



CONFINED SPACE CODE OF PRACTICE

REVIEWED MARCH 4 2016

OH&S REGULATION SECTION 8 & CODE PART 5

PURPOSE

To define a company-wide code of practice which will ensure the safety of workers who enter a confined space and meet requirements of Alberta's Occupational Health and Safety Act, Regulation and Code. Should Legislation requirements change they shall take precedence over this Code. Exceptions to this Standard and/or Company Wide Code of Practice must be approved by our company's Safety Department.

INTRODUCTION

Unplanned and/or uncontrolled confined space entries can potentially be extremely hazardous to the health of those attempting to execute them.

The practice outlined herein is viewed as a means of protecting the health of the individual by significantly reducing the risk of accidental injury associated with entering confined spaces, and to make the employee aware of the hazards associated with the work and the safe practices necessary to deal with these hazards.

Understanding and applying the Health and Safety principles are fundamental to the proper implementation of this code of practice. It identifies the maintenance required of ongoing programs to ensure the safety and health of all workers and reduce the probability and magnitude of incidents in and around confined spaces at our jobsites.

Each Department shall develop and regularly audit its own specific standards to ensure that such standards meet the needs of their specific work place and comply with the Code and all applicable Legislative safety requirements.

SCOPE

This Code of Practice applies to all employees of Assurance Construction & Services, its subsidiaries, and its subcontractors.

ACCOUNTABILITY

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1. In accordance with OH&S Act (Chapter 2-2, 2009) all workers are responsible for protecting the health and safety of themselves and other workers.
2. Identify confined space by using the flow chart at the end of this document. If it qualifies then follow the procedures with trained personnel otherwise contact management for next steps. (i.e. train workers or bring in experienced contractor.)
3. Where a confined space is to be entered by workers the supervisors are responsible to ensure that:
 - a) Adequate steps have been taken to eliminate/control all hazards present.
 - b) All applicable Legislative requirements, this Code of Practice and any other facilities specific standards, rules, procedures, and practices are followed.

ROLE OF EMPLOYER

1. An employer must ensure that a worker assigned duties related to confined space entry is trained by a competent person in:
 - a) Recognizing hazards associated with working in confined spaces.
 - b) Performing the worker's duties in a safe and healthy manner.
2. An employer must keep records of the training provided.
3. An employer must ensure that competence in the following is represented in the workers responding to a confined space emergency:
 - a) First aid.
 - b) The use of appropriate emergency response equipment.
 - c) Procedures appropriate to the confined space.

CONFINED SPACE DEFINITION & IDENTIFICATION (refer to flow chart at the end of this code)

1. Confined Space means an enclosed or partially enclosed space, not designed or intended for continuous human occupancy, having restricted means of entry or exit that may become hazardous to a worker entering it due to:
 - a) Its design, construction, location, work activities or atmosphere.
 - b) The materials or substances in it.
 - c) The provision of first aid, evacuation, rescue or other emergency response service is compromised; or any other hazards relating to it.
2. Examples of confined spaces may include (but are not limited to):
 - a) Crawlspace
 - b) Ducts
 - c) Excavations



- d) Air Handling Units
- e) Pipelines
- f) Piping Systems
- g) Boilers
- h) Shafts
- i) Utility manholes
- j) Vessels

RESTRICTED SPACE DEFINITION (NEW)

(Occupational Health and Safety Code 2009 Explanation Guide):

Like confined spaces, restricted spaces have a limited means of entry and exit. Entry points may not be designed for easy walk in. Other limitations include access by ladders or by stairways that provide poor access because of steep slope, narrow width or extreme length. Physical obstructions such as bulkheads, collapsed material, or machinery may impede exit. Limited means of entry and exit can make escape or rescue difficult. A “restricted space” is an enclosed or partially enclosed space, not intended for continuous human occupancy that has a restricted, limited or impeded means of entry or exit because of its construction and the activities of workers in or outside of the space may endanger those in the restricted space. It can be thought of as a work area in which the only hazard is the difficulty of getting into or out of the space. Restricted spaces are therefore not subject to the permitting, atmosphere testing and tending worker requirements of a confined space. Employers and workers must be mindful that a restricted space can become a confined space if conditions or work practices change.

EXAMPLES OF A RESTRICTED SPACE INCLUDE

- a) an electrical or communication utility vault,
- b) a building crawl space,
- c) a trench with a temporary protective structure, and
- d) a deep excavation requiring ladder or lift access.

Despite being classified as a restricted space, the following requirements of Confined Spaces, continue to apply to workers entering a restricted space:

- A (FLHA) hazard assessment must be performed prior to entry; workers assigned duties related to the entry must be trained to recognize hazards and how to perform their duties in a safe and healthy manner;



- General safety requirements involving the use and availability of safety, personal protective, and emergency equipment, as well as a communication system;
- Prevention of unauthorized persons entering a restricted space; protection of workers from hazards created by traffic in the area of the restricted space;
- Workers cannot enter or remain in a restricted space unless an effective rescue can be carried out;
- A competent worker, designated by the employer, must be in communication with the worker(s) inside a restricted space ; and
- A safe means of entry and exit must be available to all workers required to work in the restricted space.

HAZARD ASSESSMENT

Note: On small or large jobsites all confined spaces that our employees may work in will need to be identified. These will be assessed and categorized by class A, B or C and a log will be kept of all confined spaces on the site. This log will need to be updated as the job progresses and new confined space areas are created or sealed up.

1. If a worker will enter a confined space to work, a competent person(s) will be assigned to prepare a written, dated document which will:
 - a) Identify existing or potential hazards to which the worker is likely to be exposed while in the confined space.
 - b) Specify the type and frequency of inspections and tests necessary to determine the likelihood of worker exposure to any of the identified hazards.
 - c) Specify who will perform the inspections and tests identified.
 - d) Specify the safety and personal protective equipment required to perform the work.
 - e) Identify the personal protective equipment and emergency equipment to be used by a worker who undertakes rescue operations in the event of an accident or other emergency.
 - f) Identify emergency evacuation and communication requirements.

Note: Where reasonably practical, affected workers shall be involved in the hazard assessment and in the control or elimination of the hazards identified.

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SAFETY AND PROTECTION

EMPLOYERS RESPONSIBILITY

1. An employer must ensure that:

- a) The safety and personal protective equipment required is available to workers entering a confined space.
- b) A worker who enters, occupies or leaves a confined space uses the safety and personal protective equipment.
- c) The personal protective, emergency and rescue equipment required is available to workers undertaking rescue operations in a confined space.
- d) A communication system is established that is readily available to workers in a confined space and is appropriate to the hazards.
- e) Workers in a confined space are protected from hazards created by traffic in the vicinity of the confined space.
- f) Workers affected by the hazards identified in the hazard assessment report will be informed of the hazards and the methods used to control or eliminate the hazards.

2. An employer must ensure that all personal protective equipment (PPE), and emergency equipment required for use in a confined space is inspected by a competent person before workers enter the confined space to ensure the equipment is in good working order.

- a) Each employee is responsible for inspection of his/her basic PPE. Documentation of inspection will be recorded on a sign out list.
- b) Employer shall ensure specialized PPE and emergency equipment will be inspected and maintained as per manufacturer's specifications, and a record shall be kept by the responsible Department.

3. An employer must ensure that written records of the inspections required by legislation are retained.

PROTECTION – HAZARDOUS SUBSTANCES AND ENERGY

An employer must ensure that workers within a confined space are protected by means of positive isolation against the release of hazardous substances or energy that could harm them.

- 1. An employer must ensure that a worker does not enter a confined space unless adequate precautions are in place to protect a worker from drowning, engulfment or entrapment.



TESTING THE ATMOSPHERE

If the hazard assessment identifies a potential atmospheric hazard and a worker is required or authorized by an employer to enter the confined space, the employer must ensure that a competent worker performs a pre-entry atmospheric test of the confined space to:

- a) Verify that the oxygen content is between 19.5 percent and 23 percent by volume.
- b) Identify the amount of toxic substance.
- c) Identify the amount of flammable or explosive substance that may be present.

1. The employer must ensure that the testing required is performed using calibrated test instruments appropriate for the atmosphere being tested and the instruments are used in accordance with the manufacturer's specifications.

2. The employer must ensure that as often as necessary after the first time a worker enters the confined space, a competent worker:

- a) Performs and records the tests, and
- b) Identifies and records any additional hazards.

3. If tests identify additional hazards, the employer must control or eliminate the identified hazards. Any additional hazards identified must be included in the original hazard assessment.

VENTILATION AND PURGING

1. If the atmospheric testing identifies that a hazardous atmosphere exists or is likely to exist in a confined space, an employer must ensure that the confined space is ventilated, purged or both before a worker enters the confined space.

2. If ventilating or purging a confined space is impractical or ineffective in eliminating a hazardous atmosphere, the employer must ensure that a worker who enters the confined space uses personal protective equipment appropriate for the conditions within the confined space.

3. If mechanical ventilation is needed to maintain a safe atmosphere in a confined space during the work process, an employer must ensure it is provided and operated as needed.

4. If mechanical ventilation is required to maintain a safe atmosphere in the confined space, the employer must ensure that:

- a) The ventilation system incorporates a method of alerting workers to a failure of the system so that workers have sufficient time to safely leave the confined space, and



- b) All workers must evacuate a confined space or use an alternative means of protection if a ventilation system fails.

INERTING

1. An employer must ensure that a confined space is inerted if it is not reasonably practicable to eliminate an explosive or flammable atmosphere within the confined space through another means.

If a confined space is inerted, an employer must ensure that:

- a) Every worker entering the confined space is equipped with supplied air respiratory protection equipment.
- b) All ignition sources are controlled.
- c) The atmosphere within the confined space stays inerted while workers are inside.

CLASSIFICATION OF CONFINED SPACE LEVELS

To reflect the relative hazards, and to ensure a consistent approach, confined space entries have been classified into Class A, Class B, and Class C. The classification of entry shall be based on the conditions present at the time of entry with consideration for potential changes of conditions as identified in the hazard assessment.

Note: As per OH&S Code Part 10-162(1) a person must not enter or work at a work area if more than 20 percent of the lower explosive limit of a flammable or explosive substance is present in the atmosphere.

CLASS A:

1. A confined space will be considered **Class A** if the entry is either the first or initial entry or any of the following applies:

- a) The hazards in the confined space or in its proximity are either not known or have not been determined.

2. The hazards in the confined space include one or all of the following:

- a) Oxygen concentration is less than 19.5% or more than 23% by volume.
- b) Explosive or flammable atmosphere between 10% and 20% Lower Explosive Limit ("LEL").
- c) The area atmosphere exceeds the protective limits of air purifier respiratory equipment.

3. Classified area:

- a) Will require an approved hazard assessment.

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- b) Supplied breathing air available and worn.
- c) All Entrants and Monitors must be trained in the use of supplied breathing air equipment.
- d) A Confined Space Monitor in attendance at all times.

A Specific Rescue Plan Which Has Been Reviewed and Approved:

- a) A valid Confined Space Entry Permit.
- b) A valid Class A Entry Tag hung at each entrance.
- c) An Evacuation Procedure.

NOTE: Any time a Class A entrance is left unattended the entrance must be barricaded physically and a "Danger, Do Not Enter" sign hung at the entrance.

CLASS B

1. A confined space will be considered Class B if all identified hazards are controlled and the following applies:

- a) Oxygen concentration is between 19.5% and 23% by volume; and

2. Either of the following exists or is likely to exist:

- a) Explosive or flammable atmosphere, less than 1% of the Lower Explosive Limit (of 10% LEL).
- b) Or the concentration of toxic substances exceeds 50% of the Occupational Exposure Limit ("OEL").

3. The following controls must be put in place for a "Class B" classified area:

- a) Will require an approved hazard assessment.
- b) A Confined Space Monitor in attendance at all times
 - a.(see note below).
- c) A valid Confined Space Entry Permit.
- d) A valid Safe Entry Tag hung at each entrance.
- e) An Evacuation Procedure.
- f) A valid Rescue Plan.

CLASS C

1. A confined space will be considered "Class C" if all identified hazards are controlled, the potential for change is unlikely, and all of the following apply:

- a) Oxygen concentration is between 19.5% and 23% by volume.
- b) Concentration of explosive gases is less than 1% of LEL

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c) Airborne concentration of toxic substances is less than 50% of OEL.

2. The following controls must be put in place for a “Class C” classified area:

- a) Will require an approved hazard assessment. A Confined Space Monitor may be required. A valid Confined Space Entry Permit.
- b) A valid Safe Entry Tag hung at each entrance.
- c) An Evacuation Procedure.
- d) A valid Rescue Plan.

NOTE: If the hazard assessment determines that a Confined Space Monitor is not required at the point of entry, a competent worker must be designated to be in communication with worker(s) in a confined space. (e.g. – co-worker, buddy system). The entry log must still be maintained.

ENTRY PERMIT SYSTEM

ENTRY PERMIT

- 1. A person must not enter a confined space without a valid entry permit.
- 2. An employer must establish an entry permit system for a confined space that:
 - a) Maintains a list of the names of each worker who enters the confined space.
 - b) Gives the location of the confined space.
 - c) Specifies the time during which an entry permit is valid.
 - d) Takes into account the work being done in the confined space.
 - e) Takes into account the code of practice requirements for entering, being in and leaving a confined space.
 - f) Ensures all required documents are collected and maintained for retention.
- 3. An employer must ensure that, before a worker enters a confined space, an entry permit is properly completed, signed by a competent person and a copy kept readily available at the confined space location.

SIGNAGE FOR CONFINED SPACE

Whenever an entrance to a confined space is left unattended 3 types of signs are used as indications of the status of the space and the requirements for entry.



DANGER, DO NOT ENTER: This sign overrides all other signs at entrances to confined spaces. When it is placed NO ONE is to enter the space under any circumstances. This sign will be placed if an event occurs that could compromise the conditions in a confined space.

- a) If entry is required Operations personnel must be contacted to evaluate the situation, test the atmosphere of the space, and remove the sign if everything meets the standards to enter and work. **Monitor personnel are the only ones allowed to remove this sign.**
- b) For Class A entries the "DANGER, DO NOT ENTER" sign must be hung at the entrances every time the space is left unattended.

CONFINED SPACE MONITOR SYSTEM

This sign is used to signify that a space is safe to enter PROVIDED that the people authorized to enter have a valid permit to work and that there is a Confined Space Monitor present at the entrance when they enter. This sign can be removed by the Confined Space Monitor provided all the permit criteria are met and the Safe Entry Tag is valid and current. When the Confined Space is left unattended, provided the status of the confined space has not changed, this sign must be hung at the entrance by the Confined Space Monitor when leaving.

1. This sign must be used on a Class C entry, where a Confined Space Monitor is not required, to indicate that although there is a Safe Entry Tag on it, the space can only be entered with a valid permit.

CONFINED SPACE MONITOR

CLASS A & B ENTRY

1. For every Class A and B confined space entry, a Confined Space Monitor will be assigned
2. The Confined Space Monitor will:
 - a) Be capable and equipped to summon rescue personnel, if required. A means of communication is mandatory.
 - b) Be in communication or visual contact with personnel inside the confined space at all times.
 - c) Initiate evacuation as necessary, and ensure proper signage is posted at the entrance (s) to the confined space.
 - d) NEVER leave the entry to the confined space with people inside unless properly relieved by another certified monitor.
 - e) NEVER enter the confined space for any reason.
 - f) After verifying all personnel have exited the confined space, ensure correct signage is in place prior to leaving the confined space entrance(s) unattended. (e.g. breaks and end of shift)
 - g) Control the number of personnel allowed in the confined space, as identified by hazard assessment.



- h) Maintain a Confined Space Entry and Exit log for the duration of the job. Entry and exit logs must be safely stored for record retention purposes.
- i) Ensure Entry and Exit points are kept clear and clean.
- j) Maintain awareness of potential hazards in the vicinity of the confined space that may affect the health and safety of the worker(s) inside.

CLASS C ENTRY

Class C Entries may require a Confined Space Monitor, as determined by the hazard assessment. If a Confined Space Monitor is not deemed necessary a competent worker is designated by the employer must be in communication with the worker(s) in a confined space.

NOTE: On small or large jobsites all confined spaces that our employees may work in will need to be identified. These will then be assessed and categorized by class A, B, or C and a log will be kept of all confined space areas are created or sealed up.

ENTRANT TRACKING

For all Class A and B entries, and when there is a Confined Space Monitor on a Class C entry, all personnel who enter the confined space will sign in the Confined Space Log.

1. Personnel are expected to enter and leave a confined space by the same entrance.
2. If this is not possible, then they must return to their point of entry to sign out on the Confined Space Log and inform the Confined Space Monitor as soon as they exit the confined space.

Note: This tracking method is not required when all personnel are visible at all times.

EMERGENCY RESPONSE RULES

1. An employer must ensure that a worker does not enter or remain in a confined space unless an effective rescue can be carried out.
2. A worker must not enter or stay in a confined space unless an effective rescue can be carried out.
3. An employer must ensure that the emergency response plan includes the emergency procedures to be followed if there is an accident or other emergency, including the procedures in place to evacuate the confined space immediately.
 - a) When an alarm is activated.
 - b) If the concentration of oxygen inside the confined space drops below 19.5 % by volume or exceeds 23% by volume, or:
 - c) If there is a significant change in the amount of hazardous substances inside the confined space.

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4. An employer must ensure that an effective means of communication is in place to summon emergency response.

RETAINING RECORDS

1. An employer must ensure that all records with respect to entry and work in a confined space, including entry permits, safe entry tags and entry/exit logs are retained for not less than:

- a) 1 year if no incident or unplanned event occurred during the entry; or
- b) 2 years if an incident or unplanned event occurred during the entry.

***NOTE: If a confined space is identified and unless there exists personnel that are trained or qualified to fulfill all requirements of this code of practice no one must enter and supervisor notified.**

Jaime Heide, Service Manager

Jason De Boer, Senior Administrator

Date: _____ 2016



CONFINED SPACE ENTRY/EXIT LOG

Job Site: _____ Confined Space Permit Number: _____

Work Description: _____ Confined Space Location: _____

Safety Watch: _____ Is air testing being done? Yes No

If yes by whom? _____

Date M/D/Y	Time of Air Test	Results of Air Test Note: testing to be done before Every/re-entry to confined spaces.	Name of worker entering Confined Space	Time of Entry	Time of Exit	Signature

PERMIT #: _____

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CONFINED SPACE ENTRY PERMIT

Date of Issue: _____ Time Issued: _____ Location #: _____
 Department: _____ Confined Space Identifier: _____
 Description of Work: _____

PRE-ENTRY PREPARATION

	Yes	No		Yes	No		Yes	No
Contents removed/purged	<input type="checkbox"/>	<input type="checkbox"/>	Vessel depressurized	<input type="checkbox"/>	<input type="checkbox"/>	Ventilation Required	<input type="checkbox"/>	<input type="checkbox"/>
Electrical lockout complete	<input type="checkbox"/>	<input type="checkbox"/>	Warning signs needed	<input type="checkbox"/>	<input type="checkbox"/>	Type: _____		
Mechanical lockout complete	<input type="checkbox"/>	<input type="checkbox"/>	Sloping/shoring needed	<input type="checkbox"/>	<input type="checkbox"/>			
Blinding/blanking complete	<input type="checkbox"/>	<input type="checkbox"/>	Other area affected by work	<input type="checkbox"/>	<input type="checkbox"/>	Rescue plan in Place	Yes	
No								
Equipment blocked/drained	<input type="checkbox"/>	<input type="checkbox"/>	Area roped off	<input type="checkbox"/>	<input type="checkbox"/>	Other: _____		

ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT

	Yes	N/A		Yes	N/A		Yes	N/A
Hearing	<input type="checkbox"/>	<input type="checkbox"/>	Fire-resistant clothes	<input type="checkbox"/>	<input type="checkbox"/>	Rubber gloves	<input type="checkbox"/>	<input type="checkbox"/>
Monogoggles	<input type="checkbox"/>	<input type="checkbox"/>	Rubber suit	<input type="checkbox"/>	<input type="checkbox"/>	Safety harness & lifeline	<input type="checkbox"/>	<input type="checkbox"/>
Face shield	<input type="checkbox"/>	<input type="checkbox"/>	Rubber boots	<input type="checkbox"/>	<input type="checkbox"/>	Other _____		

Air purifying respirator ☐ ☐ Type: _____
 Atmosphere supply respirator ☐ ☐ SCBA ☐ Worn ☐ Standby ☐

HOT WORK

Nature of Hot Work: _____
 Type of Fire Protection: _____
 Special Precautions: _____

	Yes	N/A		Yes	N/A	
Fire watch required	<input type="checkbox"/>	<input type="checkbox"/>	Monitor for ½ hour after work is complete	<input type="checkbox"/>	<input type="checkbox"/>	Name: _____
Combustibles removed	<input type="checkbox"/>	<input type="checkbox"/>	All wall, floor & sewer opening covered	<input type="checkbox"/>	<input type="checkbox"/>	
Fire extinguishers & hoses in good working order	<input type="checkbox"/>	<input type="checkbox"/>				

LEL MUST REMAIN BELOW 10% FOR HOT WORK TO CONTINUE.

GAS TESTING REQUIREMENTS

Continuous ☐ Intermittent ☐ Interval: _____

SPECIAL INSTRUCTIONS:

SAFETY WATCH I have been informed of and trained in my duties and understand my responsibilities.

Name of Safety Watch _____ Signature _____ Date _____ Time _____

AGREEMENT

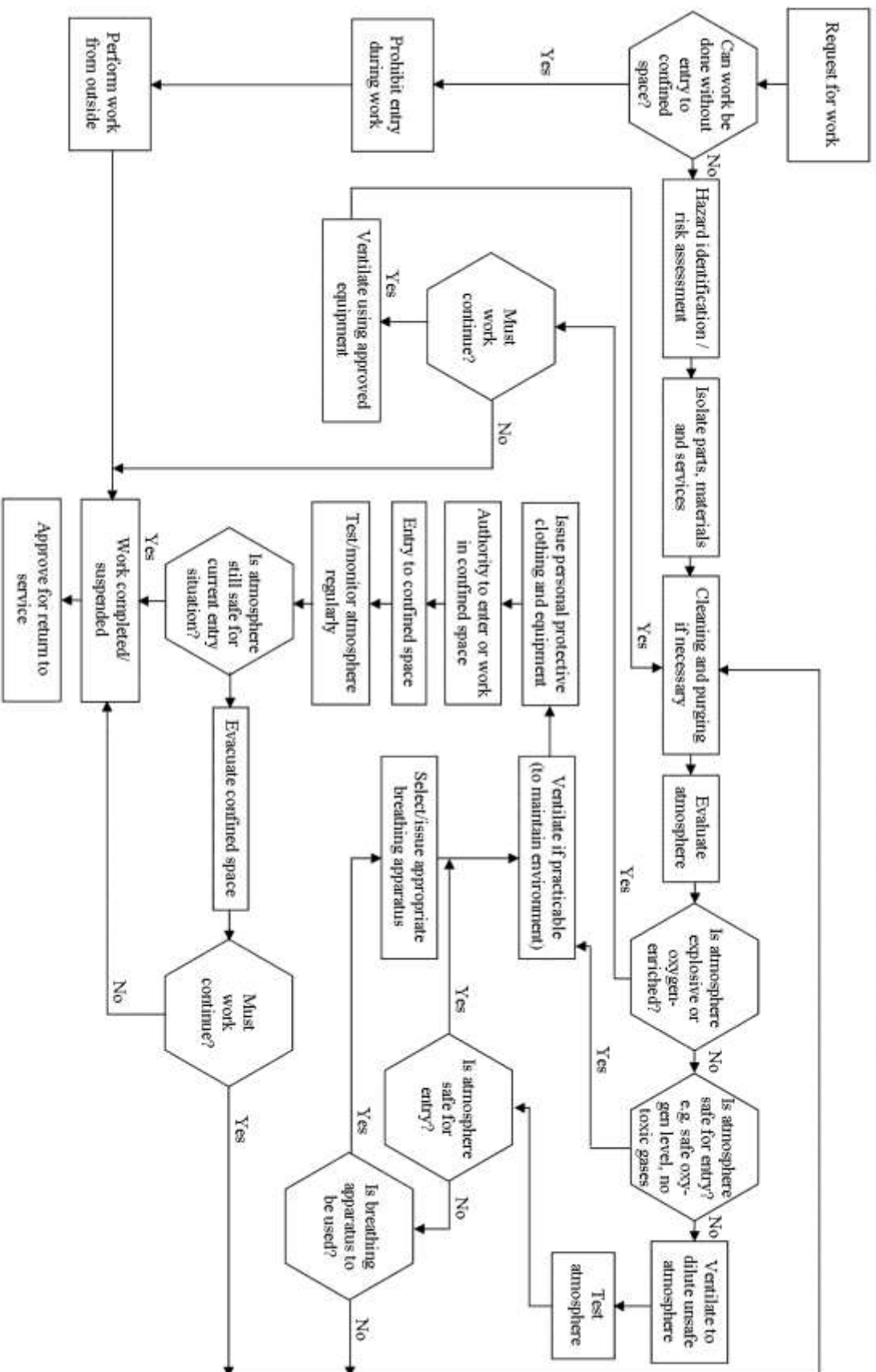
I understand the nature and extent of the work and will comply with all conditions & precautions to be followed in completing the work.

Employee Name _____ Signature _____ Date _____ Time _____

The area is safe for entry and work as outlined above and I authorize this work.

Entry Supervisor _____ Date: _____ Time: _____

SUMMARY OF PROCEDURES FOR CONFINED SPACE ENTRY



CONFINED SPACE LIST

Construction Industry

Caissons
Box Beams
Sewers
Pits
Trenches
Excavations
Crawl Spaces

Food & Similar Products

Retorts
Tubs and Kettles
Basins
Cold Rooms
Ovens
Flour Bins
Air Scrubbers
Batch Cooker
Caustic soda Tanks
Clay Hoppers
Conditioners
Continuous Cookers
Extractors
Heated Lard Tanks
Heated Sugar Bins
Holding Bins
Hydrogenators
Metal Bins
Meat Dryers
Mixers
Tallow Tanks

Textiles

Bleaching Ranges
J-Boxes
Kiers
Die Kettles
Bale Presses
Dye Becks
Sizing Tanks
Steam Boilers

Electronics Industry

Degreasers
Gas Cabinets
Dust Collectors
Tunnels

Paper & Pulp

Chip Bins
Barking Drums
Rag Cookers
Acid Towers
Digesters
Beaters
Hydropulpers
Stock Chests
Adhesive Tanks
Bleach Tanks
Chip Silos
Furnaces
Machine Chests
Mix Tanks
Resin Tanks
Clay Mix Tanks

Rubber Products

Solvent Tanks
Shredders
Furnaces
Ovens
Mixers

Petroleum & Chemicals

Reactors
Storage Tanks
Distillation Columns
Cooling Towers
Dike Areas
Fire Water Tanks
Precipitators
Scrubbers
Crystallizers
Spray Dryers

Leather Products

Dye Vats
Tanning Tanks
Sludge Pits

Machinery

Boilers
Conveyors
Dust Collectors
Tunnels

Stone, Clay Glass & Concrete Products

Kilns
Aggregate Bins
Cement Silos
Crushers
Dryers
Hoppers
Mills
Sand Bins

Primary Metal

Blast Furnaces
Cupolas
Coal bins
Coke Bunkers
Annealing Furnaces
Slag Pits
Water Treatment Tanks
Submarine Cars
Gas Holders
Soaking Pits
Acid Pickling Tanks
Plating Tanks

Fabricated Metals

Paint Dip Tanks
Degreasers
Caustic Cleaning Tanks
Drying Ovens
Shot Blasting Enclosures
Enclosed Assemblies
Sludge Tanks

Electric, Gas & Sanitary Services

Cable Vaults
Manholes
Meter Vaults
Transformer Vaults
Bar Screen Enclosures
Chemical Pits
Incinerators
Pump Stations
Regulators
Sludge Pits
Wet Wells
Digesters
Grease Traps
Lift Stations
Sewage Ejector
Storm Drains

FLOW CHART FOR CONFINED SPACE DETERMINATION

