

A Safe Workplace

A Workplace Safety and Health Manual for Your Community

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Subject: G-9	Confined Space Entry	Approved By: Harvey Bostrom
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The following procedure provides the requirements for Confined Space Entry.

Refer to part 15 Confined Spaces, part 6 Personal Protective Equipment, part 14 Fall Protection, of *The Manitoba Workplace Safety and Health Act and Regulations* and the MB Code of Practice for confined space entry work and CSA-Z1006 Management of work in confined spaces.

The Manitoba Workplace Safety and Health Act and Regulations states that "confined space means an enclosed or partially enclosed space that:

- *except for the purpose of performing work, is not primarily designed or intended for human occupancy; and*
- *has restricted means of access or egress. " (entrance or exit)*

Some examples may include:

- lift stations;
- manholes;
- tanks and reservoirs;
- excavations; and
- crawl spaces & attics.

Only workers trained in confined space entry, confined space rescue procedures, and the use of confined space entry equipment shall be permitted to conduct confined space work.

Confined Space Entry Requirements

The following general requirements must be met to ensure the safety of employees dealing with a confined space entry situation:

Personal Protective Equipment (PPE)

Council must ensure that every employee entering a confined space shall be provided with the appropriate PPE and is trained in its care, use and limitations. Personal protective equipment includes, but is not limited to:

Steel-toe boots, hardhat, disposable coveralls, appropriate gloves (disposable, Nitrile, leather), eye protection, hearing protection, self contained breathing apparatus (SCBA)

Council must ensure that confined space equipment and PPE used in **contaminated confined space work** (such as a sewer) is not used elsewhere, particularly in any areas where drinking water is

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concerned. A separate set of PPE must be used and labeled accordingly and stored separately as per section 6.3(iii) *The Manitoba Workplace Safety and Health Act and Regulations*. Contaminated PPE must be replaced with clean or decontaminated equipment.

Self Contained Breathing Apparatus (SCBA)/SAR Supplied Air Respirator

Self Contained Breathing Apparatus (SCBA) and supplied air respirator (SAR) is a specialized component of PPE.

- Employees must be specially trained in the use of this equipment.
- SCBA equipment must be assigned to an individual. It is not equipment to be shared among employees.
- SCBA must be form fitted to the individual's face to ensure a proper air tight seal and be labeled clearly such that no other individual will attempt to use it.
- SCBA must be re-fitted and re-labeled should equipment be reassigned.
- SCBA face mask must be tested annually to ensure that it is operational and safe.
- SCBA use is mandatory for all confined space entry which is below ground (i.e. buried tanks, underground reservoirs)

As per Section 6.16(2) Personal Protective Equipment in MB WSH Reg 217/2006 and CAN/CSA Standard Z-180.1-00 Compressed Air Breathing Systems, air from an atmosphere – supplying respirator must be sent for a laboratory analysis every 6 months.

Escape Bottle Use and Replacement

- Escape bottles must be inspected for dents and damage before each use and must be refilled when empty or at least once annually.
- Escape bottles must be hydrostatically tested and inspected every five years and charged yearly, even if they have never been used and remain full.
- Council shall develop a plan to ensure maintenance items are addressed. Most fire departments and safety supply stores are able to provide these services.

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Training Requirements

- Council must ensure that every employee dealing with a confined space entry situation has the required training. Training must be current and valid and includes confined space entry, confined space rescue, self contained breathing apparatus, and first aid. See the Workplace Safety and Health Training Requirements section in this manual
- Refresher training for confined space entry must be provided every three years.

Labeling and Securing Confined Spaces

- All confined spaces must be identified and permanently labeled as such at or near the point of entry. For example: Confined Space - No Entry Without Permit.
- All confined space identification labels must list potential hazards. For example: Potential Hazards: Methane Gas, Hydrogen Sulfide, Carbon Monoxide, Oxygen Deficiency, Propane, etc.
- Appropriate barricades and warning signs must be provided to keep vehicle and pedestrian traffic away from a confined space in which work is, or is about to be carried out.
- All confined space must be secured in such a way to prevent any person other than a worker who is required or permitted to do so, from entering a confined space.

Confined Space Entry Permit and Log System

- Council must establish a Confined Space Entry Permit and Log System. Copies of a Confined Space Entry Permit and a Confined Space Permit Log are attached to facilitate this process.
- **An employee cannot enter a confined space at a work site without a valid Confined Space Entry Permit.** Attach the Confined Space Entry Permit to a clipboard and post on the exterior of the building near the entrance and in plain view. The permit must then be returned to the council office and recorded in the Confined Space Permit Log.
- Council must ensure that records are kept regarding the work conducted in a confined space. Records must be kept for one year if there is no incident or unplanned event. Records must be kept for five years if there is an incident or unplanned event. Records should be filed in the designated WSH filing system.
- Should the nature or method of the work to be done change, the Confined Space Entry

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Permit must be reviewed and revised prior to the changed work starting.

Pre-entry Hazard Assessment/Atmospheric Monitoring

- A pre-entry hazard assessment must be conducted before a confined space entry occurs. This assessment may identify possible hazards such as methane gas in a sewage treatment plant or exposed electrical wires in a crawl space. Some of the potential hazards to be considered can be found in the attached Potential Hazard Identification Sheet.
- As part of the pre-entry hazard assessment, testing must be performed using a calibrated gas monitor. Gas detectors must be calibrated with appropriate test gas prior to use. A log book must be kept detailing results of the calibration process and retained for five years. The instruments must be used in accordance with manufacturer specifications. Results of the testing must be recorded on the Confined Space Entry Permit. Continuous monitoring must occur while workers are in the confined space.
- An emergency response plan and rescue procedures must be developed in the event of an accident or other emergency.

Emergency Response Plan and Rescue Procedures

- Prior to a confined space entry, Emergency Response Plan and Rescue Procedures must be developed **specific to the confined space to be entered.**
- When a rescue is necessary from a confined space, the rescuer should immediately request assistance from an emergency response team.
- Under no circumstances should any rescuer enter a confined space without proper training in confined space entry equipment and procedures.
- Where rescue from a confined space is necessary and an emergency response team is not available, additional help shall be obtained.

Standby Worker

- Working alone in a confined space is against the law. There must be at least one trained standby worker available during every confined space entry.
- For every confined space entry a trained standby worker must be in communication with the employee(s) in the confined space. Council must ensure that all employees working

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within the confined space have access to a suitable system for summoning assistance.

- Standby workers must keep track at all times of the number of employees in the confined space as well as record at continuous intervals, the gas monitor readings from the confined space. The observer employee must not leave the entrance to the confined space until all employee(s) leave the confined space.

Purging and Ventilating a Confined Space

If a confined space is identified as requiring purging, ventilation or both, the space must be continuously ventilated and monitored by the observer employee while an employee is in the space.

A confined space must be purged, ventilated or both prior to an employee entering if there is or may be:

- a concentration of flammable or explosive substance present at more than 10% of its Lower Explosive Limit (L.E.L.). The confined space must be found to have a concentration of less than 10% of the L.E.L. before an employee can be allowed to enter;
- an oxygen deficiency (less than 19.5% oxygen content) or an oxygen enrichment (greater than 23% oxygen content). Acceptable levels are between 19.5% and 23% oxygen content by volume; and
- a chemical or biological substance that creates a risk to the safety or health of the employee.

Entry Prohibited

- **Under NO circumstance is:**
 - an employee permitted to enter a confined space if the oxygen content in the space is greater than 23%.
 - An employee, other than a trained firefighter responding to an emergency, to enter a confined space where the concentration of flammable or explosive substance in the confined space cannot be reduced to less than 10% of its Lower Explosive Limit.

Where the “specific requirements before entering a confined space” as outlined in the MB Code of Practice for confined space entry work.

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Procedure for Entering a Confined Space

Ensure all the above requirements have been met before conducting the actual entry.

1. Complete the Confined Space Entry Permit, Hazard Assessment, and Lockout Safe Work Procedure (Section III-G-11).
2. All employees involved in the confined space entry must review the Emergency Response Plan and Rescue Procedure for the Confined Space to be entered.
3. Set up any rescue equipment necessary as indicated in the Emergency Response Plan and Rescue Procedure for the Confined Space to be entered (i.e. hoist and retrieval tri-pod, fall arrest harness(es), etc.).
4. Open the confined space access slightly and insert the "gas monitor" remote sampling hose and record readings on the Confined Space Entry Permit.
5. If the air tested in the confined space is within established limits, as outlined in the attached Potential Hazards Information Sheet, then entry without SCBA is permitted (above ground confined spaces only).
6. If the air tested in the confined space is outside established limits, then SCBA fall protection, hoist and retrieval equipment, and escape air pack must be used. Purging and ventilation or both must be conducted to bring the atmosphere in the confined space to within acceptable limits.
7. If the confined space is below grade or underground, fall protection, hoist and retrieval equipment must be used.
8. Sewer systems, septic tanks and lift stations must be considered IDLH (immediately dangerous to life and health). Any worker in an IDLH environment must wear SCBA or SAR, fall protection, and escape air pack, hoist and retrieval equipment.
9. Complete the work, ensuring that all applicable Safe Work Procedures and Practices as found in this manual for the work are followed (i.e. Manual Lifting, Fall Protection, Lockout, and Personal Protective Equipment).

Community Responsibilities

Council must ensure that:

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- every employee dealing with confined spaces have the appropriate personal protective equipment and are trained in its use;
- confined space entry work is performed by properly trained employees;
- a plan is developed and implemented for the maintenance of confined space entry equipment;
- equipment used in a contaminated confined space is never used in any other confined space;
- Emergency Response Plans and Rescue Procedures are developed, reviewed, and are implemented at the confined space site;
- appropriate barricades and warning signs are in place to protect the public from a confined space;
- all confined spaces must be secured in such a way to prevent any person other than an employee who is required or permitted to do so, from entering a confined space; and
- a Confined Space Permit and Log System is implemented and appropriate records kept.

Attachments

- Confined Space Entry Permit
- Confined Space Entry Log
- Potential Hazards Information Sheet