

HIBBING COMMUNITY COLLEGE CONFINED SPACE ENTRY WRITTEN PROGRAM

I. INTRODUCTION

In accordance with 29CFR 1910.146-Confining Space Entry Law, HIBBING COMMUNITY COLLEGE has implemented a training program that will increase employee awareness of the risks of a confined space; identify the hazards in each space; restrict access only to authorized personnel; control and monitor hazards through engineering and work practices; and test the environment to ensure the hazards remain under control.

II. MANAGEMENT RESPONSIBILITIES

- A. HIBBING COMMUNITY COLLEGE will maintain an up-to-date confined space program.
- B. The maintenance supervisor will be responsible for the program and will be supported by HIBBING COMMUNITY COLLEGE administration. He will have the responsibility and authority to schedule training, acquire equipment, evaluate rescue procedures, authorize entry and administer the program.
- C. HIBBING COMMUNITY COLLEGE will have a current inventory of all confined spaces. They will be listed in the appropriate space category:
 - 1. Permit Required
 - 2. Non-Permitted
- D. The Maintenance Supervisor and rescuer will meet, prior to implementation of this program; to discuss the hazards of a permit-required confined space, review each type of space and develop appropriate rescue procedures.
- E. All permit-required confined spaces will be posted at the entrance of the confined space. The sign will state "Danger Confined Space Do Not Enter," or something similar.

III. DEFINITIONS

- A. A Confined Space meets all of the following:
 - 1. Is a space large enough and so configured that an employee can enter and perform assigned work;
 - 2. Has limited or restricted means for entry or exit;
 - 3. Is not designed for continuous employee occupancy.

The confined spaces at HIBBING COMMUNITY COLLEGE are identified on the Confined Space Identification form attached.

- B. A permit-required confined space has one or more of the following:
 - 1. Contains or has a potential to contain a hazardous atmosphere;
 - 2. Contains a material that has the potential for engulfing an entrant;
 - 3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
 - 4. Contains any other recognized serious safety or health hazard.

The permit-required confined spaces are listed on the Confined Space Identification form attached.

Lower Explosive Limit

Means the lower limit of flammability if a gas or vapor at ordinary ambient temperatures expressed as a percentage of the gas or vapor in air by volume.

C. Attendant

“Attendant” means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant’s duties assigned in the employer’s permit space program.

D. Authorized Entrant

“Authorized entrant” means an employee who is authorized by the employer to enter a permit space.

E. Entry

“Entry” means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.

F. Hazardous Atmosphere

An atmosphere that may expose employees to the risk of incapacitation, impairment of ability to self-rescue, injury or acute illness.

G. Immediately Dangerous to Life or Health (IDLH)

Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual’s ability to escape unaided from a confined space.

H. Hazards

1. Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
2. Airborne combustible dust at a concentration that meets or exceeds its LFL:
NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less;
3. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;
NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, and impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.
5. Any other atmospheric condition that is immediately dangerous to life or health.
6. Toxic substances that are known to have poisonous physiological effects. The most common toxic gases encountered are carbon monoxide and hydrogen sulfide.
 - a. Carbon dioxide is a by-product of fermentation that displaces oxygen.
 - b. Carbon monoxide is created by internal combustion. It can kill by replacing the oxygen in the blood causing unconsciousness.
 - c. Sulfur dioxide has a sharp pungent smell that is toxic in small amounts.
 - d. Hydrogen sulfide is part of many industrial processes that can cut off breathing once it enters the body. In low concentrations, it has a characteristic “rotten egg” odor. In higher concentrations it can paralyze the sense of smell so its odor is not detected.

e. Oxygen concentrations at or below 19.5% are considered hazardous. An oxygen deficient atmosphere contains less than 19.5% oxygen content. This may not be enough oxygen to supply the employee's respiratory needs when performing physical work. Atmospheres that are lower than 19.5% are considered immediately dangerous to life and health. Oxygen concentrations above 23.5% have the potential to be an explosive atmosphere. Oxygen deficiencies could be caused by:

- i. Fire or explosion.
- ii. Displacement of oxygen by other materials such as methane, produced by rotting organic matter.
- iii. Carbon dioxide, a by-product of fermentation.
- iv. Corrosion or rust.

J. Other hazards may include:

1. Engulfment which is caused by finely divided (flowable) solids such as grain that can collapse around a person filling or plugging the respiratory system or cause death by strangulation, constriction or crushing.
2. Poor space design. The odd shapes such as sloping sides, a floor that tapers to a small section or a confusing internal shape could cause a person to become trapped and possible cause suffocation.
3. Combustibility. Deadly fires and explosions in many confined spaces are caused by build-up flammable vapors or gases which can be ignited by sparks from grinding/welding, unapproved electrical equipment, metal friction (even from nails in your shoes), smoking, or static electricity.
4. Heat can build up quickly in a confined space and cause exhaustion or heat stroke.
5. Falls and slips - Falls in a confined space can be fatal. A person can easily become trapped in an area with low oxygen levels or toxic gases. Rungs and railings in damp environments are dangerous and should not be trusted.
6. Noise reverberates in a confined space. Even if a person's hearing is temporarily affected, they may not be able to hear important directions or warnings. Over time, this could develop into permanent hearing problems.
7. Mechanical hazards. Valves and pipes not disabled may explode, drown, poison, or burn a person. Moving parts in confined spaces are dangerous. This equipment must be locked out/tagged out before entering. HIBBING COMMUNITY COLLEGE's Lockout/Tag out policy shall be followed accordingly.

IV. PROCEDURES FOR ENTRY INTO A PERMIT-REQUIRED CONFINED SPACE

- A. **Complete a permit.** This permit is good for a maximum of 8 hours. Upon completion of entry, permit shall be kept on file for 1 year, minimum. Before entry begins, the entry supervisor identified on the permit shall sign the entry permit to authorize entry. This permit shall be available to all authorized entrants by posting at portal or other effective means.
- B. The atmosphere within the authorized entrant's immediate area shall be **monitored before and periodically during entry**. It shall be monitored for oxygen, flammable gases or vapors, toxic contaminants, in that order. Also, the space may be monitored for any other hazardous substance that the college has reason to believe may be present in the confined space. Signals from the monitoring device shall immediately indicate when the atmosphere falls outside any of the air quality limits. If the monitoring device goes off, the authorized entrant should immediately exit from the confined space and the space **must be** re-evaluated.
- C. Ventilation **may not** be used in lieu of monitoring.

- D. An employee may not enter the space until **forced ventilation** has eliminated any hazardous atmosphere. The forced air ventilation shall be:
 - 1. Directed to ventilate the immediate areas.
 - 2. **Continue until all employees have left** the confined space.
 - 3. From a clean source and may not increase the hazards in the confined space.
- E. No employee shall enter a permit-required confined space without at least **one attendant**. HIBBING COMMUNITY COLLEGE must provide at least one attendant outside the permit-required confined space during an authorized entry.
- F. When entry into a confined space is by means of a manhole or a top opening, the opening shall be guarded to prevent accidental fall.
- G. While in the confined space, the entrant shall have voice or other means of **communication with the attendant**.
- H. All Lockout-Tagout procedures will be followed before entry is made.

V. TRAINING

Training of affected employees will consist of the following elements.

A. Authorized entrants trained to:

- 1. Know space hazards, including information on the mode of exposure (e.g., inhalation or dermal absorption signs or symptoms, and consequences of the exposure).
- 2. Cut off, according to college procedures, steam, water, heat, gas, or power lines.
- 3. Use lockout devices and tags to protect against accidental start up of any equipment while occupying the confined space.
- 4. Wear respirators, retrieval lines and harnesses, and assigned protective clothing, as needed.
- 5. Ventilate confined spaces & permit-required confined spaces, as required.
- 6. Monitor the space for oxygen, combustibility and toxicity before and during entry into the confined space.
- 7. Prepare for and control physical hazards.
- 8. Check for an escape route and be ready to get out if ordered.
- 9. Use only safe, grounded, explosion-proof equipment.
- 10. Communicate regularly with attendants.
- 11. Exit from permit-required space as soon as possible when ordered by an authorized person, when the entrant recognizes the warning signs or symptoms of exposure exists, when a prohibited condition exist, or when an automatic alarm is activated.
- 12. Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exists.

B. Attendants are trained to:

- 1. Know all emergency reporting procedures and who to call for help.
- 2. Keep in constant touch with the workers in the space.
- 3. Know what the hazards of the space are and what symptoms to look for.
- 4. Be prepared to order an evacuation.
- 5. Be aware at all times the number of workers in a space.
- 6. Be prepared to properly perform rescue duties from outside the permit-required space, such as using retrieval lines.
- 7. Remain outside the permit-required confined space until relieved by another attendant.

C. Rescue Procedures

1. The rescuer and maintenance supervisor have developed the following rescue procedures.
 - a. The attendants will contact emergency help via phone.
 - b. The rescuer will be the City's Fire Department.
 - c. The maintenance supervisor or designee will meet the rescuer.
 - d. Rescuer shall have a self-contained breathing apparatus, a lifeline, a harness, a hoisting device and an attendant trained in CPR before entering the space.
 - e. The rescuer has reviewed the permit-required confined space rescue procedures and spaces prior to rescue.

2. The college will have evaluated the prospective rescue service's ability to function while rescuing entrants from the permit-required confined spaces.
 - A. They can reach the victim within a time frame appropriate for a permit-required confined space.
 - B. They are equipped for and proficient in performing rescue.

3. Entry Supervision will inform rescuer:
 - A. Of hazards prior to rescue.
 - B. Rescuer shall have access to permits so appropriate rescue procedures can be developed.

This program was developed and implemented on _____

CONFINED SPACE IDENTIFICATION FORM

Permit-Required Confined Spaces

Permit required confined spaces require pre and continuous monitoring, pre and continuous ventilation, stand-by person, communication with the stand by person and a rescue plan.

Non-Permit Required Confined Spaces

All Schools:

1. Utility Tunnels
2. Vaults
3. Air Handlers

Permit required confined spaces require pre and continuous monitoring, pre and continuous ventilation, stand-by person, communication with the stand by person and a rescue plan.