



Confined Space Program

CONFINED SPACE PROGRAM

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Scope

The purpose of the Confined Space Program is to protect workers entering confined spaces to perform maintenance, cleaning, or other types of work. The Program provides information and guidelines with all classifications of confined spaces.

Program Elements

1. Identifies the necessary components for entry into confined spaces including monitoring and equipment which may be required.
2. Identifies rescue and emergency procedures of confined spaces and the responsibilities of authorized employees in such instances.
3. Identifies a Permit System including preparation, use, and cancellation of permits. The Permit System includes work with outside contractors.
4. Provides training to employees involved with confined space work and identifies their duties.
5. Provides for a review of individual operations involving confined spaces and an annual program review.

Space Evaluation

Identification and Classification

The Confined Space evaluation identifies and classifies all spaces potentially being entered. The Safety Manager has the responsibility for identifying and classifying all confined spaces by using the “Confined Space Survey” form. A discussion of the classification rationale is provided in the survey ([See Appendix B: Confined Space Survey](#)). The Safety Manager is to maintain a log of all surveys. The classifications of confined spaces ([See Appendix A: Definitions](#)) are:

- NON-PERMIT REQUIRED
- HAZARDOUS ATMOSPHERE ONLY
- PERMIT REQUIRED

Posting

All Permit Required and Hazardous Atmosphere Only Spaces are posted with identification signs within the immediate work area and as close to the entry space as possible. The signs state “DANGER – CONFINED SPACE AUTHORIZED PERSONELL ONLY” or similar language to prevent unauthorized entry.

Reclassification of Permit Space

Permit Required and Hazardous Atmosphere Only Spaces may be reclassified as Non-Permit spaces. Reclassification occurs when all hazards and potential hazards are removed. Neutralization of dangerous moving parts, by lockout for example, may allow reclassification to Non-Permit status.

Entry Without Permit

Confined spaces that do not contain known hazards have reduced requirements for entry. Spaces classified as Non-Permit do not involve hazards considered serious ([See Appendix A: Definitions](#)). Non-Permit spaces do not require a written permit or attendant for entry, non-Permit spaces do not require any special testing or training.

Permit Required Entry

Confined Spaces that contain known or potential safety and health hazards to entrants require a permit and an entry procedure or space review prior to entry. These areas are PERMIT REQUIRED SPACES ([See Appendix A: Definitions](#)). Entry is allowed to trained and authorized individuals only. If the space contains only atmospheric hazards

correctable through ventilation, the permit area is a HAZARDOUS ATMOSPHERE ONLY SPACE.

Acceptable Entry Conditions

Because of the dangers that exist within Permit Required areas, there are conditions that must be eliminated before entry (See Appendices [D](#) and [E](#): Permit Systems). Precautionary steps such as source of isolation, ventilation, and atmospheric level testing are required prior to entry. Acceptable entry conditions for specific areas are contained in Entry Permits.

Isolation

Lockout of mechanical hazards will follow the requirements identified in the 20/20 Plumbing & Heating, Inc. Policies and Procedures Manual – Control of Hazardous Energy Lockout / Tagout Program.

Purging and Flushing

If a confined space contains an atmosphere that is flammable or considered immediately dangerous to life or health (IDLH), the area will require purging before employees can enter ([See Appendix A: Definitions](#)). Continues forced ventilation is necessary to keep some areas safe during entry.

Verification Monitoring

Requirements of entry are listed on Entry Permits. Monitoring of hazardous conditions is required prior to receiving entry authorization. Conditions include atmospheric, mechanical, and physical hazards. Ongoing monitoring may be periodic or continuous as required by the permit. Only personnel trained in the proper use of the equipment are authorized to perform required air monitoring.

Barriers

Barriers must be placed around Permit Required Spaces when conditions may cause injury. Conditions include:

- Unauthorized Entry
- Objects Falling Into the Space
- Vehicular Hazards Around the Space

Attendants

There must be at least one attendant present outside the space for the duration of the work being performed in Permit Required Spaces ([See Duties](#)). Attendants must not monitor more than one operation at any given time.

Concluding Operations

When scheduled work operations in a Permit Required Space have concluded:

1. Entrants will exit the space.
2. The area will be closed off.
3. The permit will be cancelled.

Hazardous Atmosphere Only Space

Spaces are classified as Hazardous Atmosphere Only if the space contains an actual or potential hazard but still can be controlled by ventilation ([See Definitions](#)).

Hazardous Atmosphere Only spaces require a completion of the pre-entry certification prior to entry but do not require an attendant or permit ([See Appendix D](#)).

Atmospheric testing is required prior to entry and periodically as necessary to confirm the elimination of hazardous atmospheres.

Continued forced ventilation is required to eliminate hazardous atmospheres.

If circumstances other than a scheduled break require an interruption of work, evacuate the space. A new pre-entry certification, including a re-evaluation, must be completed before resuming work.

Employees working with Hazardous Atmosphere Only spaces must receive training.

Equipment

Equipment required during entry operations are listed on the permit may include:

- Testing and Monitoring Equipment
- Ventilation Equipment
- Personal Protective Equipment
- Lighting Equipment
- Barriers and Shields
- Ingress and Egress Equipment
- Rescue and Emergency Equipment
- Any other equipment necessary for safe entry and rescue.

Entry equipment will be maintained by their respective owners. Only trained and authorized employees are to use the equipment.

Rescue and Emergency Services Procedures

An emergency is an event in or near the Permit Space that could endanger entrants. Emergency rescue services during entry by employees will be provided by either the local fire agency (911) in the area the Permit Space is being performed, or if deemed necessary, a Confined Space Rescue Team may be contracted to meet requirements for potential response time delays.

Evacuation and Rescue Procedures

1. Attendant will notify all Entrants to evacuate.
2. Attendant will call 911 if the emergency involves serious injury or fire.
3. Entry Supervisor will call the Manager on Duty at the branch and notify this person as to the event.
4. Attendant will execute any “non-entry” rescue procedures appropriate to the situation.
5. The Entry Supervisor will immediately cancel the Entry Permit.
6. The Manager on Duty will, within reason, immediately go to the Entry Space to do an investigation of the event and report to the Safety Manager their finding of the event.

Supervisor and Attendant Responsibilities

- Provide Rescue Services group with information on the work being done.
- Provide the Entry Permit to Rescue Services personnel.
- Provide Rescue Services with any observations or information about the emergency.
- Keep unauthorized personnel out of the area.
- Forward information on any chemicals involved in exposures to the medical facility treating exposed victims.

Permit System

Entry Permits are kept by the Safety Manager authorized to assign entry, and will be available for review after permits have been cancelled and entry has been completed.

Preparation

Prior to “Permit-Required” or “Hazardous Atmosphere Only” space entry, an applicable permit of certification must be completed in full.

Additional requirements may apply to the Permit-Required areas based upon entry testing results ([See Space Evaluation and Monitoring](#)). A final authorization signature is required by the Safety Manager for “Permit-Required” spaces. If the area is a “Non-Permit” space, work may proceed without a permit or notification.

Issue / Use

Space entry work must not deviate from the requirements of the permit, including the time required to complete the assignment. Permits must be posted during the entry. It is the responsibility of the Entry Supervisor to see that permits are posted.

Conclusion of Operations / Cancellation of Permit

Upon conclusion of the entry operations, the authorized Entry Supervisor is responsible for terminating the entry and cancelling the Permit ([See Duties](#)). The Entry Supervisor is also required to terminate entry and cancel the Permit when a condition exists that is not acceptable by the Permit. Entry must not exceed the expiration date and time posted on Entry Permits. Upon conclusion of entry operations, the Entry Supervisor shall cancel the Permit and this will be kept with the Branch Safety Manager on file for at least one year.

Outside Contractors

When working with, or for another contractor, a pre-entry meeting will occur to gain information of outside contractors Confined Space Program. A copy of the outside contractors Confined Space Program shall be made available for review and shall not have standards less than 20/20 Plumbing & Heating, Inc. and a “Best Practices” approach to each Confined Space Program will be adopted for the entry requirements. A copy of 20/20 Plumbing & Heating, Inc. Confined Space Program will be provided to outside contractors upon request.

Training

Employees working with “Permit-Required” or “Hazardous Atmosphere Only” Spaces must receive training. Employees working as Attendants, Authorized Entrants, or Entry Supervisors receive training for safe performance of assigned duties in a confined space areas. Training is not required of employees entering Non-Permit spaces. Each employee that is involved as an Authorized Entrant, Attendant, or Entry Supervisor shall also have a current First Aid / CPR certificate, and training for First Aid / CPR shall be provided by 20/20 Plumbing & Heating, Inc.

Frequency

Affected employees must receive training before the first assignment of work in confined spaces. Employees receive additional training when there is a change in assignment, operation, or procedures. Each employee must complete a “refresher” course within 2 years of initial training.

Documentation

All training pertaining to confined space duties will have a training outline and an attendance sheet containing the date of training and a listing of trainees. Upon successful completion, employees will receive a company issued pocket certificate for presentation purposes of successful completion of their training. Pocket certificate must be renewed every 2 years by completing a refresher course.

Duties

There are four different active roles in performance of permitted confined space entry operations: Authorized Entrant, Attendants, Entry Supervisor and Stand-By Rescue.

Authorized Entrants

Entrants are employees authorized to enter a permit space. Entrants shall:

- Know the hazards that may be faced during entry.
- Properly use equipment mentioned under the “Equipment” section.
- Communicate with the Attendant as necessary alerting him/her of hazards.
- Exit from the permit space whenever there is an order to evacuate, a hazard is recognized, or an evacuation alarm is activated.

Attendants

Attendants are employees stationed outside of a permit space to monitor entrant activity and perform duties listed on the permit. Attendants are responsible to:

- Know the hazards the may be faced during entry.
- Know the behavioral effects of hazard exposure in authorized entrants.
- Keep an accurate count of the number of entrants in the permit space.
- Remain outside the space during operations until relieved.
- Monitor the work area for hazardous conditions.
- Summon rescue and emergency services.
- Communicate with entrants to relay information and monitor the status of the entrants.
- Order the evacuation of the entrants from the space if a hazardous condition is encountered.
- Keep unauthorized employees away from the space.

- Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.
- Perform non-entry rescues.

Entry Supervisor

Entry Supervisors authorize and supervise entry operations. An Entry Supervisor that authorizes entry may delegate supervisory responsibilities during entry to another employee authorized as a supervisor. Entry Supervisors are responsible to:

- Recognize the potential hazards during entry, including signs and symptoms of exposure.
- Determine, before entry, that area conditions meet the requirements of the permit.
- Provide necessary equipment, hazardous material information, and assuring rescue services are in place.
- Assure that entrants and attendants are trained prior to entry.
- Determine that entry operations and conditions remain consistent with the terms of the permit.
- Remove unauthorized individuals from the area during entry operations.
- Cancel the permit at the conclusion of the entry.

Stand by Rescue

The Entry Supervisor may take a dual role and also be the Stand-By Rescue person. The rescue person shall:

- Properly use and maintain PPE and rescue equipment.
- Act as a rescuer in annual simulated emergencies.
- Assume individual roles and take on any emergency.

Reviews

Post-Entry Review

The Safety Manager will immediately review specific operations under the following circumstances:

- Unauthorized entry.
- Detection of hazards not addressed on a permit.
- Complaints of the effectiveness of entry procedures.
- Subsequent entries will not be authorized until the review is completed with all necessary revisions made.

Program Review

The Program is reviewed at least annually by the Operations Manager, and the Safety Manager.

Appendix A: Definitions

Acceptable Entry Conditions

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

Attendant

An individual stationed outside the permit space who monitors the authorized entrants and who performs all attendants' duties assigned in the permit space program.

Blanking or Blinding

The absolute closure of a pipe, line, or duct by fastening a solid plate that completely covers the bore and is capable of withstanding the maximum pressure of the pipe, line or duct with no leakage beyond the plate.

Confined Space

A space that meets the following criteria:

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

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.

Entrant

Employee who is authorized to enter a permit space.

Entry

Action by which a person passes through an opening into a permit-required space. Entry includes ensuring work activities in that space and occurs as soon as any part of the entrant's body breaks the plane of the opening of the space.

Entry Permit

The written or printed document provided by 20/20 Plumbing & Heating, Inc. allowing and controlling entry into a permit space.

Entry Supervisor

The person (such as a senior technician) 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 section.

Hazardous Atmosphere

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

- Flammable gas, vapor, or mist in excess of 10 percent of its lower explosive limit (LEL);
- Airborne combustible dust at a concentration that meets or exceeds its LEL;
- Atmospheric oxygen concentration below 19.8 percent or above 23.5 percent;
- Atmospheric concentration of any substance for which a dose or a published exposure guideline is available and which could result in employee exposure in excess of its dose or permissible exposure limit.

Hazardous Atmosphere Only Space

A confined space in which the only hazard posted is an actual or potential hazardous atmosphere which can be controlled by continuous forced ventilation.

Immediately Dangerous to Life or Health (IDLH)

Any condition that poses an immediately or delayed threat to life or what would cause irreversible adverse health effects of that would interfere with an individual's ability to escape unaided from a permit space.

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, including hydraulic or electric; blocking or disconnecting all mechanical linkages; or physically restraining moving parts.

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.

Permit Required Confined Space (PCs)

- 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; or
- Contains any other recognized serious safety or health hazard.

Retrieval System

Equipment (including a retrieval line, full body harness, and a lifting device or anchor) used for non-entry rescue of a person from a permit space.

Appendix B: Confined Space Survey

Location _____ **Date of Survey** _____

General Description _____

Classification

Permit-Required Space Hazardous Atmosphere Only Space

Non-Permitted Space Not a Confined Space

Can be bodily entered?	Y / N	Hazardous atmosphere?	Y / N
Limited or restricted entry?	Y / N	Potential for engulfment?	Y / N
Not designed for continuous Human occupancy?	Y / N	Internal configuration Hazard?	Y / N
Other serious hazards?	Y / N		

Hazards

Possible atmospheric hazards_____

Possible content hazards_____

Configuration of space_____

Unusual hazards_____

Entry

Who will enter space_____ Frequency of entry_____

Number of entry points_____ Reason for entry_____

Warning signs posted?	Y / N	Has the space been sealed / locked?	Y / N
Atmospheric test performed?	Y / N		

Other Pertinent Information

Prepared By:_____ Signature:_____

Appendix C: Alternate Entry - Reclassification Safety Certification

Section A: Alternate entry procedure

Section A may be used instead of the entry permit if all of the following conditions are Yes:	Yes	No
The only hazard is atmospheric.	<input type="checkbox"/>	<input type="checkbox"/>
Continuous forced-air ventilation alone is sufficient to keep the space safe for entry.	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring and inspection show that other hazardous conditions do not exist.	<input type="checkbox"/>	<input type="checkbox"/>
Conditions that make it unsafe to remove entrance cover have been eliminated.	<input type="checkbox"/>	<input type="checkbox"/>
Openings are guarded to protect employees from falls and falling objects.	<input type="checkbox"/>	<input type="checkbox"/>

Note: When permit-space entry is required to verify conditions, the PRCS program and entry permit must be used.

Use the table below to document test results for safe entry.

Space monitoring results	Test 1	Test 2	Test 3	Test 4
Supporting documentation for safe entry	Permissible entry levels	Time: Initial:	Time: Initial:	Time: Initial:
Percent of oxygen	19.5% to 23.5%			
Combustible gas	Less than 10% LEL			
Other toxic gas				
Other toxic gas				
Other toxic gas				

If a hazardous atmosphere is detected during entry, remove employees immediately and re-evaluate the space to determine how the hazardous atmosphere developed. Take measures to protect employees before subsequent entry.

Section B: Reclassification of a permit space to a non-permit space

Section B may be used instead of the entry permit if all of the following conditions are Yes	Yes	No
The permit space poses no actual or potential atmospheric hazards.	<input type="checkbox"/>	<input type="checkbox"/>
All hazards within the space can be eliminated without entry into the space.	<input type="checkbox"/>	<input type="checkbox"/>
Employees have been informed or shown the actions taken to eliminate hazards.	<input type="checkbox"/>	<input type="checkbox"/>

Note: When permit-space entry is required to verify conditions, the permit-space program and entry permit must be used.

If hazards arise within or near the reclassified space, remove employees immediately and re-evaluate to determine whether it must be reclassified as a permit space.

Alternate entry

Reclassification

Date: / /

Space location: _____

Space description: _____

Name of person making the determination: _____

Appendix D: “Hazardous Atmosphere Only” Confined Space Entry

Lactation: _____

Description: _____

Were all atmospheric levels of confined space tested?	Y / N
Has a Confined Space Survey been completed?	Y / N
Has a continuous forced air ventilation system been installed?	Y / N
Has the area been purged or flushed?	Y / N
Will there be periodic monitoring of the atmosphere while the space is occupied?	Y / N

If Periodic testing answer is a yes, at what interval will the testing be done?

Oxygen _____ %

Explosive _____ %LEL

H2S _____ PPM

Name of tester: _____

Signature of tester: _____

If the answers to any of the above questions are negative, the space cannot be entered. If a hazardous atmosphere is detected during entry, the area must be evacuated. Promptly notify the Branch Safety Manager of an evacuation.

This space has no hazards other than the existing atmospheric hazards.

A continuous forced air ventilation system is in place to eliminate or

Control the existing atmospheric hazards.

Supervisor / Supervisor designee signature _____

Appendix E: Confined Space Entry Permit

Type of Space: _____
Duration of Permit _____

Date: _____

Location: _____

Purpose of Entry: _____

Potential Hazards of Entry: _____

Have all persons on this Confined Space Team been trained before performing this job?

Attendant: YES NO **Standby:** YES NO
Entrant: YES NO

CPR/First Aid Trained (List Names) _____

Are all the following required and completed?		YES	NO	N/A
1.	If you are working in the street, do you have a traffic control plan? Signs? Flagger? Cones?			
2.	Is all entry equipment on site and ready? Air Monitor, SCBA, Ventilator, Tripod, Winch, Harness			
3.	Is all necessary PPE ready? Safety Glasses, Goggles, Respirators, Clothing, Boots, Gloves, Vest, etc.			
4.	Does Dispatch have your location? Alternate emergency communication method established?			
5.	Permanent metal rungs or ladders in the space tested and safe to use? (Check for slippery materials)			
6.	Is visual or radio communication in place between the Entrant and Attendant?			
7.	If additional lighting is required, is a safe non-spark work light or flashlights being used?			
8.	Are separate containers and lines available for the lowering and raising of tools, equipment, and supplies?			
9.	Have measures been taken to prevent fires and explosion? No Sparks, No Smoking, No Open Flames			
10.	Lockout/De-Energizing of Equipment precautions taken?			

11.	Valves Closed/ Bleeds Open/ Blanks Installed?			
12.	Pre-Entry Purge, Flush, Empty and Vent Required (when hazardous or flammable chemicals were previously located in space)			
13.	Mechanical Ventilation Required and/or available?			
14.	Safety Harness/ Lifeline/ Mechanical Retrieval in use?			
15.	Fire extinguisher available/ type: _____ (<i>Mandatory for any work involving use of open flames</i>)			
16.	Opening set up properly? Use of barricades to prevent people from entering your work area?			
17.	Pre-Entry Briefing Completed? Time to discuss chemicals and hazards present with our countermeasures. (Customer must supply MSDS for all chemicals in confined space)			

Test Instrument:	Date of Last Calibration:	Tester Signature:
------------------	---------------------------	-------------------

I agree that all work referred to on this confined space checklist has been done satisfactorily and all the necessary safety precautions have been taken to ensure my personal safety.

Signed: _____ (date) _____

Entrant

Signed: _____ (date) _____

Standby

Signed: _____ (date) _____

Attendant

Air Sampling Results

Time/ Initials	Oxygen	LEL/Combustibles	Toxics (CO)	Hydrogen Sulfide (H ₂ S)
<i>Before Removing Cover of Space (if applicable)</i>				
<i>First Test of Space</i>				
<i>Not Acceptable? Ventilate for at least 20 minutes or 20 complete air exchanges per hour (if ventilation is needed, continue ventilation throughout entry)</i>				
<i>First Test after ventilation</i>				

Additional Testing / Times

Tested	Time	Time	Time	Time	Time
Oxygen					
LEL/Combustibles					
Toxics (CO)					
Hydrogen Sulfide (H ₂ s)					
Other					

Entry Times

Entrant	Time In:	Time Out:	Time In:	Time Out:

Equipment Condition

SCBA Mask and Working Line	Good _____	Fair _____	Poor _____
Tripod, Winch and Cable	Good _____	Fair _____	Poor _____
Harness (Age _____)) Any Rips or Tare's?	No _____	Yes _____
Ventilator and Exhaust Hose	Good _____	Fair _____	Poor _____
Signage	Good _____	Fair _____	Poor _____
Other - List			

Time and Date Permit Closed Out:

Closing a permit means all work in the space is completed and re-entry into that space requires a new permit be filled out.