

UTCA Safety Committee



Confined Space Responsibilities of Personnel

Attendant

Designate at least one attendant to remain immediately outside the confined space at all times to monitor the condition of entry personnel. The attendant should have two-way communication with entry personnel, have authority to order the personnel out of the space, and the ability to activate the emergency plan. 29 CFR 1910.146 has specific attendant training and duty requirements. The attendant should keep unauthorized people away from the space and recognize symptoms of danger inside and outside the space. If rescue is required, the attendant calls rescue personnel and stays outside the space until backup arrives.

Entry Supervisor

The entry supervisor is responsible for knowing the hazards during entry, including information about the mode, signs or symptoms, and consequences of exposure. The entry supervisor must be sure that all tests specified by the permit have been conducted prior to entry and that all necessary procedures and equipment are in place. The entry supervisor can terminate the entry as appropriate and must verify that rescue services are available. He or she must determine if processes conducted inside the space are in compliance with the provisions of the confined space program. He or she also is responsible for keeping unauthorized employees from entering the confined space.



Entrant

Entrants must be aware of the hazards they may face and the consequences of exposure to these hazards. They must also know how to properly use the safety equipment provided. Entrants must maintain constant communication with the attendant and alert the attendant if suffering a sign or symptom of exposure, or if they identify a prohibited condition inside the confined space. Entrants must exit the confined space immediately if they recognize a sign or symptom of exposure, detect a prohibited condition, hear an evacuation alarm, or are ordered out.

Recommendations for Hazard/Exposure Control

Confined Space Entry Procedure

Develop a confined space entry procedure to aid in controlling the risks of confined space entry and make workers aware of existing hazards in order to protect their health and reduce the risk of injury, death and property damage associated with entering, working in, or exiting confined spaces. The procedure must meet requirements of 29 CFR 1910.146.

Permit System

Require written, signed permits for entry into a confined space. The permit specifies the location and work to be done and certifies that hazards have been evaluated and protective measures have been taken. The permit provides written authorization and approval.

Warnings

Post warning signs at all entrances to confined spaces. The signs should read:
DANGER - CONFINED SPACE - ENTRY BY PERMIT ONLY

A barricade may be erected around the entrance if inadvertent entry is a problem. The barricade should not interfere with escape and may be used for warning signs.

Training

Ensure that entry workers are physically fit for the tasks they are performing. Provide employee training for all workers involved with confined spaces.

Employees who enter confined spaces should be trained per 29 CFR 1910.146 on:

- The permit system.
- Atmospheric testing requirements.
- Use of respirators and other PPE.
- Work practices including cleaning, purging, ventilating and lockout procedures.

Atmospheric Testing

Entry into a confined space should be permitted only after initial testing of the atmosphere for oxygen content, flammability and toxic materials has been done from outside the space. Testing must meet written permit limits. Always evaluate whether the work requires entry into the space. If the work can be done without entry, it should be forbidden.

Entry into a confined space should be prohibited when the concentration of flammable dusts, vapors or gases is greater than 10% of the lower flammable limit or an oxygen concentration over 22%. Also prohibited is entry into a confined space with oxygen deficiency lower than 19.5% or toxicity level above permit limits. Ventilation should be used to bring the atmosphere into permit limits. Testing equipment and alarms should be monitored at all times. Air purifying respirators cannot be used in oxygen-deficient atmospheres. Atmospheric testing should be done by a person qualified to use the equipment.

Calibrate testing instruments used for testing as described in the manufacturer's guidelines and manuals. Record calibration data and monitoring results.



Ventilation

Ventilation is used prior to and after entry to circulate fresh air through the space. Use forced-air ventilation (blowing air into the space) prior to entry to achieve acceptable atmospheric conditions. Never use Oxygen to Ventilate a Confined Space. Five to ten air changes should occur prior to allowing entry. Ventilation should continue throughout entry. Use continuous ventilation where toxic atmospheres are created by the work procedure. An alarm should sound if there is a failure in ventilation. Local exhaust ventilation may be needed where general ventilation is not effective, or when high concentrations of contaminants occur in the worker's breathing zone. Local high concentrations can occur from such work activities as welding, painting or chemical cleaning. Ventilation should reduce concentrations below the permissible exposure limit and 10% of the lower flammable limit before entry. Purging may be necessary if the confined space contains an atmosphere above the upper explosive limit. An inert gas is used to remove the flammable substance prior to venting with air.

Personal Protective Equipment (PPE)

Specify and use necessary PPE in confined spaces as determined by a qualified person on the entry permit. Typical items used in confined space entry include respirators, eye and face protection, hard hats, safety boots, hearing protection, and protective clothing.

Lifelines, belts and harnesses should be used for rescue and protection from falls. Life jackets may be provided where falls into liquid over 4 feet in depth are possible. Insulated floor mats should be used when hot work requires electrical energy.

Isolation

Write a specific isolation procedure for each confined space. Isolation means physical disconnection, double block and bleed, and blanking of all lines into a confined space. Valves should be locked and tagged in the closed position. Electrical, mechanical, pneumatic or hydraulic systems should be locked, blocked or tagged.

Equipment Maintenance

Check equipment before entering a confined space. Hand tools should be kept clean and in good repair. Grounds should be checked before electrical equipment is used in a confined space and circuits should be equipped with ground fault circuit interrupters. Use air-driven tools where flammable liquids or gases are present. Lighting should be explosion proof where necessary, listed by Underwriters' Laboratories for use in Division 1 atmospheres. Compressed gas cylinders should not be taken into the confined space. Ladders should be supported.

Emergency Rescue

Plan and write rescue procedures. Spontaneous reaction instead of well-planned and executed rescue procedures has led to multiple fatalities in confined spaces. The standby or rescue team should be properly equipped and drilled in all aspects of rescue per 29 CFR 1910.146. Rescue should be performed from outside the space if possible.

Recordkeeping

Document compliance with procedures. Records should be kept to include the permits, inspections, air-monitoring results, procedures and any incidents during a specific entry. Training and drills should be documented.

Date: _____ *Attended By:* _____