

UNIVERSITY OF NOTRE DAME
**CONFINED SPACE ENTRY
POLICY**

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UNIVERSITY OF NOTRE DAME

Confined Space Entry Program

I. INTRODUCTION

The purpose of this program is to ensure the protection of all authorized UND employees from the hazards associated with confined space entry. This document contains requirements for practices and procedures to protect employees from those hazards of entry into and work within permit required confined spaces. This is the official policy of the University of Notre Dame.

It shall be the policy of the University of Notre Dame to reduce the need for confined space entry. It shall also be the policy of the University of Notre Dame to eliminate whenever possible, all confined space hazards in order to reclassify permit- required confined spaces to non-permit required confined spaces. When confined space entry is necessary, all provisions of this document are to be followed.

II. DEFINITION OF A CONFINED SPACE

A confined space means a space that:

- A. Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- B. Has limited or restricted means for entry or exit; and
- C. Is not designed for continuous human occupancy.

Examples of confined spaces include but are not limited to storage tanks, process vessels, bins, silos, boilers, ventilation or exhaust ducts, sewers, pipe chassis, underground utility vaults, tunnels, pipelines, and manure pits.

A permit required confined space means a confined space that has one or more of the following characteristics:

- A. Contains or has a reasonable potential to contain a hazardous atmosphere.
- B. Contains a material that has the potential for engulfing an entrant.
- C. 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.
- D. Contains any other recognized serious safety or health hazard.

III. RESPONSIBILITIES

A. University of Notre Dame:

The University of Notre Dame shall provide the proper protective equipment when such equipment is necessary to protect the health and safety of the employee. The University shall be responsible for the establishment of a confined space entry program in accordance with *29 CFR 1910.146, Permit Required Confined Spaces (Final Rule)*.

The Risk Management and Safety Department shall be responsible for the development, documentation and administration of the Confined Space Entry Program.

B. Risk Management and Safety shall:

1. Develop the written Confined Space Program and revise the program as necessary.
2. Provide guidance for the proper selection and use of appropriate air monitoring equipment, respiratory protection and personal protective equipment to meet the requirements of this program.
3. Provide guidance for the proper selection and use of appropriate safety and rescue equipment to meet the requirements of this program.
4. Periodically audit work operations and documentation using canceled permits to evaluate the overall effectiveness of the confined space entry program and ensure that employees participating in entry operations are protected from permit space hazards.
5. Assist each Department/ Supervisor in identifying confined spaces encountered by his/ her employees.

C. Department/ Supervisors shall be responsible for the following:

1. Identify and report job areas and locations that are or may be confined spaces. A list of confined spaces that are identified shall be submitted to Risk and Safety Management.
2. Classify confined spaces as “permit required” or “non-permit required”.
3. Identify personnel who will enter confined spaces.
4. Identify the personnel under their supervision required to wear respirators.
5. Evaluate and measure atmospheric hazards or advise personnel on routine measurement of atmospheric hazards in confined spaces.
6. Provide detailed instruction and training on confined space hazards and entry procedures to those who may enter confined spaces.
7. Provide instruction to personnel on the proper use of equipment required for confined space entry.
8. Maintain equipment that is used to enter confined spaces.

9. Conduct work site inspections to review unit compliance with confined space entry procedures.
10. Maintain records of equipment maintenance and employee training.
11. Inform employees who may enter the permit confined space by posting danger signs or by training.
12. Issue and cancel entry permits.
13. Enforce the lockout program for their department.
14. Identify and evaluate the hazards of permit spaces before employees enter them.
15. Conduct a pre-entry briefing to inform entrants of possible hazards that may be encountered in a confined space.
16. Identify the people who will enter the confined spaces.
17. Take the necessary measures to prevent entrance into prohibited permit spaces.

D. Employees who may enter confined spaces shall:

1. Comply with the confined space entry procedures contained herein and with those procedures stipulated by their supervisor.
2. Store, clean, maintain and guard against damage, equipment used for confined space entry.
3. Report any deficiencies or malfunction of equipment to a supervisor.
4. Understand emergency procedures in case of an accident in a confined space.
5. Under no circumstance enter a confined space that is suspect of having a non-respirable atmosphere, even to rescue a fellow employee.

IV. PERMIT REQUIRED CONFINED SPACE PROGRAM

A. CLASSIFICATIONS OF CONFINED SPACES

Departments will identify and classify every confined space as a:

1. **Permit Required Confined Space**
2. **Non-Permit Confined Space** – if the confined space does not present an observable, serious safety hazard or potential/ real atmospheric hazard.

B. PROGRAM ELEMENTS FOR PERMIT-REQUIRED SPACES

1. Preventing Unauthorized Entry

In order to prevent unauthorized entry into permit –required confined spaces, Departments must utilize one or more of the following mechanisms:

- Training all employees
- Providing information to visitors/ contractors
- Posting warning signs
- Erecting barriers
- Installing locks or covers at entry points

Each Department will document the implementations of these mechanisms and ensure that they remain in place.

2. Identifying Permit Space Hazards

Each Department will identify and evaluate the hazards of permit spaces before employees enter them.

The following hazards shall be identified prior to entry into a confined space:

- Atmospheric hazards
- Asphyxiating atmospheres
- Flammable atmospheres
- Toxic atmospheres
- Burn hazards
- Heat stress hazards
- Mechanical hazards
- Engulfment hazards
- Physical hazards (falls, slipping, hazards)
- Electrocution
- Danger of unexpected movement of machinery, release of energy
- Noise hazards

3. Developing Safe Entry Practices

Departments will implement procedures and practices necessary for safe permit space entry operations. These include but are not limited to:

- Acceptable entry.
- Isolating the permit space.
- Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards.
- Pre-entry Briefing. The lead worker will conduct a meeting of all employees who will enter the confined space. Employees will be informed of the hazards and safety conditions of the particular job.

Hazards shall be controlled by the following mechanisms:

- Lockout of energy sources

Cleaning and purging
Local ventilation during hotwork or chemical use
Personal protective equipment

The following precautions shall be followed when entering a confined space located along a roadway, parking lot or any areas where traffic flow may cause a potential hazard.

Approach the area cautiously and activate flashers upon approach.

Park any vehicles in such a way that traffic will flow in the most unobstructed manner, and where possible, the vehicle should provide protection for the entry crew.

If vehicle engine must remain on, park the vehicle or place supply fan ductwork in such a manner that exhaust fumes are not drawn down into the manhole.

Before uncovering a manhole, place traffic safety cones around the manhole and vehicle, visible to traffic in all directions. Place cones to protect the crew and to channel traffic flow. The cones should be placed at sufficient distance and intervals to adequately warn oncoming traffic.

In areas of high traffic volume, or other sites warranting additional highly visible safety equipment, use illuminating traffic arrows, barricades, and warning signs.

When placement of the vehicle leaves only one open lane of traffic in a congested area, use a flag person to direct traffic flow. When a flag person is necessary, an additional crew member is required to be attendant for the employees in permit-required confined spaces. Wear traffic safety vests or equivalent at all times when working on the street or easement.

In the case of opening or obstructions in the street or sidewalk being worked on or left unattended, effectively display danger signals such as warning signs, cones and flags. Under these same conditions at night, prominently display warning lights. Enclose excavations and openings with suitable barricades.

4. Equipment use and maintenance

Equipment, including testing, ventilating, lighting, monitoring, communication and personal protective equipment, necessary for the safe entry into a Permit Space shall be provided, maintained and properly used by each Department.

Contractors shall provide their own equipment (including air monitoring equipment, retrieval equipment, atmosphere abatement equipment, personal protective equipment, etc...).

5. Testing for acceptable entry conditions

Permit space evaluation will include all testing conducted before an entry as well as ensuring acceptable entry conditions are maintained throughout the entry. The Confined Space Entry Form outlines conditions to be monitored.

6. Providing permit space attendants

Each Department will provide at least one attendant outside a permit space to be entered for the duration of the entry operations.

7. Attendant emergency response

To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

Retrieval systems shall meet the following requirements: Each authorized entrant shall use 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.

Wristlets may be used in lieu of the chest or full body harness if the employer can demonstrate that the use of a chest or full body harness is infeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative. The other end of the retrieval line shall be attached to a mechanical device or adequately stable fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical permit spaces more than five (5) feet deep.

If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

8. Training and duties of entry personnel

There are three specific members of a permit required confined space entry team:

- a. Authorized Entrants
- b. Attendants
- c. Lead Worker

The department shall provide training so that all employees whose work is regulated by this section acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned.

Training shall be provided to each affected employee:

- a. Before the employee is first assigned duties.
- b. Before there is a change in assigned duties.
- c. Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained.
- d. Whenever the department has reason to believe either that there are deviations from the permit space entry procedures required by 29 CFR 1910.146 or that there are inadequacies in the employee's knowledge or use of these procedures.

The training shall establish employee proficiency in the duties required by 29 CFR 1910.146 and shall establish new or revised procedures, as necessary, for compliance with this.

The department shall certify that the training required by the previously mentioned paragraphs has been accomplished. The certification shall contain each employee's name, the signatures or initials of the trainers, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.

Only trained attendants, authorized entrants and personnel authorizing or in charge of entry shall work in and around a Permit Space during an entry procedure.

9. Rescue and emergency services

The **Notre Dame Fire Department** is designated as the rescue team. The Notre Dame Fire Department will be made aware of the hazards they may confront when called on to perform rescues. The Fire Department is responsible to equip, train, and conduct itself appropriately. At least annually, they will conduct a practice rescue drill. They will have access to all permit spaces from which rescue may be necessary so that they can develop appropriate rescue plans and practice rescue operations.

If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

10. Written permit system

A permit shall be utilized for entry into Permit Spaces.

Each canceled entry permit shall be retained for at least one (1) year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted so appropriate revisions to the permit space program can be made.

11. Coordinating entry operations

All outside contractors performing work in confined space entry permit area shall be informed of any fire, explosion, health or other safety hazards of that confined space. This information shall be based on current or past history of the confined space and the nature of the contractor's work procedure in making such disclosure.

Each Department shall inform contractors of UND's safety rules and emergency plans which may be applicable to the contractor's employees. Contractors and their employees must not be allowed to enter a confined space until the provisions of this program have been satisfied. When both UND and a contractor personnel are working in or near permit spaces, their entry operations must be coordinated to avoid endangering any personnel.

At the conclusion of the entry operations, the contractor must be debriefed regarding the permit space program that was followed and concerning any hazards confronted or created in permit spaces during entry operations.

It is the responsibility of each contractor who is retained to perform permit space entry operations to obtain any available information regarding permit space hazards and entry operations from UND. They must also coordinate entry operations with UND when both UND and contractor personnel will be working in or near permit spaces. UND must be informed of the permit space program that the contractor will follow and of any hazards confronted or created in permit spaces, either through a debriefing or during the entry operations.

12. Concluding entry

The lead worker will determine when the entry operations have been completed. The permit space will be closed and the permit canceled. The lead worker will enter the date, time and signature at the bottom of the Confined Space Entry Form.

13. Program review and revision

Each Department will review entry operations and revise the procedures to correct any deficiencies before subsequent entries are authorized. Any revisions will be reported to Risk and Safety Management in order to revise the written program.

14. **Annual compliance review**

Risk and Safety Management will review the program annually in light of actual entry, work and exit experience to determine how the program can be improved.

V. ALTERNATE ENTRY

Employees who enter a confined space need not comply with the procedures set forth in the program provided that:

1. It can be demonstrated that the only hazard posed by the permit space is an actual or potential hazardous atmosphere.
2. It can be demonstrated that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry.
3. Monitoring and inspection data are developed that support the previous conclusions.
4. If an initial entry of the permit space is necessary to obtain the data required, the entry is performed according to the procedures set forth in this document concerning the entry of a permit required confined space.
5. The determinations and supporting data required are documented and made available to each employee who enters the space.

VI. RECLASSIFICATION TO A NON-PERMIT CONFINED SPACE

If a permit space poses no actual or potential 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.

If it is necessary to enter the permit space to eliminate hazards, such entry shall be performed as a Permit-Required space. If testing and inspection during that entry demonstrate that the hazards within the permit 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 through forced air ventilation does not constitute elimination of the hazards.*

The department shall document the basis for determining that all hazards in a permit space have been eliminated, through a verification 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 each employee entering the space. The Confined Space Entry Form can be used for this purpose.

If hazards arise within a permit space that has been declassified to a non-permit confined space under this section, each employee in the space shall exit the space. The Department shall

reevaluate the space and determine whether it must be reclassified as a permit space, in accordance with other applicable provisions.

Confined Spaces

The following is a listing of Electrical Vaults and there are present classification as to the type of confined space entry that is required based on the electrical distribution system being completely in service. The vault numbers are an indication of location by plat section and are then chronologically numbered within the plat area (Ex. A0102, Plat Section A01, Vault No. 2) If all source feeders in a particular vault are de-energized and properly locked out/ tagged out then entry to these confined spaces reverts to a Non-Permit Required status. If intent of entry to any confined space is to perform live line work then all spaces are Permit Required.

Vault No. Feeders	Normal Confined Space Entry	Potential Elec. Hazard	Source
B0401	Alternate Entry		11, 21
B0402	Alternate Entry		11, 21
B0501	Alternate Entry		11, 21, 53
B0502	Alternate Entry		11, 21
B0601	Alternate Entry	F, X	11,12, 21
B0602	Alternate Entry		12
B0603	Alternate Entry		12
C0301	Alternate Entry	F, X	11, 21
C0501	Alternate Entry	X	53
C0502	Alternate Entry		53
C0503	Alternate Entry		53
C0601	Alternate Entry	F, X	53
C0602	Alternate Entry		T13,T24
C0701	Alternate Entry		12
C0901	Alternate Entry		12

D0301	Alternate Entry		11, 21
D0302	Alternate Entry		11, 21
D0303	Alternate Entry		11, 21
D0401	Alternate Entry		11, 21
D0501	Alternate Entry	F, X	53
D0601	Alternate Entry		53
D0602	Alternate Entry		53
D0603	Alternate Entry	F, X	53
D0604	Alternate Entry		53
D0605	Alternate Entry		53
D0605	Alternate Entry		53
D0607	Alternate Entry	F, X	53
D0608	Alternate Entry		53
D0609	Alternate Entry		53
D0610	Alternate Entry		T13,T24
D0701	Alternate Entry		12
D0702	Alternate Entry		12
D0801	Alternate Entry		12
D0802	Alternate Entry		12
D0901	Alternate Entry		12
E0401	Alternate Entry		42, 53
E0601	Alternate Entry		53
E0602	Alternate Entry		53
E0603	Alternate Entry		T13,T24
F0301	Alternate Entry		11, 21
F0401	Alternate Entry	F, X	42
F0402	Alternate Entry		42
F0501	Alternate Entry	F	42, 63

F0601	Alternate Entry		42,51,52,53,55,61,62,63
F0602	Alternate Entry		42, 63
F0603	Alternate Entry		42, 63
F0604	Alternate Entry		32,51,52,53,55,61,62
F0605	Alternate Entry		53
F0606	Alternate Entry		32,51,52,53,61,62
F0607	Alternate Entry		53
F0608	Alternate Entry	F, X	53
F0609	Alternate Entry		41
F0610	Alternate Entry		T13, T24
F0611	Alternate Entry	F, X	53
F0612	Alternate Entry		41, 43, 55
F0613	Alternate Entry		32, 41, 43, 53, 55
F0614	Alternate Entry		53
F0701	Alternate Entry		33, 41, 43, 55
F0702	Alternate Entry	F	33, 41, 55
F0703	Alternate Entry		43
F0705	Alternate Entry	F, X, S	43
F0801	Alternate Entry	F, X	33, 43
F0802	Alternate Entry	F, X, S	33, 43
F0803	Alternate Entry		43
G0301	Alternate Entry		11, 21
G0501	Alternate Entry		42
G0503	Alternate Entry		42, 63
G0504	Alternate Entry		51
G0505	Alternate Entry		51
G0507	Alternate Entry		51
G0508	Non-Permit Required Entry		63
G0509	Alternate Entry		51

G0601	Alternate Entry	F	32,51,52,53,61,62
G0602	Alternate Entry		32, 51, 52, 61, 62
G0603	Alternate Entry		32, 51, 52, 61, 62
G0604	Alternate Entry		32, 51, 52, 61, 62
G0605	Alternate Entry		32, 51, 52, 61, 62
G0606	Alternate Entry	F, X	51
G0607	Alternate Entry		51
G0608	Alternate Entry		51
G0609	Alternate Entry		51
G0610	Alternate Entry		51
G0601	Alternate Entry		51
G0611	Alternate Entry		51
G0612	Alternate Entry		32
G0701	Alternate Entry	F, X	33, 41, 55
G0702	Alternate Entry		33, 41, 55
G0703	Alternate Entry		32
G0705	Alternate Entry	F	43
G0706	Alternate Entry		43
G0707	Alternate Entry		43
G0708	Alternate Entry	F, X	43
H0301	Alternate Entry		42
H0302	Alternate Entry		11, 21
H0401	Alternate Entry		42
H0402	Alternate Entry		42
H0403	Alternate Entry		42
H0404	Alternate Entry		42
H0501	Alternate Entry		42
H0502	Alternate Entry		42
H0503	Alternate Entry	F, X	42, 63

H0504	Alternate Entry		42, 63
H0505	Alternate Entry		42
H0506	Alternate Entry	F	42, 63
H0507	Alternate Entry		63
H0601	Alternate Entry		32, 51, 52, 61, 62
H0602	Alternate Entry		32, 61, 62
H0603	Alternate Entry		62
H0604	Alternate Entry		32, 51
H0701	Alternate Entry	F, X	33, 41, 55
H0702	Alternate Entry		43
H0703	Alternate Entry		43
I0301	Alternate Entry	F, X	11, 21
I0302	Alternate Entry		11, 21, 42
I0401	Alternate Entry		11, 21
I0402	Alternate Entry		11, 21
I0403	Alternate Entry		11, 21
I0501	Alternate Entry		32
I0502	Alternate Entry		32
I0503	Alternate Entry		32, 42
I0504	Alternate Entry	F, X	11, 32, 42
I0507	Alternate Entry		11
I0510	Alternate Entry		32
I0511	Alternate Entry		11, 21
I0512	Alternate Entry		11, 21
I0601	Alternate Entry		61, 62
I0602	Non-Permit Required Entry		NONE
I0603	Alternate Entry		41
I0605	Alternate Entry		32, 61, 62
I0606	Alternate Entry		32, 61, 62

I0607	Alternate Entry		32, 61, 62
I0608	Alternate Entry	F, X	62
I0609	Alternate Entry		32, 42, 61, 62
I0610	Alternate Entry		33, 43
I0611	Alternate Entry		32, 33, 43
I0701	Alternate Entry		41
I0702	Alternate Entry	F, X	33, 41, 55
I0703	Alternate Entry	F	33, 55
I0704	Alternate Entry		33, 41, 43, 55
I0705	Alternate Entry		55
I0706	Alternate Entry		43
I0707	Alternate Entry		43
I0708	Alternate Entry		43
I0709	Alternate Entry		41
I0710	Alternate Entry		33, 41, 55
I0711	Alternate Entry		55
I0712	Alternate Entry		33, 43
I0801	Alternate Entry		43
I0802	Alternate Entry		43
I0803	Alternate Entry		43
J0401	Alternate Entry		21
J0402	Alternate Entry		21
J0501	Alternate Entry		33
J0502	Alternate Entry		11, 21
J0503	Alternate Entry		11, 21
J0601	Alternate Entry	F, X	33, 43
J0602	Alternate Entry		33
J0603	Alternate Entry		43
J0604	Alternate Entry		33, 43

J0701	Alternate Entry		33
J0801	Alternate Entry	F	43
J0802	Alternate Entry		43
J0803	Alternate Entry		43
K0401	Alternate Entry	X	21
K0402	Alternate Entry		21
K0501	Alternate Entry		33
K0502	Alternate Entry		21, 33, 43
K0503	Alternate Entry		21
K0504	Alternate Entry	X	21
K0505	Alternate Entry		21
K0602	Alternate Entry		43
K0604	Alternate Entry		43
K0701	Alternate Entry		AEP
L0701	Alternate Entry		AEP
L0702	Alternate Entry		AEP

Equipment Codes: (Components with potential for exposed energized parts)

F	Fuse
S	Open Cutout Switch
X	Transformer

Various other high voltage electrical components such as cable, splices, cableboxes, SF6 switches, capacitors and enclosed fuses exist, but are deemed insulated/isolated from contact unless they are specifically being worked on in an energized condition.

