

CONFINED SPACE ENTRY PROGRAM

University of Nebraska at Omaha

Campus Safety Program

Purpose

1.01 The purpose of this written program is to ensure safe entry methods are utilized prior to and during all work activities in confined spaces. This program is designed to prevent personal injuries and illnesses that may be prevalent in confined spaces and for compliance with OSHA Standard 29 CFR 1910.146.

1.02 This program covers all employees and outside contractors. The elements contained in this program must be followed in all situations where entry into a permit or non-permit required confined space is necessary.

Workplace Analysis and Hazard Evaluation of Permit Spaces

2.01 The Confined Space Entry Program requires the University Environmental Health and Safety Department (EHS) to perform a workplace analysis to determine if any spaces fit the criteria for a permit required confined space. Based on a walk through analysis of the workplace, both permit and non-permit confined spaces have been identified and their hazards evaluated. (See Appendix A.)

Reclassification of Non-Permit Confined Spaces

3.01 It is the responsibility of the Maintenance Operations Services Department (MOS) to notify the Manager of Environmental Health and Safety (EHS) when there are changes in the use, or configuration, of the previously identified non-permit confined spaces that might increase the hazards to entrants, or when new equipment or construction takes place that creates new confined spaces. The EHS Manager shall re-evaluate the existing space or evaluate the new space and, if necessary, classify it as a permit required confined space according to the requirement 1910.146(c)(6).

Measures to Prevent Unauthorized Entry

4.01 The University will post danger signs warning of the existence, location, and danger posed by the permit spaces identified above to prevent unauthorized entry into those spaces. The signs will be posted at the entrances to the spaces and read:

DANGER

Permit Required Confined Space

DO NOT ENTER

Safe Non-Permit Space Entry Operations

5.01 All entries into non-permit confined spaces will be performed according to the procedures found on the checklist in Appendix C.

Safe Permit Space Entry Operations - Means, Procedures, and Practices

6.01 Acceptable entry conditions are specified as those in which:

- a. All hazards in a permit-required confined space that can be eliminated have been eliminated via engineering controls, (ventilation, or some other means);
- b. Authorized entrants are protected by use of PPE against any remaining or potential hazards; and
- c. All procedures of this program are being followed.

6.02 The permit space shall be appropriately isolated from other work activity by means of signs and barriers as necessary. These may include barrier tape, barricades, traffic cones, etc.

6.03 The permit space shall be purged, made inert, flushed, or ventilated with appropriate equipment as necessary to eliminate or control atmospheric hazards.

6.04 Pedestrian, vehicle, or other barriers shall be provided as necessary to protect entrants from external hazards.

6.05 Conditions in the permit space are acceptable for entry throughout the duration of an authorized entry as long as all monitoring, entry procedures, and attendant watch are performed as specified in the program.

Equipment Provision

7.01 The University will provide at no cost to the employee all appropriate, adequate, and necessary personal protective equipment (PPE), testing and monitoring equipment, ventilation equipment, communications equipment, lighting equipment, barriers and shields, ladders or other entrance/exit equipment, rescue and emergency equipment and any other equipment necessary for safe entry into and rescue from a permit-required confined space. The MOS supervisor will be responsible for ensuring use of the appropriate equipment by all entrants to the confined space. The air monitoring equipment will be calibrated once a month or prior to use by EHS. MOS supervisors will perform the field calibration or self check before each use. The results of the calibrations will be recorded on the calibration log for the instrument.

Permit Space Condition Evaluation

8.01 Conditions in the permit space shall be tested to determine if acceptable entry conditions exist before entry is authorized to begin. If isolation of the space is infeasible because the space is large or is part of a continuous system (such as a sewer), pre-entry testing shall be performed to the extent feasible before entry is authorized and, if entry is authorized, entry conditions shall be continuously monitored in the areas where authorized entrants are working;

8.02 The permit space shall be tested or monitored as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations; and when testing for atmospheric hazards, the supervisor will test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors, or all simultaneously if the instrument will do so.

Permit Space Attendant Procedures

9.01 The University will provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.

Active Role Designations, Duties, and Training

10.01 The University provides training so that all designated employees acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned to them in permit-required confined space entry procedures. This training is provided annually and at the following times:

- Before assignment to duties.
- When changes in permit-required space hazards occur on which the employee has not been trained.
- Before changing the employee's duty assignment.
- When the supervisor has reason to believe that the employee has deviated from a trained-upon procedure or that their knowledge is inadequate.

10.02 The following categories of employees are designated employees, whose duties are listed below:

- Authorized entrants
- Attendants
- Entry Supervisors

Authorized Entrants

11.01 Authorized entrants of a permit-required confined space are trained to the extent that they know: the hazards they may face, are able to recognize signs or symptoms of exposure, and understand the consequences of exposure to hazards. Entrants know how to use any needed equipment, communicate with attendants as necessary, alert attendants to the warning signs or the existence of a hazardous condition, and exit as quickly as possible whenever ordered or alerted (by alarm, warning sign, or prohibited condition) to do so.

Attendants

12.01 Attendants to a confined space know the hazards of confined spaces, are aware of behavioral effects of potential exposures, maintain continuous count and identification of authorized entrants, remain outside the space until relieved, and communicate with entrants as necessary to monitor entrant status. Attendants also monitor activities inside and outside the permit space, order evacuation if required, summon emergency personnel if necessary, prevent unauthorized entry into the confined space, and perform non-entry rescues if required. They do not perform other duties that interfere with their primary duty to monitor and protect the safety of authorized entrants at the time of the permit-required confined space entry.

Supervisors

13.01 MOS supervisors with responsibility for issuing confined space permits know the hazards of confined spaces, conduct air monitoring and verify that all procedures and equipment are in place before endorsing a permit, terminate entry if necessary, cancel permits, and verify that the means for summoning emergency personnel are operable. Supervisors are to remove unauthorized individuals who enter the confined space. They also determine, at least when shifts and entry supervisors change, that acceptable conditions, as specified in the permit, continue.

Rescue and Emergency Services Procedures

14.01 Rescue and emergency services shall be contacted by phone or two-way radio by calling 4-2911. Omaha Fire Department personnel will be called by Campus Security to respond in an emergency. At no time can non-emergency personnel enter a confined space for rescue purposes.

14.02 The EHS Manager will inform the Omaha Fire Department of the hazards they encounter when called upon for rescue services.

14.03 To facilitate non-entry rescue, retrieval systems or methods will be used whenever an authorized entrant enters a permit space, unless this would increase risk or would not assist the rescue. Retrieval systems will meet the following:

- a. Each authorized entrant will use a chest or full body harness with a retrieval line.
- b. The other end of the retrieval line will be attached to a mechanical device or fixed point outside the permit space so that rescue can begin as soon as it becomes necessary.

14.04 If an injured entrant is exposed to a substance for which an MSDS sheet or other similar written information is required, that sheet or written information will be made available to the medical facility treating the exposed entrant.

Entry Permit System

15.01 Before entry is authorized, the MOS supervisor will document the completion of required pre-entry measures by preparing an entry permit. (See Appendix B.)

15.02 Before entry begins, the entry supervisor identified on the permit will sign the entry permit to authorize entry.

15.03 The completed permit is made available at the time of entry to all authorized entrants, by posting it at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry preparations have been completed.

15.04 The permit expires when the work is completed.

15.05 The entry supervisor shall terminate entry and cancel the entry permit when:

- a. The entry operations covered by the entry permit have been completed; or
- b. A condition that is not allowed under the entry permit arises in or near the permit space.

15.06 The University shall retain each canceled entry permit for at least 1 year to facilitate the required annual review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the permit space program can be made

15.07 See Appendix B for the entry permit form used by the University.

Multiple Employer Entry Procedures

16.01 Procedures for Outside Contractors:

When the University arranges to have employees of another employer (contractor) perform work that involves permit space entry, the University will:

16.02 Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program.

16.03 Apprise the contractor of the elements, including the hazards identified and the University's experience with the space, that make the space in question a permit space.

16.04 Apprise the contractor of any precautions or procedures that the University has implemented for the protection of employees in or near permit spaces where contractor personnel will be working.

16.05 Coordinate entry operations with the contractor, when both University and contractor personnel will be working in or near permit spaces.

16.06 Debrief the contractor at the conclusion of the entry operations regarding effectiveness of the permit space program.

Post-operations Procedures

17.01 The MOS supervisor will close off a permit space and cancel the permit after entry operations have been completed.

Review Procedures

18.01 The EHS Manager will review entry operations when there is reason to believe that the measures taken under the permit space program may not protect employees and the program will be revised to correct deficiencies found to exist before subsequent entries are authorized.

18.02 Examples of circumstances requiring review of the permit space program are: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near-miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program.

18.03 The EHS Manager will review the permit space program using the retained canceled permits and revise the program as necessary, to ensure that employees participating in the entry operations are protected from permit space hazards. The University will perform a single annual review covering all entries performed during a 12 month period. If no entry is performed during a 12 month period, no review will be performed.

5/28/99

Appendix A - Examples of Confined Spaces and their Classification at UNO ([PDF](#))

Location	Permit Required	Description	Potential Hazard	Contaminants/gases
Campus Wide	No	Sewer manholes	Oxygen deficient atmosphere; potential air contamination	O ₂ , H ₂ S, CH ₄ , NH ₃
Campus Wide	No	Water manholes	Oxygen deficient atmosphere	O ₂
Campus Wide	No	Steam line pits	Heat hazard; Oxygen deficient atmosphere	O ₂
Campus Wide	No	Sanitary sewer	Oxygen deficient atmosphere; potential air contamination	O ₂ , H ₂ S, CO
Campus Wide	No	Air handlers	Electric, Mechanical, Fans, Belts	
Campus Wide	No	Hot water tanks	Oxygen deficient atmosphere; limited egress and entry	O ₂
Campus Wide	No	Low-voltage electrical access pits	Oxygen deficient atmosphere; limited egress and entry	O ₂ , CO
Campus Wide	No	High-voltage electrical access pits	Potential air contamination (CO); Oxygen deficient atmosphere	O ₂ , CO
Central Utilities	Yes	Boilers	Limited egress and entry	O ₂ , soot
Central	No	H ₂ O	Oxygen deficient	O ₂

Utilities		Condenser sump pit	atmosphere; limited egress and entry	
Central Utilities	No	Cooling tower pit	Oxygen deficient atmosphere; potential air contamination	O ₂ , H ₂ S, CO, biologicals
Central Utilities	No	Hot condensate return pit	Oxygen deficient atmosphere; limited egress and entry	O ₂
HPER	No	Pool pump room pit	Oxygen deficient atmosphere; possible air contamination	O ₂ , Cl ₂
HPER	No	Pool pump room pit catwalk	Oxygen deficient atmosphere; possible air contamination	O ₂ , Cl ₂
HPER	No	Tunnel around pool	Oxygen deficient atmosphere	O ₂
Eppley Building	No	Basement pipe access	Oxygen deficient atmosphere	O ₂
CBA	No	Pods-crawl space	Limited egress and entry; mechanical	
Library	No	Ventilation tunnel	Limited egress and entry	

[Appendix B - Confined Space Entry Permit \(PDF\)](#)

Appendix C - Non-Permit Confined Space Checklist (PDF)

Date: _____

Department: _____

Expiration Date:

Job Description: _____

Location: _____

Precautions Taken: (Check one or more.)

1. Ventilation/blower used before entering all pits, sewers, manholes _____

2. Ventilation/blower used continuously while personnel in space. _____

3. Continuous oxygen monitoring performed while personnel in space. _____

4. Emergency procedures reviewed.

Atmospheric Testing:

Monitoring	Required		Initial Reading		Initial Alarm		Continuous Alarm	
	Yes	No			Yes	No	Yes	No
Oxygen	_____	_____	_____	_____	_____	_____	_____	_____
Combustible	_____	_____	_____	_____	_____	_____	_____	_____
Toxic	_____	_____	_____	_____	_____	_____	_____	_____

*If alarm levels are reached, notify EHS, DO NOT ENTER space.

Description of the hazards known or reasonably expected to be present in the confined space:

Name(s) of person(s) assigned to enter: _____

Qualified Tester: _____

Hazards, Testing, Ventilation, and Emergency Procedures have been reviewed.

Supervisor Signature: _____