



Safety

Working in Confined Spaces: 5 Vital Safety Procedures for Your Employees

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Confined spaces pose significant physical hazards to workers, so it's important for employers to understand both the risks they face and how to avoid potential dangers. Here's what you need to know about confined space safety.

Working in a confined space may seem like a fairly routine situation for manufacturing industry employees, but it's actually a very dangerous activity.

From 2011 to 2018, 1,030 workers died from occupational injuries involving a confined space, according to *the latest data from the Bureau of Labor Statistics*. And each year, failure to identify and communicate hazards and failure to have a respiratory protection program in place are among *the most cited OSHA safety violations*.

OSHA uses the term "*permit-required confined space*" (or "permit confined" space) to describe a location—such as a vault, storage or crawl space, or a large container—that has one or more of the following characteristics:

- The potential to contain a hazardous atmosphere.
- Material that has the potential to engulf an entrant.
- Walls that converge inward or floors that slope downward and taper into a smaller area that could trap or asphyxiate an entrant.
- Any other recognized safety or health hazard, such as unguarded machinery, exposed live wires or heat stress.

These confined spaces are not only a danger to employees, they're also a grave danger for those who attempt to liberate them. Some 60 percent of fatalities in confined spaces happen to would-be rescuers, according to OSHA.

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Speaking in a recent *webinar* on confined space safety, Mark Heuchert, a safety equipment marketing manager at safety technology company Dräger, emphasized the importance of comprehensive, ongoing training to prevent accidents.

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Mark Heuchert
Dräger

Though most employers offer confined space training, many victims of injury or death did not undergo the required training, he said. “This is the challenge that employers have: making sure workers who go into confined spaces have the correct training.”

With 2.1 million workers entering “permit confined” spaces annually, according to OSHA, it’s critical that employers understand the risks associated with working in confined spaces and the established hazard mitigation techniques.

In the *webinar*, Heuchert reviewed the *OSHA 1910.146* procedures for permit-required confined space entry and shared insights on industry best practices to avoid accidents and improve training. He also described the five most important procedures for working in confined spaces safely, including the following:

1. Isolate and label the confined space.

- If a workplace contains “permit confined spaces,” the employer must inform exposed employees by posting danger signs or by using any other equally effective means to mark those spaces.
- When confined space entrance covers are removed, the opening should be guarded by a railing, a temporary cover or other temporary barrier that will prevent someone from accidentally falling through the opening, or will protect employees working in the space from falling objects.
- Employers should also clean residue from the space, close off any valves, and empty the space of equipment, electrical sources or hazardous materials (rotating parts, for example).

2. Ventilate the confined space.

- When ventilating the confined space, make sure the air supply is not contaminated with flammables or toxins.
- A generally acceptable ventilation practice is 20 complete air changes per hour or one every three minutes, according to the American Industrial Hygiene Association (AIHA).

3. Complete a permit for the space.

- If the confined space requires a permit, complete it once the work is done and return it to the safety department or department responsible for maintaining completed and closed permits.
- Canceled permits must be kept on file for at least one year.

4. Test the atmosphere of the confined space.

- Before a worker enters, test the space for:
 - Oxygen content
 - Flammable gases and vapors
 - Toxic air contaminants
- Test hourly for permit-required confined spaces. Retest the atmosphere after work breaks, or when workers have been out of the confined space for a significant period of time. Retest more frequently if conditions or suspicions warrant.
- Always test the air at various levels and locations inside the space to be sure it is completely safe.

5. Develop a rescue plan.

- OSHA requires employers to provide a rescue plan so that workers can exit confined spaces rapidly and injured individuals can be retrieved quickly.
- If an employer plans to ***rely on an off-site rescue service***, those rescuers must be familiar with the exact site location, types of permit-required confined spaces and the necessary rescue equipment.
- Other rescue techniques include “non-entry” (using a rope or winch), or entry by company employees fully trained in confined space rescue work.

Finally, ensure all confined space entrants have the required personal protective equipment (PPE), including a respirator, hard hats, safety glasses and the appropriate protective clothing, including gloves and safety shoes.

Following these five steps can help ensure your teams can work safely in and around confined spaces.

What steps are you taking to make sure workers in confined spaces are safe? Share your thoughts in the comments below.

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