



TEXAS WOMAN'S UNIVERSITY™

Confined Space Program

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Office of Environmental Health & Safety

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I. INTRODUCTION

Texas Woman's University (TWU) is dedicated to the protection of its employees and students from all on-the-job injuries. All employees of TWU have the responsibility to work safely on the job. The goals of the Confined Space Program are to supplement the University's standard of safety by providing additional safety standards designed to cover instances in which confined space entry is necessary, and to ensure that each employee is trained and made aware of the requisite safety provisions prior to the start of work.

A. Scope

This Confined Space Program establishes the precautions, training, responsibilities, requirements, permits, and methods which are to be used by all TWU employees and students while working or operating in a confined space.

B. Purpose

The purpose of the Texas Woman's University (TWU) Confined Space Program is to protect employees from the hazards associated with entering and conducting operations in confined spaces such as sewers, storage tanks, and utility tunnels. This program applies to employees and contractors working on TWU property as described below.

C. Review of Program

The Confined Space Program will be reviewed at least once per 12 month period after each confined space entry event takes place by the Department of Risk Management. This review will encompass changes in regulations, newly identified safety hazards related to confined space entry, changing demands of the program for the campus, and changes in technology.

D. References

This document is developed to comply with the regulations outlined in the Occupational Safety and Health Administration (OSHA) Permit-Required Confined Spaces standard (29 CFR 1910.146). This program also meets the requirements of TWU's University Regulations and Procedures [Policy 04.430: Environmental Health and Safety](#).

II. DEFINITIONS

Acceptable entry conditions - The conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

Attendant - An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.

Authorized entrant - An employee who is authorized by the employer to enter a permit space.

Blanking or blinding - The absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

Confined space - A space that:

- Is large enough and so configured that an employee can bodily enter and perform assigned work
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that have limited means of entry)
- Is not designed for continuous employee occupancy

Double block and bleed - The closure of a line, duct, or pipe by closing and locking or tagging two in-line valves and by opening and locking or tagging a drain or vent valve in the line between two closed valves.

Emergency - Any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

Engulfment - The surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entry - The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry permit - The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in this program.

Entry supervisor - The person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this program. NOTE: an entry supervisor may also serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required by this program for each role they fill. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

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

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL)
- Airborne combustible gas at a concentration that meets or exceeds its LFL
 - NOTE: This concentration may be approximated as a condition in which the dust obscures the vision at a distance of 5 feet (1.52 m) or less
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in OSHA Subpart G, Occupational Health and Environmental Control, or in OSHA Subpart Z, Toxic and Hazardous Substances, which could result in employee exposure in excess of its dose or permissible exposure limit
 - NOTE: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this program
- Any other atmospheric condition that is [immediately dangerous to life or health](#)

Hot work permit - The employer's written authorization to perform operations (for example, riveting, welding, cutting, burning, and heating) capable of providing a source of ignition.

Immediately dangerous to life or health (IDLH) - Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space. NOTE: Some materials (i.e. hydrogen fluoride gas, cadmium vapor) may produce immediate transient effects that, even if severe, may pass without medical attention but are followed by sudden, possible fatal collapse 12 to 72 hours after exposure. The victim "feels normal" from recovery from transient effects until collapse. Such materials in hazardous quantities are considered to be "immediately" dangerous to life or health.

Inerting - The displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible. NOTE: This procedure produces an [IDLH](#) oxygen-deficient atmosphere.

Isolation - The process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: [blanking or blinding](#), misaligning or removing sections of lines, pipes, or ducts, a [double block and bleed system](#), lockout or tagout of all sources of energy, or blocking and disconnecting all mechanical linkages.

Line breaking - The intentional opening of a pipe, line, or duct that is or has been carrying flammable, corrosive, or toxic material, an inert gas, or any fluid at a volume, pressure, or temperature capable of causing injury.

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

Oxygen deficient atmosphere - An atmosphere containing less than 19.5 percent oxygen by volume.

Oxygen enriched atmosphere - An atmosphere containing more than 23.5 percent oxygen by volume.

Permit-required confined space - A confined space that has one or more of the following characteristics:

- Contains or has the potential to contain a [hazardous atmosphere](#)
- Contains a material that has the potential for [engulfing](#) an entrant
- 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
- Contains any other recognized serious safety or health hazard

Permit-required confined space program - The employer's overall program for controlling and, where appropriate, for protecting employees from permit space hazards and for regulating employee entry into permit spaces.

Permit system - The employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

Prohibited condition - Any condition in a permit space that is not allowed by the permit during the period when entry is authorized.

Rescue service - The personnel designated to rescue employees from permit spaces.

Retrieval system - The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Testing - The process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space. NOTE: Testing enables employers to both devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

III. RESPONSIBILITIES

TWU personnel are responsible for the implementation and maintenance of the provisions outlined in this program as specified below:

A. Office of Environmental Health & Safety

The Office of Environmental Health & Safety is responsible for:

- Identifying confined spaces on TWU campuses, determining the potential hazards present, designating confined spaces as [permit-required](#), and updating this information as necessary.
- Establishing agreements with outside rescue and emergency medical providers.
- Developing training materials for TWU employees and maintaining training records.
- Conducting the required annual review of this program and consulting with affected employees on the development, implementation, and revision of this program.

B. Supervisors

Supervisors are responsible for:

- Ensuring that only properly trained employees are assigned to enter confined spaces, and that assigned work in confined spaces is in accordance with this program.
- Performing the duties of the [Entry Supervisor](#) (in most cases). The **Entry Supervisor** role will be carried out by the supervisor of the employees performing the permit-required entry (the [Authorized Entrants](#)). If more than one supervisors' employees are to be Authorized Entrants, then one of the relevant supervisors will act as the Entry Supervisor with the approval of the

other relevant supervisors. If none of the Authorized Entrants are available, one of the following may act as the Entry Supervisor:

- Office of Environmental Health & Safety staff
- Director of Physical Plant (may act as Entry Supervisor for Denton)
- Manager of Facility Operations in Dallas or Houston (may act as Entry Supervisor for their assigned campus)

Entry Supervisors will be responsible for issuing [Confined Space Entry Permits](#), and will be permitted to fulfill the [Attendant](#) role, but will **not** be permitted to be an Authorized Entrant under any permit they have issued.

C. Employees Responsible for Contractors

Employees responsible for contractors conducting work on site will comply with the entry coordination requirements of this program described in [Section VI B](#), including communicating TWU confined space requirements and information regarding the hazards of spaces the contractors may be working in or near.

D. TWU Employees

TWU employees are required to comply with all aspects of this program, and to report violations of the requirements of this program.

Employees who do not comply with the requirements of this program will be subject to disciplinary action.

IV. PRE-ENTRY PROCEDURES

A. Prevention of Unauthorized Entry

Confined spaces will be evaluated and measures taken to prevent unauthorized entry into these spaces. Permit-required confined spaces will be identified with a “**Danger - Confined Space - Enter By Permit Only**” or similar label. Where practical, confined spaces will be locked or secured.

B. Confined Space Identification and Evaluation

OSHA defines a [confined space](#) as a space that:

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

Examples of confined spaces include, but are not limited to: boilers, ventilation or exhaust ducts, storm drain, pipe chases, electrical vaults, steam tunnels, underground utility vaults, sump pits, or other similar types of spaces.

A [Permit-Required Confined Space](#) is a confined space that has one or more of the following characteristics and therefore requires a permit prior to entry:

- Contains, or has the potential to contain, a hazardous atmosphere
- Contains a material that has the potential for engulfing an entrant
- 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
- Contains any other recognized serious safety or health hazard

A [Non-Permit Confined Space](#) is a confined space that does not contain or have the potential to contain any hazard capable of causing death or serious physical harm.

TWU employees and students are PROHIBITED from ever entering confined spaces containing a [hazardous atmosphere](#). This does not prohibit employees from working in spaces where forced ventilation has eliminated the hazardous atmosphere in accordance with a properly completed [Confined Space Entry Permit](#) (see below).

A confined space classified as a Permit-Required Confined Space may be re-classified as non-permit confined space under the following conditions:

- If the confined space poses **no actual or potential atmospheric hazards**, and if all hazards within the space can be eliminated without entry into the space, the confined space may be reclassified as non-permit required for as long as the non-atmospheric conditions remain eliminated. Potential atmospheric hazardous include hazards created from the work conducted in the space, such as welding.

For example: a confined space designated as a Permit-Required Confined Space due to a mechanical or electrical hazard may be reclassified as a non-permit required confined space after the hazards are eliminated through lockout of the energy source (see TWU's Hazardous Energy Control Program) without entering the space.

- If it is necessary to enter the space to eliminate hazards, such entry shall be conducted under the requirements for entry into a Permit-Required Space. Remember, **TWU employees and students are PROHIBITED from ever entering confined spaces containing a hazardous atmosphere as defined above.**

- If hazards arise within a Permit-Required Confined Space that has been re-classified to a Non-Permit Confined Space, **all entrants shall exit the space immediately**. The space will be re-evaluated to determine whether it shall be reclassified to a Permit-Required Space.

A list of the identified Permit-Required Confined Spaces at TWU campuses is provided in [Table 1](#). The confined space inventory will be re-evaluated whenever the use, configuration, or expected hazardous of a space change.

C. Required Equipment

The following sections describe required equipment for all confined space entries at TWU.

1. Required Retrieval/Fall Protection Equipment

Entrant retrieval and fall protection equipment **must be in place at the point of entry** for all confined space entrants as follows:

- Each Authorized Entrant shall wear a full-body harness with a D-ring at the center of the employee's back near shoulder level, above the employee's head, or at another point which presents a body profile small enough for the successful rescue of the Authorized Entrant.
- Authorized Entrants must use retrieval lines as follows:
 - Retrieval lines must be attached to the D-ring of Authorized Entrants' harnesses whenever possible. Authorized Entrants should only disconnect the retrieval lines from their harness when leaving the retrieval line attached would cause a greater hazard to the Authorized Entrant(s).
 - Authorized Entrants shall be aware of the route of their retrieval line in the confined space, noting obstacles it could become entangled with, and routing it in such a way to allow for non-entry retrieval whenever possible.
 - Authorized Entrants shall be aware of other Authorized Entrants' retrieval lines and avoid stepping on or becoming entangling in them.
 - Retrieval lines **must** be attached to a mechanical device or fixed point outside the Permit-Required Confined Space in such a manner that rescue can begin as soon as the Attendant becomes aware that rescue is necessary.

- For vertical entries greater than 5 feet deep, a mechanical retrieval device (e.g. a manual or powered hoist) must be available and ready for the Attendant's use at the point of entry.
- Whenever possible, the Authorized Entrant's retrieval line must remain connected to the mechanical retrieval device. This is generally not possible when the Authorized Entrant is working at a distance from the entry point, or when multiple Authorized Entrants are in the space.
- In situations where Authorized Entrants are not connected to the mechanical retrieval device, Authorized Entrants will use another retrieval line in accordance with the rules for retrieval lines listed in [item 1](#) above. In addition, additional rescue equipment **will be required** to be available to the Attendant (i.e. a "remote hook" and specialized extendable pole that will allow the Attendant to reattach the mechanical retrieval device to the Authorized Entrant's harness during a non-entry rescue).
- If the Authorized Entrant will be exposed to fall hazards greater than 4 feet, the retrieval line must be connected to appropriate fall protection equipment. This can take the form of a shock absorbing lanyard (if the attachment point is greater than 18.5 feet from objects below) or a self retracting lanyard. Ladders are not considered to be fall hazards for the purpose of this requirement.

2. Other Required Equipment

A method of communication, such as two-way radio or mobile phone, must be available to allow the Attendant to summon assistance without leaving their post at the confined space.

Properly calibrated atmospheric sampling equipment required by the Confined Space Entry Permit must be available. For entry into Permit-Required Confined Spaces with potential atmospheric hazards, this will include equipment that can measure oxygen, carbon monoxide, hydrogen sulfide, and lower explosive limit (LEL) **at a minimum**. Additional sampling equipment will be required if other atmospheric hazards are known or expected to be present in the space.

Any personal protective equipment (PPE) indicated as required by the Confined Space Entry Permit, which may include various types of gloves, safety glasses, respirators, hard hats, footwear, welding gear, etc., must be worn by the Entry Supervisor, Authorized Entrants, and Attendants. Required PPE must be

determined by assessing the hazards of the confined space to be entered and the work to be conducted within the space.

D. Personnel Roles and Responsibilities

Personnel who are involved with routine Permit-Required Confined Space entry will perform one of the three roles. These roles are:

1. Authorized Entrant(s)

[Authorized Entrants](#) are employees authorized by the employer to enter a Permit-Required Confined Space. In addition to safely performing the assigned task within the Permit-Required Confined Space, the responsibilities of the Authorized Entrant are to:

- Know the hazards associated with the Permit-Required Confined Space and their effects
- Properly use the equipment required for entry
- Maintain a continuous means of communication with the Attendant
- Alert the Attendant whenever:
 - The Authorized Entrant recognizes any warning sign or symptom of exposure to a dangerous situation
 - The Authorized Entrant detects a condition prohibited by the permit
- Exit the space as quickly as possible whenever:
 - Ordered to by the Attendant or Entry Supervisor
 - The Authorized Entrant recognizes any warning sign or symptom of exposure to a dangerous situation
 - The Authorized Entrant detects a condition prohibited by the permit
 - An evacuation alarm (including on monitoring equipment) is activated

Authorized Entrants will be allowed the opportunity to observe any pre-entry monitoring and the final results of the monitoring. The results must also be recorded on the confined space entry permit.

2. Attendants

[Attendants](#) are personnel stationed outside the Permit-Required Confined Space to monitor the conditions in and around the space, as well as to monitor the Authorized Entrants. They additionally coordinate rescue efforts in the event of an emergency. An Authorized Entrant may never act as the Attendant while in the confined space. An Attendant's specific responsibilities are to:

- Know the hazards associated with the Permit-Required Confined Space and their effects (including possible behavioral effects)

- Verify that the safeguards required by the permit have been implemented
- Maintain an accurate account of the Authorized Entrants (i.e. who is in the space)
- Remain at their assigned station until relieved by another Attendant or until the Permit-Required Confined Space entry is complete and all entrants have exited the space
- Monitor conditions in and around the Permit-Required Confined Space and to order Authorized Entrants to exit the space if:
 - Attendant detects the behavioral effects of hazard exposure in an Authorized Entrant
 - Attendant detects a situation outside the space that could endanger the Authorized Entrants
 - Attendant cannot effectively and safely perform all required duties
- Summon rescue and applicable medical services in the event of an emergency
- Perform non-entry rescue procedures
- Perform appropriate actions to prevent unauthorized personnel from entering the Permit-Required Confined Space
- Inform Authorized Entrants and the Entry Supervisor of any unauthorized entrants

3. Entry Supervisor

The [Entry Supervisor](#) is the individual who approves entry into a Permit-Required Confined Space, contingent on necessary precautions being taken. [As noted above](#), the Entry Supervisor can only be the supervisor of the employees entering the space, or a few specific alternate TWU employees. The Entry Supervisor may also act as the Attendant if they meet the requirements for both positions. The Entry Supervisor is responsible for:

- Knowing the hazards associated with the Permit-Required Confined Space and their effects
- Verifying that the safeguards required by the permit have been implemented
- Terminating entry and canceling the permit when the entry operations have been completed or a condition arises that is not allowed under the entry permit
- Verifying that rescue services are available and that the means for summoning them are in place and operable
- Removing personnel who are not authorized to enter the Permit-Required Confined Space during entry operations

- Determining, when appropriate, that the entry operation is performed consistent with the requirements of the Permit-Required Confined Space entry procedures and that acceptable entry conditions are maintained

V. TRAINING

All [Authorized Entrants](#), [Attendants](#), and [Entry Supervisors](#) must be trained concerning their responsibilities. The training must ensure that they have acquired the understanding, knowledge, and skills necessary to perform their assigned duties.

Training must be provided:

- Before personnel are assigned duties outlined in this plan
- When their assigned duties change
- When there is a change in confined spaces on campus that may create hazards of which affected personnel have not been informed
- Whenever there is reason to believe either that there are deviations from the Permit-Required Confined Space entry procedures required by this program, or that there are inadequacies in employee's knowledge or use of these procedures
- Annually, at a minimum

Additional training may be required for employees conducting confined space work. Such required training may include, but is not limited to:

- Personal Protective Equipment (PPE)
- Respiratory Protection
- Fall Protection
- Electrical Safety
- Hazardous Energy Control (Lockout/Tagout)

All training must be documented, and documentation will be maintained by the Office of Environmental Health & Safety.

VI. RESCUE AND EMERGENCY MEDICAL SERVICES

Rescue and emergency medical services must be available during a Permit-Required Confined Space entry. TWU must assure that such services are available at all times that entry into Permit-Required Confined Spaces is occurring.

A. Method of Response

Confined space rescue and emergency medical services at TWU will primarily be provided by the applicable municipal fire departments and emergency responders serving each campus. TWU personnel may only conduct rescue and emergency medical activities that do not require entry into confined spaces, such as entrant retrieval using the entrant's lanyard and harness. If multiple confined space entries are performed, sufficient emergency personnel and equipment must be available to perform simultaneous rescues at each entry location.

1. Coordination with Outside Emergency Services

TWU will coordinate with the fire departments/emergency responders at each campus to ensure that they are familiar with the confined spaces they would be called on to provide rescue services for. This will include inviting the responders to inspect and/or conduct rescue drills in the Permit-Required Confined Spaces.

2. Summoning Outside Emergency Services

A method of communication, such as two-way radio or mobile phone, must be in place between the Attendant and the designated fire departments/emergency responders. Use of the communication method must not require the Attendant to leave the area.

Generally, the emergency responders will be summoned by dialing 911 or contacting TWU Department of Public Safety (DPS) at 940-898-2911, unless a non-municipal emergency response service is used.

B. Entry Coordination

TWU employees responsible for contractors conducting work in or near confined spaces on campus must complete the following, with the assistance of the Office of Environmental Health & Safety:

- Inform the contractor that the workplace contains Permit-Required Confined Spaces and that entry into those spaces is allowed only through a Confined Space Program meeting the requirements of OSHA's Permit-Required Confined Spaces standard (29 CFR 1910.146)
- Instruct the contractor to notify TWU of plans to enter any Permit-Required Confined Space on campus
- Apprise the contractor of the elements, including the hazards identified and TWU's experience with the space(s), that make the space(s) the contractor will working in or near Permit-Required Confined Spaces
- Apprise the contractor of any precautions or procedures that TWU has implemented for the protection of employees in or near Permit-Required Confined Space where contractor personnel will be working (in other words: let the contractor know what TWU employees are required to do for the confined spaces in question)
- Debrief the contractor at the conclusion of all entry operations regarding the Confined Space Program and regarding any hazards confronted or created in Permit-Required Confined Spaces during entry operations

If a task involves entry into a Permit-Required Confined Space by both TWU and contractor personnel, a TWU Entry Supervisor will be responsible for coordinating entry into the space. The Entry Supervisor will understand the hazards of the work to be performed by all Authorized Entrants, and ensure that the activities of contractors or TWU employees do not endanger Authorized Entrants.

C. Annual Review

The Office of Environmental Health & Safety will review this program annually to ensure that employees participating in entry operations are protected from Permit-Required Confined Space hazards. The program will be reviewed in light of the canceled Confined Space Entry Permits for the previous year.

VII. ENTRY PROCEDURE

The following are the steps required to be followed for each confined space entry:

A. Determine if Work Tasks Involve Confined Space Work

Supervisors should always be aware of the potential for confined spaces in work they assign. Similarly, employees should be aware of any work they are assigned that may involve confined spaces. If supervisors or employees determine that a confined space is involved in an assigned task, the requirements of this program must be followed. Confined spaces may not always be labeled, so vigilance is critical.

B. Determine if Identified Confined Spaces are Permit-Required Confined Spaces

Review [Table 1](#) to determine if the confined space was previously identified as Permit-Required. Even if the confined space was not previously determined to require a permit for entry, supervisors and employees should consider the specific conditions and work to be conducted to determine if a permit is required (see [Section IV B](#)). Contact the Office of Environmental Health & Safety for assistance.

A confined space entry permit is not required for Confined Spaces where no hazards have been identified (i.e. Non-Permit Required Confined Spaces).

Note: For Permit-Required Confined Spaces that do not have atmospheric hazards, if all hazards can be eliminated from outside the confined space, a permit is not required.

C. Complete a Confined Space Entry Permit

The acting Entry Supervisor will review [Table 2](#), the current conditions, and planned work to be conducted in the space to determine which items on the Confined Space Entry Permit (Attachment) will be required. A digital version of the Confined Space Entry Permit is available on [CampusOptics](#). The permit will only be valid for the time required to complete the current task. Contact the Office of Environmental Health & Safety for assistance.

If contractors are involved in the work, coordinate the permit review with the contractor's representatives to ensure that all work processes are accounted for.

D. Complete All Items Required by the Confined Space Entry Permit

The Entry Supervisor will provide a copy of the permit to the necessary personnel (e.g. Authorized Entrants and Attendants). All Authorized Entrants and Attendants shall review the permit, noting the required items (checked "REQ" boxes on the permit). All required preparations must be carried out, and all required equipment brought to

the entry point. The completed items must be noted on the permit (by checking the “COM” boxes on the permit) to indicate that it has been completed.

E. Sign Confined Space Entry Permit

The Entry Supervisor may only sign the permit after they have verified that all required items noted on the permit are completed.

Entry may not proceed until the permit is signed by the Entry Supervisor!

F. Conduct Entry

All Authorized Entrants and Attendants must review the permit and be given the opportunity to review the atmospheric monitoring prior to entry. If atmospheric monitoring indicates that there is a hazardous atmosphere, as defined above, the entry may not proceed and the permit must be cancelled.

The permit must be maintained by the Attendant at the confined space. If at any point during the entry the permit conditions cannot be met, or if conditions change, the Authorized Entrants will exit the space immediately. The Attendant will be stationed adjacent the confined space for the duration of the time Authorized Entrants are in the space.

Atmospheric monitoring will be conducted continuously whenever possible, and will be conducted at a minimum of hourly or whenever conditions change or there is any reason to believe that the atmosphere has changed.

G. Debrief Authorized Entrants

The Entry Supervisor must review the entry with all personnel involved and note comments on the permit. This debrief must include information from contractor personnel, if applicable.

H. Cancel and File Permit

Once entry is complete and all close-out items listed on the permit are complete, the Entry Supervisor must sign the permit to cancel it and send it to the Director of Environmental Health & Safety for filing and use in the annual review.

TABLES

TABLE 1: Permit-Required Confined Space Inventory
 DENTON CAMPUS PERMIT-REQUIRED CONFINED SPACE INVENTORY

Building No.	Name	Confined Space Type
Campus Wide	HVAC Equipment/Ductwork	HVAC Equipment/Ductwork
Campus Wide	Tunnels	Tunnels
Campus Wide	Catch Basins	Sump Pit
Campus Wide	Utility Vaults	Utility Vaults
N/A	Large Tunnel Entrance (“Snake Pit”)	Tunnel/Sump Pits (3)
01	Admissions and Registration Bldg.	Sump Pit
01A	Administrative Conf. Tower	Sump Pit
05	Margo Jones Auditorium/Music Bldg.	Sump Pits (5)
06	Visual Arts Building	Sump Pits (6)
07	Support Annex	Sump Pit
09	Ann Stuart Science Complex	Acid Neutralization Pit
09	Ann Stuart Science Complex	Crawl Space Under Building
09	Ann Stuart Science Complex	Sump Pit
10	Fine Arts Annex	Sump Pit
11	Woodcock Hall	Sump Pit (3)
11	Woodcock Hall	Acid Neutralization Pit
13	Classroom & Faculty Offices Bldg.	Sump Pits (2)
30	Hubbard Hall	Sump Pit
30	Hubbard Hall	Grease Trap
35	MEBH Library	Sump Pits (3)
37	Stoddard Hall	Sump Pits (3)
39	Mary Gibbs Jones Hall	Sump Pits (2)
42	Nelda Stark Hall	Sump Pits (2)
43	John Guinn Hall	Sump Pits (2)
44	Guinn/Stark Commons	Grease Trap
52	Lowry Woods Apartments	Sump Pit
54	University House	Basement
57	Outdoor Swimming Pool	Sump Pit
58	Restrooms	Sump Pit
64	Brackenridge Bldg.	Grease Traps (3)
64	Brackenridge Bldg.	Sump Pit (2)
64	Brackenridge Bldg.	Sewage Ejector Pit
70	Central Plant	Sump Pit
76	South Substation	Sump Pit
77	Facilities Management Auto Shop	Grease Trap/Grit Separator
79	Pioneer Hall	Sump Pits (2)

DALLAS CAMPUS PERMIT-REQUIRED CONFINED SPACE INVENTORY

Location	Name	Confined Space Type
Campus Wide	HVAC Equipment/Ductwork	HVAC Equipment/Ductwork
Campus Wide	Tunnels	Tunnels
Campus Wide	Catch Basins	Sump Pit
Campus Wide	Utility Vaults	Utility Vaults
Campus Wide	Basement	Sewerage Ejector Pit

HOUSTON CAMPUS PERMIT-REQUIRED CONFINED SPACE INVENTORY

Location	Name	Confined Space Type
Campus Wide	HVAC Equipment/Ductwork	HVAC Equipment/Ductwork
Campus Wide	Tunnels	Tunnels
Campus Wide	Catch Basins	Sump Pit
Campus Wide	Utility Vaults	Utility Vaults

TABLE 2: Potential Hazards by Confined Space Type

Space Type	Potential Hazards								
	Oxygen Deficiency	Hydrogen Sulfide Gas	Carbon Monoxide	Explosive Atmosphere/ Oxygen Enrichment	Other Toxic or IDLH Atmosphere	Hazardous Energy/ Equipment	Internal Configuration	Engulfment	Products of Work Activities
HVAC Equipment/ Ductwork						X	X		X
Tunnels	X	X	X	X		X	X		X
Sump Pit	X	X	X	X	X	X	X	X	X
Sewerage Ejector Pit	X	X	X	X	X	X	X	X	X
Utility Vault	X	X	X			X			X
Acid Neutralization Pit	X	X	X		X			X	X
Grease Trap/Grit Separator	X	X	X	X				X	X
Crawl Space/ Basement	X	X	X	X		X	X		X

ATTACHMENTS



CONFINED SPACE ENTRY PERMIT

Location _____ Description of Space _____

Department Responsible _____

Description of Work to be Performed _____

Authorized Duration of Permit From: _____ To: _____
(Date/Time) (Date/Time)

If entry into a permit space is not made during time specified, a new permit must be completed prior to entry.

ACTUAL OR POTENTIAL HAZARDS IN CONFINED SPACE

N/A	A/P	N/A=Not Applicable	A/P=Actual/Potential
()	()	Oxygen deficiency	
()	()	Flammable gases or vapors	
()	()	Toxic gases or vapors exceeding Permissible Exposure Limit (PEL)	
()	()	Mechanical	
()	()	Electrical	
()	()	Engulfment	
()	()	Materials harmful to skin	
()	()	Configuration of space could trap entrant	
()	()	Heavy/awkward/pressurized entry covers	
()	()	Slick or obstructed working surfaces/trip hazards	
()	()	Dust	
()	()	Noise	
()	()	Heat/cold	
()	()	Falling	
()	()	Asbestos	
()	()	Lead	
()	()	Radioactive residues/gasses	
()	()	Other, specify: _____	

Note: In addition to gases or vapors already present, use of solvents, paints, caulks, or similar materials can have an adverse effect on the atmosphere inside the confined space.

PREPARATIONS

N/A	REQ	COM	N/A=Not Applicable	REQ=Required	COM=Completed
()	()	()	Obtain & review appropriate Safety Data Sheets (Attach copies of SDSs to this permit)		
()	()	()	Respirator users have been trained, cleared, and fit tested for the make/model/size of respirator		
()	()	()	Notify all contractors involved/affected; Specify: _____		
()	()	()	Staging area for materials/equipment determined		
()	()	()	Cordon off area around confined space/protect area from materials falling into vertical opening		
()	()	()	Transportation routes unobstructed for emergencies		
()	()	()	Isolate pipes by blanking, double-valve & bleeding, or lockout/tagout*		
()	()	()	Lockout/tagout energy sources to which entrants are exposed*		
			*(Attach separate lockout/tagout checklist if required)		
()	()	()	Eliminate conditions making it unsafe to remove/open entrance before opening		
()	()	()	Drain, clean, wash and/or purge space (If purging is required, specify minimum time: _____)		
()	()	()	Ventilation of space as required to provide fresh air; Specify: _____		
()	()	()	Hot work checklist completed and attached if required		
()	()	()	Other, specify: _____		

MANDATORY PREPARATIONS

REQ	COM	REQ=Required	COM=Completed
(X)	()	Copy of completed permit posted near confined space entry points	
(X)	()	Map of confined space entry points marked on permit to aid first responder notification and response	
(X)	()	Arrange for qualified Attendant(s) and Entrants(s)	
(X)	()	Employees involved informed of specific confined space hazards	
(X)	()	Employees involved have reviewed procedures outlined on this checklist/permit	
(X)	()	Communication devices checked for proper operation immediately prior to entry	

REQUIRED items checked must also be checked COMPLETED to ensure acceptable entry conditions are met before allowing entry. The space must be evacuated IMMEDIATELY if acceptable entry conditions cannot be maintained. Revised: 08/03/2023 To ensure current version see <https://twu.edu/health-safety/safety-programs/confined-space-entry/>

EQUIPMENT REQUIRED FOR SAFE ENTRY

N/A	REQ	COM	N/A=Not Applicable	REQ=Required	COM=Completed
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confined space air monitor (calibrated) - Oxygen/Flammability/Hydrogen Sulfide/Carbon Monoxide (REQUIRED if there is any potential for a hazardous atmosphere to develop)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Additional air monitoring equipment (calibrated): Specify _____		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tripod/retrieval winch equipment (required for vertical descents over 5 feet)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remote hook and extendible pole (required if Entrants will disconnect from tripod and winch)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fall protection lanyards or self retracting lifelines (required if there are fall hazards over 4 feet; only a self retracting lifeline may be used if the attachment point is less than 18.5 feet from objects below)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation equipment (e.g. forced air fans/elephant trunks)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communication equipment for Entrants: Specify _____		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communication cable for confined space entry monitors (can serve as Entrant/Attendant communication method)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Respirators equipped with appropriate filters and/or cartridges: Specify _____ (Note: TWU Employees and students are prohibited from entering hazardous environment in a confined space)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ladder or other approved means for gaining safe entry (if fixed ladder or stairs are not present)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Protective clothing: Specify _____		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hard hat/bump cap		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gloves: Specify _____		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Eye/Face Protection: Specify _____		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appropriate footwear: Specify _____		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hearing protection		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	First-aid kit readily accessible		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fire extinguisher (required for Hot Work)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drinking water readily accessible (cooler with cups if necessary)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ground-fault interrupter protection (required for any electrical tools used in wet/damp spaces)		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other, specify: _____		

MANDATORY EQUIPMENT

REQ	COM	REQ=Required	COM=Completed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Full body harness with retrieval line for entrants, attached to mechanical device or fixed point outside the space	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Communication device for Attendant (cell phone/radio for summoning rescuers)	

ATMOSPHERIC TESTING

N/A=Not Applicable			REQ=Required		COM=Completed	
N/A	REQ		N/A	REQ		
<input type="checkbox"/>	<input type="checkbox"/>	Continuous Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	Periodic Monitoring	

N/A	REQ	COM	<i>Allowable Limits</i>	<i>Time:</i>				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Oxygen Level	19.5%-23.5%	%	%	%	%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Flammability	10% LEL	%	%	%	%
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Hydrogen Sulfide	10 PPM	ppm	ppm	ppm	ppm
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carbon Monoxide	35 PPM	ppm	ppm	ppm	ppm

*REQuired items checked must also be checked COMpleted to ensure acceptable entry conditions are met before allowing entry.
 The space must be evacuated IMMEDIATELY if acceptable entry conditions cannot be maintained.*

Revised: 08/03/2023

To ensure current version see <https://twu.edu/health-safety/safety-programs/confined-space-entry/>

N/A REQ COM

() () ()

Other, specify: _____

Allowable Limits Time:

ppm	ppm	ppm	ppm
ppm	ppm	ppm	ppm
ppm	ppm	ppm	ppm

() () ()

Other, specify: _____

() () ()

Other, specify: _____

Name of Employee Conducting Testing (please print) _____

Ensure that atmospheric testing is conducted at all levels of the space to account for stratification of gases!

AUTHORIZED PERSONNEL

(Note: Attendants, Entrants, and Entry Supervisors must be trained in their duties as described in the TWU Confined Space Program)

Name(s) of ATTENDANT(S) _____

Name(s) of AUTHORIZED ENTRANT(S) (Attendant must keep current tally of entrants in space)

1) _____ 2) _____

3) _____ 4) _____

5) _____ 6) _____

7) _____ 8) _____

AUTHORIZATION TO PROCEED

I certify that all required precautions identified on this checklist/permit have been taken and authorize work to proceed as described. Attendants and Entrants have been instructed to evacuate this space and to notify me (the undersigned) immediately if any of these precautions cannot be maintained. The confined space entry points on the following map have been marked/circled to aid in first responder notification and response.

ENTRY SUPERVISOR NAME _____ DATE _____

(Please Print)

ENTRY SUPERVISOR SIGNATURE _____ TIME _____

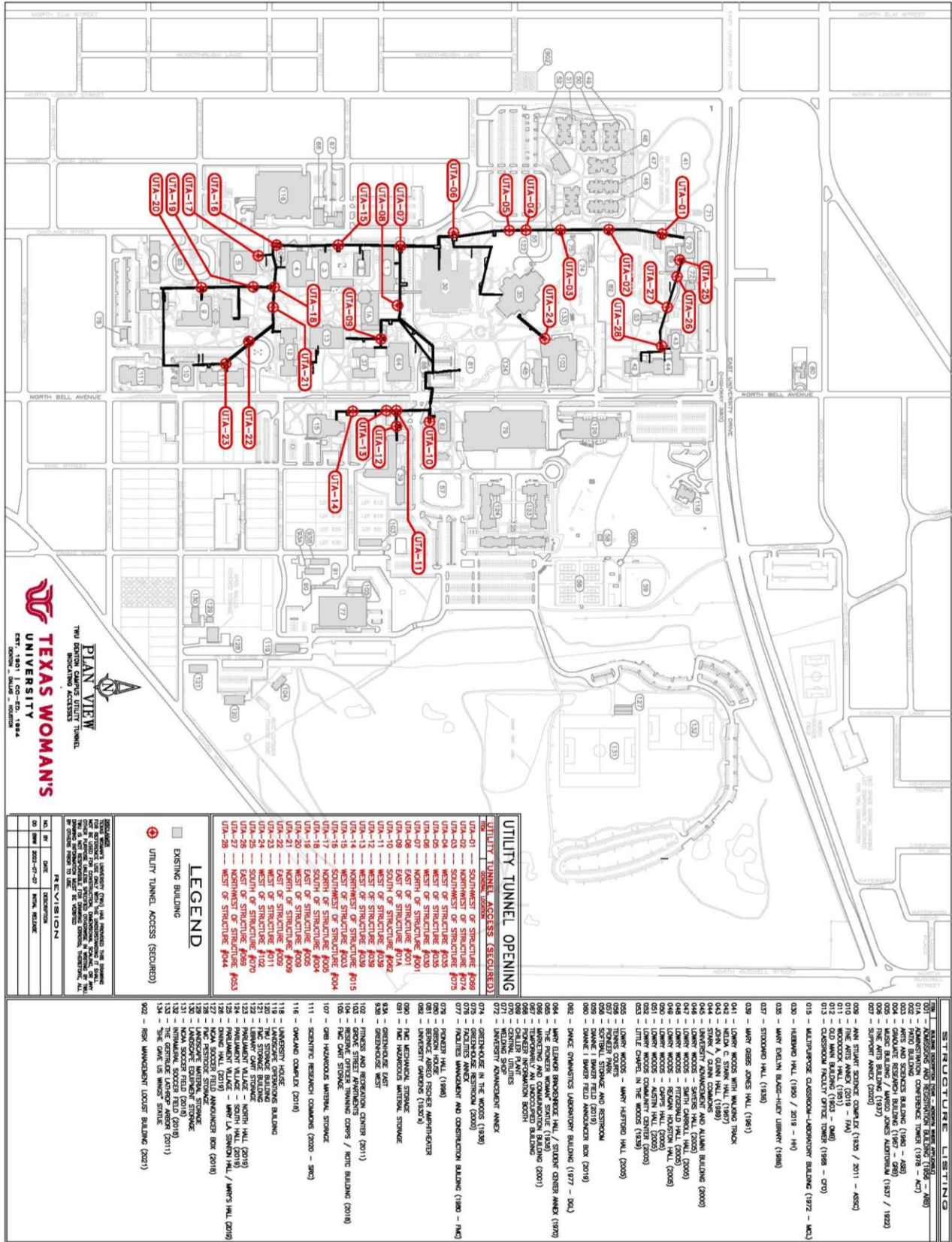
The Entry Supervisor must be a supervisor of the Entrant(s) who has received current confined space entry training, and may also act as the Attendant, but may not also be an Authorized Entrant listed under this or any other active confined space entry permit. One of the specific alternates listed in the Confined Space Entry Program may also act as the Entry Supervisor (see Section III B).

TIME ENTRY BEGAN _____ TIME ENTRY ENDED _____

POST PERMIT NEAR ENTRY POINT DURING ENTRY

CONFINED SPACE ENTRY MAP

Mark the intended confined space entry points on the map below to aid in first responder notification and response.



REQuired items checked must also be checked COMPLETED to ensure acceptable entry conditions are met before allowing entry.
 The space must be evacuated IMMEDIATELY if acceptable entry conditions cannot be maintained.
 Revised: 08/03/2023
 To ensure current version see <https://twu.edu/health-safety/safety-programs/confined-space-entry/>

PERMIT CLOSE-OUT PROCEDURES

N/A REQ COM N/A=Not Applicable REQ=Required COM=Completed

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Reverse isolation/lock-out procedures (refer to lockout/tagout checklist if required) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Secure entrance to confined space |

MANDATORY PROCEDURES

- | | | | | |
|-------------------------------------|--------------------------|--------------|---------------|--|
| REQ | COM | REQ=Required | COM=Completed | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | Debrief personnel involved in entry operations and note comments |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | | | Cancel and file permit for future reference (send to Office of EH&S) |

ENTRY SUPERVISOR SIGNATURE _____ **DATE** _____

The Entry Supervisor terminates the permit by signing above when all work and close-out procedures are completed, or if conditions in the Permit-Required Confined Space change, invalidating the permit.

COMMENTS _____

SEND COMPLETED PERMIT TO OFFICE OF ENVIRONMENTAL SAFETY & HEALTH