

Contractor Safety Program

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1.0 INTRODUCTION

GENERAL

This manual has been developed to assist Mohawk College project managers and any employee or department hiring contractors that perform work or provide services to the College comply with the Occupational Health and Safety Act and coordinate operations to provide a safe working environment.

Despite the fact contractors with specific area(s) of expertise are typically hired by companies to perform certain work, for their specific area(s) of expertise, the employer duties under the Occupational Health and Safety Act and associated Regulations cannot be “contracted” away for that work. That is to say, the work can be contracted out but the responsibility and liability for health and safety cannot. As such, any College department that hires an independent contractor (and any associated subcontractors) has the duties of an employer toward the contractor because contractors and subcontractors are considered to be *workers* for the purpose of the OHS Act.

An exception to this exists however, under specific conditions and only for “construction projects” as defined by the OHS Act. Owners can “contract out” this responsibility if they hire a third party to act as the “constructor” for a specific “construction project”, where the constructor undertakes and controls the project. Under the Occupational Health and Safety Act, *constructors* have the greatest responsibility to exercise control and provide direction over a construction project and all persons working on it. The constructor must ensure compliance with all prescribed safety requirements as expected in their contracted (and subcontracted) areas of expertise.

Consequently, for construction projects, owners must carefully consider whether to undertake the role of a *constructor* or to hire a general or prime contractor to undertake the role as project constructor who in turn is responsible for health and safety requirements on the project until completion of the project. The constructor must, in addition to specific prescribed safety requirements, take every precaution reasonable on the project for the protection of each worker.

CONTRACTORS

Contractors include those performing maintenance, renovations or construction, subcontractors and on-site service providers. Examples of contractors hired by the college include:

- Construction/Renovations
- Snow Removal
- Utility Service and Repair
- Equipment Maintenance, Servicing or Repair
- Janitorial
- Pest Control
- Food Services
- Information Technology
- Security Services

The College expects contractors to be committed to workplace safety and requires they work in compliance with the Occupational Health and Safety Act and applicable Regulations and

Environmental legislation. This manual outlines general safety requirements and safe work procedures contractors must follow when performing work at the college

MOHAWK COLLEGE HEALTH AND SAFETY POLICY

Mohawk College values the health, safety and well being of students, staff, visitors and contractors working on our property and is committed to providing a healthy and safe environment free from injury and occupational illness. Compliance with the *Occupational Health and Safety Act* and applicable Regulations is integral to all operations at the College.

Willful violations of the Occupational Health and Safety Act, Regulations or College policies or procedures may result in disciplinary action up to and including removal from the premises or contract termination.

APPLICABLE LEGISLATION

The following legislative requirements may apply depending on the nature of the work or services performed [Additional requirements may apply]:

Occupational Health and Safety Act

Construction Projects (O.Reg. 213/91)

Control of Exposure to Biological or Chemical Agents (O.Reg. 833)

Critical Injury-Defined (O.Reg. 834)

Designated Substances:

- Asbestos on Construction Projects and in Buildings and Repair Operations (O.Reg 278/05)
- Isocyanates (O.Reg. 842)
- Lead (O.Reg. 843)
- Mercury (O.Reg. 844)
- Silica (O.Reg. 845)

Confined Spaces (O.Reg. 632/05)

First Aid Requirements (O.Reg 1101)

Industrial Establishments (O.Reg. 851)

Training Programs (O.Reg. 780/94)

Training Requirements for Certain Skill Sets and Trades (O.Reg. 572/99)

Window Cleaning (O.Reg. 859)

Workplace Hazardous Materials Information System (O.Reg. 860)

X-Ray Safety (O.Reg. 861)

Ontario Building Code

Ontario Fire Code

Workplace Safety and Insurance Act

2.0 SCOPE

This program applies to any Mohawk College project manager or person that hires a contractor and to contractors working on Mohawk College premises.

This program outlines general safety requirements and safe work procedures contractors must follow, in addition to any requirements under the Occupational Health and Safety Act and applicable regulations, while performing work at the college.

3.0 DEFINITIONS

Atmospheric Hazards

In relation to confined spaces, atmospheres which may contain;

- the accumulation of flammable, combustible or explosive agents,
- an oxygen content in the atmosphere that is less than 19.5 per cent or more than 23 per cent by volume, or
- the accumulation of atmospheric contaminants, including gases, vapours, fumes, dusts or mists, that could,
 - result in acute health effects that pose an immediate threat to life, or
 - interfere with a person's ability to escape unaided from a confined space.

Competent Worker

In relation to specific work, means a worker who

- (a) is qualified because of knowledge, training and experience to perform the work,
- (b) is familiar with the OHS Act and with the provisions that apply to the work and,
- (c) has knowledge of all potential or actual danger to health or safety in the work.

Competent Person

Means a person who

- (a) is qualified because of knowledge, training and experience to organize the work and its performance,
- (b) is familiar with the OHS Act and with the regulations that apply to the work and,
- (c) has knowledge of any potential or actual danger to health or safety in the workplace.

Combustible Liquid

A liquid with a flash point greater than 100F (38.6C) and less than 200F (93.3C).

Confined Space

A space which is fully or partially enclosed, that is not both designed and constructed for continuous human occupancy, and in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

Construction

Includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring drilling, blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project but does not include any work or undertaking underground in a mine.

Constructor

Means a person who undertakes a project for an owner and includes an owner who undertakes all or part of a project by himself or by more than one employer.

Critical Injury

An injury of serious nature that,

- a) places life in jeopardy;
- b) produces unconsciousness;
- c) results in substantial loss of blood;
- d) involves the fracture of a leg or arm but not a finger or toe;
- e) involves the amputation of a leg, arm, hand, or foot but not a finger or toe;
- f) consists of burns to a major portion of the body; or
- g) causes the loss of sight in an eye.

Employer

Means a person who employs one or more workers or contracts for the services of one or more workers and includes a contractor or subcontractor who performs work or supplies services and a contractor or subcontractor who undertakes with an owner, constructor, contractor or subcontractor to perform work or supply services.

Flammable Liquid

A liquid with a flash point less than or equal to 100F (38.6C).

Flash Point

The lowest temperature at which a liquid gives off enough vapour to form a mixture that can ignite in the presence of a source of ignition.

Lockout

The placement of a lock on an energy isolating device or lockout device to physically neutralize all energies in a piece of equipment or machinery ensure the energy isolating device being controlled cannot be operated until the lockout device is removed.

Material Safety Data Sheet

Material safety data sheet (abbrev. MSDS) is a technical specification sheet that provides detailed hazard and precautionary information. MSDS are valid for 3 years.

Owner

Includes a trustee, receiver, mortgagee in possession, tenant, lessee, or occupier of any lands or premises used or to be used as a workplace, and a person who acts on behalf of an owner as an agent or delegate.

Project

Means a construction project, whether public or private, including,

- (a) the construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, watermain, service connection, telegraph, telephone or electrical cable, pipe line, duct or well, or any combination thereof,
- (b) the moving of a building or structure, and
- (c) any work or undertaking, or any lands or appurtenances used in connection with construction.

Supervisor

A person who has charge over a workplace or authority over a worker.

Tagout

The placement of a tagout device (warning tag) on an energy-isolating device to communicate the equipment must not be reenergized or operated until the tagout device is removed.

Workplace Hazardous Materials Information System

The Workplace Hazardous Materials Information System (abbrev. WHMIS) is Canada's hazard communication system to educate workers and employers about hazardous products used in the workplace. The three main components to WHMIS are: labels, material safety data sheets and worker education.

4.0 RESPONSIBILITIES

CONTRACTORS

Contractors are responsible for:

- Reviewing the workplace hazards and their own work practices and procedures to ensure their employees have the necessary training and equipment to perform the work safely.
- Taking all necessary steps to protect workers, students, visitors, college employees, the environment and physical property from harm associated with the work performed.
- Complying with the requirements of the Occupational Health and Safety Act and any regulations that apply to the work performed.
- Informing employees about the hazards associated with the work to be performed and the measures required to perform the work safely.
- Providing proof of good standing with the Workplace Safety and Insurance Board coverage (WSIB Clearance Certificate) and/or adequate general liability insurance coverage. WSIB Clearance Certificates are valid for 60 days.
- Completing "Registration of Employers" forms for every employer on a project as required under O. Reg. 231/91
- Submitting a "Notice of Project" to the Ministry of Labour with a copy to the College for all projects that are regulated under O. Reg. 213/91
- Designating a qualified person responsible for implementing their safety program and ensuring workers follow safe procedures and work in compliance with the OHS Act and applicable regulations.
- Ensuring workers have the necessary training, qualifications and experience to perform the work or use or operate tools, machinery or equipment safely. Proof of training may be required.

- Providing all tools and equipment, including their own protective equipment required to perform the work safely.
- Electrical equipment must be CSA approved or equivalent.
- Ensuring all tools, equipment and machinery is in safe working condition and inspected as may be required by the OHS Act and regulations. Damaged or defective equipment must be taken out of service and not used.
- Knowing the emergency procedures for emergencies including fire, evacuation, medical and lockdowns. Emergency numbers along with the names of the Contractor and Mohawk College contact persons must be posted.
- Providing or arranging for first aid and knowing how to contact emergency services on campus if needed.
- Investigating and reporting all accidents or incidents and providing a copy of the Accident/Incident report to Mohawk College. Preventive measures must be identified and implemented to prevent recurrences.
- Ensuring all hazardous substances are clearly labelled and properly stored as required by the WHMIS Regulation.
- Ensuring all waste is disposed of, in accordance with all municipal, provincial or federal regulations.
- Conducting frequent and regular inspections of the work area(s) and materials and equipment used.
- Maintaining good housekeeping and keeping the work area free from safety and health hazards. Work areas must keep aisles and exits clear of obstructions.
- Notifying appropriate College staff of any interruption of emergency devices while work is being performed. Examples include fire alarm systems, computer systems, security systems and lockout devices.
- Where work on a project will last more than three consecutive months, the constructor or contractor shall:
 - where the number of regular workers exceeds 5, cause the workers to select at least one health and safety representative from the workers who do not exercise managerial functions.
 - where there are more than 20 regularly employed workers, establish and maintain a joint health and safety committee as required by the Occupational Health and Safety Act.

CONSTRUCTORS

Constructors undertaking a project are responsible for:

- Ensuring the requirements of the Occupational Health and Safety Act and applicable Regulations are carried out on the project and complied with by every employer and every worker performing work on the project.
- Ensuring the health and safety of workers on the project is protected.
- Obtaining completed registration forms for every employer at the project and keeping a copy at the project while the employer is working there.
- Completing an approved *Project Notification* form and filing it with the nearest Ministry of Labour Office in accordance with the timelines and requirements of the Construction Regulations. (Refer to O.Reg. 213, sec 6 and 7).
- Notifying the Ministry of Labour, Joint Health and Safety Committee and Trade Union (if any) immediately in the event of a fatality or critical injury.
- Delivering notice of accident and reports under section 52 or 53 of the Act as per section O. Reg. 213, s12.

MOHAWK COLLEGE DEPARTMENT OR PERSON HIRING CONTRACTOR

The Department or person who hires a contractor is responsible for:

- Reviewing the scope of work and services to be performed/provided with the contractor.
- Reviewing how the work will be performed.
- Ensuring the contractor follows the safety requirements and any applicable legislation.
 - In the event that different legislation coincides, the Project Manager or person responsible for hiring the contractor must ensure the contractor follows the most stringent requirement.
- Obtaining copies of Workplace Safety and Insurance Board Clearance Certificates to verify the contractor is in good standing with the WSIB. WSIB Clearance Certificates are valid for 60 days.
- Obtaining copies of general liability insurance coverage.
- Obtaining copies of “Notice of Project” for all projects that are regulated under O. Reg. 213/91
- Advising contractors of any hazards, or potential issues (i.e. Asbestos in pipe insulation).
- Reviewing completed work to ensure it was done properly.
- Regularly monitoring contractors to ensure safety requirements are met and the work is performed safely.

- Ensuring contractors have the appropriate qualifications to safely perform the work and obtaining acceptable proof of training. Examples include: electrical work, fall arrest, powered lift truck or elevating devices, confined space.
- Reviewing safety requirements and applicable regulations and providing contractors with copies of this program and familiarizing contractors with information regarding emergency procedures at the college such as:
 - Fire alarms and Evacuations
 - Medical Emergencies
 - Lockdowns
- Identifying and authorizing work to be performed by contractors and informing affected departments, in advance, of the scope of work and schedule.
- Obtaining emergency contact names and telephone numbers for contractors and keeping these readily accessible in the event of an emergency.
- Informing contractors in writing of any hazardous or designated substance that may be encountered in the course of work or in the area where the work takes place.
- Ensuring all Legislated and College Safety programs/procedures are followed
- Authorizing work to be done by contractors when there is an electrical, mechanical or other building service related interruption.

OCCUPATIONAL HEALTH AND SAFETY DEPARTMENT

The Occupational Health and Safety Department is responsible for:

- Providing assistance and guidance to College Departments or staff hiring contractors concerning issues or concerns regarding contractor safety.
- Reviewing and providing advice as required on the use or presence of designated substances or WHMIS controlled products.
- Reviewing and investigating all reports of critical injuries and Ministry of Labour stop work orders occurring on College-owned or occupied property.
- Reviewing and updating the contractor safety program.

5.0 GENERAL SAFETY RULES

ALCOHOL AND DRUGS

Drinking alcoholic beverages or using illicit drugs is not permitted. Being under the influence of drugs or alcohol will result in removal of those involved from the premises and subject to possible legal action.

DAMAGED OR DEFECTIVE EQUIPMENT

Employees are required to report damaged or defective equipment. Damaged or defective equipment must be taken out of service and not used.

HORSEPLAY AND FIGHTING

Horseplay, fighting and use of inappropriate language are not permitted.

SMOKING

Smoking is not permitted in buildings or near entrances. Smoking is permitted outside in designated areas.

VEHICLE SAFETY

Operators of vehicles must hold a valid driver's license for the type of vehicle operated and must obey posted signs and speed limits. Do not park in fire routes or otherwise block emergency vehicle access.

GENERAL

- Carry materials in a manner that does not obstruct your vision or balance.
- Get assistance with heavy, long or awkward equipment.
- Hold onto handrails and pay attention to each step when ascending or descending stairs.
- Select the proper ladder for reaching or accessing high areas. Consider using safer, alternative methods such as scaffolds or elevating devices.
- Do not stand on boxes or chairs.
- Report hazardous conditions immediately to your supervisor. Isolate or secure the area to prevent injury.
- Keep aisles, exits and access to emergency equipment clear at all times. (e.g. fire extinguishers, fire alarm pull stations, eyewash stations)
- Clean or report spills and slipping hazards immediately.
- Keep working areas clean and free of potential tripping hazards.
- Position and secure or protect wires and cables so they do not create a tripping hazard.
- Rope off or otherwise protect work areas and keep unauthorized people out.

6.0 SAFETY REQUIREMENTS AND PROCEDURES

EMERGENCIES

Emergencies are unplanned events that can occur suddenly and can cause injury to life, property or the environment. Examples of emergencies include:

- Medical (e.g. heart attack, personal or critical injuries)
- Fire
- Chemical spill
- Personal security threat

EMERGENCY CONTACT NUMBERS

In all cases of an emergency, your first response is to contact Mohawk College Security. Security Services is provided 24/7 and can be reached by any of the following:

| Emergency Numbers (24 hrs) |
|---|
| <ul style="list-style-type: none">• 55 on college lines other than IAHS• 905.574.5111 on other lines• 88 at IAHS (McMaster Security) or• Use emergency intercoms |

Security will respond immediately to ensure the appropriate emergency response measures are employed.

FIRST AID

All first aid and medical attention for Contractor's workers shall be handled by Contractor in accordance with O.Reg 1101 First Aid Requirements under the WSIB Act.

Contractor shall be required to set up a first aid station in compliance with O.Reg 1101 First Aid Requirements under the WSIB Act.

Contractors are responsible for ensuring first aid is provided for their employees and sub-contractors.

In the event of a medical emergency, contractors will contact Security or call 911.

Mohawk College's Security Services and Health Services personnel are trained in first aid, cardiopulmonary resuscitation (CPR) and in the use of automated external defibrillators (AED). AEDs are one of the links in the chain of survival that may be used by a qualified person to restart a heart that has stopped beating effectively. Please note the following public access AED locations at Mohawk College:

Location of Automated External Defibrillators

| Campus | AED Location |
|--------------|---|
| Fennell | Opposite Security Office |
| Brantford | Main Building: Main Entrance Lobby |
| | Police Services Bldg: Gymnasium Reception Desk |
| Stoney Creek | Outside Cafeteria |
| IAHS | Carried by McMaster Emergency First Aid Response Team |

ACCIDENT/INCIDENT REPORTING

Mohawk College requires all accidents and incidents to be immediately reported to the person in charge of the area or to Security Services.

Prompt reporting ensures first aid treatment or emergency medical services can be provided as quickly as possible and corrective measures can be taken to prevent the accident from happening again.

The Occupational Health and Safety Act has the following special requirements for accidents involving a critical injury (defined below):

- Must be immediately reported to the Ministry of Labour
- Accident scene must not be disturbed until an accident investigation has been completed
- Joint Health and Safety Committee must be notified.

Familiarize yourself with the above reporting requirements, especially since failure to report a critical injury or preserve the accident scene can result in charges under the OHS Act.

For Serious or Critical Injuries

In the event of a serious or critical injury requiring emergency medical services, immediately;

- Seek first aid treatment
- Contact all of the following:

| Department | Number |
|-----------------|--|
| Security | 55 on college lines other than IAHS 905.574.5111 on other lines 88 at IAHS (McMaster Security) or Use emergency intercoms |
| OHS | Ext. 2225 or 2246 |
| Area Supervisor | As appropriate |

- Secure the scene and do not disturb until an accident investigation has been completed and authorization has been given to restore the area.

- Complete the accident investigation and Accident/Incident Report form and submit to the Occupational Health and Safety Department in room B101F.

For All Other Injuries

In the event of all non-serious injuries, immediately:

- Seek first aid treatment from a certified first aid attendant from the work area/department, Security or Health Services.
- Notify your supervisor, investigate the accident and complete the Accident/Incident Report form and submit to the Occupational Health and Safety Department in room B101F.

EMERGENCY EYEWASH AND SHOWER STATIONS

An eyewash or deluge shower is required where there is exposure to potential hazard of injury to eyes or skin due to contact with chemical or biological substance.

Contractors must be familiar with the locations and operation of emergency eyewash stations and showers in the area of work.

Where required, contractors are responsible for providing appropriate eyewash and/or deluge shower stations in the areas where work is being performed if none are already available.

LOCKDOWN

Lockdown is an emergency measure used to protect people inside a building from a dangerous situation taking place either inside or outside the building. An internal or external lockdown will be ordered upon identification or notification of a threatening situation. Both types of lockdown will be communicated by a pre-recorded message played over the building speaker system. If any threat is viewed or perceived, call College Security at extension 55 (extension 88 at IAHS) or call 911.

Note: The specific procedures do not apply to the Institute for Applied Health Sciences where security procedures are determined by McMaster University.

Internal Lockdown: A situation where there is a direct threat to the safety and well-being of the College community such as a shooter, a hostage situation or a terrorist attack. The goal is to remove yourself from the area of immediate threat, go to a secure area and remain out of site. Internal lockdown signals will be initiated by Security.

External Lockdown: A type of lockdown that could arise from police action, environmental hazard or weather related activity outside the College that poses no direct threat to people inside the building. In this case, the College would conduct business as usual, but all entrances to the college would be locked to deny access to the building from outside. External lockdown signals will be initiated by Security or any building management personnel.

1) Internal Lockdown Procedure

- If you are in a classroom or office, remain there.
- If you are in a hallway, move to a room or other place of safety immediately.
- Provide assistance, where required, to individuals with a disability or language barrier.
- Secure doors if possible, turn out lights, cover windows or pull shades if possible.
- Remain quiet and out of sight. Stay away from all windows and doors.
- Turn off all cell phones to protect emergency communications
- Staff member or volunteer should record names of persons present
- Stay quiet and await instructions. Lockdowns can last a considerable time,
- Do not open the door under any circumstances.
- Do not evacuate if a fire alarm sounds unless identifiable emergency officials knock on your door and advise evacuation or unless you are certain there is a need to evacuate.

For open areas such as Cafeteria, Library or Gymnasium

- Generally follow the same steps as those listed above.
- If there are no doors that can be locked or barricaded, take shelter under desks, tables, chairs or behind bookcases or other furniture or equipment.

2) External Lockdown Procedure

- In the case of an external threat, a signal will take the form of a recorded announcement of an external lockdown that will be repeated for up to 3 minutes.
- Remain in the building until emergency officials advise it is all clear to leave.
- Security staff are responsible for locking and securing all exits/entrances.
- Security staff is responsible for monitoring the main entrance and admitting only authorized personnel for the duration of the external lockdown.

End of Lockdowns

The end of a lockdown situation will be communicated by a recorded “all clear” announcement repeated for up to 3 minutes. Emergency officials or College Security will conduct a door-to-door confirmation of this announcement.

EMERGENCY EVACUATION

Everyone should be familiar with the building alarm system and procedures for evacuating each campus they may be required to attend. People with special needs require particular attention since evacuation efforts may be hindered by their individual circumstances.

If You Hear the Alarm

- Go immediately to the nearest exit.
- Leave the building by the most direct route.
- Follow instructions by Security, staff and/or Fire Wardens.
- Take up a position away from the building so as not to interfere with emergency personnel.

If You Discover Fire

- Evacuate persons in immediate danger and close the door, if possible.
- Go immediately to the nearest fire alarm station and sound the fire alarm.
- Leave the building by the most direct route
- Call Security at extension 55 (ext. 88 at IAHS) and/or 911 from a safe location

Important Notes:

- 1) Do not use elevators as you could be trapped if the power fails or is switched off.
- 2) Fire extinguishers are located throughout the buildings. These are portable extinguishers designed for small confined fires and should only be used by trained persons.
- 3) You will be directed to a sheltered location by Security, staff and/or Fire Wardens in the event of an extended evacuation. If instructed, please move quickly and calmly to the designated assembly area.
- 4) Remain outside or in the sheltered area until an "All Clear" has been given by emergency officials, Security, designated staff and/or Fire Wardens.
- 5) All students, faculty and staff should familiarize themselves with the locations of the fire alarm stations, fire extinguishers and building exits in order to avoid confusion in the event of an emergency.
- 6) Advise the emergency responders, Security, staff and/or Fire Wardens of any trapped or endangered occupants still within the building.
- 7) Never put yourself in danger!

Extended Evacuations

In the event of an extended evacuation you will be directed by Security, staff and/or Fire Wardens to a sheltered location. If instructed, please move quickly and calmly to the designated assembly point.

Returning to Facilities

Remain outside or in the sheltered area until an **All Clear** has been given by emergency officials, Security, designated staff and/or Fire Wardens.

ASBESTOS

Asbestos containing materials (abbr. ACM) are present in various building areas at Mohawk College campuses, particularly in the older sections at Fennell, Stoney Creek and Brantford. ACM can be found in some ventilation ducting insulation, pipe and valve insulation, floor tiles, drywall joint compound, spray-on building fire-proofing, door fill, laboratory counter tops, texture finishes, boiler insulation and gaskets to name a few.

Detailed inventories of asbestos containing material and locations are available from Facilities Management or Occupational Health and Safety Department.

Any activities that involve disturbance of asbestos containing materials (ACM) are strictly regulated by O.Reg. 278/05 "Asbestos on Construction Projects and in Buildings and Repair Operations". The regulation defines three classifications of asbestos work depending on the airborne concentration of asbestos generated by the work and the duration of exposure. The three Types of asbestos operations, in order of increased risk of exposure are:

- Type 1
- Type 2
- Type 3

Adherence to the measures and procedures in O.Reg 278/05 are required to ensure workers and building occupants are protected from hazardous exposure to asbestos during repair or removal work.

All work involving the potential disturbance or handling of asbestos containing materials must be arranged through Facilities Management.

Asbestos related repairs and removal must only be performed by contractors hired specifically to perform the work in accordance with Mohawk College's asbestos management program and with the requirements of O.Reg 278/05.

Contractors must be informed of the presence of asbestos containing material prior to arranging or contracting for demolition, alteration or repair and be provided with a report detailing whether the material contains asbestos and describing the condition of the material, whether it is friable or non-friable and the locations of the material. This is accomplished with a "Contractor Notification Form" that serves as a record for the College that contracted personnel have reviewed the potential asbestos hazards for a specific work area(s).

The notification should also identify asbestos hazards in the work area, limitations, type and location of ACM, as well as address any factors that could affect the health and safety of the workers involved with the project. A sample Contractor Notification Form is provided in Appendix .

Contractors must ensure the asbestos containing materials are not disturbed during the course of work.

Contractors must immediately stop work and notify their Mohawk College contact person if asbestos containing materials are damaged or disturbed during the course of work.

BARRICADING, LIMITING ACCESS AND HOARDING

- It shall be the responsibility of the Contractors/Constructors to provide appropriate barricading, fencing, hoarding, drop sheets or other dust containment measures, warning lights and signage on the work site.
- The location and extent of the work site isolation shall be discussed with the Mohawk College contact person prior to the commencement of the work.
- Barricades must be placed in such a manner as to prevent unauthorized personnel from entering the work site/area and potentially placing themselves in danger of injury.
- No fire protection equipment or fire exits may be blocked for emergency access unless alternate arrangements have been made and approved.
- Where a permanent guardrail cannot be installed, barricades must be used to warn people of the hazard of falling. Barricades must be substantial enough and properly located to prevent anyone from falling. Barrier tape cannot be used in this situation.

COMPRESSED AIR

- Inspect valve fittings, hose attachments and air lines for signs of corrosion, wear or other signs of weakness.
- Discard hoses that are worn, cracked, or that show other signs of damage or aging.
- Compressed air shall not be used for cleaning purposes
- Use personal protective equipment (safety glasses, face shield, long sleeve shirt, gloves, etc.) when operating air hoses.
- Do not use compressed air blowing device to blow dust or other substances from clothing unless the device limits an increase in pressure when the nozzle is blocked.
- Do not use compressed air in such a manner as to endanger the safety of any worker.

COMPRESSED GAS CYLINDERS

- Protective caps must be in place when cylinders are moved, transported or stored.
- Cylinders must be stored in dry locations away from sources of heat or ignition.
- Valves must be closed when cylinders are not being used and when they are moved or transported.
- Cylinders must be secured in an upright position during transportation, storage or use
- Move cylinders in handcarts or other devices designed for moving cylinders.
- Do not use chains, slings or magnets to hoist cylinders.

- Leave the cylinder valve protection cap in place until the cylinder is secured and ready for use.
- Discharge compressed gases safely using devices, such as pressure regulators, approved for the particular gas.
- Never force connections or use homemade adaptors.
- Ensure that equipment is compatible with cylinder pressure and contents.
- Carefully check all cylinder-to-equipment connections before use and periodically during use, to be sure they are tight, clean, in good condition and not leaking.
- Carefully open all valves, slowly, pointed away from you and others, using the proper tools.
- Close all valves when cylinders are not in use.
- Ensure cylinders are not rolled, slid or dropped
- If the cylinder contains **acetylene**, it must be in an upright position
- Cylinders must be protected from physical damage
- If the cylinder is empty, it must be labeled accordingly and have the valve turned off

CORROSIVE CHEMICALS

- Be aware of all of the hazards (fire/explosion, health, chemical reactivity) of the materials you work with.
- Store corrosives in suitable labeled containers away from incompatible materials, in a cool, dry area.
- Store, handle, and use corrosives in well-ventilated areas.
- Handle containers safely to avoid damaging them.
- Dispense corrosives carefully and keep containers closed when not in use.
- Store corrosives slowly and carefully into cold water when the job requires mixing corrosives and water.
- Handle and dispose of corrosive wastes safely.
- Practice good housekeeping, personal cleanliness and equipment maintenance.
- Wear the proper personal protective equipment.
- Know how to handle emergencies (fires, spills, personal injury) involving the corrosive materials.

DANGEROUSLY REACTIVE MATERIALS

- Know which of the materials you work with are dangerously reactive.
-

- Store dangerously reactive materials in suitable, labeled containers (usually their shipping containers) in a cool, dry area.
- Store, handle and use dangerously reactive materials in well-ventilated areas and away from incompatible materials.
- Follow the chemical supplier's advice on maximum and minimum temperatures for storage and use.
- Follow the chemical supplier's advice on checking and maintaining inhibitor and dissolved oxygen levels where appropriate.
- Eliminate ignition sources (sparks, smoking, flames, hot surfaces) when working with dangerously reactive materials.
- Handle containers carefully to avoid damaging them or shocking their contents.
- Keep containers closed when not in use.
- Keep only the smallest amount possible (not more than one day's supply) in the work area.
- Dispense dangerously reactive materials carefully into acceptable containers, using compatible equipment.
- Do not subject dangerously reactive materials to any type of friction or impact.
- Practice good housekeeping, personal cleanliness and equipment maintenance.
- Handle and dispose of dangerously reactive wastes safely.
- Wear the proper personal protective equipment.
- Know how to handle emergencies (fires, spills, personal injury) involving the dangerously reactive materials.

FLAMMABLE AND COMBUSTIBLE LIQUIDS

- Flammable and combustible liquids shall only be stored in approved containers and in appropriate quantities for the job site use.
- Contractor shall restrict the use and storage of flammable liquids and gases to a minimum
- Flammable liquids shall be dispensed through grounded and bonded containers.
- Avoid or eliminate ignition sources (sparks, smoking, flames, hot surfaces) when working with flammable and combustible liquids.
- Store, handle and use flammable and combustible liquids in well-ventilated areas.

- Bond and ground metal containers when transferring flammable liquids.
- Keep area clear of incompatible and combustible materials.
- Know how to handle emergencies (fires, spills, personal injury) involving the flammable and combustible liquids used.

DESIGNATED SUBSTANCES

Mohawk College will provide to contractors, a list of designated substances present at the project site, prior to the signing of the contract.

The Contractor is responsible for providing a copy of the list of designated substances to prospective subcontractors.

CONFINED SPACES

DEFINITION AND LEGISLATION

Confined spaces are spaces that may pose a life threatening situation because of the presence or generation of a dangerous atmosphere. Legislated requirements for confined spaces are found in the following Regulations, depending on the nature of the work performed:

- Construction Projects (O.Reg. 213/91)
- Confined Spaces (O.Reg. 632/05)
- Industrial Establishments (O.Reg. 851)

The regulations define confined spaces as a space which is fully or partially enclosed,

- a) that is not both designed and constructed for continuous human occupancy, and
- b) in which atmospheric hazards may occur because of its construction, location or contents or because of work that is done in it.

An atmospheric hazard is defined as an atmosphere which may contain;

- a) the accumulation of flammable, combustible or explosive agents,
- b) an oxygen content in the atmosphere that is less than 19.5 per cent or more than 23 per cent by volume, or
- c) the accumulation of atmospheric contaminants, including gases, vapours, fumes, dusts or mists, that could,
 - i) result in acute health effects that pose an immediate threat to life, or
 - ii) interfere with a person's ability to escape unaided from a confined space.

CONFINED SPACE CLASSIFICATION

There are three confined space *categories* under Mohawk College's confined space program. Each classification represents the level of hazard and the extent of precautionary measures required by the confined space program to enter the space safely. The classification of a space may change as a result of work or activities performed in the space or from measures taken to *eliminate* the hazards from the space. That is to say the hazard *category* of a space may increase to a higher risk level or, in the event measures are implemented to eliminate the

possibility that any atmospheric hazards may occur in the space, then the confined space provision would not apply.

Category A

These spaces are not *confined spaces* by regulatory definition but are considered to be a “Restricted Access Space” with low hazards requiring minimal precautionary measures. Only authorized personnel can enter restricted access spaces. Examples include elevator pits and air handling units.

Category B

These spaces are low risk confined spaces that can be rendered safe for entry without the requirement for respiratory protection. This can be accomplished through ventilating and continuously monitoring the space. Examples include storm and sanitary manholes, water meter vaults.

Category C

These spaces are high risk confined spaces that, because of the nature of the hazard(s) or location of the space, the space cannot be made safe for entry and workers must wear supplied air respiratory protection such as an airline or self-contained breathing apparatus (SCBA).

Examples of confined spaces at Mohawk College include underground vaults, manholes and similar enclosures.

CONFINED SPACE HAZARD ASSESSMENT AND ENTRY PERMIT

Hazard assessments and confined space entry plans have been developed for confined spaces at Mohawk College. Copies of the assessments and entry permits for these spaces are available through the Occupational Health and Safety Department and Facilities Management. Refer to appendix 2 and 3 for a sample hazard assessment and entry permit.

GENERAL CONFINED SPACE ENTRY STEPS

- Review the specific Confined Space Hazard Assessment and Entry Permit
- Review on-site rescue plan
- Assign confined space attendant
- Obtain and Inspect Equipment [air monitors, rescue, communication]
- Lockout and Tagout Equipment
- Inspect and Set-Up Entry and Rescue Equipment
- Conduct Air Monitoring and Record Results
- Ventilate space if required
- Don require personal protective equipment
- Enter Space

GENERAL REQUIREMENTS

- Contractors must comply with the applicable regulation regarding confined spaces and meet or exceed these requirements and those of Mohawk College’s Confined Space Entry program.
- Contractors are not permitted to enter or perform work in a confined space without a hazard assessment and confined space entry plan and permit.

- Contractors must ensure all workers working in or near a confined space have adequate training for performing entries and work in confined spaces. Proof of training must be provided upon request.
- Contractors must provide their own personal protective equipment, devices and rescue equipment required to enter and perform confined space work safely.
- Contractors must ensure an *attendant* is assigned for all confined space entries
- Contractors must ensure adequate on-site rescue procedures are in place and ready for immediate implementation:
 - prior to permitting entry into a confined space and
 - during entry in a confined space
- Contractors must provide their own air testing/monitoring equipment and ensure it is:
 - calibrated as per instrument manufacturers specifications
 - field tested prior to monitoring a confined space
 - operating properly.
- Contractors are responsible for conducting air monitoring of the confined space prior to and during entry. The size and shape of confined spaces influences the number and locations of measurements necessary to adequately assess the confined space atmosphere and ensure it is safe to enter. Vertical spaces must be measured at the top, middle and bottom. Large horizontal spaces should be measured at representative locations such as at the ends and in the middle. Air samples must be taken in the following order:
 - i) Oxygen Content
 - ii) Flammable/Combustible
 - iii) Carbon Monoxide
 - iv) Hydrogen sulphide
- The atmosphere must be retested before a worker enters or re-enters the space whenever the space has been unoccupied and unattended (e.g. lunch breaks).
- Contractors are responsible for completing the Confined Space Entry Permit.
- Contractors must notify their Mohawk College contact person of any problems or concerns regarding a confined space or entry.
- A coordination document must be prepared and signed by the lead employer where workers of more than one employer perform work in the same confined space. Refer to Appendix 4 for a sample coordination document.

ELECTRICAL SAFETY

GENERAL REQUIREMENTS

- All electrical work, installation, and wire capacities shall be in accordance with the pertinent provisions of the Ontario Electrical Safety Code (latest edition) and the OH&S Act.

- No other worker other than an electrician certified under the Trades Qualification and Apprenticeship Act to do electrical work or a person with equivalent qualifications by training and experience shall connect, maintain or modify electrical equipment or installations.
- Prior to starting electrical work which involves cutting, splicing, or tapping existing cables, Contractor will request College electrical staff to tag and identify all cables present in the area. Contractor shall check to make sure that the circuit to be worked on has been de-energized and the source locked out. Contractor must attach their personal protective locks in parallel with a College facility “Lock” on the disconnect device. The College facility “Locks” will be installed by the Project Manager or member of college electrical staff. Review one line diagram to be sure there are no alternate power sources.
- Contractor will check for energized cable with a device intended for the purpose before cutting into the cable or opening a splice or termination. Solidly ground the cable to a known low resistance ground point while working on the cable.
- Electrical lines shall be de-energized while work is performed. When it is necessary to work with energized lines, only qualified personnel, properly equipped with rubber gloves and blankets which have been tested regularly in accordance with CSA standards, shall be utilized
- At least two people shall be assigned to work on any energized lines or in substations.
- Where the installation, equipment or conductor is operating at a nominal voltage of 300 volts or more, a suitably equipped competent person who is able to recognize the hazards and perform rescue operations, including cardiopulmonary resuscitation (CPR) (preferably trained in First Aid including CPR and AED use) shall be stationed so they can see the person performing the work.
- When it becomes necessary to transport equipment or machinery under overhead lines in a manner that encroaches on specified clearances, the job should be scheduled so the lines can be de-energized.
- Operations conducted adjacent to overhead lines should not be initiated until coordinated with the local utility officials.
- Materials and supplies should not be stored under overhead transmission and distribution lines because often times when Contractor’s attempt to remove these supplies, they come into contact with the overhead lines.

- Operations adjacent to overhead lines are prohibited unless one of the following conditions is satisfied:
 - 1) Power has been shut off and positive means taken to prevent the lines from being energized.
 - 2) Equipment, or any part, does not have the capability of coming within the minimum clearance allowed by the OH&S Act (O.Reg.213/91, section186 table) from energized overhead lines, or the equipment has been positioned and blocked to assure no part, including cables, can come within the minimum clearances allowed by OH&S Act.

Table#2
Minimum Encroachment Distance for Overhead Conductors

| Nominal Phase-to-Phase Voltage | Minimum Distance |
|---|-------------------------|
| 750 or more volts, but not more than 150 000V | 3m |
| More than 150 000V, but no more than 250 000V | 4.5m |
| More than 250 000V | 6m |

GROUNDING REQUIREMENTS

- All electrical circuits shall be grounded in accordance with the Ontario Electrical Safety Code, unless otherwise noted in this Specification.
- A ground should be provided for non-current-carrying metallic parts of equipment such as: generators, electrically powered welders, switches, motor-controller cases, fuse boxes, distribution cabinets, frames, motors of electrically operated cranes, electric elevators, metal frames of non-electric elevators to which electric conductors are attached, other electric equipment and metal enclosures around electric equipment.
- Portable and semi-portable electrical tools and equipment shall be grounded by a multiconductor cord having an identified grounding conductor and a multicontact polarized plug-in receptacle.
- Semi-portable equipment, flood lights and work lights shall be grounded. The protective ground of such equipment shall be maintained during moving unless supply circuits are de-energized.
- Tools protected by a system of double insulation, or its equivalent, need not be grounded. Double-insulated tools shall be distinctly marked and listed by ULC or approved by FM.
- Grounding circuits shall be checked to ensure that the circuit between the ground and a grounded power conductor has a resistance which is low enough to permit current flow sufficient to cause the fuse or circuit breaker to interrupt the current.
- Contractor shall have a policy/program for the use, installation and maintenance of personal protective grounds. The Project Manager or member of electrical staff will provide available fault current values on the system(s).

- All 120-volt single-phase 15 and 20 ampere receptacle outlets which are not a part of the permanent wiring of the building or structure shall have ground fault circuit interrupters (GFCI) for personnel protection or an assured equipment-grounding conductor program. Permanent wiring of electrical circuits should be grounded in accordance with NEC. GFCIs may be sensitive to some equipment such as concrete vibrators. In these instances, other precautions shall be taken to protect the equipment/personnel.

TEMPORARY WIRING

- Temporary wiring shall be guarded, buried or isolated by elevation to prevent accidental contact by workers or equipment.
- Outdoor lighting strings shall consist of lamp sockets and connection plugs permanently molded to the conductor insulation.
- Flexible cord sets shall be of a type listed by the UL. Flexible cord sets used on construction Worksites shall contain the number of conductors required for the service, plus an equipment ground wire. The cords shall be hard usage or extra-hard usage as specified in the Ontario Electrical Safety Code. Approved cords may be identified by the word "Outdoor" or letters "WA" on the jacket.
- Bulbs attached to festoon lighting strings and extension cords should be protected by wire guards or equivalent unless deeply recessed in a reflector.
- When temporary wiring is used in tanks or other confined spaces, an approved switch, identified and marked, shall be provided at or near the entrance to such spaces for cutting off the current in emergencies.
- Exposed empty light sockets and broken bulbs shall not be permitted.
- Temporary lights shall be equipped with heavy-duty electric cords with connections and insulation maintained in safe condition. Temporary lights shall not be suspended by their electric cords unless cords and lights are designed for this suspension. Splices should have insulation equal to that of the cable.
- Portable electric lighting used in moist and/or hazardous locations such as drums, tanks, vessels and confined spaces shall be operated at a maximum of 12 volts. Temporary lights shall be equipped with guards to prevent accidental contact with the bulb.
- Attachment plugs for use in work areas shall be constructed so that they will endure rough use. They shall be equipped with a cord grip to prevent strain on the terminal screws.

FALL PREVENTION AND WORKING FROM HEIGHTS

FALL PREVENTION

If there is a hazard of falling, personnel must use fall prevention (scaffolds, guardrails), travel restraint, or tie off to a suitable anchor point with a fall arrest harness.

Permanent handrails should be installed, whenever possible, to prevent workers from falling.

Guardrails must be at a minimum of 42" above the surface on which they are installed. They must have a mid rail, toe board, and be capable of withstanding any load which may be applied to them.

In situations where a permanent guardrail cannot be installed, barricades must be used to warn people of the hazard. Barricades must be substantial enough and properly located to prevent anyone from falling. Barrier tape cannot be used in this situation.

WORKING AT HEIGHTS

Work at Elevations (O.Reg. 853 sec 85 and Regulation 213 sec 26, 78-84 and 125-130)

- Fall protection (harness, lanyard) is required when working at heights and exposed to the hazard of falling more than 3m.
- All contractor employees must use fall protection equipment in accordance with the OHS Act and its regulation when working at elevated heights where fall protection is required to be worn.
- All contractor employees wearing fall protection equipment must provide proof of training.
- All contractors must comply with the OHS Act and its regulations applicable to scaffolds, work platforms, elevated work platforms, guardrails and protective coverings.

ELEVATING WORK PLATFORMS

- Fall protection is required whenever elevating work platforms (e.g. Scissor lift, self-propelled, boom type and vehicle-mounted elevating platforms) are used because of the tendency for workers to reach or extend beyond the safety of the cage or platform area.
- Workers must wear full body harnesses with lanyards adjusted to the shortest possible length that allows the work to be performed and that restrains the worker inside the cage or platform area. The maximum recommended lanyard length is 4ft.
- Lanyards must be connected to an approved anchorage point.
- Shall be inspected each day before use.
- Shall not be loaded in excess of its rated load
- Shall be used only on firm and level surface

- Shall not be loaded and used in such a manner as to affect its stability or endanger a worker
- Shall not be moved unless all workers on it are protected against falling by a lanyard attached to the platform

SELECTING AND USING PERSONAL FALL ARREST EQUIPMENT

1) Selection and Inspection

- Assess the potential for a safe fall arrest and rescue prior to commencing work at heights.
- Consider all surrounding hazards and look for obstacles below your work area and anchorage point that may pose lateral and horizontal hazards from the pendulum effect. Examples include:
 - Machinery
 - Electrical
 - Mobile equipment
 - Windows
 - Solid objects
- Inspect all fall arrest system components (harness, lanyard, rope grabs, connecting links, rings, anchorage connectors, carabiners, snap hooks, slings, lifelines, self retracting lifelines, anchors etc...) prior to each use and ensure there are no cuts, discoloration, burrs, gouges, deformations, broken stitching, heavy abrasion, stiffness or heavy soiling, melting or burns, cuts or tears, frays or other similar.
- Review proper use and operation and follow manufacturer instructions.
- Only full body harnesses are permitted to be used for fall arrest.
- All components of a fall arrest system must be CSA approved and compatible.

2) Anchorage Points

- Select anchor points above the work area as often as possible to avoid swing fall.
- Check anchorage points to ensure there is sufficient clearance to prevent contact with any obstacle below your maximum total fall distance in accordance with the equipment used.

3) Donning The Harness

- Ensure the straps are not twisted.
- Sub-pelvis straps must lie below the buttocks.
- Adjust and fasten all straps. Straps should be snug, evenly adjusted, but not tight. Your fingers, up to the knuckles should be able to fit under the straps as a guide for fit.
- The shoulder retainer strap must be positioned above the bust line.
- D-ring should be centered between shoulder blades.

4) Connect Lanyard

- Choose or adjust lanyard that reduces free fall distance. Free fall must be limited to 5ft when used with a shock absorbing lanyard.
- Connect the energy absorbing end of the lanyard to the full body harness
- Attach lanyard to an anchorage or anchorage connector with compatible components
- Do not attach lanyard to a structure on which work is being performed.
- Do not put knots in the lanyard to shorten the length
- Do not connect lanyards together

5) Lifelines and Fall Arresters

- Ensure fall arrester (rope grab, cable grab or fixed rail grab) is compatible with lifeline or rail to which it will be attached.
- Attach fall arrester to the dorsal (back) or sterna (front) harness D-ring as required by the system used.
- Ensure fall arrester is installed in the correct orientation (arrow pointing up)
- Vertical lifelines must not exceed 295ft (90m) in length and extend to within 4ft (1.2m) of the ground.

6) Self Retracting Lifelines (SRL)

- Test lock mechanism prior to every use
- Connect the snap hook from the SRL directly to the dorsal ring on the harness
- Anchor the device directly above the work area
- Minimize swing fall. Keep within 15 degree area under the device
- Do not allow the lifeline to run over an edge or other obstacles
- Use a tag line to retrieve and retract lifeline if necessary

7) Rescue Planning

- A fallen worker suspended in a fall must be rescued as quickly as possible to reduce the risk of suspension trauma.
- Rescue pre-planning is required to ensure a timely rescue.
- Rescue by emergency services (i.e. 911) should not be considered to be the main means of rescue. Equipment such as ladders, scaffolds, elevating work platforms, davit arms are valuable to aid in the event of a rescue.

- Consult with the local fire department or specialized emergency rescue contractor in the event high level rescue is required.
- Use ladder, elevating platform or scaffold and assist suspended worker to gain access safely.
- Advise suspended worker to elevate legs as much as possible to help keep circulation strong by placing one or both feet onto a surrounding structure. Attempt to stand on the structure or bring the legs toward the chest to improve blood flow.
- Call 911 for rescue as necessary.
- When a person is rescued/lowered, ease them onto the ground slowly and evenly into a comfortable position.
- Administer first aid and seek medical attention.

HAND AND POWER TOOLS

- All hand and power tools and similar equipment, whether furnished by Contractor or Contractor's employees shall be maintained in a safe operating condition.
- Tools should be inspected frequently for signs of wear or damage that could pose a hazard to the worker. (e.g. Cracked handle, head, body or other similar part; frayed or damaged cord insulation or plug connection).
- Damaged tools shall be immediately repaired or replaced.
- Tools shall be used only for the purpose for which they were designed.
- Any tools that are designed to have guards must have those guards in place at all times.

HEAT STRESS

Working in the heat puts stress on the body's cooling system. When heat is combined with other stresses such as hard physical work, loss of fluids, fatigue or some medical conditions, it may lead to heat-related illness ranging from relatively minor to life threatening:

- *Heat Rash:* Red, bumpy rash from plugged sweat glands.
- *Heat Cramps:* Painful cramps in legs, arms or stomach from salt depletion.
- Fainting (syncope): Passing out from limited blood flow to brain.
- Heat Exhaustion: Heavy sweating, cool moist skin; temp >38°C; tired, weak, uncoordinated
- Heat Stroke: Life threatening:
 - Body temp >41°C, hot dry skin (no sweating)
 - Lack of sweating results in increase in body temp.
 - Rapid pulse
 - May lose consciousness.
 - Occurs after body's salt and water is depleted.

The human body copes in hot environments to maintain internal temperature equilibrium by:

- Sweating to cool the body by evaporation
- Increasing blood flow to the extremities and
- Increasing breathing rate.

Workers generally at highest risk of suffering a heat-related disorder are those who:

- Work outdoors and/or in close proximity to significant heat sources such as furnaces, ovens or hot asphalt.
- Perform strenuous work as this contributes to the body's overall heat burden.
- Don't take regular breaks in cooler areas (e.g. shady or air-conditioned area).
- Don't consume enough fluids.
- Are susceptible because of a medical condition.
- Ignore symptoms of heat stress.

The risk of heat stress increases in the hot, humid summer months because:

- High humidity levels make it harder for the body to cool itself by sweat evaporation
- Workers may not be used to working in the hot weather.

CONTROLLING HEAT STRESS

Acclimatization

The longer you work in the hot weather, the easier it becomes for your body to cope with the stress. This is known as *acclimatization*. Keep in mind acclimatization takes time to acquire and can be lost if you are ill or away from work for a week or so.

To become acclimatized, the following should be considered:

1) **If you are experienced on the job:**

- limit your time in hot working conditions to 50 per cent of the shift on the first day,
- 60 per cent of the shift on the second day, and
- 80 per cent of the shift on the third day.
- You can work a full shift the fourth day.

2) **If you are not experienced on the job:**

- you should start off spending 20 per cent of the time in hot working conditions on the first day and
- increase your time by 20 per cent each subsequent day.

A number of measures can be implemented to prevent heat stress:

- Learn the symptoms of heat stress, treatment protocol and prevention measures so you can protect yourself and others around you (refer to Appendix 5).
- Contact your supervisor if you have concerns about working in hot weather.
- Consult your physician if you have a medical condition or are taking prescription medications to discuss working in hot weather conditions.
- Never ignore signs of heat stress.
- Seek medical attention immediately if you feel dizzy or light headed.
- Watch for signs of heat stress in co-workers.
- Wear light coloured and lightweight clothing.
- Keep hydrated by drinking plenty of cool fluids (preferably water). Drink at least one cup every 20 minutes - even if you aren't thirsty!
- Increase the frequency and length of rest breaks.
- Take rest breaks in cool or shaded areas.
- Plan outdoor work to avoid working in the peak outside temperatures if possible
- Reduce the amount of physical effort required to perform strenuous tasks.

- Investigate all heat-related complaints

HOT WORK

Hot work is work that generates heat, flames, sparks, arcs or other sources of ignition. Examples of hot work include:

- Welding
- Cutting
- Grinding
- Roofing

Facilities Management is responsible for arranging hot work and inspecting the specific work area prior to providing authorization to proceed.

- For all hot work including, but not limited to, roof replacement, cutting, and welding, authorization to proceed must be obtained from Facilities Management Department.
- Contractors shall inspect the work area and ensure precautions are taken to prevent fire prior to commencing any hot work.
- Contractors must ensure proper fire protection equipment such as fire blankets and suitable fire extinguisher are in good condition and ready for use.
- Contractors must provide and maintain a continuous fire watch during hot work operations, including all break periods and lunch.
- The fire watch must be maintained for at least 60 minutes after hot work operations have been completed to ensure there is no risk of fire.

WELDING AND CUTTING

- Cylinders, piping and fittings used in welding and cutting shall be protected against damage
- No cylinder of compressed gas used in welding and cutting shall be dropped, hoisted by slings or magnets or transported or stored in a horizontal position.
- The valve of a cylinder shall be closed when the cylinder is spent or is not being used.
- Precautions to prevent a fire shall be taken when using a blow torch or welding or cutting equipment or similar piece of equipment.
- No arc welding electrode or ground lead shall be hung over a compressed gas cylinder.
- An area where electric welding is carried on shall be kept free of electrode stubs and metal scrap.
- Receptacles for electrode stubs shall be provided and used.

- All employees shall be instructed in the safe use of welding equipment prior to using this equipment.
- Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch, etc.) for fire prevention shall be taken where welding or other “hot work” is being done.
- No welding, cutting or heating shall be done where the application of flammable paints or the presence of any other flammable compounds, or heavy dust concentration creates a fire hazard.
- Arc welding and cutting operations shall be shielded by noncombustible or flameproof shields to protect persons from direct arc rays. Visual barrier screens are required for arc-welding operations.
- When electrode holders are to be left unattended, electrodes shall be removed and the holder shall be placed or protected so that it cannot make electrical contact with employees or conducting objects.
- All arc welding and cutting cables shall be completely insulated and be capable of handling the maximum current requirements for the job. There shall be no repairs or splices within 10 feet of the electrode holder except where splices are insulated equal to the insulation of the cable.
- Defective cables shall be repaired or replaced.
- Fuel gas and oxygen hoses shall be easily distinguishable and shall not be interchangeable.
- Hoses shall be inspected at the beginning of each shift and shall be repaired or replaced if defective.
- Contractors must ensure adequate general or mechanical exhaust ventilation is provided to prevent or minimize the spread of fumes from the work area and into generally occupied work areas.
- Proper eye protective equipment shall be provided when appropriate.
- Welding flash must be shielded by means of curtains or barriers if done in the vicinity of unprotected employees or the general public.
- Torches, regulators, hoses, and other oxyacetylene welding and cutting equipment which have been damaged shall not be used.
- Welding equipment shall be inspected daily, prior to use for defects. Damaged or defective welding equipment shall be removed from service and not used.
- Welding equipment shall be tested monthly with a leak test solution.
- Valves shall be closed and lines bled when equipment is not in use.
- Oil and grease shall not be used to lubricate welding and cutting equipment

- Welding and cutting operations in buildings shall only be performed in areas free of combustible and flammable contents and that have walls, ceilings and floors of non-combustible material or that are lined with non-combustible materials. When it is not practical to do the above-combustible and flammable material must be:
 - At least 11 m from the work area or
 - Protected from ignition by sheet metal, fire blankets or other non-combustible material.
- No welding or cutting is permitted on totally enclosed containers.

HOUSEKEEPING

Good housekeeping is important to reduce the risk of fire, prevent the obstruction of emergency exits and to prevent the risk of slipping, tripping or falling on or over equipment, materials in the work area.

- Keep work areas clean and free from tripping hazards.
- Store all materials in a stable position so they will not tip, collapse or fall.
- Keep all materials away from edges of floors, hoist ways, stairways and floor openings.
- Keep aisles and exits free from obstructions
- Remove waste at frequent and regular intervals.
- Dispose of waste in accordance with local regulations.
- Do not obstruct emergency equipment including fire extinguishers, fire alarms or eyewash stations.

LADDERS

Ladders are commonly used to reach or to gain access to higher areas/levels and sometime from which to perform work. Working from ladders poses the risk of falling and the decision to use a ladder for such work should be considered the least desirable method. Safer alternate methods such as scaffolding and elevating platforms should be considered first.

There are a number of hazards associated with ladder use that can cause accidents resulting in serious injuries. These hazards include: working near wires; windy conditions; improperly securing or stabilizing ladders; poor grip; unsafe positioning or using damaged ladders.

Proper selection and safe use procedures must be followed to prevent accidents from occurring.

Contractors must review and comply with the requirements of the Regulation(s) applicable to the work performed.

Safe ladder requirements for specific types of work can be found in the following regulations under the Occupational Health and Safety Act.

- Construction (O.Reg 213)
- Industrial Establishments (O.Reg. 851)
- Window Cleaning (O.Reg. 859)

CONSTRUCTION REGULATIONS-LADDERS

- Ladders shall be designed, constructed and maintained so as not to endanger a worker and shall be capable of withstanding all loads to which it may be subjected:
- Only CSA Grade 1 Ladders shall be used (Construction and Industrial, Heavy Load Rating)
- A ladder:
 - Shall be free from defects or loose rungs
 - Shall have rungs spaced at 300mm on centres
 - Shall have side rails at least 300mm apart
 - Shall be placed on firm footing
 - Shall be situated so that its base is not less than $\frac{1}{4}$ and not more than $\frac{1}{3}$ of the length of a ladder from a point directly below the top of the ladder and at the same level as the base of the ladder if the base is not securely fastened.
- The maximum length of a ladder measured along its side rail shall not be more than:
 - 5m for a trestle ladder or for each of the base and extension sections of an extension trestle ladder.
 - 6m for a step ladder
 - 9m for a single ladder or individual section of a ladder
 - 15m for an extension ladder with two sections
 - 20m for an extension ladder with more than two sections.
- No ladder shall be lashed to another ladder to increase length
- No ladder shall be present in an elevator shaft or a similar hoisting area when the shaft or area is being used for hoisting.
- A ladder used as a regular means of access between levels of a structure:
 - Shall extend at the upper level at least 900 mm above the landing or floor
 - Shall have a clear space of at least 150mm behind every rung
 - Shall be located so that an adequate landing surface that is clear of obstructions is available at the top and bottom of the landing and
 - Shall be secured at the top and bottom to prevent movement.

INDUSTRIAL REGULATION - PORTABLE LADDERS

Portable ladders shall;

- Be free from broken or loose members
- Have non-slip feet
- Be placed on firm footing
- Where it exceeds 6m in length and is not securely fastened, or,
- Is likely to be endangered by traffic
- Be held in place by one or more workers while being used and
- When not securely fastened, be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than $\frac{1}{4}$ and not more than $\frac{1}{3}$ of the length of the ladder.

Only CSA Grade 1 Ladders shall be used (Construction and Industrial, Heavy Load Rating)

WINDOW CLEANING REGULATION - LADDERS

Every ladder;

- Shall have strength, stiffness and stability adequate to support any load likely to be applied to it;
- Shall be free from broken, or loose members or other faults;
- Shall have evenly spaced rungs;
- Shall be equipped with slip resistant feet; and
- If it is made of wood, shall not be painted or coated with and opaque material.

The maximum length of a ladder measured along the side rail shall not be more than;

- Six metres for a step ladder;
- Nine metres for a single ladder; and
- Thirteen metres for an extension or sectional ladder.

Every ladder,

- Shall be used so as not to endanger any worker;
- Shall be used only in such a way that the loads applied to it will not cause the materials of which it is constructed to be stressed beyond their allowable unit stresses;
- Shall be placed on firm footing and secured against slipping;
- If it exceeds nine metres in length, shall be securely fastened or stabilized to prevent it from tipping or falling; and
- When it is not securely fastened, shall be inclined so that the horizontal distance from the top support to the foot of the ladder is not less than one-quarter and not more than one third of the length of the ladder.

When a stepladder is being used,

- The legs shall be fully spread and the spreader shall be locked; and
- The top and the pail shelf of the stepladder shall not be used as a step.

No barrel, box or other loose object,

- Shall be used by a worker engaged in window cleaning to stand upon while working; or
- Shall be used to support a ladder, scaffold or working platform.

MINIMUM DISTANCE FROM ELECTRICAL POWER LINES

Unless special measures and procedures are in place, ladders must be protected from making contact with energized conductors and kept safe distances at least as far as required by the following table:

Table #3
Minimum Encroachment Distance for Overhead Conductors

| Nominal Phase-to-Phase Voltage | Minimum Distance |
|---|-------------------------|
| 750 or more volts, but not more than 150 000V | 3m |
| More than 150 000V, but no more than 250 000V | 4.5m |
| More than 250 000V | 6m |

GENERAL LADDER SELECTION AND SAFE USE PROCEDURES

1) Ladder Selection

Working from ladders poses the risk of falling and the decision to use a ladder from which to work should be considered the least desirable method. Safer alternate methods such as performing work from stairs, scaffolding or elevating platforms should be considered first. When selecting a ladder:

- A) Select the most appropriate type of ladder for the task to be performed
 - Step
 - Straight
 - Extension
 - Platform

- B) Select most appropriate material
 - Aluminum
 - Fiberglass (only use fiberglass near electrical equipment)
 - Wood

- C) Select proper ladder height to:
 - Position yourself so you don't have to stand on the upper rungs!
 - Check for overhead power lines!
 - See chart (voltages and distance)
 - Use fiberglass when working on or near electrical conductors

2) Inspect Ladders Prior to Use

Before using a ladder, be sure to inspect it to ensure it is in good working condition and safe to use. Inspect ladders for:

- Defects such as broken or missing rungs, cleats, safety feet or rails.
- Slippery substances on rungs
- Stability
- Inspect for structural integrity

- Joints should be tight and secure
- Hardware and fittings should be secure, not damaged or corroded
- Moveable parts should operate freely
- Check side rails and rungs for signs of damage, cracks, fraying (fiberglass)
- Test rung locks (extension ladders)
- Check ropes, cables and pulleys

Damaged or defective ladders must be immediately removed from service and not used.

3) Set-Up

- Check the work and surrounding areas for hazards such as overhead wires, slippery or uneven surfaces, traffic etc...
- Ensure the area at base and top of ladder is free/clear of obstructions
- Ensure ground/surface is firm and level
- Keep metal and wood ladders away from power lines and other live conductors
- Place ladders on firm, level ground
- Position ladder at proper angle (straight and extension) and secure in position.
- Open ladder fully (step ladder)
- Take appropriate measures to protect the base of the ladder from any activity that could bang it (e.g. people, doors, vehicles).
 - Have someone guard or block the area while work is being performed on the ladder
 - Post warning signs or use pylons if necessary

4) Safe Climbing and Use

- Only one person is permitted on a ladder at the same time
- Do not overreach
- Always face the ladder and keep your hips (centre of gravity) between the rails
- Maintain 3-point contact with ladders (1 hand and 2 feet or 2 hands and 1 foot) when climbing or descending ladders.
- Keep hands free when climbing ladders. Use a tool belt or rope to raise tools.
- Ensure soles of shoes are clean and not slippery
- Never climb a damaged, bent or broken ladder.
- Get help when carrying long or heavy ladders.
- Be aware of surroundings when carrying ladders. Pay particular attention to overhead obstacles and people around to avoid striking them.
- Do not use ladders if you tire easily, are subject to fainting spells, are using medicine or are physically limited.



- You must be physically fit to work on a ladder.

- DO NOT USE A LADDER IF YOU
 - Have a sore back, legs, arms, hands
 - Have dizziness, nausea, light headedness
 - Are taking medications that affect your balance or concentration

- If you experienced a dizzy spell on a ladder:
 - Stop and drape arms over a rung
 - Wait until spell passes
 - Slowly and carefully descend ladder.

5) Storing and Transporting Ladders

- Ladders should be supported to prevent sagging
- Do not store items on top of ladders
- When carrying a ladder:
 - Hold middle side rail and tip front slightly upward
 - Watch for swing in the tail end
 - Watch for overhead hazards
 - Get help with long ladders (>8ft)

EXTENSION OR SINGLE-SECTION STRAIGHT LADDERS

1) Ladder Selection

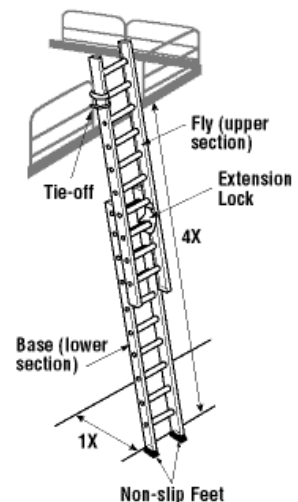
- Select a ladder of proper length to reach the working height and inspect prior to use.
- Keep metal and wood ladders away from power lines and other live conductors
- Use fiberglass ladders when performing work on or near electrical conductors

2) Inspect Ladders Prior to Use

Before using a ladder, be sure to inspect it to ensure it is in good working condition and safe to use. Damaged or defective ladders must be immediately removed from service and not used.

3) Set-Up

- Set ladder on firm ground. Do not use on ice, snow or slippery surface without non-skid devices or securing feet.
- Extend ladder 3ft above roof line and tie top at support points. Extend top section only from ground, never by “bouncing” or from the roof.
- Secure the base when raising.
- Never set-up ladder when it is extended
- Position ladders at a safe angle. The recommended angle is 4:1 - Position the feet 1 foot back for each 4 feet up.
- Do not overextend the ladder sections. Maintain minimum overlap of sections
- Have someone hold the bottom of the ladder when the top is not tied off
- Securely engage ladder locks before climbing. Check to ensure the top and bottom ends of ladder rails are firmly supported.
- Protect the base of the ladder from any activity that could bang it (e.g. people, doors, vehicles).
 - Have someone guard or block the area while work is being performed on the ladder
 - Post warning signs or use pylons if necessary



4) Safe Climbing and Use

- Do not place in front of a door opening toward the ladder unless the doorway can be secured.
- Face ladder when climbing up or down.
- Do not overreach.
- Keep body centered between side rails.
- Move ladder as needed. Never “walk” a ladder while standing on it.
- Maintain a firm grip. Use both hands when climbing.
- Do not climb onto ladder from the side unless the ladder is secured against movement.
- Do not stand on or above the 3rd rung from the top of the ladder. Never climb above the top support point.
- Do not use ladder in high winds.
- Keep ladder close to work area. Avoid pushing or pulling off to side of ladder.
- Do not place on boxes, unstable surfaces or on scaffolds to gain additional height.

STEP LADDERS

1) Ladder Selection

- Select a style (e.g. platform, standard frame etc...) of step ladder most appropriate to the task and of proper height to reach the working height.
- Keep metal and wood ladders away from power lines and other live conductors
- Use fiberglass ladders when performing work on or near electrical conductors.



2) Inspect Ladders Prior to Use

Before using a ladder, be sure to inspect it to ensure it is in good working condition and safe to use. Damaged or defective ladders must be immediately removed from service and not used.

3) Set-Up

- Place ladder on firm, level surface with secure footing. Do not use on slippery surfaces.
- Open the ladder fully and lock the spreader in open position.
- Do not place on boxes, unstable surfaces or on scaffolds to gain additional height.
- Do not place in front of a door opening toward the ladder unless the doorway can be secured and/or the ladder can be protected against impact.
 - Have someone guard or block the area while work is being performed on the ladder
 - Post warning signs or use pylons if necessary

4) Safe Climbing and Use

- Maintain firm grip and use both hands when climbing.
- Never climb the ladder from the side unless it is secured against sideways motion.
- Do not overreach. Move the ladder as needed.
- Face the ladder when climbing up or down.
- Keep the body centered between side rails.
- Do not “walk” or “shift” the ladder when standing on it.
- Do not sit, stand or climb on the top step, pail shelf, braces or back section.
- Keep the ladder close to the work area
- Avoid pushing or pulling off to side of ladder.



LOCKOUT-TAGOUT

Lockout procedures are required to prevent injuries from the unexpected energization, activation or release of hazardous energy during servicing or maintenance of machinery or equipment. Failure to lockout equipment can result in serious injuries from:

- Contact with live circuits.
- Entanglement with belts, pulleys, shafts, rollers, impellers, chains.
- Contact with hot parts or materials.
- Fire or explosion.
- Sudden pressure release.

This procedure must be followed by contractors who perform servicing or maintenance on machines or equipment that may contain hazardous energy that, if released unexpectedly, could cause harm. This procedure does not apply to the following:

- Work on cord and plug connected electrical equipment where the unexpected energization or start-up is controlled by unplugging the equipment and the plug is under the direct control of the employee performing the work.
- Minor servicing, tool changes or adjustments that do not have potential to cause injury.

Contractors are responsible for ensuring procedures are in place and followed for de-energizing machines, equipment and processes to ensure work can be safely performed.

Contractors must:

- Provide their own locks, tags and lockout devices.
- Remove their own locks, tags and lockout devices when the maintenance or servicing work has been completed.
- Communicate their lockout procedures to the designated Mohawk College representative.
- Locks must be key operated and standardized for each contractor or trade.
- Locks must not be used for purposes other than lockout/tagout.
- Tags must be made of durable, non-conductive material and must include wording such as: DO NOT OPERATE, DO NOT START, DO NOT OPEN.

Note: “OUT OF SERVICE” tags must not be used for lockout/tagout purposes.

GENERAL LOCKOUT GUIDELINES

- Only authorized employees are permitted to perform lockout/tagout procedures.
- Prior to commencing servicing or work, equipment and machinery shall be inspected to verify the equipment or machinery can be effectively isolated.
- All potential sources of hazardous energy (e.g. gravity, electrical, mechanical, pneumatic, pressure etc...) must be considered when determining lockout/tagout procedures.
- All machinery, equipment or processes that are to be worked on or serviced, must be locked out to ensure the work can be safely performed.
- If an energy isolating device is capable of being locked out, then it must be locked and tagged.
- If an energy isolating device is not capable of being locked out, then it must be tagged out.
- Each person performing service or work on a machine must apply their own lock. After the lock has been applied, the key must be retained by the person who applied the lock.

LOCKOUT/TAGOUT PROCEDURE

1) PREPARE FOR SHUTDOWN

- Identify the machine, equipment or process to be isolated and inform all affected employees.
- Identify the type and magnitude of hazardous energy to be controlled and all isolation points and energy isolation devices to be locked out. Ensure remote computer and/or programmable computer logic controllers are considered.
- Obtain locks, tags, lockout devices and other equipment required to perform the work.
- Wear appropriate personal protective equipment.

2) EQUIPMENT SHUTDOWN

- Notify all affected employees of the lockout and shutdown the equipment following the normal stop or rundown procedures. (e.g. push ON/OFF or START/STOP buttons or switches).

3) ISOLATION

- Locate all energy isolation devices required to control the hazardous energy.
- Operate the energy isolation devices to isolate the machine or equipment from energy sources. This usually involves opening a disconnect switch, circuit breaker or closing valves.

Note: Never open a disconnect switch without first shutting down the equipment as it could result in arcing or an explosion. Use the **left hand rule** when opening and closing disconnect switches. (**Left Hand Rule:** Stay to the right of the disconnect switch, face away and use your left hand to operate the switch. This positioning protects the face and body in the event of arcing or an explosion).

4) APPLY LOCKOUT/TAGOUT DEVICES

- Apply locks and tags to each energy isolation device to ensure it is held in OFF position.
- Where a lockout device is required for an energy isolation device, install the lockout device and apply locks and tags to ensure it is held in the “OFF” position.

5) DE-ENERGIZATION: STORED ENERGY RELEASE OR RESTRAINT

- After application of lockout devices, all stored or residual energy must be relieved, disconnected, blocked, bled, restrained or otherwise made safe.

Note: Remember to consider energy stored in capacitors, springs, pressure lines, elevated equipment.

6) VERIFICATION

- Ensure all affected employees are cleared of the machine or equipment.
- Before beginning any work, verify the machine or equipment is isolated and cannot be activated or restarted by one or more of the following actions:
- Manually operating control buttons or switches to start or operate the machine or equipment. Return controls to their off or neutral position.
- Using test instruments to test circuits.
- Visually inspecting the position or movement of parts such as gears, rotating parts, shafts, flywheels to ensure movement has ceased; inspecting gauges or other indicators.

7) RELEASE FROM LOCKOUT

- Ensure all non-essential equipment or parts have been removed from the machine and the machine is operationally intact and safe to be operated.
- Ensure the machinery, equipment and surrounding area is clear of anyone who could be harmed by the start-up.
- Ensure each person who applied a lockout device and tag removes these from each energy isolation device.
- Energize the machine, but do not start it up.
- Notify all affected employees the machine or equipment is ready to be started.
- Re-start the machine or equipment.

TESTING ON ENERGIZED EQUIPMENT

When there is a need to temporarily remove a lockout device to perform testing or troubleshooting on a piece of equipment or machinery, the following procedure is to be used:

- 1) Clear the machine or equipment of parts, tools that could be affected by energizing the machine or equipment.
- 2) Clear people from the area.
- 3) Remove the lock(s) and tag(s) from the affected energy isolation device.
- 4) Perform the testing.
- 5) De-energize and re-apply the lockout/tagout devices
- 6) Verify the machine or equipment has been re-isolated by operating controls etc...
- 7) Resume work on the machine or equipment.

GROUP LOCKOUT

When maintenance or servicing work is being performed by more than one authorized employee, a primary authorized employee must be assigned responsibility for the controlling all energy isolating devices for the machine, equipment or process.

- 1) Before beginning work, the primary authorized employee will apply a multi-lock hasp and lock to each energy isolating device and verify the machine, equipment or process has been isolated.
- 2) Other authorized workers review the adequacy of the isolation and apply their own locks to the multi-lock hasp.
- 3) Authorized employees perform work.
- 4) Upon completion of work, each authorized employee removes non-essential items from the work area and removes their own personal lock(s).
- 5) The primary authorized employee is the last one to remove their lock and the energy isolating device. This can only be done after the primary authorized employee has assessed the area and is satisfied it is safe to so.

LOCKOUT/TAGOUT DEVICE REMOVAL

Each authorized employee who applies a lock and tag is responsible for removing their own lock and tag. In situations where it is not possible for the employee to remove his/her own lock, the lock can be removed by an individual authorized to do so and by the following steps:

- 1) The authorized individual will assess the situation to determine whether it is safe to remove the lock, preferably with someone knowledgeable of the machine, equipment or process and reason for the lockout and/or the maintenance or service work being performed.
- 2) After it has been determined to be safe to remove the lock, the authorized individual will complete a "Lockout Device Removal Report" (Appendix 6) before removing the lock.
- 3) The authorized individual removes the lock and ensures the person whose lock was removed is notified of the removal before they return to work.

LIFT TRUCK SAFETY

- Operators of lift trucks shall only be operated by authorized personnel holding a valid certificate of training.
- Preoperational inspections must be performed by the operator every day/shift prior to operating the truck.
- Do not operate the lift if you discover a deficiency that will prevent the safe operation of the truck.
- Notify your supervisor immediately.
- Wear seat belts if the lift truck is equipped with one.
- Travel slowly, especially when turning – avoid sharp turns.
- Do not handle loose or unstable loads.
- Ensure loads are centered and stable before travelling – set forks as far apart as possible for maximum stability.
- No part of a load must pass over any worker.
- Keep head, arms and legs inside the drivers compartment
- Lift trucks must be turned off, parking brake applied, forks lowered and the key removed when left unattended.
- No load may exceed the maximum rated load capacity for the lift and handled in accordance with the height and weight restrictions on the lift truck's load chart.
- Lift truck controls must be attended by the operator when a load is in the raised position.
- Loads must be carried as close to the ground as possible.
- When travelling up or down a grade with a load, ensure the load is upgrade.
- Ensure good visibility in the direction of travel. A signaler must be used in situations where the operator does not have a clear view.
- Where a lift truck must enter a trailer or vehicle to perform loading or unloading, that trailer or vehicle must be immobilized and secured against accidental movement.
- Lift trucks must not be used to raise or lower people unless a platform designed for this specific task is used.
- Pedestrians must be warned and appropriate safeguards must be used as appropriate whenever there is a risk of collision.

- If used indoors, internal combustion lift trucks must only be operated for limited periods of time and with sufficient natural or mechanical ventilation to prevent exhaust gases from accumulating to dangerous levels.

MANUAL MATERIAL HANDLING

Manual material handling refers to any tasks involving lifting, carrying, pushing or pulling objects. Muscle overuse or overexertion injuries can occur when the task is performed without pre-conditioning the muscles and joints or when the demands exceed the body's physical capabilities. Muscle overuse and overexertion injuries can range from swelling and soreness to torn muscle, tendons or ligaments.

LIFTING/LOWERING

The risk of injury from lifting or lowering materials depends on a number of factors that need to be considered including:

- Hand placement (i.e. how far away from your body are your hands?)
- Position of the load (below knees, waist height, above shoulders)
- Do you need to turn with load?
- Size, shape and weight of the load/package
- Number of lifts performed (frequency)

GENERAL SAFE LIFTING TECHNIQUE

Using safe lifting techniques is important for reducing the risk of injury when lifting (or lowering) items. Be sure to avoid awkward postures such as reaching too far and twisting your back. To lift or lower materials safely:

- Size up the load
- Stand close to load, with feet apart (shoulder width)
- Squat down – bend at hips and knees
- Arch lower back inward and keep back straight
- Keep the load close to body
- Turn your feet when changing direction – Do not twist your body
- Place load down - squat (bend at knees, keep lower back arched inward)

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment appropriate to the circumstances shall be worn in all situations where there is a hazard of injury from exposure to hazardous substances or other hazardous conditions. Personal protective equipment includes the following:

- Eye and Face Protection
- Foot Protection
- Head Protection
- Respiratory Protection
- Skin Protection
- Hearing Protection
- Fall Protection

Workers must be instructed and trained in the care and use of personal protective equipment or devices before wearing or using it.







FOOTWEAR PROTECTION

Where there is a hazard of foot injury, workers are required to wear foot protection appropriate to the circumstances.

Workers must wear CSA approved footwear at all times when working on a project.

The following charts may be used to assist with the selection of CSA approved footwear for selected hazards.

Table #4
Protective Footwear Markings and Selection of Safety Footwear ¹

| Selection of Safety Footwear | | |
|---|---|---|
| Marking | Criteria | Use |
|  | Green triangle footwear has sole puncture protection with a Grade 1 protective toe (withstand impact up to 125 joules). | Any industrial or heavy work environment, including construction, where sharp objects are present (such as nails). |
|  | Yellow triangle footwear has sole puncture protection and Grade 2 protective toe (withstand impact up to 90 joules) | Light industrial work environments that need both puncture and toe protection. |
|  | White rectangle with orange Greek letter "omega" footwear has soles that provide electric shock resistance. | Any industrial environment where accidental contact with live electrical conductors can occur. (REMEMBER: Electric shock resistance is greatly reduced by wet conditions and with wear) |
|  | Yellow Rectangle with green letters "SD" and grounding symbol footwear has soles that are static dissipative. | Any industrial environment where a static discharge can be a hazard for workers or equipment. |
|  | Red rectangle with black letter "C" and grounding symbol footwear has soles that are electrically conductive. | For any industrial environment where low-power electrical charges can be a hazard for workers or equipment. |
|  | White label with green fir tree symbol footwear provides protection when using chainsaws. | For forestry workers and others who work with or around hand-held chainsaws and other cutting tools. |
| <p>Note 1: The ® symbol indicates the preferred position for the identifying logo or mark or the certifying agency.</p> <p>Note 2: Labels are on the tongue of the right shoe at ankle height. They may also appear at ankle height on the shoe itself (for electrical protection footwear)</p> <p>From: "Z195.1-02 Guideline on Selection, Care and Use of Protective Footwear", Canadian Standards Association, 2002.</p> | | |

¹ Canadian Centre of Occupational Health and Safety (CCOHS).

HEAD PROTECTION

Where there is a hazard of head injury, workers are required to wear CSA approved headwear appropriate to the circumstances.

Workers must wear CSA approved headwear at all times when working on a project in accordance with O. Reg. 213/91.

The following chart outlines the various CSA classes and their respective protective features.

Table #5
Description of CSA Grade Footwear

| CSA Grade | Description | Comments |
|-----------|---------------------|--|
| C | Conducting Headwear | Intended to provide protection from impact and penetration only. |
| E | Electrical Trades | Non-conducting headwear intended to provide protection from impact and penetration. Tested to 20000 V Note: Class E headwear is not intended to be used as a primary barrier to prevent contact with live electrical circuits. |
| G | General Usage | Non-conducting headwear intended to provide protection against impact and penetration. Tested to 2200 V Note: Class G headwear is intended to provide protection against accidental electric contact but should not be used for protection against electric shock. |

EYE AND FACE PROTECTION

Where there is a hazard of eye or face injury, workers are required to wear CSA approved protective eye and/or face protection appropriate to the circumstances.

The following table summarizes the various CSA classes of eye and face protection and their respective features.

Table #6
Summary CSA Classification of Eye and Face Protectors²

| CSA Classification | Type of Eyewear | Description |
|---------------------------|---------------------------|--|
| 1A | Spectacles | Equipped with side shields and/or top protection from impact |
| 1B | Spectacles | Equipped with side shields and radiation protection |
| 2A | Goggles | Direct vented |
| 2B | Goggles | Indirect vented |
| 2C | Goggles | Direct/Indirect vent with radiation protection |
| 3 | Welding Helmets | Variety of configurations |
| 4 | Welding Hand Shields | Hand-held devices |
| 5 | Non-Rigid Helmets (Hoods) | Equipped with protective windows |
| 6A | Face Shield | Impact and splash protection |
| 6B | Face Shield | Radiation protection |
| 6C | Face Shield | High heat application |
| 7 | Respirator Facepieces | Variety of configurations |

Note: Class 1 or 2 protectors must be used in conjunction with shields, helmets or hoods.

² Adapted from CSA Standard Z94.3-02 "Eye and Face Protectors"

HEARING PROTECTION

Hearing protection is required to be worn where a worker is exposed to noise levels at or above 85 dBA and is selected to provide protection sufficient to reduce exposure levels below 85 dBA.

Table #7
Table of Equivalent Noise Exposure Levels³

| Steady Sound Level (dBA) | Duration |
|--------------------------|----------|
| 82 | 16 hrs |
| 85 | 8 hrs |
| 88 | 4 hrs |
| 91 | 2 hrs |
| 94 | 1 hr |
| 97 | 30 min |
| 100 | 15 min |
| 103 | 7.5 min |

Hearing protection comes in different forms including:

- 1) Ear muffs
- 2) Ear plugs
 - Pre-moulded
 - Formable
 - Custom molded

SELECTING HEARING PROTECTION

Determining the proper amount of hearing protection can be estimated using either the Noise Reduction Rating (abbr, NRR) or the CSA Grade.

1) Noise Reduction Rating

NRRs are based on experimental data which may overestimate the level of protection from a particular HPD. Because of this, the estimated “real world” protection from a particular type of HPD is less than the reported NRR and corrections are necessary to estimate the actual level of protection. In addition to this, it is also necessary to subtract 7dB from the NRR.

- **Ear plugs (pre-moulded, formable, custom):**
 - Formable: 50% of NRR
 - All other plugs: 30% of NRR.
- **Ear muffs:** 75% of NRR

³ O.Reg 851

Example 1:

What is the estimated protection for an exposure level=96 dBA wearing muffs with NRR=29 dB?

Answer:

$$\begin{array}{rcl} \text{Protection correction for ear muff} & = & 29 \times 0.75 = 21.75 \text{ dB} \\ \text{Minus 7 dB correction factor:} & & = -7 \text{ dB} \\ \hline \text{Estimated protection from ear muff} & & = 14.75 \text{ dB} \\ \text{Estimated exposure level at worker's ears} & & = 81.25 \text{ dBA} \end{array}$$

Example 2:

What is the estimated protection for an exposure level=96 dBA wearing formable ear plugs with NRR=29 dB?

Answer:

$$\begin{array}{rcl} \text{Protection correction for ear plug} & = & 29 \times 0.5 = 14.5 \text{ dB} \\ \text{Minus 7 dB correction factor:} & & = -7 \text{ dB} \\ \hline \text{Estimated protection from ear muff} & & = 7.5 \text{ dB} \\ \text{Estimated exposure level at worker's ears} & & = 81.5 \text{ dBA} \end{array}$$

2) CSA Grade

The selection of hearing protection using the CSA Grade is straightforward based on the noise levels involved and will provide protection below 85dBA at the workers ear. Selection of the hearing protection device is based on the following chart:

| CSA Grade | Noise Exposure (dBA) |
|------------------|-----------------------------|
| 1 | ≤ 90 |
| 2 | ≤ 95 |
| 3 | ≤ 100 |
| 4 | ≤ 105 |
| 5 | ≤ 110 |

RESPIRATORY PROTECTION

A respirator is a device that is worn to protect against inhaling harmful chemical exposures. Generally speaking, respirators are considered to be a “last resort” for protection since it is preferable to control such exposures through engineering controls. However, there are certain situations where respirators are required. This includes the following:

- As may be required by regulation (e.g. Asbestos)
- Control measures do not exist or are unavailable (equipment shut down) - or during the installation of controls
- Infrequent operations (when permanent controls not feasible)
- Equipment maintenance and repair
- Emergency situations (e.g. where workers are exposed to immediate hazards)
 - Spills
 - Process upset
 - Breakdowns

There are two general categories of respirators:

- Air Purifying Respirators
- Atmosphere Supplying Respirators

Air Purifying Respirators (APR)

A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Air purifying respirators come in different configurations such as:

- Powered (powered air purifying respirator. abbr. PAPR)
- Non-powered
- Disposable,
- Half facepiece
- Full-facepiece

SELECTING PARTICULATE RESPIRATORS

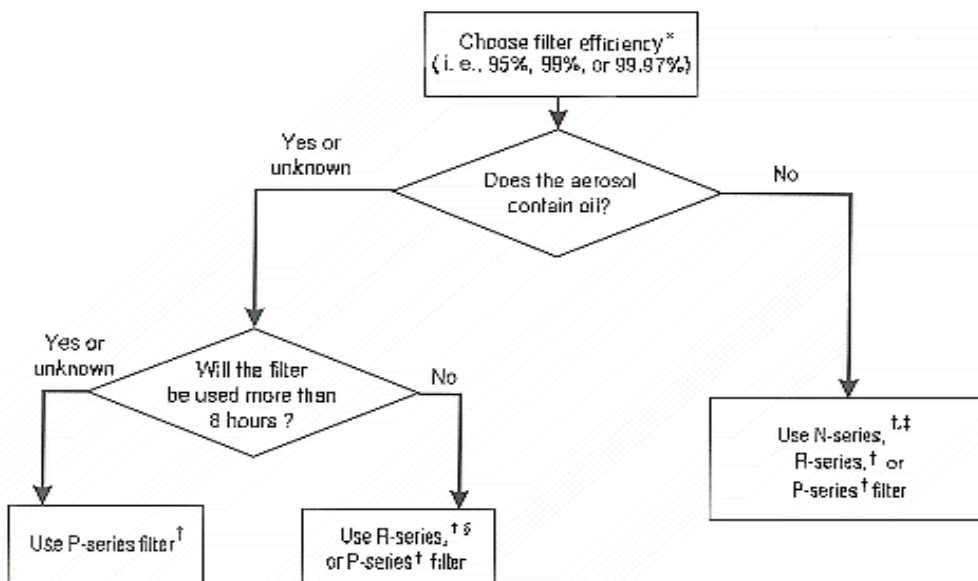
When selecting respirators for protection against particles, the degree of protection required and the presence of oil in the atmosphere must be considered. Oil (and glycerine) can degrade filter media and reduce the effectiveness of the respirator. NIOSH has developed the following N, R or P classifications for respirators, depending on the presence of oil and a respirator's ability to provide protection:

- N:** for *Not* resistant to oil
- R:** for *Resistant* to oil
- P:** for oil *Proof*

Particulate filters are at least 99.97% efficient in removing particles of 0.3 micrometers in diameter and come in 95%, 99 or 99.97% efficiencies, consequently there are nine categories of particulate respirators:

- N:** 95%, 99% or 99.97%
- R:** 95%, 99% or 99.97%
- P:** 95%, 99% or 99.97%

The following flowchart can be used to assist with the selection of an appropriate particulate respirator.



Supplied Air Respirators (SAR)

A respirator that supplies the user with breathing air from a source independent of the ambient atmosphere and includes airline respirators and self-contained breathing apparatus (SCBA) units.

Supplied air respirators come in different configurations such as:

Continuous Flow

Provides a continuous flow of breathing air to the respiratory inlet covering

Demand

Admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Pressure Demand

Admits breathing air to the facepiece when the positive pressure inside the facepiece is reduced by inhalation

SELECTING RESPIRATORS

Where respiratory protection is required to be worn, the following must be considered for selecting the proper respirator:

- Identify the contaminant(s)
- Identify the physical state
 - Gas or vapour
 - Particulate
- Measured or estimated concentrations
- Oxygen level
- Occupational Exposure Limit
- Determine the existence of and IDLH atmosphere
- Determine whether respiratory protection is regulated (e.g. Asbestos)
- Determine the existence of adequate warning properties (e.g. odour)
- Determine the presence of oil (for selecting N, R or P filters for particulate)
- Determination of Skin or Eye Absorption and Irritation

The level of protection provided by a respirator is dependent upon the type, configuration and certifying agency. The following chart outlines the assigned protection factors (APF) established by the National Institute of Occupational Health and Safety (NIOSH).

NIOSH Assigned Protection Factors

| Respirator | Protection Factor |
|------------------------------|--------------------------|
| Half Face Air Purifying: | 10 |
| Full Facepiece Air Purifying | 50 |
| Half Face PAPR | 50 |

WEARING TIGHT FITTING RESPIRATORS

- Employees using tight-fitting facepiece respirators must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) to ensure the wearer is able to attain a tight seal and proper fit.
- Fit testing must be performed for any negative or positive pressure, tight-fitting *respirators used* and must be performed:
 - prior to initial use
 - whenever a different respirator (size, style, model or make) is used
- Employees wearing tight-fitting respirators must perform a user seal check each time they put on the respirator.
 - Positive pressure check
 - Negative pressure check
- Respirators with tight-fitting facepieces must not be worn by employees who have facial hair or any condition that interferes with the face-to-facepiece seal or valve function
- Corrective glasses or goggles or other PPE must be worn in a manner that does not interfere with the face-to-facepiece seal

ROOFING

- If a built-up roof is being constructed, repaired or resurfaced, a guardrail system that meets the regulatory load requirements, shall be used to protect workers from the hazard of falling.
- A pipe that supplies hot tar or bitumen to a roof shall be securely fixed and supported to prevent deflection
- If a pipe discharges hot tar or bitumen, within 2m of the edge of a roof, a guardrail shall be provided at the edge of the roof.
- A hoist used on a roof,
 - Shall have a guardrail installed on both sides of the frame at the edge of the roof and
 - Shall be positioned in such a way that the hoist, cable is vertical at all times while a load is being hoisted.
 - Only a competent person shall operate a hoist used on a roof.
- The counterweights on a roofer's hoist
 - Shall be suitable for the purpose
 - Shall not consist of roofing or other constructional material
 - Shall be securely attached to the hoist and
 - Shall provide a safety factor against overturning of not less than three.

SCAFFOLDS

Scaffolds are temporary work platforms used to support workers and materials. They are often used in construction and repair of buildings and other large structures. There are several types of scaffolds including:

1) Supported Scaffolds

- Fixed
- Mobile

2) Suspended Scaffolds

- Single Point
- Two Point
- Multipoint
- Boatswain's chair

- Every scaffold shall be designed, constructed, erected, dismantled and used in accordance with all applicable regulatory requirements.
- Every scaffold shall be designed and constructed to support or resist:
 - Two times the maximum load or force to which it is likely to be subjected, without exceeding the allowable unit stresses for the materials of which it is made and;
 - Four times the maximum load or force to which it is likely to be subjected without overturning
- No scaffold shall be loaded in excess of the load that it is designed and constructed to bear.
- Scaffolds exceeding 15m in height above its base support or 10m in height above its based support if constructed of a tube and clamp system:
 - Shall be designed by a professional engineer
 - Design drawings for a scaffold shall set out erection instructions and the rated load for the scaffold.
 - A professional engineer or competent worker designated by the supervisor of the project shall inspect the scaffold before it is used to ensure the scaffold is erected in accordance with the design drawings.
 - The person carrying out the inspection shall state in writing whether the scaffold is erected in accordance with the design drawings.
 - The constructor shall keep at a project the design drawings and the written statement for a scaffold while the scaffold is erected.
- Only a competent worker shall supervise the erection, alteration or dismantling of a scaffold.
- Scaffolds mounted on wheels or casters shall:
 - be equipped with suitable braking devices on each wheel or castor;
 - have the brakes applied when a worker is on the scaffold
 - be equipped with guy wires or outriggers to prevent overturning if the height of the scaffold platform exceeds three times the least lateral dimension of the scaffold.

SIGNALLERS AND TRAFFIC CONTROL

SIGNALLER FOR VEHICLES AND SIMILAR MOBILE OR MATERIAL HANDLING EQUIPMENT

Where the operator of a vehicle, mobile equipment, crane or similar material handling equipment does not have a full view of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment or its load shall;

- Only be operated as directed by a signaller who is a competent person and who is stationed:
 - in full view of the operator
 - with a full view of the intended path of travel, of the vehicle, mobile equipment, crane or similar material handling equipment and its load and
 - clear of the intended path of travel of the vehicle, mobile equipment, crane or similar material handling equipment and its load.
- A signaller shall communicate with the operator by means of a telecommunication system or, where visual signals are clearly visible to the operator, by means of prearranged visual signals.
- A signaller shall not perform any other work while directing traffic.
- A signaller on a construction project shall wear an approved vest for visibility

SIGNALLER FOR OVERHEAD ELECTRICAL CONDUCTORS

Where a crane, similar hoisting device, backhoe, power shovel or other vehicle or equipment is operated near an energized overhead electrical conductor and it is possible for a part of the vehicle or equipment or its load to encroach on the following minimum distances permitted:

Table #8
Minimum Encroachment Distance for Overhead Conductors

| Nominal Phase-to-Phase Voltage | Minimum Distance |
|---|------------------|
| 750 or more volts, but not more than 150 000V | 3m |
| More than 150 000V, but no more than 250 000V | 4.5m |
| More than 250 000V | 6m |

- A signaller shall be stationed so that he or she is in full view of the operator and has a clear view of the electrical conductor and of the vehicle or equipment, and shall warn the operator each time any part of the vehicle or equipment or its load may approach the permitted minimum distances:
- A signaller is not required if protective devices and equipment is installed and written measures and procedures are established and implemented that are adequate to protect workers from electric shock and burns, and the workers involved in the work use protective devices, including personal protective equipment and follow the measures and procedure to prevent to protect them from electrical shock and burns,

WALKING/WORKING SURFACES

- The protection of unguarded openings in floors, walls and stairwells shall be in compliance with OH&S Act and regulations.
- All holes or openings through floors, decking, or walls at all elevations will have properly identified hole covers or be barricaded immediately.
- Floor openings shall be guarded by a standard railing and toeboards or a cover.
- All open-sided floors or platforms, 30 inches or more above adjacent floor or ground level, shall be guarded by standard railings or the equivalent on all open sides, except where there is an entrance to a ramp, stairway, or fixed ladder.
- Equipment or material shall not be stored on a hole cover.
- Covers shall be secured in place against accidental displacement and extend adequately beyond the edge of the hole or opening.
- Covers must be capable of supporting a live load of at least 2.4 kilopascals (50 pounds per square foot) without exceeding the allowable unit stress for the material used.
- Covers must have a sign on it stating: "DANGER - FLOOR OPENING - DO NOT REMOVE"

WINDOW CLEANING

- Contractors are responsible to ensure proper use of approved roof anchors and for certification prior to use.
- Contractors shall comply with the Occupational Health and Safety Act and the Window Cleaning Regulation (O.Reg. 859).
- The following paragraphs are the duties of the employer, supervisors and workers:
 - Every Employer who proposed to carry out window cleaning using a suspended scaffold, boatswain's chair or similar single-point suspension equipment or to carry out sill work shall prepare a work plan in writing, signed by the employer, indicating the manner in which any primary support lines and lifelines used are to be attached to the anchor points or related structures shown on any sketch mentioned in subsection 39(1) or 40(1), and settling such other information as may be required for the safety of workers.
 - The employer shall cause a copy of the work plan referred to in subsection (1) to be provided to each worker who engages in window cleaning or sill work at the building and shall retain a copy for examination by an inspector.
 - No worker shall begin window cleaning that requires the use of scaffold, boatswain's chair or similar single-point suspension equipment and no worker may begin sill work until the worker has received a copy of the work plan referred to in subsection (1).

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

Contractors using controlled products as defined in the WHMIS regulation must have WHMIS training and may be required to provide proof of their training.

Contractors must follow the requirements regarding safe use, handling, storage and disposal of chemicals and must ensure current material safety data sheets (abbr. MSDS) for their products are readily available for review. MSDS are valid for 3 years.

All containers of controlled products must be properly labeled.

All hazardous materials will be stored and dispensed in an area suitable for that purpose, in compliance with regulations.

Contractors must ensure all necessary preventative measures and procedures are adhered to protect workers and building occupants from exposure to harmful chemical exposures. Such measures include, but are not limited to:

- Substitution: Substituting hazardous chemicals with a safer product
- Engineering: Using increased ventilation (natural or mechanical) or isolation
- Protective equipment: Example: Protective gloves, aprons, eyewear or respirators
- Administrative: Signage, housekeeping, scheduling operations

Contractors shall ensure all waste is disposed of, in accordance with all municipal, provincial or federal regulations.

Chemical spills/releases must be reported immediately to Mohawk College.

7.0 APPENDICES

APPENDIX 1: ASBESTOS CONTRACTOR NOTIFICATION FORM

ASBESTOS CONTRACTOR NOTIFICATION FORM

Please be advised that Mohawk College has identified the presence of asbestos containing materials within the property. The asbestos survey report showing the locations and types of asbestos present is available for review through Facilities Management or the Occupational Health & Safety Office.

Date: _____

Project Name and/or Work Area: _____

Name(s) of contractor, and any sub-contractor: _____

Is area known to contain asbestos-containing materials (Yes/No)? If Yes describe and see below.

The attached drawings/plans/specifications show the area and indicate the locations of examined materials and whether the materials are friable or not.

In the event that a contractor discovers material that may be asbestos containing material, the following steps shall be taken:

1. A contractor shall stop work and immediately notify the Facilities Management representative; and
2. Work shall cease until it has been determined whether the material is asbestos-containing material or not, and appropriate steps have been take to remediate, as necessary.

Name of Contractor Representative: _____

(signature)

Permission to start work has been granted by:

Name of Facilities Management Representative: _____

(authorization by signature)

APPENDIX 2: CONFIEND SPACE HAZARD ASSESSMENT FORM


Sample Confined Space Hazard Assessment Form

XYZ Chemical Ltd. - [View Space Information]

File Edit Insert Records Window Help

Space Information

Select Confined Space:



Confined Space Number: **01**


Confined Space Location: NP#1

Additional Location Information: People Mover Yard

Description: Sewage Pump Pit Lift Station

Entry Type: Type 2

Purpose: Cleaning, Maintenance, Inspection



Hazard Identification:

| | Hazards | Controls |
|---------------------|------------------------|--|
| Oxygen Deficiency: | Possible Displacement | Ventilate / Atmospheric test to compliance |
| Flammable Material: | Methane | Ventilate / Atmospheric test to compliance |
| Toxic Material 1: | Hydrogen Sulphide | Ventilate / Atmospheric test to compliance |
| Toxic Material 2: | | |
| Toxic Material 3: | | |
| Product Supply 1: | Flow | Life pump lockout / tagout |
| Product Supply 2: | | |
| Product Supply 3: | | |
| Electricity: | Pump Electric | Breaker isolation and lockout |
| Pneumatics: | | |
| Thermal: | | |
| Hydraulic: | | |
| Slip Fall: | Fall concern >3 meters | Fall arrest equipment |
| Mechanical: | | |
| Other: | Head protection | Hard Helmet |
| Other 2: | | |

Equipment Required

| | | |
|------------------|-------------------|-------------------|
| Atmospheric test | Retriever | Hard Hat |
| Fall protection | CSE permit | Portable lighting |
| Tripod | Splash protection | |

Entry and Egress

2'x3'x4' fiber hatches. Vertical entry into lift station.

Metering and Monitoring

Monitor Requirements: Oxygen, CO, LEL, H2S,

SpcMonitorSamples: 3

Rescue protocol / Rescue Equipment

Tripod, retriever, lifeline, 5 point harness. Ventilation fan, alarm.

Additional Information

Possible splash protection and air purifying respirator.

Record: 1 of 29

APPENDIX 3: CONFINED SPACE HAZARD ENTRY PERMIT
Confined Space Entry Permit

Permit Number

Confined Space Entry Permit

Page 1 of 2

Address location of CSE _____ Date: _____
 ECHELON reference # _____ Permit expiration time: _____
 Description of confined space to be entered: _____
 Description of work to be performed: _____

CONTRACTORS:
 Company Name _____ Company has been prequalified YES NO _____
 I have been advised of and will ensure consistency with Vesuvius' CSE program.
 Name (print) _____ Signature _____

HAZARD IDENTIFICATION:

| Hazards | Controls |
|--------------------|----------|
| Oxygen deficiency | |
| Flammable material | |
| Toxic material 1 | |
| Toxic material 2 | |
| Product supply 1 | |
| Product supply 2 | |
| Electricity | |
| Pneumatics | |
| Hydraulic | |
| Slip/Fall | |
| Mechanical | |
| Other | |
| Equipment required | |
| | |
| | |
| | |

The above listed equipment has been inspected to ~~meet~~ verify compliance and is in good working order. Name _____
 Signature _____

| AUTHORIZED EMPLOYEES: | Name | Signature | Entrant | Attendant |
|---|------|-----------|---------|-----------|
| All authorized employees are aware of the hazards, control measure, PPE, and procedures to safely complete work in this confined space. | | | | |
| | | | | |
| | | | | |
| | | | | |

PERMIT AUTHORIZATION:
 I certify that all required precautions have been taken and the required equipment has been provided for safe entry into the space.
 Date: _____
 Time: _____
 Name: _____
 Signature: _____

PERMIT TERMINATION:
 This permit is terminated. The space is no longer considered to be safe. If subsequent entries are required a new permit must be issued.
 Date: _____
 Time: _____
 Name: _____
 Signature: _____

| METERING RESULTS | | | | | | |
|-------------------|----------|----------|-------------------------|--------|---------|-------|
| Time | Location | O2 % | LEL % | CO ppm | H2S ppm | Other |
| | | | | | | |
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| | | | | | | |
| Acceptable limits | | 19.5-23% | 0-5% 5-10% 10-25% | 25ppm | 10ppm | UKN |

| Meter Make | Meter Model | Meter Serial # |
|------------|-------------|----------------|
| | | |

RESCUE PROTOCOL / RESCUE EQUIPMENT

Vertical extraction
 Horizontal extraction
 Combined extraction
 Non-entry rescue
 Entry rescue

| CONFINED SPACE ENTRY/EXIT LOG | | | | | | | | | | |
|-------------------------------|-------|------|-------|------|-------|------|-------|------|-------|------|
| NAME | | | | | | | | | | |
| TIME | Entry | Exit | Entry | Exit | Entry | Exit | Entry | Exit | Entry | Exit |
| | | | | | | | | | | |
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APPENDIX 4: CONFINED SPACE ENTRY COORDINATION DOCUMENT

Confined Space Entry Coordination Document⁴

| | | | |
|---|---|-------------|--|
| Contractor Name: | | | |
| Confined Space Location: | | CS#: | |
| Date(s) of Entry: | | | |
| Describe Purpose/Scope of Work to be Performed: | | | |
| | | | |
| | | | |
| Lead Employer | <input type="radio"/> Mohawk College <input type="radio"/> Third Party Contractor (please specify name): | | |
| Company/Contractors | 1. | 2. | |
| | 3. | 4. | |
| Company/Contractor(s) | Responsibilities | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| Lead Employer's Representative: Please Print: | | | |
| Signature: | | Date: | |
| Mohawk College Representative: Please Print: | | | |
| Signature: | | Date: | |

⁴ Required when workers of more than 1 employer perform work in a confined space.

APPENDIX 5: HEAT STRESS SYMPTOMS, TREATMENT AND PREVENTION

HEAT STRESS SYMPTOMS, TREATMENT AND PREVENTION⁵

| | Cause | Symptoms | Treatment | Prevention |
|------------------------|---|--|---|---|
| Heat Rash | Hot humid environment; plugged sweat glands. | Red bumpy rash with severe itching. | Change into dry clothes and avoid hot environments. Rinse skin with cool water. | Wash regularly to keep skin clean and dry. |
| Sunburn | Too much exposure to the sun. | Red, painful, or blistering and peeling skin. | If the skin blisters, seek medical aid. Use skin lotions (avoid topical anesthetics) and work in the shade. | Work in the shade; cover skin with clothing; apply skin lotions with a sun protection factor of at least 15. People with fair skin should be especially cautious. |
| Heat Cramps | Heavy sweating drains a person's body of salt, which cannot be replaced just by drinking water. | Painful cramps in arms, legs or stomach which occur suddenly at work or later at home. Heat cramps are serious because they can be a warning of other more dangerous heat-induced illnesses. | Move to a cool area; loosen clothing and drink cool salted water (1 tsp. salt per gallon of water) or commercial fluid replacement beverage. If the cramps are severe or don't go away, seek medical aid. | Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke. |
| Fainting | Fluid loss and inadequate water intake. | Sudden fainting after at least two hours of work; cool moist skin; weak pulse. | GET MEDICAL ATTENTION. Assess need for CPR. Move to a cool area; loosen clothing; make person lie down; and if the person is conscious, offer sips of cool water. Fainting may also be due to other illnesses. | Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke. |
| Heat Exhaustion | Fluid loss and inadequate salt and water intake causes a person's body's cooling system to start to break down. | Heavy sweating; cool moist skin; body temperature over 38°C; weak pulse; normal or low blood pressure; person is tired and weak, and has nausea and vomiting; is very thirsty; or is | GET MEDICAL AID. This condition can lead to heat stroke, which can kill. Move the person to a cool shaded area; loosen or remove excess clothing; provide cool | Reduce activity levels and/or heat exposure. Drink fluids regularly. Workers should check on each other to help spot the symptoms that often precede heat stroke. |

⁵ Ministry of Labour Heat Stress Health and Safety Guide, 2007

| | | | | |
|--|--|---|--|--|
| | | panting or breathing rapidly; vision may be blurred | water to drink; fan and spray with cool water. | |
|--|--|---|--|--|

APPENDIX 6: LOCKOUT DEVICE REMOVAL REPORT

LOCKOUT DEVICE REMOVAL REPORT

Department: _____

Shift: _____

Authorized employee: _____

Machine, equipment, or process: _____

Time and date lockout device and information tag was discovered to have been left on:

Confirmed that the authorized employee has left the site and/or facility? Yes No

Supervisor's Initials: _____ Time and Date: _____

Attempts made to contact the authorized employee? Yes No

Authorized employee has been contacted and is returning to the workplace to remove the lockout device and tag.

Yes No

If "Yes", wait for authorized employee to return and remove the lock and tag. File form for future reference.

If "No", Supervisory personnel may authorize removal of the lock and tag once:

- The status and condition of the machine, equipment, or process are assessed and verified to be in a state that will allow for the safe removal of the lockout device.
- Provisions are in place to prevent the authorized employee from resuming work at this facility without notification of the fact that his or her lock and tag has been removed.

Supervisor's Initials: _____ Time and Date: _____

Supervisory personnel can now remove the lockout device and tag.

Supervisor's Initials: _____ Time and Date: _____

Witness: _____