

**Union County Public Schools
Facilities Department**

Confined Space Program

Purpose

The Union County Public Schools Confined Space Entry Program is a means by which employees can be protected from the hazards associated with entry into permit-required confined spaces and to develop procedures by which employees shall enter such spaces in compliance with OSHA standard 29 CFR 1910.146.

Policy

1. All spaces owned or operated by Union County Public Schools that meet the definition of permit-required confined spaces shall be identified and appropriately marked, and access to such spaces shall be controlled.
2. Employees are prohibited from entering any space meeting the definition of permit-required confined space unless the following conditions are met:
 - a. UCPS determines that employees must enter permit-required confined spaces to perform a necessary job task.
 - b. The employees are trained in the duties under this policy which they are to perform.
 - c. The space is rendered safe for entry by:
 - i. Issuance and compliance with the conditions of a permit
 - ii. The space is reclassified as a non-permit space
 - iii. Alternate Entry Procedures are performed
3. Permits issued under the procedures in this policy shall be limited in duration to no longer than eight (8) hours.

Definitions

Confined Space Definitions

1. Confined Space – a space that meets all three of the following conditions:
 - a. Large enough for a person to bodily enter and perform work
 - b. Has only means of entry/egress that required a person to enter by a means other than normal walking (crawling, squatting, climbing, bending, use of devices, etc.)
 - c. Is not designed for people to continually occupy the space
2. Non-Permit Space – a confined space that does not contain any actual or potential hazards capable of causing death or serious physical harm.
3. Permit-Required Confined Space, or Permit Space – a confined space which has one or more of the following characteristics:
 - a. Contains or has the potential to contain a hazardous atmosphere
 - b. Contains a material that has the potential for engulfing an entrant

- c. Has an internal configuration that could trap or asphyxiate an entrant (inwardly converging walls, downward sloping floors that tapers to a smaller cross-section, etc.)
- d. Contains any other recognized serious safety and/or health hazard

Personnel Definitions

1. Attendant – the trained individual stationed outside the permit space who monitors the authorized entrants and who performs all attendant duties.
2. Entrant – the trained individual who enters the permit space.
3. Entry Supervisor – the trained individual with the responsibility to:
 - a. Assure that acceptable entry conditions are present within a permit space under his/her jurisdiction
 - b. Issue a permit authorizing entry
 - c. Overseeing entry operations
 - d. Terminating the entry and permit

Hazard Definitions

1. Engulfment – the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system, or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.
2. Hazardous Atmosphere – an atmosphere that may expose to the risk of death, incapacitation, impairment of the ability to escape unaided from a permit space, injury or acute illness. Hazardous atmospheres may be created by conditions such as, but not limited to:
 - a. Flammable gas, vapors, or mists in excess of ten percent (10%) of the lower flammable limit (LFL)
 - b. Airborne combustible dusts at a concentration that:
 - i. Meets or exceeds its LFL
 - ii. Obscures vision at a distance of five (5) feet or less
 - c. Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent
 - d. Atmospheric concentrations at or above the Permissible Exposure Limit (PEL) of substances identified in Subpart Z of 29 CFR 1910.
 - e. Any other atmospheric conditions which are immediately dangerous to life and health
3. Immediately Dangerous to Life and Health (IDLH) – any condition that:
 - a. Poses an immediate or delayed threat to life
 - b. Would cause irreversible adverse health effects

- c. Would interfere with an individual's ability to escape unaided from a permit space

Hazard Control Definitions

1. Conditions of Entry – the conditions that must exist in a permit space to allow employees to safely enter and perform duties within the space.
2. Blanking, Binding – absolute closure of a pipe, line, or duct by fastening a solid plate that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.
3. Double Block and Bleed – the closure of a line, duct, or pipe by closing and locking/tagging out two in-line valves and opening and locking/tagging out a drain or vent in the line between the two closed valves.
4. Inerting – the displacement of the atmosphere in a permit space by a noncombustible gas to such an extent that the resulting atmosphere is noncombustible, producing an IDLH oxygen-deficient atmosphere.
5. Isolation – the complete removal of a permit space from service and the complete protection of that space from release of energy or material.
6. Line Breaking – the intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

Permit Definitions

1. Alternate Entry Procedures – the use of continuous forced air ventilation and atmosphere monitoring in lieu of a permit to enter a permit-required confined space that:
 - a. Has an actual or potential hazardous atmosphere that can be demonstrably controlled by continuous forced air ventilation alone
 - b. Has no other hazards of any kind
2. Emergency – any occurrence (including failure of hazard control monitoring equipment) or event, internal or external, to the permit space which could endanger entrants.
3. Entry – the action of breaking the plane of an opening of a permit space with any part of the body.
4. Permit – the written or printed document authorizing entry into a permit space and designating the requirements for entry.
5. Prohibited Condition – any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
6. Testing – the process by which the hazards that may confront entrants are identified and evaluated. This term includes specification of tests that are to be performed in the permit space.

Other Definitions

1. Contract for Work – contracts initiated by the employer.

Procedures

Employer Controlled Confined Spaces

Identification of Confined Spaces

- a. Union County Public Schools shall identify each space under their jurisdiction which meets the definition of confined space, if any exist, and shall maintain a list of such spaces.
- b. Union County Public Schools shall determine if the confined space meets the definition of permit-required confined space.
- c. Each confined space on the list shall be designated as a non-permit or permit space.
- d. The hazards of each permit space shall be catalogued.
2. The list shall be distributed to all affected employees.
3. UCPS shall provide for a Danger sign to be posted at the means of ingress to each identified confined space.
 - a. Signs shall meet the requirements of Danger signs
 - b. The legend of the signs for permit spaces shall state: "DANGER PERMIT REQUIRED CONFINED SPACE."
 - c. Crawlspace, water vaults, and sewer manholes are all considered to be Permit Required Confined Spaces regardless of signage.
4. UCPS shall create specific procedures to enter confined spaces for employees whose job duties require entry into identified confined spaces, if all elements of 29 CFR 1910.146 are met.
5. The supervisor with jurisdiction over employees who are required to enter an identified confined space shall:
 - a. Receive training as an entry supervisor
 - b. Ensure that affected employees receive training as entrants
 - c. Procure the necessary equipment to perform the tests required for entry
 - d. Ensure that an adequate number of employees have received training as attendants
 - e. Contact the local emergency rescue agency and establish assurance that they will perform rescue coverage during entry operations. The telephone number for Union County Emergency Communications is located on the confined space entry permit. Information required by UC Emergency Services is the location of the permit-required confined space entry, the

- number of people involved with the entry, and the time and length of the entry.
- i. The supervisor, with the assistance of management as needed, shall ensure that the rescue services are adequately trained and equipped to perform rescue operations from the space in compliance with safety regulations
 - ii. The supervisor should invite rescue personnel to the site to pre-plan rescue operations
 - iii. If the rescue services cannot or will not perform such services, the supervisor or employee shall develop and implement a means to perform rescue for the space.
- f. Upon completion of the permit-required confined space entry, UC Emergency Communications must be contacted to alert them that the entry has been completed.
6. For each entry into a non-permit confined space, the designated entry supervisor shall review the work to be performed.
- a. If the work will introduce a hazard into the space that will cause it to meet the definition for permit-required confined space, the supervisor shall:
 - i. Temporarily reclassify the space as a permit space
 - ii. Follow the procedures for entry into a permit space
 - iii. Upon termination for the permit, re-inspect the space and take whatever actions necessary to remove the created hazards
 - iv. Reclassify the space as a non-permit space
 - b. If the work does not introduce a hazard, the entry supervisor may authorize entry into the space.
7. For each entry into a permit space, the designated entry supervisor shall:
- a. Perform the pre-entry duties of the entry supervisor on the permit space to be entered
 - b. Prepare an entry permit, reclassify the space as a non-permit space, or authorize alternate entry procedures in compliance with the relevant procedures of this section. Entry permits are administered by the Facilities Safety Administrator.
 - c. Perform the post-entry duties for the entry supervisor
 - d. Collect the permit from the attendant at the end of entry, or prepare the documentation for reclassification or alternate entry
 - e. Maintain the permit or documentation for the required retention period
 - f. Ensure the original copy of the permit is returned to the Facilities Safety Administrator immediately after the permitted confined space entry is complete.

8. For the duration of each entry into a permit space, the entrants and attendants shall perform the duties outlined in these procedures, and shall return the permit or documentation to the entry supervisor upon termination of entry.

Contractors

1. Union County Public Schools shall ensure that every contract for work within an identified permit space, or work within a non-permit space that will introduce a reclassifying hazard shall:
 - a. Apprise the contractor that the space is a permit-required confined space and of the hazards within the space
 - b. Require the contractor to control entry into the space by a permit system meeting the requirements of 29 CFR 1910.146
 - c. Require the contractor to eliminate any temporary hazards created by the work or notify the supervisor responsible for the space of any permanent hazards created by the work.
2. The contractor or its designee shall notify the responsible supervisor prior to entry.
 - a. The supervisor shall notify any employees near of affected by entry
 - b. If employees shall enter the space with contracted employees, the supervisor shall ensure that entry operations are coordinated with the contractor or designee to assure that:
 - i. All entrants of both employers can be accounted for during the entry
 - ii. The work of one employer does not endanger the employees of the second employer
 - iii. There is a properly trained attendant in place whenever employees of either employer have entered the space
 - iv. Temporary hazards are eliminated and the supervisor is apprised of new permanent hazards.
3. The contractor or designee shall meet with the supervisor after completion of the entry to provide notification of:
 - a. Any new permanent hazards created by the work
 - b. Any unidentified hazards encountered during the entry

Re-Evaluation

1. Union County Public Schools shall re-evaluate identified confined spaces within their jurisdiction to determine if such spaces should be added, deleted, or reclassified.
2. Re-evaluation shall be performed:

- a. After notification by the responsible supervisor of a change in the hazards of a confined space
- b. After review by the employer during the annual inspection
- c. After notification of changes in hazards in a confined space by employees, managers, or any other source.

Entry Procedures for Permit Spaces

Pre-Permit Duties of the Entry Supervisor

1. The entry supervisor shall record on the permit a descriptive identification of the permit space and its location. Permits are available through the Facilities Safety Administrator.
2. The entry supervisor shall record on the permit the date of entry, the time of issuance and the time of expiration. No permit shall be issued for a period longer than eight (8) hours.
3. The entry supervisor shall record on the permit the reason for the entry.
4. The entry supervisor shall survey the permit space without entry and review the work to be performed to identify the existing or potential hazards. Such hazards shall be recorded on the permit. Examples:
 - a. Gases or vapors which could displace the oxygen or processes which could consume oxygen
 - b. Flammable gases
 - c. Any other chemicals, gases, fumes, or mists which could be present or released by entry activities
 - d. A potential for low levels of oxygen from lack of adequate ventilation
 - e. A potential for high levels of oxygen
 - f. Liquids or flowable solids which could engulf an entrant
 - g. Inwardly converging walls, sloped floors that taper to a smaller cross-section, pits or holes in the floor to which an entrant could stumble into and become wedged, and/or other characteristics of the configurations of the space which could trap or asphyxiate an entrant
 - h. Radiation
 - i. Bare, exposed, or ungrounded conductive parts of electrical equipment, machinery, wiring, fixtures or installations
 - j. Unguarded points of operation or moving parts of machinery
 - k. Any other recognized hazard that could result in accidental injury or occupational illness requiring treatment greater than first aid.
5. The entry supervisor shall determine the actions necessary prior to entry to eliminate or control the hazards and shall record them on the permit.
 - a. Notification of the selected rescue personnel shall be required for each entry.

- b. Atmospheric Hazards
 - i. If a potential or actual atmospheric hazard exists, testing shall be required.
 - 1. Oxygen, flammable gas, and carbon monoxide tests shall be conducted
 - 2. The entry supervisor shall obtain and list the Permissible Exposure Limits (PEL) for each identified air contaminant
 - 3. The entry supervisor shall test for each identified air contaminant
 - ii. The entry supervisor shall determine if the atmospheric hazard can be eliminated or controlled by purging, venting, inerting, continuous forced air ventilation, or combination.
 - iii. If the only hazard in a space is a hazardous atmosphere and Alternate Entry Procedures are the desired means of entry, forced air ventilation is required.
 - c. Engulfment hazard elimination or control by blanking, binding, double block and bleed, line breaking or other methods.
 - d. Configuration control means. Configuration hazards usually cannot be eliminated.
 - e. Other serious hazards elimination or control by lock-out/tag-out or other means.
 - f. The need for traffic control devices to isolate the permit space from vehicular and pedestrian traffic.
6. The entry supervisor shall determine and record the required equipment for entry.
- a. Equipment for the attendant to summon rescue and the entry supervisor is required for all permit entries.
 - b. Equipment designed to test oxygen, flammable gases, and carbon monoxide shall be required for all permit spaces with hazardous atmospheres.
 - c. Equipment designed to test levels of identified airborne contaminants shall be required where such have been identified.
 - d. A forced air ventilation system is required for Alternate Entry Procedures and shall be required if determined by the entry supervisor.
 - e. Personal protective equipment is required where hazards cannot be effectively eliminated or controlled.
 - f. Traffic control equipment is required if the permit space is not effectively isolated from vehicle or pedestrian traffic.
 - g. Mechanical rescue equipment is required unless its use created a greater hazard or would not effectively contribute to the rescue

- i. Body harness with retrieval line attached at the upper back should be used whenever possible.
 - ii. Wristlets may be used where body harnesses are not feasible.
 - iii. Mechanical retrieval devices shall be used for vertical entries into spaces deeper than five (5) feet. Mechanical devices or fixed point connection may be used otherwise.
 - h. Communication equipment is required where entrants will be out of voice range with the attendant.
 - i. Other equipment shall be selected as need requires.
7. The entry supervisor shall identify the authorized entrants, at least one attendant, and shall record their names on the permit.
8. The entry supervisor shall determine the type of entry that is allowed.
 - a. If the pre-entry survey proves that the only hazard existing in the space is atmospheric and continuous forced air ventilation is provided, the entry supervisor may authorize Alternate Entry Procedures under stipulation that:
 - i. The initial atmospheric tests indicate the atmosphere meets the entry requirements
 - ii. Forced air ventilation continues for the duration of the entry
 - iii. The attendant performs atmospheric tests once per hour and records them on the Air Monitoring Log on the permit.
 - b. If the pre-entry survey proves that there are not atmospheric or configuration hazards in the permit space, and that all other identified hazards can be eliminated (as opposed to controlled) from outside the space prior to entry, the space may be reclassified non-permit required contingent upon the completion of all hazard elimination activities. The Facilities Safety Administrator will make the final determination to reclassify a confined space.
 - c. If a non-permit entry is approved, the employee designated as attendant on the permit shall serve as lead entrant. The permit shall serve as the required documentation.
 - d. If no other type of entry is obtainable or selected, entry shall be by the permit process.
9. The entry supervisor shall indicate any other permits issued for simultaneous work within the space and shall indicate the means to contact rescue personnel.
10. The entry supervisor shall sign and issue the permit effective upon the date issued and contingent upon completion of all pre-entry activities and expiring on the date indicated on the permit.

Pre-Entry Actions

1. The entry supervisor shall ensure that required equipment is procured and available, and that pre-entry actions are completed prior to entry. The entry supervisor may perform these duties or may delegate them to the attendant and/or authorized entrants.
2. Each pre-entry requirement successfully met shall be checked off in the proper space provided on the permit. When all requirements are completed, the responsible employee shall verify the actions by signing the permit.
3. Required atmospheric testing shall be performed in the order indicated below after the pre-entry actions to address atmospheric hazards have been performed. Entry may proceed only if the tests indicate:
 - a. The percentage of oxygen in the permit space is between 19.5% and 23.5%.
 - b. The percentage of flammable gases is at or lower than 10% of the LFL.
 - c. The parts per million (ppm) parts of carbon monoxide is at or lower than 17.
 - d. The amount of other identified air contaminants is/are less than one-half (1/2) the PEL. Where more than one air contaminant is observed, those contaminants will be reviewed for additive effects.

Entry

1. Entrants shall:
 - a. Enter the space and perform the assigned work as expeditiously as possible.
 - b. Wear and use all equipment required by the permit.
 - c. Notify the attendant or lead entrant periodically or upon request that all is well.
 - d. Immediately evacuate the space and alert the attendant or lead entrant whenever any of the following occurs:
 - i. The development of a condition not in compliance with the permit
 - ii. The development of a sign or symptom of exposure to a dangerous situation
 - iii. Failure of any required equipment
 - iv. The attendant or lead entrant orders and evacuation.
2. Lead entrants shall:
 - a. Maintain awareness of the location of the entrants, either inside or outside of the permit space.
 - b. If entry is by Alternate Entry Procedures, perform hourly atmospheric monitoring of the space and record on the Gas Monitoring Log of the permit.

- c. Order an immediate evacuation upon becoming aware of:
 - i. Any sign or symptom of exposure to a dangerous situation
 - ii. Any development of a condition not in compliance with the permit
 - iii. Failure of any equipment.
3. Attendants shall:
 - a. Station themselves outside the permit space at the opening to the space and remain in place throughout the duration of the entry or until relieved by another authorized attendant.
 - b. Perform no other duties beyond those stated for attendants.
 - c. Maintain an accurate count of entrants within and outside of the space by use of the Entry Log on the permit.
 - d. Perform hourly atmospheric monitoring of spaces containing hazardous atmospheres and record on the Gas Monitoring Log on the permit.
 - e. Communicate with entrants by voice or communication equipment periodically to assure that all is well.
 - f. Order an immediate evacuation of the space:
 - i. Upon becoming aware of the development of a sign or symptom of an exposure to a dangerous situation
 - ii. Upon becoming aware of the development of a condition out of compliance with the permit
 - iii. Upon failure of an entrant to answer an attempt at communication
 - iv. If unable to continue the performance of functions as an attendant.
 - g. Summon rescue services if needed.
 - h. Warn unauthorized persons away from the permit space.
 - i. Summon the entry supervisor if unauthorized persons refuse to leave the space.
4. The entry supervisor shall remove unauthorized persons from the permit space, as needed.

Completion of Entry

1. The attendant of lead entrant shall assure that all entrants have exited the space.
2. If the space was evacuated prior to completion of work:
 - a. The attendant or lead entrant shall immediately terminate the permit by checking the appropriate space on the permit and describe reasons for evacuation on the permit, then contact the entry supervisor.
 - b. The entry supervisor shall:
 - i. Immediately notify the employee's supervisor of any injured or overexposed employee
 - ii. Determine if reentry is necessary to complete work, eliminate a created hazard, or return the entry space to normal operation.

1. If reentry must be performed:
 - a. Resurvey the space to determine the cause of the evacuation
 - b. Issue another permit which includes the elimination or control of the hazard causing the evacuation. Alternate Entry Procedures and reclassification to non-permit space shall not be approved.
2. If reentry is unnecessary:
 - a. Oversee the completion of the post-entry activities indicated on the permit
 - b. End the entry activities.
3. If the entry was successfully completed, the attendant or lead entrant shall:
 - a. Indicate such by checking the appropriate block on the permit
 - b. Oversee the completion of post-entry actions indicated on the permit and verify by signing in the appropriate space on the permit
 - c. Add any pertinent information concerning the entry on the permit
 - d. Return the permit to the entry supervisor.

Training

All Employees

1. The supervisor shall ensure that each employee receives awareness training on:
 - a. The identifying characteristics of a confined space
 - b. The identifying characteristics of a permit space
 - c. The authorization or prohibition of their job classification to enter permit spaces
 - d. Required actions when working around or near a permit space entry
 - e. The authority of authorized attendants and entry supervisors.
2. Training shall be required:
 - a. During orientation
 - b. Within two (2) months of the determination of the employee's entry authorization, but prior to entry
 - c. Whenever the supervisor becomes aware that the employee has failed to follow the instructions provided in the training.
3. The program coordinator shall coordinate training for employees as needed.

Program Coordinators

1. Union County Public Schools shall ensure that the designated program coordinator receives training in:
 - a. The requirements of this policy and procedures

- b. The duties the coordinator shall perform
- 2. Training shall be provided:
 - a. Within two (2) months after designation as program coordinator
 - b. Within one (1) month of revisions to this policy and/or procedures

Entry Supervisors, Attendant, and Entrants

- 1. The supervisor shall ensure that employees designated as entry supervisors, attendants, and/or entrants receive training in:
 - a. The requirements of this policy and any procedures
 - b. The duties, authority, and responsibilities of entry supervisors, attendants, lead entrants, and entrants
 - c. The types of hazards expected to be encountered in permit spaces
 - d. The calibration, use, care and cleaning of equipment expected to be used during entry operations
 - e. The performance of pre-entry actions expected to be required in permit spaces.
- 2. Training shall be provided:
 - a. Prior to assignment or authorization of duties within permit spaces
 - b. Within one (1) month after revisions of this policy or procedures. Assignment of authorization for permit space entry shall be suspended until training is completed.
 - c. Whenever the supervisor becomes aware that an employee is deviating from the procedures of this policy. Assignment or authorization for permit space entry shall be suspended until training is completed.
- 3. The supervisor shall develop written certification that each affected employee has successfully completed training.
 - a. Certification shall include:
 - i. Employee name
 - ii. Authorized duty (entry supervisor, attendant, and/or entrant)
 - iii. Name of the trainer
 - iv. Synopsis of topics covered
 - b. A copy of the certification shall be provided to the employee and program coordinator.

Program Review

- 1. The employer and program coordinator/entry supervisor shall review the effectiveness of the program upon the annual inspection using the canceled permits and other documentation from the preceding twelve (12) months, entry supervisor comments, and other available information.

2. The program coordinator/entry supervisor may make recommendations to management at any time to make changes in procedures to address and correct weaknesses in the procedures.
3. The program coordinator/entry supervisor or other management may notify Union County Public Schools at any time of potential weaknesses in policy and/or procedures. UCPS shall view and initiate whatever changes necessary to address confirmed weaknesses.

Retention of Records

1. Canceled permits and other documentation shall be retained by the program coordinator for no less than one (1) year following the date of entry. Permits shall then be retained as an employee exposure record if applicable.
2. Employee training certification shall be retained by the program coordinator for the length of employment.