**, or simply a permit space.

An employer must have a written permit-required confined space program and emergency plan for how they will protect employees who work in permit spaces.

How can a confined space kill me?

Hundreds of construction workers are severely injured or become ill in confined spaces each year, and some even die.

Some of the more common hazards are:

- ▶ **Buildup of explosive or toxic gases**
- ▶ **Uncontrolled water**
- ▶ **Falling materials**
- ▶ **Electrocution**

These hazards endanger both the workers in the confined space and those attempting to rescue injured workers. According to OSHA, **rescue workers** have “died or been injured because they did not have the training and equipment necessary to conduct the rescue safely.”

Source: Protecting Construction Workers in Confined Spaces: Small Entity Compliance Guide, OSHA Publication 3825, September 2015. <https://www.osha.gov/Publications/OSHA3825.pdf>

Be aware of the hazards your work may create.

Remember that the work you are doing in a confined space may create hazards.

- ▶ Painting can create flammable or explosive
- ▶ Hazards with solvents.
- ▶ Welding introduces toxins.
- ▶ Shielding gases* can push all of the oxygen out of a confined space.

*Inert or semi-inert gases commonly used to protect a weld area from oxygen and water vapor.

Make sure there is enough ventilation to control these hazards.

Before Entering A Confined Space ...

1 Ask questions

It is **your employer's responsibility** to provide a safe workplace.

Ask your employer:

- ▶ If the space is safe from collapse, falling materials, electrical hazards, or a hazardous atmosphere
- ▶ How you will communicate with the person assigned to stay outside and monitor you
- ▶ For personal protective equipment



IOWA CASE REPORT: 05A042 - COURTESY OF NIOSH
A self-employed handyman died in this water service manhole. He had been called to fix a water leak in an adjacent rental house and was working alone. He died from lack of oxygen after becoming stuck.

2 Get training

Do not enter a confined space without proper training. **Your employer must train you for work in a permit space.** The training needs to explain the hazards in the permit space, methods to protect against these hazards, and the dangers of attempting rescues if you are not trained and authorized to do so.



These students are getting hands-on training from a qualified instructor.

3 Test air before entering

Never enter a confined space before air is tested. The employer must have the air checked **first** for proper oxygen levels, **then** for flammable or explosive gases or vapors, and **finally** for toxic gases or vapors. If there is a problem with the air, don't go in.



Master instructor shows students how to test air quality inside a confined space.

If you think you are in danger:

Contact your supervisor.
Contact your union.

Call OSHA

1-800-321-6742

Find out more about construction hazards.

To receive copies of this Hazard Alert and cards on other topics call **301-578-8500** or visit **cpwr.com/hazardalerts**

To learn more visit these OSHA resources:

- ▶ Confined Spaces in Construction FAQs
<https://tinyurl.com/confined-spaces-FAQs>



- ▶ Confined Spaces in Residential Construction
<https://tinyurl.com/residential-construction>



- ▶ Protecting Construction Workers in Confined Spaces: Small Entity Compliance Guide
<https://tinyurl.com/small-entity-guide>



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8484 Georgia Avenue
Suite 1000
Silver Spring, MD 20910
301-578-8500
www.cpwr.com