

Confined Space Advisory Committee

June 16, 2009

A meeting was held on 06-16-09 for further discussion on the proposed rule changes for confined spaces in construction. This meeting was recorded within the draft rule, either as notes or changes to the draft itself.

- (1) Purpose and application. This rule applies to all confined spaces and provides requirements to protect employees from the hazards of entering and working in confined spaces.
- (2) Definitions. (What other definitions do we need to add?)

Confined space – a space that meets all of the following:

1. Large enough and so configured that a person can fully enter the space and perform work.
2. Has limited or restricted means for entry and/or exit.
3. Is not designed for continuous human occupancy.
Note: “Not designed for continuous human occupancy” means that the space is not designed for employees to normally occupy the space all day, every day.

Hazardous atmosphere - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

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, 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.

Note: For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Material Safety Data Sheets that comply with the Hazard Communication Standard, 1926.59 of this part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Permit-required confined space (permit space) – A confined space that has one or more of the following characteristics:

1. Contains, or has a potential to contain, a hazardous atmosphere.
2. Contains a material that has the potential to engulf an entrant.
3. Has an internal configuration such that an entrant could become trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section.
4. Contains any other recognized serious safety or health hazard that can inhibit an entrants ability to self-rescue.

Potential hazards - All reasonably anticipated conditions within the space and outside the space that can affect conditions within the space.

(3) Evaluation.

- (a) Neither the controlling contractor nor the host employer is required to obtain the information listed in this paragraph. However, if they have it, they must provide it to the contractor for the contractor's evaluation before the contractor first enters a confined space:

- (A) The location of each space that the controlling contractor or host employer actually knows is a confined space.

- (B) For each of these spaces:

- (i) Any hazards, if known, that affect that space.
- (ii) The classification of the space if previously classified.
- (iii) Any precautions and procedures that the controlling contractor or host employer previously implemented for entering the space.

Note: Unless a controlling contractor or host employer has or will have employees in a confined space, they are not required to enter any confined space to collect this information.

(b) Determine if there are confined spaces and if these spaces are subject to any hazards, using the following procedures:

(A) Without entering the space, consider information, if any, from the host employer and controlling contractor, and use inspection information to:

- (i) Determine if the space meets the definition of a confined space.
- (ii) Identify any physical and atmospheric hazards.

(B) When a space has hazards that make it a permit-required confined space (permit space), you must:

- (i) Inform the controlling contractor and host employer of the precautions and procedures you will follow for entry into the space.
- (ii) Ensure employees and their representatives are informed of the location and hazards of the permit spaces, and allow them to observe the evaluation or re-evaluation of the space.
- (iii) At the conclusion of entry operations, inform the controlling contractor and host employer about any hazards that were present, or that developed, during entry operations.

(C) When conditions within a confined space or a permit space change, re-evaluate it.

(D) Take all necessary measures to prevent unauthorized employees from entering permit spaces.

(c) Treat unevaluated confined spaces as permit spaces until they are fully evaluated.

(4) Permit-Required Confined Space Entry Program and Permits.

(a) Permit-required confined space entries that cannot be made using alternate entry procedures must only be entered with a permit issued by the employer or owner of the space.

(b) Develop a written program that describes the means, practices, and procedures to safely enter permit-required confined spaces. This program must include:

(A) Documentation of entry permit procedures.

- (B) Measures taken to prohibit unauthorized persons from entering permit spaces.
 - (C) Designation of employee roles, such as entrants, attendants, entry supervisors, rescuers, or those who test or monitor the atmosphere in a permit-required space.
 - (D) Identification of designated employee duties.
 - (E) Training employees on their designated roles.
 - (F) How to identify and evaluate hazards.
 - (G) Use and maintenance of equipment.
 - (H) How to prevent unauthorized entry.
 - (I) How to coordinate entry with another employer.
 - (J) How to rescue entrants.
- (c) Update the written program as necessary and make it available to employees and their representative.
- (d) Develop and implement procedures for issuing permits. These procedures must include:
- (A) The process for evaluating the hazards and potential hazards of the space.
 - (B) The process for evaluating hazards and potential hazards of the work to be performed.
 - (C) The process to ensure entrants or their representatives have the opportunity to observe monitoring, testing, and all other actions taken to eliminate or control the hazards of the space.
- (e) Entry permits must include the following information:
- (A) The space to be entered.
 - (B) The purpose of the entry.
 - (C) The date and duration of the permit.
 - (D) The hazards of the space.
 - (E) Acceptable entry conditions.
 - (F) Results of initial and periodic tests performed to evaluate and identify the hazards and conditions of the space, accompanied by the names or initials of the testers and by an indication of when the tests were performed.
 - (G) Appropriate measures used before entry to isolate the space, and eliminate or control hazards.
 - (i) Examples of appropriate measures include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit-required confined spaces.
 - (H) Names of entrants and current attendants.
 - (I) The signature or initials of the original supervisor authorizing entry.
 - (J) The current entry supervisor.

(K) Communication procedures for entrants and attendants to maintain contact during the entry.

(L) Equipment provided for safe entry, such as:

- (i) Personal protective equipment (PPE)
- (ii) Testing equipment
- (iii) Communications equipment
- (iv) Alarm systems
- (v) Rescue equipment

(M) Rescue and emergency services available, and how to contact them. Include equipment to use, and names and contact information.

(N) Other information needed for safety in the particular confined space

(O) Additional permits issued for work in the space, such as for hot work.

(f) Keep expired permits for at least one year.

(A) Permits with atmospheric monitoring information, or other records that show the atmospheric conditions during entry must be kept as exposure records and maintained for the duration of employment plus 30 years, as required by OAR 437-002-1910.1020, "Access to Employee Medical and Exposure Records."

(g) Review the permit program when there is any reason to believe that employees are not adequately protected, and revise it as necessary.

(A) When revising the permit program, do not allow entries to be made until the revisions are complete.

(B) Situations that require this review include:

- (i) Unauthorized entry of a space.
- (ii) A previously undiscovered hazard is discovered.
- (iii) A condition prohibited by the permit exists.
- (iv) An injury or near-miss occurs during entry.
- (v) A change occurs with the space.
- (vi) An employee reports concerns about the effectiveness of the program.

(h) Review all permits within one year of their expiration to evaluate:

(A) The permit program.

(B) The protection provided to employees entering permit spaces.

(5) Equipment.

- (a) When employees enter permit spaces, provide the following equipment to employees as necessary:
 - (A) Testing and monitoring equipment
 - (B) Ventilating equipment needed to obtain and maintain acceptable entry conditions
 - (C) Communication equipment for effective communication between the attendant and all entrants, and to initiate rescue when necessary
 - (D) Lighting equipment needed to ensure employees can see well enough to work safely and exit the space quickly in the event of an emergency
 - (E) Barriers or shields to protect entrants from external hazards, such as pedestrians and vehicles
 - (F) Ladders or other equipment to safely enter and exit the space
 - (G) Rescue and emergency equipment necessary to safely and effectively rescue entrants
 - (H) Any other equipment necessary to safely enter and exit the space
- (b) Provide all necessary equipment at no cost to employees.
- (c) Ensure all equipment is maintained and used in accordance with the instructions from the manufacturer.
- (d) Ensure all employees who use equipment are trained in the use of that equipment.

(6) Personnel.

- (a) Before employees enter permit spaces, designate entrants, attendants, and entry supervisors.
- (b) Entrants must:
 - (A) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
 - (B) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space
 - (C) Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or when the entrant detects a prohibited condition
 - (D) Exit from the permit space as quickly as possible whenever:
 - (i) An order to evacuate is given by the attendant or the entry supervisor, or
 - (ii) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or

- (iii) The entrant detects a prohibited condition, or
- (iv) An evacuation alarm is activated.

(c) Attendants must:

- (A) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
- (B) Be aware of possible behavioral effects of hazard exposure in authorized entrants
- (C) Continuously maintain an accurate count of authorized entrants in the permit space and ensure that the means used to identify authorized entrants accurately identifies who is in the permit space
- (D) Remain outside the permit space during entry operations until relieved by another attendant
- (E) Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space
- (F) Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and orders the authorized entrants to evacuate the permit space immediately under any of the following conditions:
 - (i) If the attendant detects a prohibited condition;
 - (ii) If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
 - (iii) If the attendant detects a situation outside the space that could endanger the authorized entrants; or
 - (iv) If the attendant cannot effectively and safely perform all the duties required of the attendant
- (G) Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards;
- (H) Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
 - (i) Warn the unauthorized persons that they must stay away from the permit space;
 - (ii) Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and
 - (iii) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;
- (I) Perform nonentry rescues as specified by the employer's rescue procedure; and
- (J) Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

(d) Entry supervisors must:

- (A) Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure
- (B) Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin
- (C) Terminate the entry and cancel the permit as required by permit entry program
- (D) Verify that rescue services are available and that the means for summoning them are operable
- (E) Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations
- (F) Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

(7) Rescue.

- (a) When employees enter permit spaces, develop and follow procedures to remove entrants in the event of an emergency or when they are unable to self-rescue.
- (b) Where feasible, use non-entry retrieval systems or methods whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

(A) Retrieval systems must meet the following requirements.

- (i) Each authorized entrant must use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level, above the entrant's head, or at another point which you can establish presents a profile small enough for the successful removal of the entrant. Wristlets may be used in lieu of the chest or full body harness if you can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.
- (ii) The other end of the retrieval line must be attached to a mechanical device or fixed point outside the permit space so that rescue can begin as soon as the attendant becomes aware that rescue is necessary. A mechanical device must be available to retrieve personnel from vertical type permit spaces more than 5 feet (1.52

m) deep.

(B) When using retrieval systems for rescue, make sure there are emergency services or first-aid responders available that can respond to emergencies in a timely manner.

Note: The response time is based on the hazards of the space. For example, IDLH hazards require an immediate response, and responders would need to be available on-site during the duration of the entry.

(c) Where non-entry rescue is not feasible, designate a rescue team before employees enter any permit space.

(A) When a third-party rescue service is used, you must ensure that the service is:

- (i) Aware that they are so designated and agree to it.
- (ii) Capable of performing all required rescue operations.

(B) Ensure the rescue team:

- (i) Can respond to a rescue call in a timely manner. Timeliness is based on the identified hazards of the space. Rescuers must be able to reach potential victims within an appropriate time frame based on the identified hazards of the permit space.
- (ii) Can proficiently rescue employees from permit spaces.
- (iii) Has the appropriate equipment to rescue employees from all permit spaces employees enter.
- (iv) Has at least one member who holds a current certification in first aid and cardiopulmonary resuscitation (CPR).

(C) Inform each rescue team or service about the hazards they may confront when called to perform rescue.

(D) Provide the rescue team or service with access to all permit spaces from which rescue may be necessary.

(E) Designated permit space responders must be provided with personal protective equipment (PPE) needed for safe entry and any other equipment required to safely conduct rescues.

(F) All equipment must be used and maintained according to the instructions from the manufacturer.

(G) Rescue teams must practice performing permit space rescues at least once every 12 months.

- (i) The practice rescue must include every type of space in which the rescue team may perform rescues.

- (ii) The practice rescue must include removing persons, dummies, or manikins from the actual permit spaces or representative spaces that have the same opening size, configuration, and accessibility issues as the actual permit spaces where rescue may be performed.

(H) Rescue team personnel who enter permit spaces must have the same training and proficiencies as a permit space entrant.

(I) Rescue team members must be trained in basic first aid and cardiopulmonary resuscitation (CPR).

(8) Alternate Entry.

(a) Permit-required confined spaces may be entered without a permit when:

- (A) All actual and potential hazards have been eliminated; or
- (B) All physical hazards, if any, have been eliminated and all atmospheric hazards are positively controlled with continuous forced-air ventilation.

Note: For purposes of this rule, “hazard elimination” means that specific measures are taken to ensure that hazards and potential hazards cannot exist within the space.

Continuous forced-air ventilation does not eliminate atmospheric hazards. It only controls the hazards.

(b) Develop and implement specific written procedures for each space that can be entered with alternate entry procedures. These procedures must address:

- (A) The hazards and potential hazards of the space.
- (B) The methods used to eliminate hazards and potential hazards.
- (C) The methods used to ensure that the hazards have been eliminated.
- (D) The methods used to test the atmosphere within the space, where applicable, for all atmospheric hazards.
- (E) The methods used to determine if unsafe conditions arise before or during entry.
- (F) The criteria and conditions for evacuating the space during entry.
- (G) The methods for training employees in these procedures.
- (H) The methods for ensuring employees follow these procedures.

(c) When using continuous forced-air ventilation to control atmospheric hazards, you must:

- (A) Use only properly calibrated direct-reading meters to test the atmosphere.

- (B) Ensure direct-reading instruments are used and tested according to the instructions and recommendations from the instrument manufacturer.
- (C) Test the atmosphere for all identified atmospheric hazards before entering the space.
- (D) Only enter after atmospheric testing verifies that all atmospheric hazards are adequately controlled by the ventilation.
- (E) Perform continuous atmospheric monitoring for all atmospheric hazards during the entry.
- (F) Immediately evacuate the space:

- (i) When the atmospheric monitoring indicates the return of atmospheric hazards
- (ii) Upon any failure with the direct-reading instrument.
- (iii) Upon any failure with the ventilation.

(d) Ensure all employees or their representatives who will conduct the entry have the opportunity to observe all pre-entry activities used to comply with this section.

(e) When a space is evacuated, it must be treated as a permit-required confined space unless:

- (A) The conditions that necessitated the evacuation are corrected; and
- (B) The re-entry is treated and documented as a new entry.

(f) Document each entry. This documentation must include:

- (A) The location of the space.
- (B) The hazards and potential hazards of the space.
- (C) The measures taken to eliminate the hazards.
- (D) When applicable, the measures used to control the atmospheric hazards
- (E) When applicable, the identity of the direct-reading instruments used to test the atmosphere, including the date of calibration.
- (F) When applicable, the results of the atmospheric testing.
- (G) The date of the entry.
- (H) The duration of the entry.
- (I) When applicable, any and all conditions that required the evacuation of the space.
- (J) The name, title, and signature of the person responsible for ensuring the safe entry conditions.
- (K) The name and title of the entrant, if different from the person above.

(9) Training.

(a) Train each employee involved in permit space activities so they acquire the understanding, knowledge, and skills necessary to safely perform their duties.

(b) Provide training:

- (A) Before an employee is assigned permit space duties
- (B) Before there is a change in an employee's assigned duties
- (C) When there is a hazard for which the employee hasn't already been trained
- (D) Whenever there is a deviation from the established procedures or employee knowledge of the procedures is inadequate

(c) Certify each employee's proficiency in their assigned duties. Ensure the certification:

- (A) Contains the employee's name, the signature of the trainer, and the date of training
- (B) Is available for inspection by employees and their authorized representative.

(10) Contractors.

(a) When employees of another employer enter permit spaces under your control, you must:

(A) Inform the contractor and their employees:

- (i) That the workplace contains permit spaces and can be entered only when the applicable requirements of this rule are met
- (ii) Of the identified hazards and your experience with each permit space they will enter
- (iii) Of any precautions or procedures you require to protect employees in or near spaces where the contractor will be working

(B) Coordinate entry operations with the contractor, when employees of different employers will be working in or near the same permit spaces.

(C) Discuss entry operations with the contractor after they are complete.

This discussion must include:

- (i) The program followed during permit space entry
and
- (ii) Any hazards confronted or created