

CONFINED SPACE PROGRAM

I. Introduction

Some NDSU employees are obligated, at various times, to perform limited work duties in areas of restricted size, limited entry/exit, and less than ideal conditions. This program is designed to provide for the identification, evaluation, and control of confined space hazards, and ensure that employees and contractors who must enter such locations are trained and apprised of the program. It also establishes the standard precautions and procedures that must be implemented to eliminate potential hazards during actual entries.

II. Purpose

The Confined Space Program is to provide written procedures regarding safety and compliance of NDSU employees working in confined spaces. The program clarifies the protective measures required in Permit Required and Non-Permit Required Spaces.

III. Goals

NDSU's goal is to prevent occupational injury or death when working, supervising, or inspecting a hazardous area that has been identified as a confined space. Training and education are an effort to protect all employees from undue injury and loss.

The Confined Space Standard is available on-line to all employees. It is also available for inspection, upon request, by all employees and their designated representative.

IV. Organizational Responsibilities

The University, in accordance with State and Federal regulations, has implemented this program to provide safe entry into confined spaces. Before entry, all potential hazards must be identified and controlled. A formalized training program has been designed to enable employees to recognize potential hazards and take the appropriate actions to control those hazards. For most work operations in electrical and telecommunication manholes, safeguards and controls can be completed without entry into the location. In such cases, the permit system is not required. However, if entrance into the enclosed space is required to implement hazard controls, then the permit-required confined space program must be used. Supervisors will advise all personnel of the details of the program and the minimum requirements needed to meet the program as outlined.

The supervisors in each department shall ensure the requirements for working in confined space on the NDSU campus are met, and the job is completed according to program procedure.

Each utility group is responsible for reviewing the locations within their respective areas to identify either known or suspect confined space locations. This information shall be provided to their supervisor for final status determination.

A. University Safety Office

1. Assist in the development of the University's written Permit Confined Space Program and update when necessary.
2. Provide guidance in the selection of air monitoring equipment and training in its proper use.
3. Help departments develop acceptable calibration and maintenance programs for air monitoring equipment.

4. Assist in the development of entry procedures, selection and use of respiratory protection and personal protective equipment.
5. Assist supervisors in identifying and classifying confined spaces.

B. Supervisors/Departments shall ensure that the requirements for working in confined space on the NDSU campus are met, and the job is completed according to Standard Procedure and shall:

1. **Attend training** in accordance with the regulations pertaining to the locations their employees are required to enter.
2. Identify and list personnel who will enter confined spaces.
3. Provide detailed instructions and training on confined space hazards and entry procedures to those who may enter confined spaces.
4. Identify and report work areas that have the potential to be confined spaces.
5. Classify confined spaces as either "permit required" or "non-permit required".
6. Inform employees who may enter the Permit Required Confined Space (PRCS) by posting danger signs or by training.
7. Prevent unauthorized entry into confined spaces.
8. Evaluate respiratory hazards and train personnel on the respirator program for confined spaces.
9. Provide instruction to personnel on the proper use of equipment required for confined space entry.
10. Maintain equipment that is used to enter confined spaces.
11. Conduct annual work area audits to determine compliance with confined space entry procedures.
12. Maintain records of equipment maintenance and employee training.
13. Implement and maintain a Lockout/Tagout program.
14. Conduct pre-entry briefing to inform entrants of the possible hazards that may be encountered in a confined space.
15. Issue and cancel entry permits.
16. Maintain cancelled permits on file for one year.

C. Employees must complete the training as required by their position, the University and their supervisor, and follow the procedures as outlined in the training when entering a confined space. They will also assist in identifying potential confined space locations and notify their supervisor if they witness an unsafe entry. University employees who enter confined spaces shall:

1. Complete the required training before entering a confined space.
2. Follow the confined space entry procedures and any additional instructions given by their supervisor.
3. Understand emergency procedures for confined space entry.
4. Avoid entering a confined space that is suspected of having a hazardous atmosphere, even to rescue a fellow employee.

Employee Task Description

Each supervisor will manage and authorize the entry and job performance of those entering a confined space. There will always be two (2) employees to perform the job in a confined space.

An **attendant** must have knowledge about the space to successfully perform their duties which include:

- a. Know of the possible hazards and supervise the entrance of the confined space
- b. Monitor and document all conditions in and around the confined space
- c. Communicate with entrants to monitor their status and to alert them to evacuate the space if necessary
- d. Stay at their position until relieved by another authorized attendant, or when the job is completed and all the entrants have exited the confined space
- e. Order immediate evacuation of the space in case of detection of a prohibited condition, behavioral changes in entrants, and hazards outside of the space
- f. Have the authority to summon rescue and other emergency services as soon as the need is detected

The **entrant(s)** must have knowledge about the space to successfully perform their duties which include:

- a. Have authorization on entry prior to going into the confined space and performing the job task
- b. Use the assigned and required equipment properly
- c. Recognize the signs and symptoms of exposure to possible atmospheric hazards and understand the consequences of exposure to contaminants
- d. Maintain communication with the attendant and act immediately upon the requests by the attendant
- e. Exit from the permit space as quickly as possible whenever an order to evacuate has been given

D. The responsible departments shall be responsible for establishing and maintaining their Confined Space Entry Program. They are also responsible for:

- 1. Maintaining current location listings of both permit-required and non-permit required confined spaces
- 2. Generating and updating the written confined space program
- 3. Maintaining files on completed permits
- 4. Identifying and approving equipment needed for safe entry
- 5. Conducting and maintaining calibration and calibration records on air monitoring meters
- 6. Provide training and maintain training records

E. Fire Department will assume the responsibility of the on-site rescue team and the onsite first-aid responder. It is recommended that departments review permit required spaces with the Fire Department.

F. Contractor Requirements

Any work at the University in confined spaces must be conducted in accordance with the regulations specific to that location. When a contractor is required to enter or work in proximity to a permit required confined space, they will be informed of the hazards identified in that space. As part of the requirements the contractor shall:

- 1. Be informed that the workplace contains permit spaces, and that permit space entry is allowed only through compliance with a permit space program meeting the OSHA regulations
- 2. Deny their employees or subcontractors entrance to a PRCS without having received confined space training and instruction in their individual duties, and provide training documentation to the contracting department.

3. Obtain any available information regarding permit space hazards or necessary entry procedures from the University Project Manager (Construction Management, Facilities Management, Telecommunications, other).
4. Coordinate entry operations with the University Project Manager when both University personnel and contractor personnel will be working in or near permit spaces.
5. Inform the University Project Manager of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operation.
6. Upon request, provide a copy of the entry permit used for entry.

G. University Confined Space Managers shall

1. Inform contractors that the workplace contains permit spaces and that entry is allowed only by following a PRCS Program that complies with OSHA regulations and NDSU entry requirements. Project drawings, specifications, and bid documents must identify PRCS.
2. Notify the contractor of the hazards that have been identified and/or the experience that the University has had with the space.
3. Notify the contractor of any precautions or procedures that the University has in effect for employee protection in or near the space.
4. Coordinate entry operations with the contractor when both University and contractor personnel will be working in or near permit spaces.
5. Debrief the contractor at the conclusion of the entry operations regarding any hazards confronted or created in the space during entry.

V. Definitions

A. Confined Spaces

NDSU has identified these areas on campus with the following limitations:

1. Large enough and so configured that an employee can bodily enter and perform assigned work.
2. Has limited or restricted means for entry or exit. Such areas include but are not limited to: Tanks, hoppers, silos, steam tunnels, vessels, storage bins, pits, vaults, etc.
3. Are **not** designed for continuous employee occupancy.

B. Non-Permit Confined Space

A confined space that does not contain, or with respect to atmospheric hazards, have the potential to contain any atmospheric hazards, engulfment hazards, entrapment hazards, and is not capable of causing death or serious physical harm.

C. Permit-required Confined Space

A confined space which has the limitations of a confined space **and** one or more of the following characteristics:

1. Contains or has a known potential to contain a hazardous atmosphere
2. Contains a material that has the potential for engulfing an entrant

3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section
4. Contains any other recognized serious safety or health hazard

D. Qualified Person

The person designated by the employer, who is vested with the authority to make emergency decisions and monitor the space that could endanger those inside and outside the confined space area.

E. Permit System

A written system for preparing, issuing, implementing and canceling entry permits. This system must also include provisions for closing off the permit space and returning it to service after the work is completed.

F. Lockout/Tagout

The control of all hazardous energies within a system prior to performing service on the system. Review the NDSU Safe Operating Procedures.

VI. Hazard Identification

Must be identified and evaluated prior to entry

A. Reasons for Entry into a Confined Space

Reasons for entry into a confined space include, but are not limited to: inspections, testing, repair, maintenance, fabrication or cleaning.

B. Hazardous Atmospheres

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

1. Atmospheres Deficient or Enriched with Oxygen
 - a. If an atmosphere contains less than 19.5% oxygen it is considered to be oxygen deficient. An oxygen deficient atmosphere **should not** be entered without an approved self-contained breathing apparatus
 - b. Oxygen concentrations below 19.5 percent or above 23.5 percent by volume. Normal: 20.9% Alarm at: 19.5% and 23.0%
 - c. Welding, cutting, or brazing work can decrease the oxygen level in a confined space. This would require a Hot Work Permit.
 - d. Carbon dioxide, carbon monoxide, argon or nitrogen can displace the oxygen in a confined space. Total displacement of oxygen by one of these gases could result in unconsciousness, followed by death.
 - e. A space **may not** be entered if it contains an oxygen enriched atmosphere above 23.5%. This type of atmosphere will cause flammable materials to burn violently when ignited. When ventilating a confined space always use normal air, never pure oxygen.

2. Explosive or Flammable Atmospheres
 - a. An atmosphere can be a serious fire or explosive hazard if a flammable gas, vapor, or mist is in excess of 10 percent of its lower flammable limit. Normal: 0 Alarm set at: 10%
 - b. Airborne combustible dust is at a concentration that meets or exceeds its lower flammable limits. This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet or less.
3. Toxic Atmospheres
 - a. Toxic atmospheres containing gases or vapors of fumes known to have poisonous physiological effects. The most commonly encountered toxic gases are carbon monoxide and hydrogen sulfide.
 - b. Concentration for which a dose or a permissible exposure limit could result in employee exposure.
 1. Carbon Monoxide in ppm: Normal: 0ppm Alarm at: 35ppm
 - c. Storage areas and areas adjoining the confined space can emit toxic gases when absorbed into the walls and produce toxic contaminants
4. Physical/General Hazards
 - a. *Noise* can be elevated because of the acoustic attributes and layout of the space. Attendant's and entrant's communication can be affected by excessive noise within the space. A sound level meter can be used if deemed necessary.
 - b. *Falling objects* can fall into a confined space from a top opening. When possible, a barrier should be placed around an opening of a confined space to prevent objects from outside falling into the space. The area should also be surveyed and potential falling objects should be controlled within the space.
 - c. *Temperature extremes* both hot and cold temperatures when in extreme can be a hazard for workers. The results of the air and surface temperatures in the confined space must be listed on the permit. Example: Wind chill for attendants.
 - d. *Chemical residuals on these surfaces of a confined space* when confined spaces contain chemicals, the space must be tested, cleaned or purged to remove any residual chemicals that may be on the surfaces. If all residuals have not been removed, the necessary precautions must be taken to protect the employees that enter the confined space. These precautions might include wearing personal protective equipment to prevent contact with the skin, and wearing a breathing apparatus.
 - e. *Engulfment hazards* a solid or liquid might flow into the confined space with the potential of drowning or suffocating an entrant. Any substance contained within the space greater than four feet in depth constitutes an engulfment hazard. Also, the areas feeding the confined space must be blanked or blinded to prevent engulfment. (Agricultural products, coal and coal products, wood chips, steam, etc.)
 - f. *Surfaces that are wet or slick* when a surface in a confined space is either slick or wet an entrant could slip or fall causing death or injury. Wet or slick

surfaces also raise the chance of electrical shock if electrical tools or equipment are being used in the confined space. Use the appropriate control measures.

- g. *Mechanical hazards* areas with moving parts such as agitators, fans or other power driven moving parts are a potential hazard to employees. Implement lockout/tagout procedures.
5. Any other atmospheric condition that is immediately dangerous to life or health

VII. Training

Employees whose jobs require them to enter and work in confined space are obligated to attend training sessions regarding confined spaces. Specific regulation will require training and shall be provided to all affected employees. This will cover procedures in the use and maintenance of the monitoring equipment, application of respiratory equipment, application of ventilation, fans or blower systems, application of fall protection, procedure for the pre-entry evaluation/checklists and lockout/tagout procedures.

Employees will acquire the understanding, knowledge and skills necessary for the safe performance of their assigned duties. Employee proficiency in specific duties must be established with additional training provided as necessary for new or revised procedures.

The department/supervisors are responsible for the training of employees in the management of the hazards of confined spaces. Training will provide information, give demonstrations, allow hands on training, and will be provided:

- A. Before the employees are first assigned duties under this program
- B. Before there is a change in assigned duties
- C. Whenever there has been a change in permit space operations which present a hazard with which an employee has not previously been trained
- D. When the employer feels that there is a lack of knowledge or use of required procedures by the employee

VIII. Procedure

NDSU will identify and evaluate all spaces which are or could potentially be confined work spaces to determine if they are permit-required. Spaces shall be evaluated using the decision flow chart in 29 CFR 1910.146 Appendix A.

Pre -Entry Procedures will be followed, providing supportive data demonstrating the nature of the confined spaces at NDSU.

A. Confined Spaces Located at NDSU

See “Campus Locations Where Confined Space Permits are Required” at the end of this document.

B. Equipment

Each department shall make available any equipment necessary for the safe entry into a Confined Space, including, but not limited to:

1. Personal Protective Equipment (PPE)
 - a. safety shoes
 - b. safety glasses
 - c. hard hats
 - d. gloves
 - e. ear plugs
 - f. respirators/self-contained air packs (if needed)
 - g. coveralls
2. Traffic vest
3. Manhole hook
4. Manhole barricade
5. Traffic cones
6. Specialized tools
7. “Men working” signs
8. Testing and air monitoring equipment - multi-gas monitor
9. Ventilation equipment & power source
10. Ladders and climbing devices
11. Lighting (portable explosion proof)
12. Fire extinguishers
13. First aid kit
14. Lockout/Tagout devices
15. Batteries
16. **For permit required entries (in addition to the above)**
 - a. body harness, safety ropes/life lines and other devices
 - b. non-entry rescue equipment (tri-pod & host)
 - c. communication equipment
 - i. for entrants & attendants
 - ii. to summon rescue services
 - d. entry permit & procedures

All equipment shall be maintained, and supervisors shall ensure that employees use the equipment properly.

C. Pre-entry Evaluation

The department, whose services are requested, will designate a *qualified person* for pre-checking or entering confined space. The designated employee shall have successfully

completed, at a minimum, the training required for monitor use, and understand the values of the data needed to complete a pre-entry checklist and verify a confined space.

1. Atmospheric testing is required to confirm acceptable entry conditions. Acceptable entry conditions shall meet the following basic requirements:
 - a. Oxygen (O₂) - greater than **19.5%** and less than **23.5%**
 - b. Lower Flammable Limit (LFL) - less than **10%**
 - c. Carbon Monoxide (CO) - less than **35 ppm**
 - d. Hydrogen Sulfide (H₂S) - less than **10 ppm**

Note: The multi-gas monitor used should automatically alarm if any of the above values are exceeded. If any other toxic or hazardous substance is present, or has the potential to be present, the proper monitoring equipment shall be obtained and operated by an individual who has been trained in its use.

2. The PRCS shall be monitored to ensure that acceptable entry conditions are being maintained throughout the entry operation. If conditions deteriorate during entry, all entrants shall exit immediately and the space reevaluated.
3. Data from on-site inspections and continuous air tests will provide monitor readings for items prior to and during entry to demonstrate there are no actual or potential atmospheric hazards posed by the confined space. This information is available at the job site until the task is completed.
4. The hazards within the space will be eliminated without entry into the space and prior to physical entry by the employee. If working in two adjoining/connected spaces, the most hazardous condition shall govern.
5. The Pre-Entry Check List on the Permit Required form, which verifies a confined space as non-permit required, is to be completed and compared with acceptable guidelines prior to approval of entry. The supervisor will certify in writing, based on the results of the pre-entry testing, that all of the hazards have been eliminated and entry is safe.

D. Non-Permit Required Confined Spaces

All entrants entering into non-permit spaces must have training equivalent to that required to enter permit-required confined spaces.

If entry is required to inspect the confined space or to eliminate the hazards that are present, the entry must be conducted by following all requirements of the permit system. If upon inspection, hazards do not exist, the space can be reclassified as a non-permit required space.

1. Non-Permit Entry Procedures:
 - a. Enter the space only under the direction of your supervisor.
 - b. Inform the supervisor of the space location and plans for entry.
 - c. Verify that the space is safe for entry through written certification which contains the date, location of the space, and signature of the certifying individual.

- d. Determine if there are any changes in the use or configuration of the space that could change the classification as a non-permit space.
- e. Monitor readings must be taken to provide data within acceptable limits and show safe entry.
- f. Any condition(s) making it unsafe to remove an entrance cover must be eliminated prior to the removal of the cover.
- g. Prior to entry, test the atmosphere with a calibrated, direct-reading instrument for a hazardous atmosphere. Data must correlate with safe levels in the atmosphere.
- h. Evaluate the space for engulfment, entrapment or other serious safety or health hazards. If hazards are found, DO NOT ENTER THE SPACE.
- i. Openings must be promptly guarded to prevent an accidental fall through the opening and to protect entrants from foreign objects.
- j. Entrants must wear all required personal protective equipment (PPE) for the assigned task.
- k. Continuous monitor readings or periodically testing the atmosphere within the confined space are mandatory to ensure that the ventilation is preventing the accumulation of a hazardous atmosphere (i.e. welding, painting, or use of chemicals). The safeguard is an audible warning device in case of a change in conditions.
- l. Continuous forced air ventilation must be used according to procedure. Data from monitor readings must show the atmosphere to be in acceptable limits.
- m. Never work alone, and have a means to summon assistance.
- n. In the event of an emergency, NDSU will use an outside emergency response team. The City of Fargo, Fire Department/HazMat Team, is the team of choice.

E. Permit Entries - Preparation

- 1. Determine if entry into the space is necessary.
- 2. Review available information on the space.
- 3. Identify possible hazards and control measures.
- 4. Perform initial atmospheric testing.
- 5. Determine if the work to be carried out could create a hazard in the space.
- 6. Determine which entry level is required.
- 7. Identify equipment and PPE needed for entry.
- 8. Document entry plan by completing the Confined Space Entry Permit.
- 9. Assemble all equipment.
- 10. Erect barriers around opening if necessary.
- 11. Provide traffic control if necessary.

F. Alternate Procedure Entry

For spaces that have only atmospheric hazards that can be controlled by continuous ventilation.

1. Review permit information and instructions.
2. Perform pre-entry atmospheric testing, and record results on permit.
3. Ventilate space for a minimum of 5 minutes
4. Re-test atmosphere to confirm that acceptable entry conditions are present.
5. Enter space and check for hazards that may not have been detected.
6. Monitor atmosphere throughout the entry, and record results every 30 minutes.
7. **Exit the space immediately if any of the following occurs:**
 - a. A hazardous atmosphere is detected.
 - b. A health or safety hazard is detected.
 - c. Entrants start to show signs of exposure to atmospheric hazards. Re-evaluate the space and/or modify entry procedure before re-entering.
8. When work is completed, return space to proper condition and secure opening.
9. Return Entry Permit to supervisor to be filed.

G. Permit Required

For spaces that have physical hazards or an atmospheric hazard that cannot be controlled with continuous ventilation. (Notify Supervisor immediately)

1. Review permit information and instructions.
2. If possible, eliminate physical hazards by:
 - a. **Locking out** electrical sources at switches that are remote to the space.
 - b. **Blanking & bleeding** off pneumatic and hydraulic lines.
 - c. **Disconnecting** belt and chain drives and mechanical linkages.
 - d. **Securing** mechanically moving parts with chains, blocks, or other devices.

Note: If the physical hazard can be eliminated, the space can be entered as a Non-permit or Level 1 Entry, depending on the atmospheric conditions. If the physical hazard cannot be eliminated, notify your supervisor for assistance in developing an entry procedure that will protect the entrants.

3. Assign all entry team members a specific role to serve with detailed instructions.
4. A minimum of one attendant must be stationed outside the permit space for the duration of the entry.
5. Determine the method of communication between entrants and attendant.
6. Test atmosphere to identify all possible hazards. Note: Specialized monitoring equipment and/or training may be required.
7. Ventilate the space for a minimum of 5 minutes.
8. Retest atmosphere to confirm that acceptable entry conditions are present. Contact your supervisor if continuous ventilation cannot maintain acceptable entry conditions.
9. Set up non-entry rescue equipment (tripod and host).
10. Put on body harness (entrants).
11. Connect body harness to line from tripod.
12. Enter space and check for hazards that may not have been detected.
13. Monitor atmosphere throughout the entry and record results every 30 minutes.

14. **Exit the space immediately if any of the following occurs:**
 - a. A hazardous atmosphere is detected.
 - b. A health or safety hazard is detected.
 - c. Entrants start to show signs of exposure to atmospheric hazards. Re-evaluate space and/or modify entry procedure before re-entering.
15. When work is completed, return space to proper condition and secure opening.
 - a. Account for all equipment and supplies taken into the space.
 - b. Verify that all entrants have left the space.
 - c. Secure all openings.
 - d. Replace any gasket or seal that is damaged or defective.
 - e. Use the entry permit to identify all isolation equipment.
 - f. Remove lockout equipment and instruments after the piping is reconnected.
16. Return Entry Permit to supervisor to be filed.

H. Permit System

A written system for preparing, issuing, implementing and canceling entry permits.

This system must also include provisions for closing off the permit space and returning it to service after the work is completed.

IX. Ventilation

Ventilation of a permit space using a blower or fan can be an effective means of removing or controlling atmospheric hazards in a confined space. With the use of the pre-entry procedure, the following items must be met prior to entry:

- A. An employee may not enter the space until the forced air ventilation has eliminated any hazardous atmosphere. Pre-entry readings will be mandatory.
- B. The ventilation system must be positioned to ventilate the immediate working area when any employee is/will be present within the space.
- C. The air supply for ventilation must be from a clean source and must not increase the hazards in the space. Its back up power source must also be identified.
- D. Use only fans in good working order (no frayed wires).
- E. Observe safety and warning labels on the fan.
- F. Use a flexible duct to deliver air into all areas of the space (generally, the duct must be at least 3 feet into the space). Ventilation should normally consist of approximately 30 minute pre-entry purge with several air changes, followed by continuous introduction of fresh air during occupancy (Be careful about automobile and generator exhaust fumes)
- G. Documentation of results must show acceptable limits prior to entry. All records will be kept at the job site until completion of the job task.

X. Rescue and Emergency Services Procedures

In case of an emergency, contact **NDSU Campus Police** by one of the following methods, and comply with rescue services guidelines:

- A. Radio - declare an emergency and instruct the Call Center, (or anyone near a phone), to call - (911)
- B. Campus Phone - (231-8998)
- C. Rescue Services
 1. Rescue attempts will **NOT** be made by NDSU personnel. Under no circumstances shall unauthorized personnel enter a confined space to attempt a rescue. At the present time there are no University employees authorized to perform confined space rescues.
 2. Rescue services will be managed by the City of Fargo Fire Department. NDSU will ensure that the designated rescuers are aware of the hazards they may confront during the rescue operation. NDSU will also provide them with information and access to confined spaces they may have to enter so that they can practice and develop appropriate rescue procedures.
 3. University employees shall facilitate **non-entry** rescue by using retrieval systems and methods whenever entry into a PRCS is required, unless the retrieval equipment would increase the overall risk of the entry or would not contribute to the rescue of the entrant.
 4. A retrieval system should consist of a chest or full body harness with a retrieval line attached at the center of the entrant's back near shoulder level, or above the entrant's head. The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the attendant becomes aware that a rescue is necessary. In spaces where the entrant is not able to have a retrieval line attached, a full body harness should still be worn.
 5. If an entrant is exposed to a substance that is required to have a Safety Data Sheet (SDS), that information shall be given to the EMS personnel treating the entrant.
 6. All entrants must be trained in the Exposure Control/Bloodborne Pathogens Program. This regulation presumes that all human blood may contain microorganisms which can cause disease.

XI. Safety Data Sheets

Safety Data Sheets (SDS) must be made available (if they exist) for hazardous substances present in the permit-required confined spaces. The SDS's must be forwarded to medical facilities treating entrants for their exposures.

XII. Signage

Danger signs shall be posted to inform employees of permit spaces, or an equally effective means shall be used to inform employees of the existence and location of, and danger posed by, permit spaces.

NOTE: A sign reading "DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" or using other similar language would satisfy the requirement for a sign.

The official version of this information will be maintained in an on-line web format. Review the material on-line prior to placing reliance on a dated printed version.

Links:

[Respirator Program](#)

[Lock Out/Tag out Program](#)

[Exposure Control/Bloodborne Pathogen Program](#)

[Hazard Communications Program](#)

[Safety Data Sheets](#)

Cancelled permits – retain for a year – will be used in review of the program

CAMPUS LOCATIONS WHERE CONFINED SPACE PERMITS ARE REQUIRED

6/12/2014

Building	Space Location	Nature of Hazards	Safety Precautions	Equipment Required	Comments
Heating Plant	Boilers	Mechanical hazard Flammable atmosphere Respiratory Explosive atmosphere	Air testing/monitor Lock out/tag out	Safety Glasses, gloves, air monitoring, respirators, lock out/tag out, sign in sheet for the duration of the downtime. Once you sign in, you are signed in until you sign out at the start up of the boiler.	* Permit Required - This becomes NON PERMIT required space after 24 hours.
Van Es	Incinerator	Mechanical hazard Flammable Atmosphere Respiratory Atmosphere Explosive Hazard	Air testing / monitor Lockout / Tagout	Safety Glasses, gloves, air monitoring, respirators, lockout / tagout, sign in sheet for the duration of the downtime. Once you sign in, you are signed in until you sign out at the start up of the incinerator.	* Permit Required - This becomes NON PERMIT required space after 24 hours.
Heating Plant	Ash Unloader	Engulfment hazard Toxic atmosphere Mechanical hazard	Lock out/tag out	Safety glasses, gloves, cover alls, hard hat, lock out/tag out	Permit Required
Heating Plant	Bag House	Toxic Atmosphere, Explosive atmosphere Respiratory Hazard Oxygen Deficient	Air Monitoring / Testing Lockout / tag out Verify escape routes	Safety Glasses, gloves, air monitoring, respirators, lock out/tag out	Permit Required
Heating Plant	Deaerator	Engulfment Hazard Wet or slick surface Oxygen Deficient Limited Access	Lock out/tag out Verify escape routes Air Monitoring	Safety glasses, gloves, air monitoring, respirators, lock out / tag out.	Non-Permit Required

Building	Space Location	Nature of Hazards	Safety Precautions	Equipment Required	Comments
Rail Cars	Heating Plant	Engulfment hazard Wet or slick surface Temperature extremes	Appropriate control measures	Cold weather gear in winter, safety glasses, gloves, hard hats, climbing devices	Non-Permit Required
Dinan Hall	East end of Dinan basement	Engulfment hazard Electrical hazard (sump pump)	Pedestrian control Lock out/tag out	Barricades, PPE, Lock out/tag out, ventilation fan, 2 way radio	Permit Required
Dunbar	Fume hood exhaust fan enclosure on roof	Mechanical hazard Electrical hazard Toxic fumes	Air testing/monitoring Lock out/tag out Ventilation	Air monitoring, PPE, lock out/tag out	Permit Required Verify PPE with Safety Office
Elevator pits campus wide	All buildings with elevators	Mechanical hazard (crush) Electrical hazard	Brace elevators Lock out/tag out Pedestrian control	Ladder, elevator supports, barricades	Non-Permit Required
Shepperd	Condensate pump vault and tunnel	Engulfment hazard Limited access Temperature extremes Oxygen deficient	Air testing/monitoring Verify escape routes Lock out/tag out	Air monitor, PPE, Lock out/tag out, ventilation fan, 2 way radio	Permit Required
Thorson Grounds Shop	Garbage Truck Compactor	Engulfment hazard Limited Access Wet or Slick Mechanical Hazard Toxic atmosphere	Verify Escape Routes	PPE, Ladder, lock out/tag out	Permit Required

Building	Space Location	Nature of Hazards	Safety Precautions	Equipment Required	Comments
Campus Wide Dunbar, Minard, South Engineering, Van Es, etc.	Crawl space	Limited access Engulfment hazard	Verify escape routes Lock out/tag out Air testing/monitoring	Air monitor, PPE, lock out/tag out	Non-Permit Required
Campus wide Old Main, LLC E&W, Thorson, etc.	Steam & Telecommunication Vaults	Temperature extremes Oxygen deficient Wet or Slick	Ventilation of vault Lock out/tag out Air testing/monitoring	Tripod, PPE, 2-way radios, air monitoring, fans, manhole barricade, "Men Working" signs, lighting, traffic cones, lock out/tag out	Permit Required
Campus wide EML, Engineering Complex, Reed, Johnson, Loftsgard, L&B N&S, North and South Weible, QBB, RDC, Walster, Burgum etc.	Steam tunnels	Temperature extremes Oxygen deficient Wet or Slick Noise Engulfment hazard Limited access	Air testing/monitor Venilation of tunnel Lock out/tag out Verify escape routes	Tripod, PPE, 2-way radios, air monitoring, fans, manhole barricade, "Men Working" signs, lighting, traffic cones, lock out/tag out	Non-Permit Required (see tunnel note)
Tunnels	<p>Note: In most situations when working and traveling in the tunnels, the tunnels are Non-Permit Required Confined Spaces. When work in the tunnel could create any potential atmospheric hazards, creates a potentials for entrapment or creates a safety of health hazard and the hazard cannot be declassified in an attempt to make the space safe, the work area will be classified as a permit required confined space. If the hazards can be mitigated, then the space can be reclassified as a non-permit required confined space.</p>				