

## THE PacificComp TRAINER

### CONFINED SPACES

Working in closed unventilated areas can be very dangerous. It is important to recognize these dangers exist and take precautions. Confined space safety and health procedures need to be followed to safely enter a confined space whether or not the confined space qualifies as a permit-required confined space (PRCS).

According to Cal/OSHA a confined space is a space that has all three of the following characteristics:

- Is large enough and configured such that an employee can bodily enter and perform work,
- Has limited openings for entry and exit, and
- Is not designed for continuous employee occupancy.

A *permit-required confined space* fits the definition of a confined space and has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere,
- Contains a material that has a potential for engulfing the entrant,
- Contains inwardly converging walls or a floor that slopes downward and tapers to a smaller cross-section where an entrant could be trapped or asphyxiated, or
- Contains any other recognized serious safety or health hazard, such as:
  - Electrical
  - Mechanical

Before confined space work proceeds, the employer is responsible for developing an entry permit program. A qualified representative of the employer should prepare a written permit that identifies:

- Location of the confined space
- Work to be performed
- Permit time, date and duration of space entry
- Names of qualified entrants, attendants and confined space supervisor

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- Hazards of the space (what chemicals are used or stored in the space or what contaminants/oxygen deficiency could be generated from the intended work practices)
- Measures for controlling hazards before entry, such as, ventilation, locking out electrical sources, blanking and bleeding hydraulic lines, disconnecting belt or chain drives, and securing mechanical moving parts
- Conditions to be met before entry (acceptable entry conditions)
- Test results before entry and periodically while working in the space
  - Names of testers
  - Time tests were taken
- Rescue and emergency procedures listing equipment and names of trained rescuers
- Communication procedures and equipment used by confined space workers attendants, supervisor and emergency crew
- Equipment to be used
- Procedures for additional safety
- List of other permits that may be needed such as a Hot Work Permit.

Workers should know as much as possible about the confined area to know what hazards to test for. Initial testing of the confined space atmosphere must be performed from outside the space before entry is permitted. Determine if air contaminant exposure limits are exceeded. Oxygen concentration must be between 19.5% and 23.5% per volume, flammable or explosive gas concentrations must be below 10% of the lower flammability limit (LFL), combustible dust cannot limit vision at a distance of five feet or less, and toxic substances cannot exceed permissible Exposure Limits (PEL) or be Immediately Dangerous to Life and Health (IDLH). Equipment must be available that tests for such hazards as flammability, toxic gas, and oxygen deficiency.

Testing should be done by a qualified person(s) familiar with the instruments and testing procedures. The testing equipment needs to be operated and maintained according to manufacture instructions. This may include annual professional recalibration and before use battery check, zeroing and bump testing.

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When re-entering a confined space a new permit may be needed. An area which was safe a few hours ago may not be safe due to possible changing conditions. A tank or vault that, one day, is safe may not be safe the next day. Unknown factors, such as, falling barometric pressure could mean that another agent (for example, deadly carbon dioxide gas) has replaced oxygen in the confined space. Fermentation can sometimes produce suffocating carbon dioxide. Some chemical reactions can also create hydrogen sulfide, carbon monoxide, or other toxic substances.

Keep in mind that permits are required for many confined space situations. Also, good recordkeeping involves keeping track of training, safety drills, emergency rescue drills, test results of confined space atmospheres, inspection and maintenance of equipment and copies of closed out permits.

Cal/OSHA

Sample Permits:

<http://www.dir.ca.gov/Title8/5157d1.html>

<http://www.dir.ca.gov/Title8/5157d2.html>

Confined Space: Is it Safe to Enter

[http://www.dir.ca.gov/dosh/dosh\\_publications/ConfSpa.pdf](http://www.dir.ca.gov/dosh/dosh_publications/ConfSpa.pdf)