Brieser CONSTRUCTION

Section 18
Safety Health and Environmental Manual

2023

Confined Spaces

PURPOSE

This confined space entry procedure is designed to ensure a safe working environment when work is performed in a confined space in accordance with 29 CFR 1910.146. We have determined that Brieser Construction employees may perform work tasks on construction sites that have confined spaces present. Written procedures are needed to ensure that the hazards of those confined spaces have been evaluated. This procedure is to be followed whenever employees of Brieser Construction are required to enter a confined space as defined within this procedure.

DEFINITIONS

Confined Space – A space that is the adequate size and configuration for an employee to enter and to perform assigned work. Limited means of entry or outlet. Not designed for continuous employee occupancy

Permit-Required Confined Space – A confined space that needs a permit to be entered. A permit is required if the confined space includes, or potentially includes ANY of the following:

- Atmospheric Hazard - Hazards related to atmospheric conditions, such as:
  - Oxygen deficiency
  - Flammable conditions
  - Toxic conditions

- Engulfment Hazard - Contains a material like bulk grains, soil, liquid, or dry cement, which has the potential for engulfing an entrant.

- Entrapment Design - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor, which slops downward and tapers to a smaller cross-section; or makes escape or rescue difficult.

- *Other recognized serious hazard*, such as:
  - Inadequate ventilation
  - Burns from high temperatures
  - Internal electrical or rotating equipment, Lockout/Tagout
  - Emergencies or hazards outside the confined space
  - Physical injury from slips and falls, or high noise levels inside the confined space
  - Energy hazards from steam or electrical equipment inside the confined space

Non-Permit Confined Space – Any confined space that is known not to have contained any hazardous material. In addition, all hazards are controlled, and air monitoring indicates that the atmosphere is safe for entry. Entry into these areas for inspections or minor maintenance (i.e., adjustments, tightening of fittings, etc.) may be made without the use of retrieval systems or standby personnel.

RESPONSIBILITIES

The Program Administrator – Safety Director

These people are responsible for:

- Developing detailed written instructions where required by this program and amending those instructions when necessary.
- Reviewing the program and permits annually and making necessary decisions to ensure the success of this program.

Authorized Entrants

Those persons who have completed the training and are authorized to enter our permit spaces (Authorized entrants) are assigned specific duties and responsibilities which they must perform when they work in the permit space. Their duties and responsibilities, which are covered in the training program, include:

A CONFINED SPACE IS ENTERED WHEN ANY PART OF THE BODY CROSSES THE PLANE OF THE SPACE OPENING.

- Know the hazards they may face during entry including mode, signs, symptoms of exposure, and understand the consequences of exposure to hazards.
- Understand the proper use of any needed equipment and complying with the provisions on the entry form and or permit
- Communicate with the attendant as necessary if the entry involves a hazardous atmosphere confined space entry.
- Alert attendant when a warning symptom or other hazardous condition exists, or a prohibited condition is detected.
- Exit as quickly as possible whenever ordered or alerted by an evacuation alarm, warning sign, a symptom of exposure is detected or prohibited condition.
- Keep lifelines orderly and untangled within the confined space.

Attendants

Attendants are individuals stationed outside a permit space who monitor authorized entrants. An attendant must be on duty outside of a confined space for the duration of the operation. Those persons who have completed the training and have been designated as permit space attendants are assigned specific duties and responsibilities, which they must perform in, permit space job duties. Their duties and responsibilities, which are covered in the training program, include:

- Attendants must know the hazards of a confined space including information on the mode, signs, symptoms, and consequences of exposure.
- Keep lifelines orderly, untangled, and the end secured outside of the confined space.
- Know the possible behavioral effects of exposure, which include the following:

% Of Oxygen in Air	Effects of Oxygen Deficiency
16 to 12%	Deep breathing, accelerated heartbeat, impaired attention, impaired thinking, impaired coordination
14 to 10%	Very faulty judgment, very poor coordination, rapid fatigue from exertion they may cause permanent heart damage, intermittent breathing
10% or below	Nausea, vomiting, inability to perform vigorous movement or loss of all movement, unconsciousness follows by death
Less than 6%	Spasmodic breathing, convulsive movements, death in minutes

- Check permits of authorized entrants
- Prevent entry by those without a permit and take the following actions when unauthorized persons approach or enter a permit space while entry is underway.
  - Warn the unauthorized persons that they must stay away from the permit space.
  - Advise the unauthorized persons that they must exit immediately if they have entered the permit space; and
  - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
- Maintain a continuous count of those in a confined space
- Monitor activity in the confined space and alert entrants of the need to evacuate
- Summon rescue and emergency services when entrants may need assistance to escape a permit space hazard.

Attendants continued

- Performs non-entry rescues. **The attendant may only enter a confined space for rescue if they are trained and part of a rescue team and are then relieved by another qualified and trained attendant.**
- Perform no duties that may interfere with attendant's primary duty to monitor and protect authorized entrants.
- Remain outside the confined space until relieved by another attendant

Entry Supervisors

Those persons who have completed the training and have been designated as permit space entry supervisors are assigned specific duties and responsibilities, which they must perform in permit space job duties. Their duties and responsibilities, which are covered in the training program, include:

- Know the hazards they may face during entry including the mode, signs and symptoms of exposure. Also, they must understand the consequences of exposure to hazards.
- Verify all tests specified by the permit have been conducted and all procedures and equipment are in place before endorsing the permit and allowing work to begin. Also, all procedures and equipment specified in the permit shall be in place before endorsing the permit and allowing entry to begin. The supervisor must sign the entry permit to authorize entry.
- Terminate the entry and cancel the permit when necessary
- Verify rescue services are available and a means of communication are in place and operable if needed
- Remove unauthorized individuals who enter or attempt to enter the permit space during entry operations.
- Determine that entry operations remain consistent with terms of the entry permit whenever responsibility is transferred or at intervals dictated by the hazards or operations performed within the space.
- *Post-operations Procedures:* The entry supervisor shall terminate the entry and cancel the permit upon job completion or if conditions change within the confined space. The permit will be reviewed, verification will occur that equipment is operational, and any employee concerns addressed. Procedural revisions may be required if the entry supervisor identifies that an unauthorized entry occurred, a hazard was identified that was not covered by the permit, the occurrence of an injury or near miss, or there are employee complaints. The Safety Director shall be informed if these referenced items are identified.

CONFINED SPACE CLASSIFICATION

Each job site that employees work on will differ. Therefore, to determine if there are permit-required confined spaces present at specific work sites where Brieser Construction employees are working, the Site Foreman who shall be a qualified person in Confined Spaces or the Brieser Safety Director will conduct a hazard evaluation of the workplace. This evaluation will provide on-site personnel with the information necessary to identify the existence and location of permit-required confined spaces that must be covered by the Permit-Required Confined Space Entry Program and the hazards associated with them. All confined spaces will either be classified as a permit-required confined space (PRCS) or non-permit confined space (NPCS). All confined spaces shall be treated as permit spaces until determined to be otherwise.

Brieser Construction does not frequently enter confined spaces, and the confined spaces that may be present at a construction site are inherently different on a project-by-project basis. Therefore, Sub-Contractors that create or work in Confined Spaces will be required to follow Brieser Confined Space Program.

It will be the policy of Brieser Construction to provide the following to its clients and exposed sub-contractors prior to job tasks involving confined spaces:

- A list of confined spaces to be entered on the project in question for review by the Site Foreman and the client's/sub-contractor's representative. This will provide all parties the opportunity to review the hazards and any specific equipment and personnel needs.

- The names of Brieser Construction employees or Sub-Contracted employees working on the specific project who may serve as the Entry Supervisor, the Authorized Attendant(s), and the Authorized Entrant(s). The Site Foreman will act as the Entry Supervisor. The Authorized Attendants and Authorized Entrants will be other craft members such as the Operators and Laborers working on site who have been properly trained as Entrants and/or Attendants. The individuals involved in these roles will be identified and named on each Entry Permit.

GENERAL REQUIREMENTS – NON-PERMIT CONFINED SPACES

A qualified person such as a site foreman or a Brieser safety representative that has received documented training in confined spaces shall determine what condition and precautions must be in place to allow for safe entry and what would constitute a change in conditions, which would require a re-evaluation of the confined space. Please refer to the definition of permit-required confined spaces within this document as a guide to determine whether a space is a PRCS or NPCS.

GENERAL REQUIREMENTS – PERMIT-REQUIRED CONFINED SPACES

The following requirements apply to entry into Permit-Required Confined Spaces:

- Any condition making it unsafe to remove a cover shall be eliminated before the cover is removed

- Covers shall be removed and replaced using tools designed for that purpose. When entrance covers are removed, the entrance shall be properly guarded to prevent an accidental fall of employee, and to protect employee from foreign objects entering the space.

- Atmospheric Testing

    - Before entry into a confined space, necessary testing shall be conducted for hazardous atmospheres by a qualified person. A qualified person shall possess the knowledge and skill to understand the test instrument's use, calibration procedures, limitations, and can interpret results.

    - Before any employee of Brieser Construction enters the space, the internal atmosphere shall be tested with a calibrated, direct reading instrument for the following conditions in the following order:

        - Oxygen content (between 19.5 and 23.5%)
        - Flammable gases and vapors (not over 10% of the Lower Flammable Limit)
        - Potential toxic air contaminants **CO, H_2S** (not over Permissible Exposure Limit)

    - It is recommended on a vertical entry that remote probes be used to test at various levels of the confined space as vapors and gases have different density's and could accumulate at the bottom, middle or top of a confined space. In the case of a horizontal entry, air quality shall be tested at the top, middle and bottom of the space at 4-foot intervals into the space.

- Atmospheric Testing continued
    - Atmospheric testing for the confined space should be based on the configuration and design of the space. Continuous monitoring **SHALL** be performed for the entire duration of the entry.
    - All tests must be completed, accurate, and documented before entry
    - The space must be free of any hazardous atmosphere whenever an employee is inside
- Smoking and open flames shall not be permitted within 20 feet of the confined space opening unless air samples indicate an atmosphere safe for hot works. No welding or burning will be permitted unless a special hot work permit is obtained.
- All ladders should be inspected prior to entry. Only approved low voltage light and extension cords, or electrical apparatus provided with a ground fault circuit interrupter shall be used in a confined space.
- When entering a permit required confined space, there should always be an attendant present to ensure the authorized entrant is following procedures and to monitor his or her activity in the confined space.
- Continuous air ventilation shall be used, as follows:
    - An employee shall not enter the space until the ventilation has eliminated the hazard.
    - The ventilation shall be directed as to ventilate the immediate areas when an employee is working and shall continue until the employee leaves that area.
    - The air supply for the forced air ventilation shall come from a clean source and may not increase the hazards in the space.
- If oxygen consuming equipment is going to be used or if an oxygen consuming evolution will take place, continuous oxygen monitoring is required no matter what the classification of the space or the ventilation required.

PERMITS

All entry to a permit-space is restricted to those with permits. The use of a written permit will ensure that:

- The current classification reflects existing conditions in the space
- The checklist of entry requirements is appropriate for that classification
- Recordkeeping requirements are met for each entry

Permits must be available to all employees requiring entry to a confined space that requires a permit (permit-space). The permit should extend only for the duration of the task. All permits must be retained in the safety file for a year to facilitate review of the Confined Space Program.

Permits must include the following:

- Identification of the space
- Purpose of entry
- Date
- Time of issue and expiration
- List of authorized entrants with method to determine which authorized entrants are inside the permit space (Sign-in sheet)
- Names of current attendants and entry supervisor
- List of hazards in the permit-space
- List of measures to isolate the permit-space and eliminate or control hazards before entry
- The acceptable entry conditions
- Results of initial and periodic tests initialed by the persons performing test and the time tests were performed
- Rescue and emergency services including equipment and phone numbers
- Communication procedures for attendants and entrants to maintain contact during entry
- Required personal protective equipment (respirators, communications devices, alarm, and rescue equipment)
- Any other information which is necessary
- Any additional permits issued to authorized work in the permit space (Such as for hot work under the Fire Safety Program)

SAFE PERMIT SPACE ENTRY PROCEDURES

When confined space entry becomes necessary, the person in charge of the work to be performed shall make the need for the entry known to their foreman. The Site Foreman will serve as the Entry Supervisor responsible for authorizing entry and issuing entry permits for work in confined spaces.

The Site Foreman in charge of the entry will be responsible for ensuring compliance with the entry requirements specified on the checklist and will ensure the permit is properly filled out. Upon conclusion of the entry, the Site Foreman will review and cancel the permit. A copy should be filed in the job folder and another copy should be sent to the Brieser office to be scanned into our system. The permit must be posted outside of the confined space while the authorized entrant is inside.

The duration of the permit may not exceed the time required to complete the identified assigned task on the permit and will never exceed 12 hours. One permit is required for each specific confined space. If circumstances cause an interruption in the work or a change in the alarm condition for which entry was approved, a new Confined Space Entry Permit must be completed. *The permit expires when any of the following conditions are met:*

- The entry operations covered by the permit have been completed.
- A change in work conditions introduces a new hazard.
- The time of the permit has elapsed.
- When personnel (entrants, attendants, entry supervisor) who were not originally identified on the permit are assigned to the confined space work operation.
- Any other changes in the existing conditions occur that may cause a new hazard or casts doubt upon the ability to continue safely in the same fashion.

Permits shall be readily available to all workers before entering a confined space, and the permits shall remain at the work site if the work is being performed there.

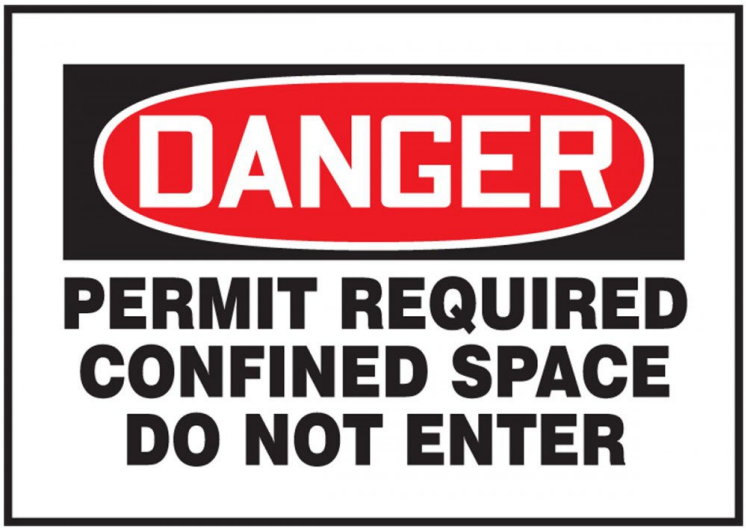
The Permit Program and completed permit checklists will be reviewed at least annually.

When atmospheric testing shows a dangerous air contamination, oxygen deficiency, or oxygen enrichment, the employer shall retain the written permit form or record showing the results of the atmospheric testing for a minimum of ***one year.*** Canceled entry permits must be kept for one year to facilitate the review of problems encountered and the appropriate changes made during the review.

PREVENTING UNAUTHORIZED ENTRY

To provide a safe work environment and to prevent exposed employees from accidentally entering a permit space, we have implemented procedures to inform all employees of the existence, location, and danger posed by permit spaces at Brieser Construction work sites. To inform employees of the existence of a permit space, we will use warning signs and/or verbal communication by the Site Foreman.

If the space is found to be a permit-required confined space, it shall be labeled by posting a sign reading:



This sign will be permanently posted at the potential entry or access point to the space. If the space will not be entered, effective measures should be taken to see that entrances are adequately marked and blocked. To ensure that unauthorized employees do not enter and work in permit spaces, confined space entry is restricted to employees that have been specifically trained as authorized entrants. The Site Foreman will have the overall on-site safety responsibility.

PRE-ENTRY PROCEDURES

To ensure the safety and health of our employees, before allowing authorized workers to enter a permit space, we will evaluate conditions in that space to determine if the conditions are safe for entry. The following steps must be taken before entry into a confined space is permitted:

- **Disconnection of lines** – Lines that may convey flammable, explosive, toxic or otherwise injurious or incapacitating substances into the space shall be disconnected, blinded, locked out, or blocked off by other positive means to prevent the development of dangerous air contamination, oxygen deficiency, or oxygen enrichment within the space. The disconnection or blind shall be so located or done is such a manner that inadvertent reconnection of the line or removal of the blind is effectively prevented. Before starting ask if the jobsite is a Process Safety Management site. If so, you will need additional instruction from the host facility before proceeding

- **Calibration of testing and monitoring equipment –** Air testing and monitoring equipment shall be maintained and calibrated according to manufacturers' instructions. This equipment shall be periodically calibrated with an appropriate test gas to assure proper operation. Records of calibration shall be maintained for a minimum of one year.

    - **Calibration Check** – *Multigas and Single gas detectors*
      The calibration check is simple and should only take about one minute. Perform this calibration check before each day's use for each installed sensor. Daily calibration checks are performed to ensure the monitor and alarms are working correctly.
    - Turn ON the Multigas/Single gas Detector in clean, fresh air.
    - Verify that readings indicate no gas is present.
    - Attach regulator (supplied with calibration kit) to the cylinder.
    - Connect tubing (supplied with calibration kit) to the regulator.
    - Attach other end of tubing to the instrument.
    - Open the valve on the regulator, if so supplied.

- The reading of the Multigas/Single gas Detector display should be within the limits stated on the calibration cylinder.
- If readings are not within these limits, the Multigas/Single gas Detector requires recalibration

- **Air Monitoring** – Prior to entry in a confined space, the space shall first be tested and ventilated. The atmosphere shall be tested using a 3-gas (O_2, LEL, H_2S) or 4-gas (O_2, LEL, CO, H_2S) monitor supplied by Brieser Construction Prior to testing, it must be ensured that the detector is fully charged, properly calibrated, and in operation for at least ten minutes before the testing begins. For vertical entry confined spaces, the detector shall be lowered into the space to test each quarter section for four minutes in each position. The internal atmosphere shall be tested for the following conditions in the order given: 1) oxygen content, 2) flammable gas and vapors, and 3) potential toxic air contaminants.

All areas of the confined space must be monitored to ensure the following conditions are met:

Oxygen:	19.5% to 23.5%
Combustibility:	< 10% LEL
CO:	< 35 PPM
H_2S:	<5 PPM
Other Toxins:	<= PEL/TLV

  - If the monitor alarms at any time during testing, immediately remove the monitor and note the readings indicated (oxygen, combustible, CO, H_2S) to determine which reading(s) caused the alarm. Ventilation is now required to bring the readings within the acceptable parameters. At this point, the confined space will remain, as a permit required confined space.

  - If no alarms occur during the testing, proceed with purging. The space may be classified, as a non-permit required confined space if all the hazards have been controlled and ventilation maintains a safe air environment.

Air monitoring is to continue during all entries. Record the findings on the Entry Permit. Do not enter the confined space at any time during the initial testing. Physical entry shall not be made into an unknown atmosphere.

- **Ventilation –** Where the existence of dangerous air contamination, oxygen deficiency, or oxygen enrichment is demonstrated by air testing, existing ventilation shall be augmented by appropriate means. Purging should be performed using an approved air blower supplied by Brieser Construction the minimum purge time shall be 10 minutes. When the blower is set up, the intake must be kept away from any source of contamination (i.e., vehicle exhaust, traffic, etc.). When the blower hose is lowered into the manhole, it must reach to the lower one-third of the manhole and must be angled toward a wall to ensure complete ventilation.

Once purging of the atmosphere has been completed, the atmosphere should be re-tested using the following procedures:

- If no alarm occurs during the re-testing, then entry may be made in accordance with the entry procedures discussed in the next section of this program.

- If an alarm occurs during the re-testing, check for the following:

    - Placement of blower intake - It may be necessary to hook a straight section of hose to intake in order to obtain an air supply away from any contaminants.
    - Any vehicles or engines near the manhole that are running may be contaminating the manhole with exhaust. Shut the vehicles and/or engines off or move them away from the manhole.
    - If applicable, check placement of blower hose into a manhole to ensure it reaches the lower one-third and is directed toward a wall.
    - If any of these factors (or others) are found to be potential sources of problems, then correct them and re-ventilate and recheck.
    - If, after re-ventilating, the detector does not alarm, then complete the Confined Space Entry Permit and proceed with entry operations.
    - If, after re-ventilating, the detector still alarms, call for a second detector and notify your Foreman. The second detector may be used to re-check the manhole. If the second detector does not alarm upon re-check, then inspect the first detector for low battery or possible malfunctions. If no malfunctions are found, then contact the Site Foreman (Entry Supervisor) before proceeding with entry. If the second detector alarms during recheck, no entry shall be made. Under no circumstances is entry to be made until the confined space has been established to be safe of atmospheric hazards.

- **Injurious or Corrosive Substances** – Workers in confined spaces that have last contained injurious or corrosive substances to the eyes or body shall be provided with, and shall be required to wear, appropriate personal protective equipment. In addition, an eyewash and safety shower shall be provided within the work area outside of the confined space for immediate emergency use.

- **Ignition sources** – No sources of ignition may be introduced into the space until implementation of appropriate provisions of this section has ensured that dangerous air contamination due to flammable or explosive substances does not exist.

- **Oxygen Consuming Equipment** – Whenever oxygen-consuming equipment is to be used, measures shall be taken to ensure adequate combustion air and exhaust gas venting.

- **Oxygen enrichment condition** – Whenever oxygen enrichment is possible due to conditions within the space, measures shall be taken to ensure that the oxygen level does not exceed 23% in the confined space. If tests indicate the oxygen levels to be higher than 23%, hot work is prohibited until the ventilating techniques have reduced the oxygen level to less than 23%.

- **Smoking** – Smoking shall not be allowed in confined spaces or within 20 feet of a confined space opening.

- **Automatic Fire Protection Systems** – Where there is no ready exit from spaces equipped with automatic fire suppression systems employing harmful design concentrations of toxic or oxygen displacing gases, or total foam flooding, such systems must be deactivated.

ENTRY SAFEGUARD REQUIREMENT

A confined space entry is defined as an action, which results in any part of a worker's body breaking the plane of any opening of a confined space. This section specifies the appropriate actions and equipment required to safely access the space in question.

Once the confined space atmosphere has been tested, purged, and re-tested, and determined to be safe, then entry may be made provided the following guidelines are followed:

- The person entering the confined space must carry the gas detector with them and it must always remain in operation while the occupant remains in the confined space. If, at any time, the gas detector alarms, the confined space shall be evacuated immediately. If it is found that the detector is alarming due to a low battery, entry may be made using another detector provided the atmosphere is re-tested before re-entry.

- Ventilation (natural or mechanical as applicable) must continue while the authorized entrant is in the confined space. For entry into manholes, the ventilation supply hose may be temporarily removed from the opening to allow for entry, but the hose must be reinserted immediately after occupant has entered manhole.

- A standby person (attendant) must be stationed outside of the manhole or confined space and must remain in visual or voice contact with the occupant at all times.

    - The standby person must be specially trained in Confined Space Entry.
    - The standby person shall have the authority to order immediate evacuation of the space if there is any sign of intoxication from an undetected hazardous atmosphere or any other danger that warrants immediate evacuation.
    - If injury occurs or occupant becomes unconscious while in confined space, refer to the section titled "Rescue and Retrieval".
    - One attendant is required for each confined space that is entered. Multiple confined spaces entered during the same time will require a designated attendant for each confined space.

RESCUE AND RETRIEVAL

Brieser Construction personnel **will not enter** permit spaces to perform rescue operations. Brieser Construction personnel will use the retrieval systems to remove personnel in confined spaces. Local emergency services will be contacted immediately to assist in confined space emergencies. Prior to confined space work operation commencing, the local responders will be informed of the site work tasks, confined space configuration, and the specific hazards. Rescue service must be on-site for immediately dangerous to life and health (IDLH) conditions while work is being performed.

Local emergency rescue teams shall be trained to perform the assigned rescue functions and have received the training required of authorized entrants. They shall also practice making permit space rescues at least once every twelve months, by means of simulated rescue operations in which they remove dummies, mannequins, or personnel through representative openings and portals whose size, configuration, and accessibility closely approximate those of the permit spaces on-site. At least one member of the rescue team shall maintain current certification in basic first aid and cardiopulmonary resuscitation (CPR) skills.

To facilitate non-entry rescue, retrieval systems (body harness or wristlets, and lifeline) shall be used whenever an authorized entrant enters a confined space. Retrieval systems shall meet the following requirements.

- Each entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrants back near shoulder level, or above the entrant's head. Wristlets may be used when the use of a body harness would create an additional hazard or interfere with the retrieval through a small man way entrance.

- The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the permit space in such a manner that rescue can begin as soon as the attendant becomes aware that rescue is necessary. A mechanical device shall be made available to retrieve personnel from a vertical entry permit space more than five feet in depth.
- The use of retrieval lines that have a reasonable probability of becoming entangled with the retrieval lines used by other authorized entrants, or due to the internal configuration of the PRCS, would be prohibited. 2007 - 11/28/2007 - Confined Spaces in Construction; Proposed Rule - 72:67351-67425

MULTIPLE EMPLOYER ENTRY PROCEDURES

All contractor or sub-contractor personnel acting under the control of Brieser Construction must comply with all applicable provisions of these procedures or show proof that their procedures and employee training are at least as effective as these procedures.

Contractors will be responsible for the permit space entry of their own personnel. They will be informed of the permit space hazards by giving them a copy of the form titled “Contractor Hazard Information Identification” for the permit space(s). Also, they will be informed of Brieser Construction’s safety procedures. They will not be permitted to enter space(s) until Brieser Construction Site Foreman acting as the entry supervisor has determined that they have a permit space entry program, and that the contractor's program does not endanger Brieser Construction employees.

When a contractor's personnel and Brieser Construction personnel perform permit space entry operations in the same permit space at the same time, both the contractor and Brieser Construction will provide an entry supervisor as a check and balance system. One or both parties may provide the attendant(s). The entry supervisors will coordinate the work, so neither crew endangers the other.

Entrants will be instructed to comply with each other's evacuation orders and evacuation alarms. Attendants will be instructed to immediately inform the other attendant if an evacuation order is issued or if an evacuation alarm is activated. This means the entrants of all employers will evacuate the permit space if any attendant, any entry supervisor, or any entrant issues an evacuation order. If there is a dispute over the necessity to evacuate, all entrants will evacuate and will remain outside of the permit space until the dispute is settled.

When contractors perform work that involves permit space entry, then:

- Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of the OSHA Standard. Supply the contractor with the form titled "Contractor Hazard Information Identification".

- Apprise the contractor of the hazards identified for the confined space.

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

- Coordinate entry operations with the contractor(s), when both Brieser Construction personnel and contractor(s) personnel will be working in or near permit spaces.

- The Brieser Construction entry supervisor will debrief the contractor at the conclusion of the entry operations regarding the procedures followed and regarding any hazards confronted.

SAFETY EQUIPMENT AND CLOTHING

The entry permit will include a list of necessary protective equipment to be used in the confined space as determined by the qualified person. The employer will be responsible for the proper use of the safety equipment, and the inspection and maintenance procedures performed on the safety equipment. The qualified person will determine the type of protective equipment required.

Eye and Face Protection

Employees must use appropriate eye or face when exposed to hazards from: flying particles molten metal, liquid chemicals, acids or caustic liquids, and potentially injurious radiation. Requirements for side protection, prescription lenses, filter lenses, and identification of the manufacturer of safety equipment must be specified. See Section 30 Personal Protective Equipment for more information.

Head Protection

Employees must wear protective helmets when working in areas where there is a potential for a head injury from falling objects and protection from any other hazard identified by the qualified person. Employees who are near exposed electrical conductors must wear protective helmets designed to reduce electrical shock hazards. Protective helmets purchased on or after July 5, 1994, must comply with ANSI Z89.1-1986 or be equally effective.

Foot Protection

Employees must wear protective footwear when working in areas where there is a danger of foot injuries from falling or rolling objects, objects piercing the sole, or exposure of employees' feet to electrical hazards. Protective footwear purchased on or after July 5, 1994, must comply with ANSI Z41-1991 or be equally effective.

Hand Protection

Employees must use the appropriate hand protection whenever employees' hands are exposed to hazards from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.

Brieser Construction will select appropriate hand protection based on an evaluation of:

- The performance of the hand protection relative to the task to be performed
- The conditions present
- The duration of use; and
- The actual and potential hazards identified

Hearing Protection

Employees will be required when engineering technology is insufficient to control the noise level, and the ambient exposure limit exceeds those allowed in Table G-16 of 29 CFR 1910.95.

Respiratory Protection

The need for respiratory protection will be determined by a qualified person based upon conditions and test results of the confined space, and the work activity to be performed. The respirators used will be NIOSH and or MSHA approved devices and will be fitted and maintained in accordance with 29 CFR 1910.134.

Body Protection

All employees entering a confined space will wear full coverage work clothing as specified by the qualified person. Gloves and clothing made of impervious rubber or similar material are to be worn to protect against toxic or irritating materials. If the hazards of heat or cold stress exist in the confined space, clothing which has been tested to provide protection from over-exposure to these hazards will be worn. Other body protection required in specific operations such as welding (flame resistant), riveting (heat resistant), and abrasive blasting (abrasion resistant) will be provided to insure employee's safety.

TRAINING

Brieser Construction shall provide training to all employees involved in confined space entry so that they acquire the understanding, knowledge, and skills necessary to perform their job safely. All training related materials, documents, and signed certificates are kept in Corporate Office.

The training programs consist of classroom (lecture and group activities), hands-on (equipment, monitors, PPE, entries), and audiovisuals. All new employees are trained to an awareness level as to the recognition of confined spaces.

Only specific employees will be trained in confined spaces. This type of work task is not performed daily by the Brieser Construction crews and therefore limiting training to certain employees will help to maintain the competencies required to perform safely within confined spaces.

All employees must be trained to be able to recognize hazardous conditions; properly use monitoring equipment; space preparation; entry and work procedures; the permit system; and emergency response actions.

Confined space entry training will include:

- The written program and its requirements.
- The proper use of air monitoring equipment.
- The proper use and limitations of body harnesses, lifelines, retrieval systems, and other personal protective equipment.
- The proper use of all respiratory equipment.
- The typical hazards that may be encountered and the consequences of exposure to hazards.
- Recognizing the signs and symptoms of exposure to hazards.
- Understanding the duties specific to their role in confined space entry work as well as the duties of others who are involved as provided in this plan.
- Evaluating and preparing a confined space for entry.
- The proper use of the permit system.
- The importance and methods of maintaining communications between entrants and attendants.
- Conditions that require evacuation of the confined space.
- The importance and requirements for maintaining site control.
- The requirements for concluding an entry and terminating the permit.
- Proper confined space non-entry rescue procedures.
- Welding, cutting, and brazing in a confined space.
- The proper use and calibration of monitoring Equipment.
    - **(All employees will be trained on how to calibrate monitoring equipment).**

The Program Administrators shall certify that the training has been accomplished. Certification of the training will be made available to employees and their authorized representatives.

TRAINING INTERVALS

Training shall be provided to each employee:

- Before the employee's first duty.
- Before any changes in assigned duty
- Any changes in operations that present a hazard, which an employee has not been trained.
- Whenever Brieser Construction has reason to believe that there are deviations from entry procedures that could pose hazardous to employees.
- At every two years

LOCKOUT/TAGOUT

Safety equipment required during this procedure will be designed by the qualified person and is dependent upon the potential hazards involved. A confined space will be completely isolated from all other systems by physical disconnection, double block and bleed, or blanking off all lines. Blanks used to seal off lines will be capable of withstanding the maximum working pressure or load of the line (with a minimum safety factor of four), be provided with a gasket on the pressure side to ensure a lead-proof seal, and be made of chemically non-reactive material. Shutoff valves serving the confined space will be locked in the closed position and tagged for identification. In addition to blanking, pumps and compressors serving these lines entering the confined space will be locked out to prevent accidental activation.

If a drain line is located within the confined space, provision will be made when necessary to tag it and leave it open. This will also be recorded on the entry permit.

Additional procedures, which are necessary when the confined space is of a double wall construction, e.g., water-jacketed or similar type will be determined by the qualified person and noted on the entry permit.

Electrical isolation of the confined space to prevent accidental activation of moving parts that would be hazardous to the worker is achieved by locking circuit breakers and/or disconnects in the open (off) position with a key-type padlock.

The only key is to remain with the person working inside the confined space. If more than one person is inside the confined space, each person will place his own lock on the circuit breaker. In addition to the Lockout system, there must be an accompanying tag that identifies the operation and prohibits use.

Disconnecting linkages or removing drive belts or chains can achieve mechanical isolation of moving parts. Equipment with moving mechanical parts will also be blocked in such a manner that there can be no accidental rotation.

REVIEW

Brieser Construction will review entry operations when there is reason to believe that the measures taken under the permit space program may not protect employees. Circumstances requiring the review of the permit space program are as follows:

- Any unauthorized entry of a permit space
- The detection of a permit space hazard not covered by the permit
- The detection of a condition prohibited by the permit
- The occurrence of an injury or near-miss during entry
- A change in the use or configuration of a permit space
- Employee complaints about effectiveness of the program

The Program Administrators will revise the program to correct deficiencies found to exist before subsequent entries are authorized.

This written program will be reviewed *annually* by the Brieser Safety Department. It will be revised as necessary to protect employees from confined space hazards.

RECORDKEEPING

Brieser Construction will maintain a written record of training including safety drills, inspections, tests, and maintenance. The records will be retained for three years after the last date of training, inspection, test, or maintenance. In the event of separation of the employee, disposal of equipment or appliance, records may be disposed of after one year.

Where atmospheric testing indicates the presence of a toxic substance, records will be maintained in accordance with the existing Federal regulation(s). These records will include the dates and times of measurements; duties and location of the employees within the confined space; samples taken; and PEL concentrations estimated from these samples. Records will be available to the designated representatives of the Secretary of Health, Education, and Welfare; to the employer; and to the employee or former employee.

Confined Space Entry
Annual Review Log
Brieser Construction

Entry Location	Purpose of Entry	Permit Issued			Permit Canceled			Annual Review		
		Date	Time	Initials	Date	Time	Initials	Date	Time	Initials
Scan: Safety/Confined Space Yearly Review										

Confined Space Entry Permit

Brieser Construction

Unit:		Location and Job Number:		Rev. 10
Purpose of Entry:		Permit Expires:		
Entry Date:		Entry Time:		
Attendant(s):	1	Entrants:	1	
	2		2	
	3		3	

*****IF ENTRANT LOG IS USED ON PAGE 25 PLEASE INDICATE YES/NO*****

Rescue Information:

Telephone Number(s):

Hazard Control Checklist	Yes	N/A
1 Has the confined space been drained and purged?	☐	☐
2 Has the confined space been cleaned?	☐	☐
3 Has the confined space been ventilated?	☐	☐
4 Has the confined space been blinded or isolated?	☐	☐
5 Have all energy sources been locked our/tagged out and in a zero energy state?	☐	☐
6 Have all radiation sources been locked into their shielded containers?	☐	☐
7 Do each open man way or entrance to the confined space have a posted notice?	☐	☐
8 Is rescue equipment required?	☐	☐
9 Will entry involve any of the following:	☐	☐
– Oxygen deficiency (less than 19.5%)?	☐	☐
– Flammable gases or vapors greater than 10% of the Lower Flammable Limit or greater than 23.5% oxygen?	☐	☐
– Toxic gases or vapors greater than the Permissible Exposure Limit?	☐	☐
– Configuration hazards?	☐	☐
– Electrical Shock?	☐	☐
– Engulfment?	☐	☐
– Materials harmful to the skin?	☐	☐
– Mechanical hazards	☐	☐
10 Have all employees on this permit been trained in confined Spaces? (Entry supervisor to verify training with office. Training is	☐	☐

IF YES TO ANY OF THE ITEMS IN NUMBER 9 ABOVE, CONTACT BRIESER SAFETY AT (815) 679-8157.

Required PPE

☐ Communication Equipment	☐ Ventilation	☐ Respiratory Protection: HF/FF SCBA
☐ Electrical Equipment	☐ Safety Glasses, Goggles, Faceshield	☐ Fall Protection
☐ Protective Clothing (FRC/Acid/Clicker)	☐ Gloves- Chemical/Thermal	☐ Foot Protection
☐ Rescue Equipment	☐ Hard Hat	☐ Other (Special Precautions/Restrictions)

Air Monitoring Sampling Required ☐ Initial ☐ Periodic ☐ Continuous

Multigas Detector Calibration Date: Month: Day: Year:

Multigas Detector Calibration Daily Check ☐ Pass ☐ Fail-Recalibrate ☐ Recalibrated

	Tests Required	Initial						Safe Limit		Altair Calibration Unit-Serial Number
1	Oxygen							Min 19.5%	Max 23.5%	
2	Combustible Gases (% LEL)							Less than 10%		
3	Carbon Monoxide (CO)							25 ppm		
4	Hydrogen Sulfide (H_2S)							5ppm		Altair 5 IR Multigas Detector Serial Number
5	SO_2							2ppm		
6	Total Hydrocarbons							300 ppm		
7	Benzene							1 ppm		
8	Other:									

Authorization of Entry Supervisor: I attest that all entrants and attendants of this confined space have received training per Section 18 within the Brieser Construction Safety Manual.

Signature Date

Routing	Scan	SAFETY/PERMITS COMPLETED/CONFINED SPACE/YY COMPLETED CONFINED SPACE PERMITS

Confined Space Entrant Log
Brieser Construction

Unit:		Location and Job Number	
Purpose of Entry			
Entry Date		Permit Expires	
Attendant(s):	1	Entry Supervisor:	
	2		
	3		

Rescue Information

Telephone Number(s)

Entrant Name	Time In	Time Out	Time In	Time Out	Time In	Time Out

NO WELDING OR BURNING PERMITTED UNLESS SPECIAL HOT WORK PERMIT IS OBTAINED

Contractor Hazard Information Identification

Brieser Construction

This is a list of permit spaces and the potential hazards of these spaces that the contractor will be working in or in close proximity to. The hazards of some spaces may change with use. Note this possibility as "change with use" in the Potential Hazards column and then list the anticipated hazards.

PERMIT SPACE	POTENTIAL HAZARDS

_____ _____

Contractor Employee Signature Date

_____ _____

Contractor Employee Signature Date

_____ _____

Contractor Employee Signature Date

_____ _____

Contractor Employee Signature Date

ROUTING	SCAN	SAFETY/PERMITS COMPLETED/CONFINED SPACE/YY COMPLETED SUBCONTRACTOR HAZARD INFORMATION IDENTIFICATION DISCLOSURE

BRIESER CONSTRUCTION
SAFETY & HEALTH MANUAL
SECTION 18
CONFINED SPACES
SUB-SECTION
TRAINING

EMPLOYEE TRAINING CERTIFICATION & ACKNOWLEDGMENT
Brieser Construction

Date: _____ **Location:** _____

Trainer's Name and Title: _____

Trainer Qualifications: _____

Length of Training: **Hours/Minutes** **Time:** _____ **AM/PM** **TO:** _____ **AM/PM**

Purpose of Training (check one):

_____ **Confined Spaces Training**

TITLE: Confined Spaces
Note: Please consult Section 18 Confined Spaces in Brieser Safety Manual for training content.

Discussed and/or Viewed:

- **Discussed OSHA Standard 29 CFR 1910.132, 133, 135, 136 and 138**
- **Confined Space Definitions**
- **Identifying Hazards in Confined Spaces**
- **Duties of Authorized Entrants, Attendants & Entry Supervisors**
- **Permit versus non-permit spaces**
- **Select Proper PPE and its use, inspection, care and maintenance, limitation of PPE and other safety equipment**
- **Rescue & how to respond to emergencies**
- **How to recognize probable air contaminant overexposure symptoms**
- **Health Effects**
- **Characteristics of gases; O2/N2 enrichment, O2 deficiency, CO & H2S**
- **Training for atmospheric monitoring personnel**
- **Tripod Retrieval System**

ROUTING	**PERSONNEL MANAGER**	**Add to Training Database**
	SCAN	**SAFETY/CONFINED SPACES/ (PURPOSE OF TRAINING)/MMDDYY TRAINING CERTIFICATION**

Signature of Instructor _____ **Employee Signature** _____

Please Note: If more than one employee is being trained use Attendance Roster pg. 29 Sect. 18 Confined Spaces

ATTENDANCE ROSTER
Brieser Construction

By my signature below, I acknowledge that have I received and understand this training.

EMPLOYEE NAME (Print or Type)	EMPLOYEE SIGNATURE	TRADE	JOB TITLE
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

ROUTING	**PERSONNEL MANAGER**	**Add to Training Database**
	SCAN	**SAFETY/CONFINED SPACES/TRAINING/MMDDYY TRAINING CERTIFICATION**

Confined Space Entry Learning Exercise

Brieser Construction

- **Name Five Types of Confined Spaces.** _____
  _____
  _____

- **Name two types of hazards that can be found in confined Spaces.**
  _____
  _____

- **Name two roles that employees fill during confined space work.**
  _____
  _____

- **Having too little oxygen can result in asphyxiation. True or False: OSHA also feels that there can be too much oxygen in a confined space.**
  _____ **True**
  _____ **False**

- **OSHA requires that three types of atmospheric tests be conducted in a confined space. These must be conducted in a specific order. Indicate below which test should be performed first, second and third.**
  _____ **Flammable gases, vapors and dusts**
  _____ **Oxygen content**
  _____ **Toxic Contaminants**

- **True or false, gases and vapors from different materials can have different weights.**
  _____ **True**
  _____ **False**

- **True or false, normally an attendant is not allowed to enter a confined space to rescue entrants who may be in trouble.**
  _____ **True**
  _____ **False**

- **What document the entry supervisor must sign before work can begin in a confined space?**
  _____
  _____

Confined Space Entry Learning Exercise

Brieser Construction

Quiz Answers

- **Name Five Types of Confined Spaces.** Tanks, vessels, storage bins, hoppers, vaults, pits, Ventilation shafts, silos...

- **Name two types of hazards that can be found in Confined Spaces.**
  Hazardous atmospheres, engulfment, entrapment/asphyxiation, other serious safety or health hazards...

- **Name two roles that employees fill during Confined Space work.**
  Entry supervisor, attendant, entrant.

- **Having too little oxygen can result in asphyxiation. True or False: OSHA also feels that there can be too much oxygen in a Confined Space. (<19.5 and >23.5)**
  X **True** **(It increases the risk of fire and explosion).**
  ____ **False**

- **OSHA requires that three types of atmospheric tests be conducted in a Confined Space. These must be conducted in a specific order. Indicate below which test should be performed first, second and third.**
  2 **Flammable gases, vapors and dusts**
  1 **Oxygen content**
  3 **Toxic Contaminants**

- **True or false, gases and vapors from different materials can have different weights.**
  X **True**
  ____ **False**

- **True or false, normally an attendant is not allowed to enter a Confined Space to rescue entrants who may be in trouble.**
  X **True**
  ____ **False**

- **What document the entry supervisor must sign before work can begin in a confined space?**
  The entry permit.