

New OSHA Rescue Requirements for Confined Space Retrieval: What You Should Know

It is imperative to get the adequate training, to select the proper equipment, and to practice entering, exiting, and performing simulated rescues.

By [Craig Firl](#), Rick Argudin | Nov 01, 2015

Confined spaces exist in nearly every industry, and many workers come into contact with at least one during the course of their work. According to the Occupational Safety and Health Administration, about 90 deaths involving confined spaces occur every year across a wide range of industries. Unfortunately, two-thirds of those deaths are workers killed while trying to rescue someone else from a confined space. This is often due to the critical nature of these rescues, which sometimes lead to poorly planned retrieval attempts.

Many workers and employers are unaware of the dangers confined spaces pose, which include:

- Lack of oxygen
- Poisonous gas, fume, or vapor
- Liquids and solids suddenly filling the confined space or releasing gases into it when disturbed
- Fire and explosions
- Residues left behind that can give off gas, fume, or vapor
- Hot working conditions
- Falling objects
- Moving parts of equipment and machinery
- Electrical shock resulting from defective extension cords, welding cables, etc.
- Poor visibility
- Substances entering through piping such as gases, hot substances, or water

Very often, injuries and deaths occur as a result of work being carried out in a confined space, such as welding, painting, flame cutting, or using chemicals.

The New OSHA Rule

In May 2015, OSHA issued a final rule that applies to construction workers who are working in confined spaces. The new rule is known as Subpart AA of part 1926 of the Code of Federal Regulations and is enforced beginning Oct. 2, 2015. It applies to all construction workers who may be exposed to confined space hazards, such as those who work in sewers, manholes, crawl spaces, boilers, tanks, storage bins, silos, stacks, vaults, pits, chambers, tanks, vats, trenches, sewers, drains, flues, ductwork, unventilated or poorly ventilated rooms, and many more locations that have cramped spaces and narrow openings.

A proposed rule for construction industry confined spaces was first published in 2007. The new rule differs from the previous because it requires employers to determine which types of spaces their workers are in, which hazards exist, what training is needed, and how to rescue those workers. In order to comply with the new standard, contractors must acquire the necessary training and equipment.

OSHA estimates the new rule will protect at least 800 construction workers per year from serious injuries and will help reduce life-threatening hazards.

What Are Confined Spaces?

According to OSHA, a confined space is one that is large enough for a person to enter, has limited or restricted exits, and is not designed for continuous human occupancy. Everything from a tank to a tunnel or a manhole to a silo can be considered to be a confined space.

A confined space is a place that is substantially—although not always entirely—enclosed, where there is a risk of death or serious injury from hazardous substances or dangerous conditions, such as a lack of oxygen.

Places can also become confined spaces during construction work, fabrication, or modification.

Confined spaces do not always have to be an area with only one opening. Likewise, a space with multiple openings can be considered a confined space if a worker has to crawl under and over various obstructions to get to the opening.

Permit-Required Confined Spaces

Permit-required confined spaces pose serious hazards. In addition to being difficult to access, they often present problems such as inadequate ventilation or noxious air. It is these conditions that result in fatalities, according to OSHA, making efficient and immediate exit or rescue from the space imperative.

If a space is identified as a permit-required confined space and an employee will need access to the space, then the employer must develop a written program that complies with either OSHA 1910.146(c)(4) for general industry or 1926.1203(d) for construction. Permit-required confined spaces are spaces that have one or more of the following characteristics:

- A hazardous atmosphere or the potential for one
- Material, such as grain, that could potentially engulf an individual
- Walls converging inward or floors sloping downward and tapering into a smaller area that could trap or asphyxiate an individual
- Any other recognized safety or health hazards, including unguarded machinery, heat stress, or a fall hazard

Employers are required to alert workers of the location and the dangers of permit-required confined spaces. This can be done with signs or by other methods.

Recognizing that a location is a permit-required confined space is only the first step in preventing fatalities. Adequate planning, preparation and practice, along with proper equipment, are also necessary to keep employees safe while working in and around these confined spaces.

Confined Space Fall Protection

There are five key steps to take when addressing confined space fall protection and safety.

- 1) *Guard the entrance.* When a hatch or cover to a confined space is removed, such as a manhole cover, the opening must immediately be guarded with a guardrail, temporary cover, or some sort of barrier to prevent an accidental fall into the confined space.
- 2) *Use fall protection gear.* All workers—not just those entering the confined space—need to be outfitted with fall protection equipment. For example, an employee preparing to conduct atmospheric monitoring may inadvertently become overwhelmed by fumes when the cover is removed, which could result in loss of consciousness. Therefore, it is important for those working near the opening to wear either a restraint lanyard, preventing them from reaching the edge of the opening, or an arrest lanyard or lifeline, to stop a fall in progress—before the cover is even removed. "NFPA 350: Guide for Safe Confined Space Entry and Work," is a proposed guide set to be released in November to help address this

particular hazard by providing a suggested "Confined Space Fall Protection Hierarchy." The guide can be viewed at www.nfpa.org/350.

- 3) *Ensure safe access into vertical entrances.* If a vertical entrance into a confined space is required, equipment must be provided to ensure safe access. This is usually accomplished with a ladder or davit arm/tripod, along with a winching mechanism. Additional fall protection is required by the regulations, and all U.S. manufacturers require the use of fall protection equipment when using davit arms and tripods.
- 4) *Use backup fall protection.* If a worker is using a fixed ladder to descend into a confined space, the ladder becomes the primary means of fall protection and a self-retracting lifeline, along with a winching mechanism, becomes the backup or secondary means of fall protection. The same full-body harness required in the event of non-entry rescue also can be used with a personal fall arrest system by attaching the harness to a self-retracting lifeline connected to the davit arm or tripod that is already in use to lower entrants into the space.
- 5) *Get training.* If the concept of fall protection or the use of this equipment is new to an employee involved in the confined space program, or if no training documentation is on file for the employee, the employee must be trained in the inspection and use of fall protection equipment, as well as in general fall protection issues.

OSHA 1926.1201 Through 1926.1213

The Confined Space in Construction Subpart AA rule has many sections, including definitions, general requirements, the permit-required confined space program, entry permit, training, duties, and rescue or emergency services. Outlined below is additional information about the three key sections.

- *General Requirements.* Some general requirements related to the new standard include: the identification of confined spaces, permitting (if applicable), testing and evaluation of the confined space, and specific duties and communications. The standard provides details regarding each of these areas.
- *Training.* The new standard requires each employee to be trained, to perform simulated practice rescues every 12 months, and to maintain training records.
- *Rescue and Emergency Services.* Employees who conduct rescues must be provided with proper personal protective equipment and trained in the proficient use of that equipment. Employers must evaluate a rescuer's ability to respond in a timely manner (the specific hazard involved will determine what is considered to be timely).

Retrieval Systems Requirements

Non-entry rescue is the preferred and safest means of confined space retrieval and is required unless the retrieval equipment would increase the overall risk of entry. However, a thorough pre-entry evaluation should be conducted to determine whether additional safeguards such as entry rescue might also be required.

Retrieval systems for methods of non-entry rescue are required and should not create an additional hazard to the entrance. They must meet the following requirements:

- Each entrant must be provided with retrieval equipment, such as an approved body harness with a retrieval line.
- The other end of the retrieval line must be attached to a mechanical device or fixed point outside the space.
- A mechanical device must be available to retrieve personnel from a vertical space more than 5 feet deep.
- Equipment that can become tangled or will not work because of the configuration of the space must not be used.

Preventing Tragedy

Exercising caution and safety in permit-required confined spaces is not to be taken lightly. Identifying potentially hazardous spaces and putting together a written program are required by law.

Furthermore, to keep employees safe while working in and around confined spaces, it is imperative to get the adequate training, to select the proper equipment, and to practice entering, exiting, and performing simulated rescues.

Sidebar: Selecting Fall Protection Equipment for Confined Spaces

Proper equipment to perform a quick and safe rescue is essential in any operation where confined spaces must be entered.

Typically, the safest and most effective fall protection systems include self-retracting lifelines. These lifelines should be integrated with a retrieval system in all confined space entry situations, which allows the entry attendant to perform a non-entry rescue, should it become necessary.

When selecting fall protection equipment for confined space entry, exit, and rescue, there are three main components you'll need: an anchorage, body support, and a connector. If the confined space requires vertical entry and there is not a fixed ladder, you'll need a suitable anchor point capable of supporting the required arresting forces.

For task-specific work, such as manhole entry, a tripod is a great option. Tripods easily are set up by one worker and can be transported from one location to another. One limitation of the tripod is the size of the opening it can accommodate.

If more versatility is needed, a davit arm or davit post may be a better option. Davits have a variety of base configurations that make use of the equipment ideal for work at varying job sites. Some have adjustable bases to hoist the worker over larger openings, others are fixed in a "V" shape and placed adjacent to the opening. Both portable and fixed position bases are available for davit systems.

If a horizontal entry with vertical positioning or retrieval is required—for example, an opening on the side of a tank—a side-entry system will be required. This type of system clamps or bolts to the access point to provide an anchorage and base for attaching a winching mechanism.

When it comes to selecting body support, comfort and durability are major factors. If your employee will be working in the confined space for an extended period of time or at multiple locations throughout the day, consider a high-quality full-body harness with built-in shoulder, back, and leg padding and soft edging. If durability is a bigger priority, consider a harness with a protective coating designed to resist dirt, grease, and grime that wipes clean. Basic harnesses are an extremely economical option for employees who rarely need to access a space or who need access for short periods of time.

Specialized harnesses are available for confined space entry and retrieval. These harnesses have D-rings on the top of both shoulder straps. A device called a Y-lanyard connects these two D-rings to the winch line so the employee can be raised and lowered in a fully vertical position.

Finally, for the connector, a winching mechanism will be used. A winch, including a steel or synthetic line and crank to release or rewind the line, connects to the tripod or davit system to lower and raise the employee. The key benefits of using a winch include mechanical advantage, allowing one employee to easily lower and lift another, and a braking system. Should the winch operator let go of the crank, the person being raised or lowered will not fall.

A power drive is an optional feature on some winches that makes frequent raising and lowering procedures easier on workers. The winch still has manual capabilities but also offers the option of automatically powering the mechanism.

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