

CONFINED SPACES

Now most of us working in industries like oil, construction, and gas are always facing possible hazards which are always avoidable through the use of necessary safety equipment and the right kind of training. Most of us, the "workers" in these industries always have a chance of working in a "confined space". For most of us, we already know what a confined space is, but for some of us we don't. In this article, we are going to show you what a confined space is and what is it all about.

What is a confined space?

The first question that comes to mind is "What is a confined space?" now, most people would say that a "confined space is a small or a closed space" but it is more than just a small or closed space. A more comprehensive definition of what a confined space is that it is a fully or partially closed space that has limited or restricted means of entry or exit and is not designed for continuous human occupancy. A confined space also defines as a "large enough" space for workers to enter and perform certain jobs for a limited time due to many possible life-threatening hazards that workers may face if they stay in a confined space for a long period of time. For those of us asking what makes a space confined, well according to OSHA or the Occupational Safety and Health Administration, a space can only be defined as confined when the space is a) large enough for people to do work, b) when the space has limited or restricted means for entry and exit, and c) if the space is not designed for continuous occupancy. A very important note, the three characteristics of a confined space *must* be present in order for it to be a confined space, if there is only one or two characteristics present, then the space should not be considered as confined.

What are examples of a confined space?

We might not know it but most of us have already encountered confined spaces like tanks, storage rooms, vaults, and more. Aside from the ones we already know, there are still a lot of examples of confined spaces that we may or may not have known. Here are a list of examples of confined spaces:

- Mud, oil, or water tanks
- Sewers
- Silos
- Tunnels
- Storage tanks
- Manholes
- Utility vaults
- Bins
- Vessels
- Ventilation ducts

These are only a few examples of confined spaces but there are a lot more examples which you can look into just as long as they show the correct characteristics of a confined space.



Are there types of confined spaces?

Now according to OSHA (Occupational Safety and Health Administration), there are two types of confined space, there is what you call a "confined space" and the second one is what you call a "permit-required confined space". We've already tackled on what a confined space is and what makes it a confined space, but we haven't learned what a permit-required confined space is! From the name itself, you can actually tell that the permit-required confined space requires a permit for certain "work" purposes. OSHA states that a permit-required confined space *a*) contains or has the potential to contain a hazardous atmosphere, *b*) contains a material that has the potential to engulf an entrant, *c*) has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant, and *d*) contains any other recognized safety or health hazard such as unguarded machinery, exposed livewires, or heat stress. A very important note, if any of these

characteristics are present, whether if its only one or two present, it is still considered to be a permit-required confined space.

What to do when entering a confined space?

"OSHA's standard for confined spaces (29 CFR 1910.146) contains the requirements for practices and procedures to protect employees in general industry from the hazards of entering permit spaces." As what it states, there are rules and regulations to be followed when dealing with confined spaces to promote the safety and well-being of a worker. An employer must be aware of the dangers imposed on the confined space, he/she also must prioritize his or her employees' well-being in the case of working on a confined space. Not only does the employer need to be properly aware, but his/her also needs to be aware and must have the appropriate training and knowledge when working upon confined spaces. There are many things to consider when entering these spaces, OSHA also recommends the use of safety manuals as to check every factor when performing jobs in confined spaces.

What are the hazards when dealing with confined spaces?

OSHA estimates that about 239 thousand general industry establishments employing 12 million people have confined spaces and approximately 1.6 million people enter confined spaces annually. As you think about it, there are so many workers facing possible hazards everyday that a few can be lucky and a few are not. OSHA also stated that confined spaces cause 53 worker deaths, 5,000 lost-day cases, and 5,700 other accidents annually. There are many possible hazards that may have caused these and here is a list of the most common hazards of confined spaces:

- Oxygen deficiency - Air is considered oxygen deficient when the oxygen content is less than 19.5% by volume. Work processes such as welding, cutting or brazing, and certain chemical reactions such as rusting and bacterial reaction (fermentation) can also reduce oxygen concentration.
- Toxic atmosphere - There are quite a few reasons as to why atmosphere is quite toxic when entering confined spaces, the common reason would be the presence or ingress of hazardous substances which can lead to impairment of judgement, unconsciousness, and may even cause death.
- Mechanical and Physical hazards - Machinery such as rotating or mechanical moving parts can cause hazards within a confined space. Physical factors such as heat, cold, noise, vibration and fatigue can also lead to accidents.
- Fire Hazard - There are a lot of instances wherein a fire starts because of an explosive/flammable atmosphere due to flammable liquids and gases which if ignited could lead to a fire or an explosion.

These are only a few examples of hazards in a confined space and you should always remember that there are so many hazards when working in confined spaces that you need to be careful of.

How can we avoid these hazards?

There are lots of ways in which we can avoid these hazards and to do so we must always follow the rules and regulations because they help us with our safety and well-being. As employers or workers, we must also have the appropriate training, knowledge, and the necessary safety equipment in order for us to be safe when working in confined spaces. There are a lot of ways of avoiding these hazards and here is how:

1. The testing and monitoring of atmospheres - As employers, we need to be fairly certain that the confined space in which

we let our employees do their jobs is safe. The atmosphere is of utmost priority to check.

2. The use of Personal Protective Equipment or PPE - A worker must always be equipped of the appropriate PPE.
3. Purging - By means of purging, it displaces the toxic air in a confined space through steam, air, water, or inert gas.
4. Training - Training of workers for entering and working in confined space is essential to familiarize them with potential hazards, the proper use of life saving equipment and emergency procedures.

There are numerous ways we can avoid the hazards present in a confined space and we need to be familiar with them for us working in these industries to be safe.

Conclusion

"Employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health." We need to practice safety when working in confined spaces and follow the regulations that OSHA has provided us to lessen the accidents or deaths and promote safety to all workers.

