



UNIVERSITY OF MAINE
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Confined Space Entry Program

Confined Space Entry Program

The University of Maine at Fort Kent (UMFK) is committed to conducting work within confined spaces in a safe and healthful manner. Safe conditions are achieved through compliance with the Occupational Safety and Health Administration's (OSHA) permit-required confined space standard. This program establishes the minimum requirements for University employees to following in order to reduce the risks of illness, injury or death resulting from exposure to confined space hazards.

Confined spaces and permit-required confined spaces are present in UMFK Buildings and Grounds. Day to day or routine maintenance activities, as well as renovation or construction projects may involve entry into confined spaces by contractors. While it is accepted that during the course of these activities, entry into confined spaces may be necessary, it is an objective of UMFK to reduce the potential risk involved with this type of activity. This program will help reduce the risk involved with entry into confined spaces.

A written permit program calls for the evaluation of confined spaces; identification of permit required confined spaces, determination of the hazards in each permit space, and documentation of methods for managing those hazards.

University employees will not be assigned or allowed to enter and/or work in any permit-required confined spaces. The only non-permit required confined space on campus that University employees will be assigned or allowed to enter is the pipe space below Storage 142 in Crocker Hall.

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1. Regulatory Application:

OSHA Code of Federal Regulations (CFR) 29 CFR 1910.146

2. Descriptions:

Confined Space - A space must meet three criteria to be considered a confined space:

- It must be large enough and so configured that an employee can bodily enter it and perform the assigned work, and
- It must have limited or restricted means for entry or exit (for example: tanks, vessels, electrical vaults and steam pits) and
- It must not be designed for continuous occupancy.

Non-permit Required Confined Space – A non-permit confined space does not contain or, with respect to atmospheric hazards, have the potential to contain any hazards capable of causing death or serious physical harm.

Permit Required Confined Space – A permit required confined space is a confined space that has one or more of the following characteristics:

- Contains or has a known potential to contain a hazardous atmosphere.
- May contain a material with the potential for engulfment of an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or a floor which slopes downward and tapers to a smaller cross-section, or
- Contains any other recognized serious safety or health hazard (high voltage, steam, etc.).

3. General Program Requirements

The employer shall evaluate the workplace to determine if any spaces are permit required confined spaces. The listing of confined spaces is located in Appendix A. A copy is also kept in the department's Confined Space Entry binder. The list of confined spaces is updated with each program revision or as changes in the workplace require.

If the workplace contains permit spaces, the employer shall inform exposed employees, by posting danger signs of the existence and location of dangers posed by the permit spaces. All entrances to any confined space shall be posted. Note: A sign reading "DANGER – PERMIT REQUIRED CONFINED SPACE – DO NOT ENTER" or using other similar language satisfies the requirement for a sign.

For example:

DANGER
CONFINED SPACE
ENTRY BY PERMIT ONLY

(Add this information when applicable)

Respirator Required for Entry
Retrieval Line Required for Entry
Hot Work Permitted
No Hot Work Permitted

All warning signs shall be printed in English. Whenever established visual symbols exist, they shall also be used. Workers unable to read labels and posted signs shall receive information regarding hazards and shall be informed of the instructions printed on the signs.

If the employer decides that its employees will enter the permit spaces, the employer shall develop and implement a written permit space program. The written program shall be available for inspection by employees.

4. Program and Entry Procedures:

- a. Conduct a Job Hazard Assessment (JHA) prior to entry for all tasks to be performed in the permit space. The purpose of the JHA is to identify potential hazards for each task and to develop and implement measures to eliminate or reduce employee exposure to the hazard(s). The JHA shall be reviewed with and signed by all employees involved in the Permit Space entry.
 - 1) Eliminate any conditions making it unsafe to remove an entrance cover before the cover is removed.
 - 2) Implement the measures necessary to prevent unauthorized entry or accidental fall through by promptly guarding the opening using a railing, temporary cover, or other temporary barrier.
 - 3) Identify and evaluate the hazards of permit spaces before entry.
- b. Develop and implement the means, procedures and practices necessary for safe permit space entry operations including but not limited to the following:
 - 1) Specifying acceptable entry conditions;

- 2) Providing each authorized entrant or that employee's authorized representatives with the opportunity to observe any monitoring or testing of the permit spaces;
 - 3) Isolating the permit space;
 - 4) Purging, flushing or ventilating the permit space as necessary to eliminate or minimize atmospheric hazards;
 - 5) Establish pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards; and
 - 6) Verifying that conditions in the permit space are acceptable prior to and throughout the duration of an authorized entry.
- c. Provide the following equipment at no cost to employees, maintain that equipment properly, and ensure that employees use the equipment properly.
- 1) Communications equipment;
 - 2) Personal protective equipment;
 - 3) Lighting equipment for safe working conditions and emergency exit;
 - 4) Barriers and shields;
 - 5) Ladders;
 - 6) Rescue and emergency equipment; and
 - 7) Any other equipment necessary for safe entry into and rescue from the permit space.
- d. Evaluate permit space conditions as follows when entry operations are conducted:
- 1) Test conditions in the permit space to determine if acceptable entry conditions exist before entry is authorized to begin.
 - 2) Test or monitor the permit space as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations.
 - 3) Provide each authorized entrant or that employee's authorized representative and opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.
 - 4) Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that the employer conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate.
 - 5) Immediately provide each authorized entrant or that employee's authorized representative with the results of any testing conducted.
- e. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations. Note: An attendant may only be assigned to monitor one space. Multiple spaces will require an attendant for each space.
- f. Designate the persons who are to have active roles (as, for example, authorized entrants, attendants, and entry supervisors) in entry operations, identify the duties of each such employee, and provide each such employee with the training identified in the training section of this policy.

- g. Develop and implement procedures to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a permit space, so that employees of one employer do not endanger the employees of any other employer.
- h. Develop and implement procedures (such as closing off a permit space and cancelling the permit) necessary for concluding the entry after entry operations have been completed.
- i. Review entry operations when the employer has reason to believe that the measures taken under the permit space program may not protect employees and revise the program to correct deficiencies found to exist before subsequent entries are authorized. Note: Examples of circumstances requiring the review of permit the space program are:
 - 1) any unauthorized entry of a permit space,
 - 2) the detection of a permit space hazard not covered by the permit,
 - 3) the detection of a condition prohibited by the permit,
 - 4) the occurrence of an injury or near-miss during entry,
 - 5) a change in the use or configuration of a permit space, and
 - 6) employee complaints about the effectiveness of the program.
- j. Review the permit space program using the canceled permits within 1 year after each entry and revise the program as necessary, to ensure that employees participating in entry operations are protected from permit space hazards.
- k. Provide training so that all employees whose work is covered by this policy acquire the understanding, knowledge and skills necessary for the safe performance of their assigned duties.
- l. Provide proper training in the use of protective equipment including safety harness and a life line and retrieval equipment

5. The Permit System:

- a. The Permit System is the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.
- b. Before entry is authorized, the employer shall document by preparing an entry permit, the completion of measures required by paragraph *Program and Entry Procedures* (paragraph 4) of this program.
- c. Before entry begins, the Entry Supervisor identified on the permit shall 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
- d. The completed permit shall be made available at the time of entry to all authorized entrants or their authorized representatives, by posting it to or near the entry portal or by any other equally effective means so that the entrants can confirm that pre-entry preparations have been completed.
- e. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit as the purpose of entry.

- f. Supervisor transfer: The employer shall ensure that each entry supervisor shall determine that whenever responsibility for a permit space entry operation is transferred, entry operations shall remain consistent with the terms of the permit and that acceptable entry conditions are maintained. The name and signature of the new supervisor shall be placed on the initial entry permit and all involved personnel shall be notified of the supervisory transfer.
- g. The Entry Supervisor shall terminate entry and cancel the entry permit when:
 - 1) The entry operations covered by the entry permit have been completed.
 - 2) A condition that is not allowed under the entry permit arises in or near the permit space.
- h. The employer shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the permit so that appropriate revisions to the program can be made.

6. The Entry Permit:

- a. The entry permit is a written or printed form established by the employer to document compliance with the OSHA "Permit-Required Confined Spaces" standard. The content is based on the employer's hazard identification and evaluation for that confined space (or class or family of confined spaces, if a number of spaces may contain similar hazards) and is the instrument by which the employer authorizes his or her employees to enter that permit required confined space.
- b. The Entry Permit documenting compliance with OSHA regulations and authorizing entry to a permit space shall identify:
- c. The permit space to be entered.
- d. The purpose of entry.
- e. The date and authorized duration of the entry permit.
- f. The authorized entrants within the permit space by name.
- g. The personnel, by name, currently serving as attendants.
- h. The individual by name currently serving as entry supervisor.
- i. The hazards of the permit space to be entered.
- j. The measures used if necessary to isolate the permit space and to eliminate or control permit space hazards before entry.
- k. The acceptable entry conditions.
- l. The rescue and emergency services to be summoned and the means of communication to summon rescue and emergency services.
- m. The communication procedures used by authorized entrants and attendants to maintain contact during entry.

- n. Equipment such as PPE, testing equipment, communication equipment and rescue equipment to be used for compliance with OSHA regulations.
- o. Any other information pertinent to the specific confined space to ensure employee safety.
- p. Any additional permits such as “Hot Work” that have been issued to authorize work in the space.

7. Reclassification of a Permit-Required Confined Space

- a. A permit required confined space may be reclassified as a non-permit confined space by the employer under the following procedures:
 - 1) If the permit space poses no actual atmospheric hazards and if all hazards within the space are eliminated without entry into the space the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated.
 - 2) If it is necessary to enter the permit space to eliminate the hazards, such entry shall be performed in full compliance with all requirements described in this program.
 - 3) If testing and inspection during that entry demonstrate that the hazards within the space have been eliminated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated. Note: Control of atmospheric hazards alone, through forced air ventilation, does not constitute elimination of the hazards. This applies only to Alternate Procedures.
 - 4) The employer shall document the basis for determining that all hazards in the permit space have been eliminated through a certification that contains the date, the location of the space, and the signature of the person making the determination. The certification shall be made available to all employees.
 - 5) If hazards arise with a space that has been declassified, each employee in the space shall exit the space. The employer shall then reevaluate the space and determine whether it must be reclassified as a permit space.

8. Controlling Potential Hazards

- a. Electrical and Mechanical
 - 1) In order to prevent accidental activation of moving parts that would be hazardous to the worker, a safe working condition is achieved by locking circuit breakers and/or disconnects in the open (off) position with a key-type padlock and a tag.
 - 2) Energized lines and/or equipment with the space shall be de-energized in accordance with 29 CFR Part 1910.146. The Control of Hazardous Energy and the Universities Lock Out/ Tag Out program, unless that electrical source is required to test, evaluate or repair equipment within the space.
 - 3) Each person entering the permit space should have his own padlock and a different key-type padlock on the circuit breaker and or disconnect. The only key to open the

padlock should remain on the person working in the confined space. A tag should also accompany the lock on the circuit breaker.

- 4) Mechanical isolation of moving parts can be achieved by disconnecting linkages or removing drive belts or chains.

b. Heat/Steam

- 1) Close steam supply valves and secure with chains, padlocks and tags. Insert a solid blank as permitted in order to ensure the absolute closure of a pipe, line or duct by fastening across its bore a solid plate or “cap” which completely covers the bore; which extends at least to the outer edge of the flange at which it is attached and which is capable of withstanding the maximum upstream pressure. Note: Heating systems – cannot double; all singles on our campuses.
- 2) Check steam line surface temperature and ambient temperature using a thermometer attached to a string or a pole, to assure that the temperatures are within acceptable limits before entering. Use protective clothing as needed.

c. Chemical/Hot Water Lines

- 1) Double Block and Bleed to isolate a line, duct, or pipe by locking and tagging a drain or vent that is open to the atmosphere in the line between two locked/closed valves.
- 2) Close fluid supply and return valves and secure with chains, padlocks and tags.

d. Fire and Explosion Hazards

- 1) Static Electricity: A spark generated by static electricity can have sufficient energy to ignite flammable or explosive gases, vapors or dust.
 - i. Grounding and bonding eliminates a difference in electrical potential between a container and the earth. Grounding wires must be connected to known grounds like gas pipes or water pipes and grounded metal building framework.
 - ii. Preventing fire or explosion involves recognizing the hazard and taking appropriate steps. This includes using equipment to detect an explosive or flammable atmosphere and using equipment; for example, explosion proof instruments and non-sparking bronze, brass or aluminum tools. Items that can also generate a spark are: beepers, loose coins, and a metal belt buckles.
- 2) Additional Items to be aware of:
 - i. Previously stored products.
 - ii. Leaks and spills.
 - iii. Incompatible chemicals
 - iv. Biological hazards.
 - v. Poor visibility.

9. Participant Responsibilities – Routine / Scheduled Entry

Participant responsibilities for routine/scheduled entry operations for maintenance and repair.

Entry Supervisor

- a. An entry supervisor may also serve as an attendant or as an authorized entrant as long as the person is trained and equipped as required by this program. Also, the duties of the entry supervisor may be passed from one individual to another during the course of entry operations.
- b. Duties of the Entry Supervisor:
 - 1) If acceptable entry conditions are present at the permit space.
 - 2) Authorizing entry.
 - 3) Overseeing entry operations.
 - 4) Terminating entry operations.
 - 5) Know the hazards that may be faced during entry including information on, the modes, signs and symptoms or consequences of exposure.
 - 6) Verifies, by checking that:
 - i. The appropriate entries have been made on the permit;
 - ii. And all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
 - 7) Terminates the entry and cancels the permit when the entry operations have been completed or when a condition not allowed under the entry permit arises.
 - 8) Verifies that retrieval equipment is on site and operable.
 - 9) Verifies that the means summoning rescue services are available and operable.
 - 10) Removes unauthorized individuals from the permit area.
 - 11) Determines, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazard and operations performed within the space that the entry operations remain consistent with the terms of the entry permit and that acceptable entry conditions are maintained.
 - 12) Remain on campus from work start up to work conclusion and the permit space is cleared and the permit is canceled.

Authorized Entrant

- a. An employee who is authorized by the employer to enter a permit required confined space. Authorized entrants may rotate duties, serving as attendants if the permit program and the entry permit so state. Any properly trained person with the authority to authorize entry by other persons may enter the permit space during the term of the permit provided the attendant is informed of that entry.
- b. Duties and Responsibilities of the Authorized Entrant:
 - 1) Prior to entering a permit space, the entrant must have been trained to know and recognize the hazards that may be faced during entry operations including mode, signs or symptoms, and consequences of exposure.

- 2) Know how to properly use all equipment required by this program, including PPE, fall protection, etc.
- 3) Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert the entrant of the need to evacuate the space.
- 4) Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation or the entrant detects a prohibited condition.
- 5) Exit the permit space as quickly as possible whenever;
 - i. An order to evacuate is given by the attendant or entry supervisor.
 - ii. The entrant recognizes a warning sign or symptom of exposure to a dangerous situation.
 - iii. The entrant detects a prohibited situation.
 - iv. An evacuation alarm is activated.

Attendant

- a. The attendant is an individual who is fully trained to monitor the authorized entrants, and is stationed outside one or more permit required confined spaces. Attendants may be assigned to monitor more than one permit space provided the duties can be safely and effectively performed for each permit space.

Note: An attendant cannot monitor more entrants or permit spaces than the entry permit authorizes.

- b. Duties and Responsibilities of the Attendant;
 - 1) Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of exposure.
 - 2) Is aware of the possible behavioral effects of hazard exposure in authorized entrants.
 - 3) Continuously maintains an accurate count of all persons in the space identified as “Entrants” on the entry permit.
 - 4) Remains outside the permit space during entry operations until relieved by another attendant.
 - 5) Maintains effective and continuous communication with the authorized entrants in order to monitor the entrant status and to alert entrants of the need to evacuate the space.
- c. Attendants must order authorized entrants to evacuate the permit space immediately when:
 - 1) The attendant detects a condition that is prohibited.
 - 2) The attendant detects behavioral effects of hazard exposure in an entrant.

- 3) The attendant detects a situation outside the space which could endanger the entrants.
 - 4) The attendant cannot safely and effectively perform all the duties required.
 - 5) The attendant is monitoring entry in more than one permit space and must focus attention on the retrieval of entrants from one of those spaces.
 - 6) The attendant must leave the work station.
- d. The attendant must warn unauthorized persons to stay away from the permit space and advise the unauthorized person(s) to exit immediately if they have entered the permit space. Informs authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
 - e. The attendant is to have a means of communication that has been tested prior to entry operations to be sure it is in working order.
 - f. Summons rescue or other emergency services (911) as soon as the attendant determines that entrants may need assistance to escape from permit space hazards.
 - g. Performs non-entry retrieval as specified by this program.
 - h. Performs no other duties that might interfere with the primary duty to monitor and protect the authorized entrant.

10. Participant Responsibilities – Emergency Situations:

Attendant's Responsibilities:

- a. Attendants shall not enter the permitted space to attempt rescue of entrants.
- b. Attendants must immediately notify the Fort Kent Police Department of the emergency situation.
- c. Attendants should attempt non-entry rescue procedures using the retrieval winch, tri-pod and life line system.
- d. The attendant shall evaluate the entrant upon extraction from the permit space and shall begin administering CPR and/or First Aid as needed and if properly trained.

Entrant's Responsibilities:

- a. The entrant must exit the permit space when the attendant orders evacuation.
- b. The entrant must exit the permit space when perceived dangers exist or automatic alarms are activated signaling dangers exist.

11. Non-Entry Rescue Team

- a. The Non-Entry Rescue Team consists of the personnel designated and trained to retrieve employees from specific permit spaces and to provide emergency services. The Non-Entry Rescue Team shall:
 - 1) Be provided with the personal protective equipment (PPE) needed to conduct permit space retrievals safely and trained so that they are proficient in the use of that PPE and retrieval equipment.
 - 2) Be trained to perform assigned retrieval duties for each type of permit space.
 - 3) Be trained in basic first aid and cardiopulmonary resuscitation (CPR). The employer shall ensure that at least one member of the retrieval team shall hold a current certification in first aid and CPR and be at the work site and immediately available.
 - 4) Practice making permit space retrievals at least once every twelve months by means of simulated retrieval operations using dummies, manikins, or actual employees. Practice retrievals shall be made from representative spaces with respect to opening size, configuration and accessibility that simulate the types of permit spaces from which retrieval is to be performed.

12. Non-Entry Rescue Team – Utility Provision

- a. Emergency entrance and retrieval from a permit required confined space may be conducted without the availability of the Fort Kent Fire Department serving as the outside rescue service under the following circumstances:
- b. An emergency mechanical or utility disruption or failure of service has developed in a permit required confined space.
- c. The Non-Entry Rescue Team is available and the members of that team meet the criteria identified in the Non-Entry Rescue Team section of this policy.
- d. Entry for emergency repair or shut-off has been authorized by one or more of the following personnel:
 - 1) The Director responsible for maintenance operations, or
- e. Entry for emergency repair or shut-off is conducted in full compliance with the Permit Required Confined Space Program and Entry Procedures section of this program.
- f. To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters the permit space. Each authorized entrant shall use a full body harness with a retrieval line.
- g. The other end of the retrieval line shall be attached to a mechanical device or a fixed point outside the permit space in such a manner that a rescue can begin as soon as necessary.
Note: The Rescue team shall not enter the permit space at any time during the entry and retrieval process.

13. Training:

- a. The employer shall provide training so that all employees working under the confined space entry program acquire the understanding, knowledge and skills necessary for the safe performance of their duties.
- b. Training shall be provided to each affected employee:
 - 1) Before the employee is assigned his/her first duties.
 - 2) Before there is a change in assigned duties.
 - 3) Whenever there is a change in permit space operations that presents a hazard about which the employee has not been trained.
 - 4) Whenever the employer has reason to believe there are inadequacies in the employee knowledge or use of these procedures.
 - 5) The training shall establish employee proficiency in the duties of this program.
 - 6) The employer shall certify that training has been accomplished. The certification shall contain each employees name, initials, or signatures of the trainers and the date of training.

14. Recordkeeping

- a. Completed/canceled permits must be filed in the Confined Space Entry Log book and kept for one year for use in the annual program review. The review process will identify and document the paragraphs and items reviewed and a description of the findings, and whether or not changes to the program were made as a result of the review process.
- b. The employer shall retain each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program as required by the Permit Required Confined Space Program and Entry Procedures section of this program and OSHA regulations. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the program can be made.
- c. Confined Space – Identification & Hazard Recognition for UMFK are found in the Confined Space Identification and Hazard Recognition document maintained by Facilities Management.

15. Contractor Provisions

Hired Outside Contractors: In situations when UMFK hires an outside contractor to work in a permit required confined space:

UMFK Obligations:

- a. Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section.

- b. Apprise the contractor of the elements, including the hazards identified and the host employer's experience with the space, that make the space in question a permit space.
- c. Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.
- d. Coordinate entry operations with the contractor when both host employer personnel and contractor personnel will be working in or near permit spaces.
- e. Debrief the contractor at the conclusion of the entry operations regarding the permit space program followed and regarding any hazards confronted or created in permit spaces during entry operations.

Note: No contractor will be permitted to work in a UMFK designated permitted spaces unless they have a Confined Space program. Note: All contractors are subject to enforcement by OSHA.

Contractor Obligations: In addition to complying with the permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall:

- a. Present a confined space program that complies with the OSHA standard and utilize it during work-related activities.
- b. Obtain any UMFK information regarding permit-required space hazards and entry operations.
- c. Coordinate entry operations with Facilities Management when both UMFK personnel and contractor personnel will be working in or near a permit-required confined space.
- d. Inform UMFK personnel of the permit space program that the contractor will follow.
- e. Advise UMFK of any hazards confronted or created in the confined permit space either through a debriefing or during the entry operation.