

MEDIA FACT SHEET

CONFINED SPACES – RISKS AND PREVENTION

The Problem for Construction Workers

A confined space on a construction site is any space that has limited entry and exit points and is not designed for continuous occupancy, but is large enough for a worker to enter. Examples of these spaces found on construction sites include a crawl space, manhole, tunnel, pit, silo, water main, sewer, boiler, duct, pipeline, or holding tank. When these confined spaces pose serious health or safety hazards, they are referred to by the Occupational Safety and Health Administration (OSHA) as “permit-required confined spaces,” or simply permit spaces.¹

Between 2011 and 2016, 116 construction workers died while working in confined spaces, and 2,450 workers were injured.² Some of the hazards associated with working in a confined space include asphyxiation due to lack of oxygen, toxic fumes and vapors, electrocution, suffocation/crushing due to liquid or flowable solids, and explosions.² Injuries and fatalities occur because the potential hazards were not identified, safety protocols were not followed, the atmosphere in the confined space was not tested, evaluated, or monitored prior to entry, and/or there was no rescue procedure in place.³

Injuries and Fatalities are Preventable

In 2015, OSHA issued a new standard on confined spaces for the construction industry. At the same time, the agency published the [Protecting Construction Workers in Confined Spaces: Small Entity Compliance Guide](#).

The guide describes employer requirements for confined spaces. In general, if a confined space “contains an actual or potential hazard that can cause death, injury or acute illness, incapacitation, entrapment, or otherwise interfere with a worker’s ability to leave the space in an emergency, it is a permit-required confined space, or permit space,” and OSHA requires employers to¹:

- Have a competent person* identify all confined spaces in which employees may work and determine if a permit is required (a permit-required confined space). A competent person must be able to identify the hazard and take corrective action.
- Develop a written permit-required confined space program that includes, among other things, a plan to rescue workers who cannot exit the space under their own power in a safe and timely manner.

- Inform workers about the locations and dangers (e.g., post warning signs), and ensure workers do not enter the confined space without authorization.
- Train their workers about the dangers of confined spaces. This includes the employees entering the space (entrant), the employee assigned to remain outside and monitor the workers within (attendant), and the supervisor responsible for ensuring that the confined space program is being followed.
- Ensure properly trained rescue services are available to respond in time prior to a worker entering a permit space, and they are informed of the hazards.
- Provide appropriate personal protective equipment (PPE) (e.g., a respirator) when engineering controls, such as ventilation, do not adequately protect them.

CPWR Research and Resources

- **Confined Spaces Hazard Alert Card** – a brief, image-driven handout to help workers understand how to work safely in confined spaces. Available in [English](#) and [Spanish](#).
- **Confined Spaces Toolbox Talk** – a short discussion guide for use by foremen or supervisors to raise worker awareness and discuss site-specific actions to identify and address confined space hazards. Available in [English](#) and [Spanish](#).

Other Resources

- [Confined Spaces in Residential Construction](#) – OSHA Fact Sheet, 2017
- [Confined Spaces in Construction - Frequently Asked Questions](#) – OSHA, 2016
- [Confined Spaces](#) – OSHA’s main website for confined spaces.
- [Compliance Assistance Materials](#) – OSHA

* OSHA defines a "competent person" as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them." ¹

About CPWR

CPWR - The Center for Construction Research and Training [CPWR] is a 501(c)3 non-profit dedicated to reducing injuries, illnesses, and fatalities in construction, and currently serves as NIOSH's National Construction Center. Through research, training, and service programs, CPWR works in partnership with industry stakeholders, safety and health professionals, academics, and key government agencies, to identify and find solutions for occupational hazards and improve the safety and health of construction workers. For more information, please visit: www.CPWR.com

References

¹Occupational Safety and Health Administration [OSHA], 2015. *Protecting Construction Workers in Confined Spaces: Small Entity Compliance Guide*. <https://www.osha.gov/Publications/OSHA3825.pdf>

²U.S. Bureau of Labor Statistics. *Census of Fatal Occupational Injuries (CFOI) - Current and Revised Data*. <https://www.bls.gov/iif/oshcfoi1.htm>. Accessed March 14, 2018. The data is for the private sector construction industry.

³CPWR, 2016. *Confined Spaces in Construction: Participant's Manual*. <https://www.cpwr.com/sites/default/files/publications/Complete-CPWR-CS-Manual.pdf>