CORRECTIONAL SERVICES CANADA
Generic Safe Work Procedure—Crawlspace

Location:	Millhaven Hazardous Work Location – Basement Crawlspaces.	Analysis By:	Date:	
Job Title:		Supervisor:	Task Frequency:	**Low**
Task:	Maintenance/repairs and installations	Date Reviewed By IJOSH:		

REQUIRED PERSONAL PROTECTIVE EQUIPMENT: Bumper cap/hard hat (as appropriate), safety footwear, respiratory protection (see control column), Communication equipment, eye protection, work gloves, flash light, means of communication in case of accident/emergency; gas monitor where applicable.

GENERAL NOTES: Crawlspaces at Millhaven Institution are considered hazardous work locations and should be assessed and categorized according to the level of risk at the time of entry. It is important to consider that the level of risk may increase due to the task being performed in the crawlspace and the conditions in the crawlspace at any given point in time. For example a crawlspace may become a confined space due to fugitive emissions from welding or the displacement of oxygen. A confined space may be entered only by qualified and authorized personnel. IF IN DOUBT, DO NOT ENTER. IF SPACE IS IDENTIFIED AS CONFINED SPACE, COMPLETE CONFINED SPACE ENTRY PERMIT. Crawlspaces that have standing (black) water pose a hazard to the entrant, as the water may release hydrogen sulfide gas when disturbed. If standing water is present, contact the Works Department to ensure that air is tested and water pumped out. Do not enter crawlspace and perform work without ensuring that required lock out/tag out procedures have been followed, if applicable. Do not enter crawlspace without flashlight even when permanent lighting is provided that illuminates all areas of the crawlspace. Ensure that a proper ladder is available to allow worker to safely accommodate height to crawlspace opening. It was reported that human biological material (e.g. blood, urine, feces, and saliva) may be inside the crawlspaces. Wear appropriate respiratory protection (full facepiece respirator equipped with organic vapour and particulate cartridges). Workers need to ensure that they are aware of phone numbers to call in case of an emergency or accident and that means of communication is available. A rescue plan should be discussed before entering the crawlspace. Work should not be performed without employing the "buddy system". Upon completion of work ensure that all entrants have exited the crawlspace before locking up the area.

To enter this area, along with this safe work procedure, you will need the following;

- **Hazardous work location checklist**
- **Hazardous work location hazard assessment (to be completed on day of entry)**

Step	Description	Hazard	Controls
1	Before entering the crawlspace, inform the ESO or CPM and ensure that a second person is with you to alert others in case of an emergency. Be aware of any and all real as well as potential hazards associated with the space in which you wish to perform work.	Work alone hazard; exposure to hazardous atmosphere, physical injuries, exposure to toxic substances; fire; exposure	• Buddy System; ensure that means of communication is available in case of an accident/emergency. • Conduct hazard assessment and discuss safe work procedure as well as PPE requirements and emergency equipment. • Ensure that the opening for the crawlspace is sufficient to allow the safe passage of a person using protective equipment.
2	Open door to crawlspace/tunnel Door may be heavy or difficult to open. Ensure that door to crawlspace cannot be closed while you are in the crawlspace. **DO NOT ENTER** crawlspace if standing water is visible, as the water may release hydrogen sulfide gas.	Musculoskeletal; hazardous atmosphere may have developed recently	• Exercise caution. If standing (black) water is present, do not enter---call Maintenance Officer to ensure that air is tested and water is pumped out.
3	Use ladder to reach entry point of crawlspace or tunnel. Inspect ladder before each use.--Make sure all rivets, joints, nuts, and bolts are tight; feet, steps, and rungs are secure; spreaders and pail shelf function properly (step ladders). Ladder should be clean, free from grease, oil, snow, mud, wet paint, or any slippery material. Keep shoes clean.--Never make temporary repairs to a ladder**.--Inspect the ladder by checking the following:**-- GENERAL: Loose steps or rungs. Loose nails, screws, bolts, or other metal parts. Cracked, split or unbroken uprights, braces, steps, or rungs.-- STEPLADDERS: Wobbly (from side to side). Loose or bent hinge spreaders. Broken stop on hinge spreaders. Loose Hinges—**Refer to Fall Protection Program for further details.**	Fall	• Ensure that certified ladder in good working order is available and that it is clean and dry; check shoes to ensure that you won't slip off rungs; use caution when carrying and setting up ladder.
4	Do not use ladder if you are in poor health, subject to fainting spells, have a physical handicap that would impair your climbing ability, or if you are under the influence of any drugs/medication that may cause drowsiness.	Fall	• Assess muscle strength, be sure you are capable of climbing a ladder
5	Set up ladder, make sure ladder is fully open, spreaders are secure, and pail shelf is in position (step ladders).	Fall	• Place ladder on a level surface-- -Assess muscle strength.

6	There may be atmospheric hazards present in the space. You must use caution to ensure that the atmosphere that you are entering is safe for breathing and does not pose a fire or explosion hazard. Use gas detector to test atmosphere. Your gas monitor tests for oxygen, Lower Explosive Limits (LEL), hydrogen sulfide, and carbon monoxide.	Oxygen Deficiency (Less than 19.5%) Oxygen Enrichment (Greater than 23.0%), Explosion or Fire, chemical asphyxiants (interfere with the bodies ability to use oxygen)	• Utilize the air monitoring device to test for oxygen, carbon monoxide, Lower Explosive Limits, and hydrogen sulfide Test at various depths or distances (e.g. top, middle, and bottom) into the space, as gases may be in layers or pockets. • If the air monitoring device goes into alarm mode, **DO NOT ENTER**. Close the space immediately, notify your supervisor and review Confined Space Entry program prior to attempting any future entry.
7	Identify any presence of mould and aerosolized sewage. It was reported that human biological material (e.g. blood, urine, feces, and saliva) may be inside the crawlspaces. Other biological agents (bird and rodent feces, mould, dried sewage) may also be present. These biological materials contain bacteria, fungi, parasites, and viruses which may cause intestinal, lung, and other infections.	Biological Agents	• Where mould is present and oxygen level is between 19.5% and 23.0%, half face respirator equipped with a N100 or P100 filter and safety glasses / goggles. • Where aerosolized sewage is present and oxygen level is between 19.5% and 23.0%, utilize full face respirator equipped with a N95 or P95 filter, or a half face respirator equipped with a N95 or P95 filter and tight fitting safety glasses / goggles. • Bring any presence to the attention of the supervisor for clean-up. • Impervious rubber gloves should also be worn and good hygiene practices (ie washing with soap and water) should be observed when cleaning is completed.

8	Identify the presence of any other airborne hazards.	Dust, Mists, and Fumes	• Wet down dried material to minimize dust movement. • Control ignition sources. • Utilize a suitable dust mask / respirator and safety glasses. • Utilize local exhaust ventilation (inlet located adjacent to source of contaminant) where welding, grinding, or other vapour or dust generating task is being carried out in side the confined space. • Confirm whether any sewage pipe breaks have occurred in the past to determine the likelihood of exposure to dried sewage dust. • Utilize TYVEC suit or ensure that coveralls are washed after use. *Where fumes are present or being generated consult the MSDS sheets for the products and utilize the recommended controls and equipment.*
9	Identify any chemical or toxic substances in area.	Exposure to Chemical and Toxic Substances	• Consult any hazardous substance reports and MSDS sheet for the products contained in the confined space. • Utilize the procedures and personal protective equipment listed in the reports or on the MSDS sheets. *Remove the material and clean the confined space from outside prior to entry where possible.*
10	Identify machinery and mechanical equipment that may pose a hazard.	Machinery and Mechanical Equipment	• Lockout / tagout the equipment at its source and dissipate any stored energy. • Block and guard moving parts where required to prevent movement. • Test the equipment controls to ensure the device is isolated.

11	Identify electrical equipment and circuits that may pose a hazard.	Electrocution, shocks, Burns	• Have a qualified person lockout / tagout the electrical equipment and circuits at its source and dissipate any stored energy. **Only qualified electricians are to perform work on electrical equipment.** • Test the circuits to ensure isolation. • Wear electrically insulated footwear and other PPE as appropriate.
13	Ensure working environment is of a safe temperature and humidity.	Temperature and humidity	• Block and bleed any steam or hot water lines, lockout / tagout any supply valves on lines entering or passing through the space. • Allow the space sufficient time to dissipate any residual heat; • Ventilate the space as required to maintain acceptable temperature levels. • Monitor entrant for signs of heat stress schedule breaks and provide with fluids as necessary.
14	Identify any engulfment and drowning hazards. Ensure safe procedures are followed.	Entrapment, Engulfment, Drowning	• Ensure that any liquids inside the space are drained or pumped out prior to entry. • Ensure that qualified person, i.e. plumber or maintenance engineer, as appropriate, locks out kinetic energy from water sources.
15	Ensure workspace has sufficient lighting.	Visibility	• Ensure that any permanent lighting in the space is functional prior to entry. • Provide portable lighting that is intrinsically safe.
16	Determine if noise level in workspace will likely exceed 87 dBA while work is conducted.	Noise	• Hearing protection shall be worn when work is to be undertaken in a confined space where the noise level will likely exceed 87 dBA. • Hearing protection worn shall have an attenuation reduction value of at least 25 dBA.

17	Enter crawlspace to perform tasks [There is the potential for hand, knee, head, and foot injuries due to pipes overhead, debris on ground, protruding nails, for example. There may be dust and small amounts of mould disturbed as you move through the area creating the potential for respiratory impacts and eye injury. Confirm whether any sewage pipe breaks have occurred in the past to determine the likelihood of exposure to dried sewage dust. Lights may be shut off or a power failure may occur while in the crawlspace which would greatly increase the potential for hand, head, knee, and foot injuries. Although hot and cold water pipes run through the area, the water temperature may be such that burns are not to be expected even if pipes should break while worker is in the crawlspace. Verify water temperature and location of pipes.]	Respiratory, hand, head, knee, eye and foot injuries; back strain; entrapment.	• Never enter the crawlspace without a flashlight and ensure that your 'buddy" has available a backup flashlight. • Ensure that lighting is working properly, and that it distributes a sufficient amount of light to illuminate the crawlspace area. **PPE:** Work gloves; bump hat; safety boots, N95/100 depending on exposure (fit testing required); depending on exposure/hazard: disposable TYVEC suit or similar, or wash coveralls after use; eye protection. • Ensure the crawlspace hatch cannot be closed while you are in the crawlspace. Place a lockout on the hasp so that it cannot be locked shut.
18	Exiting the crawlspace Materials and/or tools left in a space may pose unknown and unexpected hazards to the next person entering this space. No person shall close off a crawlspace until a qualified person has verified that no person is inside it.	Hand, head, knee, eye, and foot injuries, back strain, respiratory hazards, electrocution, entrapment, mechanical hazards, explosion, fire, exposure to toxic substances.	• Ensure that all materials and tools taken into the space are removed. • Use Hazardous Work area checklist to ensure the area is not closed off with persons inside. • Ensure that any modifications to the space are noted and that the generic safe work procedures for that space are reviewed in accordance with any and all changes to the space

	EMERGENCY RESPONSE PROCEDURES 1. Ensure that means of communication is available prior to commencing task. 2. Ensure implementation of Buddy System. 3. Ensure that workmen are provided with address and exact name of location. 4. Ensure that the Chief of Plant Maintenance is informed of tasks to be performed and location prior to commencing work. **5.** In case of an emergency, immediately call MCCP—extension **8155** 6. After calling MCCP, immediately call the Chief of Plant Maintenance at ---extension **8208** 7. Ensure that a person is posted outside the building to direct Emergency Response Team to where victim is located. 8. Attend to victim consistent with training. Ensure that victim is not left unattended.		

Hazard Assessment Form

Assessment Date:

Hazardous Work Location ID. #	Location	Description	Activities Conducted in Area	Frequency of Entry

Note: to be reviewed every three years

Note: N/A denotes Not Able to obtain readings.

Atmospheric Assessment Readings – prior to entering			
Oxygen (%02)	Hydrogen Sulphide (ppm H2S)	Carbon Monoxide (ppm CO)	Flammable Gas (%LEL)

Potential Hazards	**Observations**
Oxygen	
Flammables	
Toxic Chemicals	
Mechanical Hazards	
Electrical Hazards	
Physical Hazards	
Other Hazards	

Atmospheric Assessment Readings – peak screen reading after completion			
Oxygen (%02)	Hydrogen Sulphide (ppm H2S)	Carbon Monoxide (ppm CO)	Flammable Gas (%LEL)

Conducted By: _____

Signature: _____Date:_____

Millhaven Institution – Hazardous Work Location Checklist			
YES	**NO**	**N/A**	**Answer Prior to Entry into the Hazardous Work Location**
			All participants have valid certification for this Confined Space Entry (incl. WHMIS, CPR,)
			All participants have been briefed on all potential hazards
			All departments have been informed of potential service interruption (if applicable)
			All hazard sources have been isolated, blanked or blocked with locks and tags
			All energy sources have been isolated, blanked, or locked out and tagged
			All potential ignition sources have been eliminated
			All tools and equipment have been checked and found to be in good repair
			All materials taken into the space have been recorded and WHMIS info provided & reviewed
			The opening for entry into and exit from the space is sufficient to allow safe passage of a person using protection equipment
			The space has been drained, washed and purged of all potential chemical/biological hazards
			There is adequate ventilation for a good fresh air supply
			All appropriate emergency equipment is readily available (First-Aid, Fire extinguisher, etc.)
			All required pre-atmospheric testing has been completed and recorded below
			All additional permits have been acquired (Hot Work Permit)
			Area has been secured for entrants and public
			The CPM has been alerted of the space entry
			Attendant, entrants, and all other participants have been pre-briefed
			A written rescue plan has been developed for the space entry

Initial Atmospheric Monitoring		
Monitoring Device:	**Calibration Date:** (DD/MM/YY) **Bump Test Date:** (DD/MM/YY)	**Calibrated By:** **Bump Tested By:**
Test	**Allowable Limits**	**Initial Results Time: _____**
Oxygen	>19.5 to <23.0%	
Flammability	10% LEL	
H_2S	10 ppm	
CO	25 ppm	
Other		
Other		

Entry Supervisor (Print)**:**	**Signature:**