



Minnesota Electrical Association

Electrical Toolbox Talks

Confined Space Safety

A confined space is any area that:

- Has a limited opening for entry or exit that can be as small as 18 inches
- Is an area that is difficult to move through
- Is open topped, such as pits and excavations
- May require ladders or hoists to enter and exit

Confined spaces may have unfavorable natural ventilation such as:

- Not enough oxygen
- Deadly gases trapped inside
- Too much oxygen, which can increase the chances of an explosion

Confined spaces are not designed for continuous worker occupancy.

A “permit required confined space” is a confined space with at least one of the following characteristics:

1. Hazardous atmosphere
 - Levels of flammable gas or vapor that are over 10% of the substance’s lower flammable limit
 - Combustible dust at or above the substance’s lower flammable limit
 - Oxygen content below 19.5% or above 23.5%
2. Engulfment potential
3. Entrapping design

Employer Obligations

1. Evaluate the work place for “permit required confined spaces”
2. Take the following actions when a confined space is identified:
 - Post signs or warnings.
 - Use barriers or other means to keep unauthorized personnel out.
 - Develop and use a written space entry program.
 - Conduct air monitoring and other tests to evaluate the hazards in each space.
 - State entry conditions that make the space acceptable for entry.
 - Ventilate or otherwise eliminate the space’s hazards before allowing entry.
3. Entry into a confined space is not allowed unless there is a signed permit that identifies:
 - The space to be entered
 - Purpose, date, length of stay
 - Name of workers allowed to enter
 - Name of attendant

Sponsored by



- Name of entry supervisor
 - Acceptable entry conditions
 - Equipment to be used in the space
 - Available emergency and rescue services and their phone numbers
 - Hazards of the space
 - Results of initial and periodic testing
 - Measures used to isolate the space and eliminate or control the hazard
 - Additional permits that may relate to the space
 - Any other special employee limitations
4. Test to help ensure that conditions are acceptable. Testing must be done in this sequence:
 - Oxygen content
 - Combustible gases and vapors
 - Toxic gases and vapors
 5. Provide at least one attendant.
 6. Develop and implement a rescue and emergency system.
 7. Coordinate procedures when a contractor or another employee is involved with a confined space.
 8. Review the confined space program annually.

Entry Supervisor Duties

- Help ensure that testing, equipment, and permit requirements are completed before signing the permit and allowing entry.
- Be familiar with the space's hazards.
- Terminate the permit.
- Help ensure rescue and emergency services are available.

Entrant Duties

- Know the hazards of the space.
- Know what equipment to use and how to use it.
- Use proper personal protective equipment.
- Have a rescue retrieval line attached to a fixed point outside the space. If the space is five feet or more deep, the line must be attached to a mechanical device.
- Be aware.

Attendant Duties

- Maintain a count of who is in the space.
- Keep unauthorized personnel out.
- Order immediate evacuation if the attendant's duties cannot be performed safely.
- Summon emergency and rescue services.
- Be aware.

Other Safety Tips

- Plan the job.
- Assemble tools and equipment ahead to help eliminate trips in and out of the confined space.
- Keep the space ventilated.
- Turn water, steam, heat, and power off (as applicable).
- Don't take food, drink, cigarettes or matches into the confined space.
- Don't enter if you are under the influence of drugs, alcohol, or medications.
- Don't enter if you are not feeling well.

Confined Space Safety

(continued)

Before you Enter

1. Always test the air before entry for:
 - a. combustibility,
 - b. adequate oxygen levels, and then for
 - c. toxic air hazards.

When testing:

- a. Test the area near the entry before opening the space to test further.
- b. Be sure to test the air inside the space from top to bottom. Some hazardous gases float at the top of the space while others sink to the bottom.
- c. If pretests find hazards you are unsure of or cannot protect against adequately, do not proceed. Contact your supervisor immediately.
- d. Depending upon conditions, continuous or periodic testing may be needed to insure the safety of the person in the confined space.

Unless the air is ventilated or has no potential hazards, a portable self-contained breathing device should be used. If the entrance is too small, an airline mask should be used and employee entering the space will also carry a 5-15 minute escape respirator in case something happens to the air tube.

2. Eye, hearing, and protective clothing will be used if determined to be needed.
3. Where possible, use ventilating equipment to maintain an oxygen level of a least 19.5% and to keep toxic gases and vapors within OSHA prescribed levels.
4. Use lockouts and tags to prevent any start ups while a person is working in confined space. Also make sure to cut off any steam, water, gas, power lines, or any other hazardous potentials that enter the confined space.
5. Only safe, grounded, explosion-proof equipment will be used in the area.

Rescues

- A minimum of one person must always be outside to summon help or offer help.
- This attendant will be equipped with the proper breathing equipment, and trained in first aid and CPR.
- The attendant will be in continuous contact with person inside confined space by radio, phone or visual.
- If an emergency arises or there is another reason to enter the space, the attendant must not enter until additional help arrives.
- A full body harness and lifeline attached to a block and tackle will be attached to the person in the space. A single person will be able to use that for a rescue. A rope tied to the person is inadequate since a single person could not use it without help.

Notes: For more information, see OSHA CFR Title 29, Part 1910.146, contact a competent safety professional or the OSHA Consultation office.

These rules are samples only. Each employer is responsible for working with his/her employees to write rules that meet the specific needs of their individual company and type of work. Each employer is responsible for assessing the accuracy of their rules and keeping them up to date. OSHA requires a minimum of an update and employee re-training annually.

