


This Month's Topic:
CONFINED SPACES

Many workplaces contain spaces that are considered to be "confined" because their configurations hinder the activities of employees who must enter into, work in or exit from them.

In many instances, employees who work in confined spaces also face increased risk of exposure to serious physical injury from hazards such as entrapment, engulfment and hazardous atmospheric conditions. Confinement itself may pose entrapment hazards and work in confined spaces may keep employees closer to hazards such as machinery components than they would be otherwise. For example, confinement, limited access and restricted airflow can result in hazardous conditions that would not normally arise in an open workplace.

Confined Space vs. Permit Required Confined Space

Generally speaking, a **confined space**:

- Is large enough for an employee to enter fully and perform assigned work;
- Is not designed for continuous occupancy by the employee; and
- Has a limited or restricted means of entry or exit.

These spaces may include underground vaults, tanks, storage bins, pits and diked areas, vessels, silos and other similar areas.

By definition, a **permit-required confined space** has one or more of these characteristics:

- Contains or has the potential to contain a hazardous atmosphere;
- Contains a material with the potential to engulf someone who enters the space;
- Has an internal configuration that might cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross section; and/or
- Contains any other recognized serious safety or health hazards.

Confined Space Safety Preparation

The important thing to remember is that each time a worker plans to enter any work space, the worker should determine if that work space is considered a confined space. Be sure the confined space hazard assessment and control program has been followed.

The next question to ask is - Is it absolutely necessary that the work be carried out inside the confined space? In many cases where there have been deaths in confined spaces, the work could have been done outside the confined space!

Before entering any confined space, a trained and experienced person should identify and evaluate all the existing and potential hazards within the confined space. Evaluate activities both inside and outside the confined space.

"Before entering a confined space, trench or open excavations make sure that the area is assessed by a competent person prior to the start of each work period. The opening for entry and exit must be accessible at all times and large enough to allow the passage of a person using PPE."

Joel Agustin

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Alisto Engineering Safety Statistics 2014

Motor Vehicle Accidents/ Total Miles Driven	Lost Work Days/ Total Work Days	Occupational Injuries and Illnesses
01/01/14–06/30/14	01/01/14–06/30/14	01/01/14–06/30/14
0/130,158 miles	0* day/123 days	1*

** From BC Environmental Insurance*

Entry Permits

A permit, signed by the entry supervisor, must be posted at all entrances or otherwise made available to entrants before they enter a permit space.

Entry permits must include:

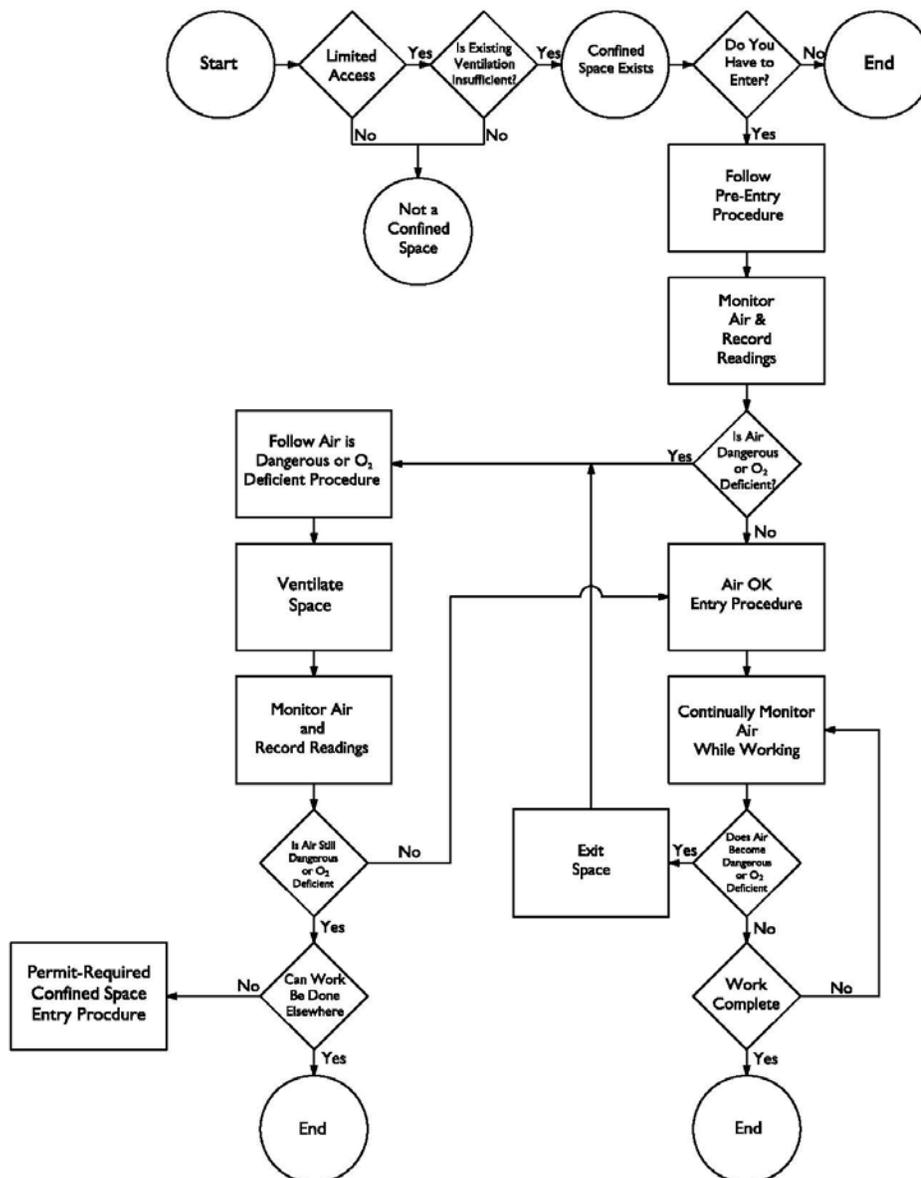
- Name of permit space to be entered, authorized entrant(s), eligible attendants and individuals authorized to be entry supervisors
- Test results
- Tester's initials or signature
- Name and signature of supervisor who authorizes entry
- Purpose of entry and known space hazards
- Name and telephone numbers of rescue and emergency services and means to be used to contact them
- Date and authorized duration of entry
- Acceptable entry conditions
- Communication procedures and equipment to maintain contact during entry
- Additional permits, such as for hot work, that have been issued authorizing work in the permit space
- Special equipment and procedures, including personal protective equipment and alarm systems
- Any other information needed to ensure employee safety

Equipment for Safe Entry

In addition to personal protective equipment, other equipment that employees may require for safe entry into a permit space includes:

- Testing, monitoring, ventilating, communications and lighting equipment
- Barriers and shields
- Ladders
- Retrieval devices

Alisto Engineering Group Confined Spaces Flowchart



Confined Space Hazards

Confined spaces may be encountered in virtually any occupation; therefore, their recognition is the first step in preventing fatalities.

Hazards in confined spaces can include:

- Poor air quality: There may be an insufficient amount of oxygen for the worker to breathe. The atmosphere might contain a poisonous substance that could make the worker ill or even cause the worker to lose consciousness
- Chemical exposures due to skin contact or ingestion as well as inhalation of 'bad' air
- Fire Hazard: There may be an explosive/flammable atmosphere due to flammable liquids and gases and combustible dusts which if ignited would lead to fire or explosion
- Process-related hazards such as residual chemicals, release of contents of a supply line
- Noise
- Safety hazards such as moving parts of equipment, structural hazards, entanglement, slips, falls
- Radiation
- Temperature extremes including atmospheric and surface
- Shifting or collapse of bulk material
- Barrier failure resulting in a flood or release of free-flowing solid
- Uncontrolled energy including electrical shock
- Visibility
- Biological hazards

Reference

1. <https://www.osha.gov/SLTC/confinedspaces/>
2. <http://www.cdc.gov/niosh/topics/confinedspace/>
3. <https://www.osha.gov/Publications/osha3138.html>
4. <https://www.dir.ca.gov/title8/5157.html>
5. <http://confinedspacecontrolcovers.com/osh-statistics-info/>
6. http://www.ccohs.ca/oshanswers/hsprograms/confinedspace_intro.html
7. http://www.ccohs.ca/oshanswers/hsprograms/confinedspace_program.html
8. Alisto Engineering Group – Confined Space Flowchart (Working in Areas with Limited Access and Insufficient Ventilation)