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QC Installations Ltd

Chapter 1 **POLICIES**

COMPANY SAFETY POLICY

The personal safety and health of each employee of **QC Installations** is of primary importance. The company is committed to a healthy and safe workplace through the prevention of occupationally induced injuries and illnesses. To the greatest degree possible, management will provide all mechanical and physical facilities required for personal safety and health, in keeping with the highest standards.

We will maintain a Safety and Health Program conforming to the best practices of organizations of this type. To be successful, such a program must start with proper attitudes toward injury and illness prevention on the part of both the employer and employees. It also requires cooperation in all Safety and Health matters, not only between Supervisors and employees, but also between each employee and his or her co-workers. Only through such cooperative effort can a Safety program be established and preserved in their best interest.

Our objective is a Safety and Health Program that will reduce the number of injuries and illness to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations like ours. **Our Goal is Zero Accidents and Injuries**.

Our Safety and Health Program will involve:

- Providing mechanical and physical safeguards to the maximum extent possible.
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions and practices, to control health hazards, and to comply fully with the safety and health standards of every job.
- Training all employees in good safety and health practices.
- Providing necessary personal protective equipment and instructions for its use and care.
- Developing and enforcing safety and health rules and requiring that all employees cooperate with these rules as a condition of employment.
- Investigating every accident, promptly and thoroughly, to find out what caused it and to correct the problem so that it will not happen again.

QC Installations is responsible for developing the proper attitudes toward Safety and Health in themselves and in employees and ensuring that all operations are performed with the utmost regard for the Safety and Health of all personal involved.

Employees and Contractors are responsible for wholehearted, genuine cooperation with all aspects of Safety and Health Program, including compliance with all rules and regulations, and for continually practicing Safety while performing their duties. They must adhere to OH&S legislation and follow due diligence to reduce risk and hazards at the work sites.

- **The Safety information in this policy does not take precedence over applicable government legislation with which all employees should be familiar.**

andrew carras	2018/02/01
President	Dated

HAZARD IDENTIFICATION AND CONTROL POLICY

QC Installations is committed to providing a safe workplace for our employees. To accomplish this, we must have the cooperation of everyone. To report a hazard, verbally point out situations to management or the safety supervisor and written memos are also encouraged. All company facilities will have copies of our hazard report forms and shall be used to note unsafe conditions or behaviors.

After an unsafe situation is noted to management, steps will be taken as soon as possible to correct defects. After the defect is corrected, we will point out correction to employees and have a written memo kept on file to prevent recurrence.

In order to further our efforts in Assessing Hazards, we will review and complete comprehensive Job Hazard Analysis and Job Safety Analysis at least yearly, post-incident, or when anything is new or changes. At safety meetings we will be discussing unsafe conditions around the facility or on the location and ways to correct them.

Persons will be delegated to correct defects and then we will review these occurrences at the next meeting and use a check off system to keep a record of correction.

Any unsafe condition must be reported. No exceptions. If you are not sure if a condition is of an unsafe nature, point out to management and let us help decide if an unsafe condition exists.

andrew carras

President

2018/02/01

Dated

COMMUNICATION POLICY

Management understand communication is a key factor in the success of the health and safety program and leads to injury and accident reduction in the workplace. Communication can occur in many forms and includes the following:

- Safety meetings
- E-mail
- Newsletters
- Bulletins
- Posted information
- Discussions with management

Employees are encouraged to provide feedback on health and safety issues or ask questions at any time. They can do this by utilizing the open-door policy and discussing it with a management member, note it on an inspection report, fill out an incident report, or discuss it during a safety meeting.

Management will meet with employees regularly to discuss our safety program, review its policies, solicit new ideas and reinforce our commitment to safety.

Monthly meetings will be attended by management and will give employees the opportunity to forward any concerns they may have concerning our safety program.

To communicate our commitment to safety, management will be doing different things to update our safety program. Some of these will include worksite tours and jobsite evaluations. We will have monthly safety meetings, use memos, provide detailed orientation for new employees and recognize workers who work safely.

QC Installations will provide regular feedback to all employees on safety performance or concerns. Management is responsible for providing and maintaining a safe work environment, however doing so is the responsibility of everyone. This means the onus is on employees, contractors, visitors or anyone who is present at our worksite or on a jobsite shared by **QC Installations.**

andrew carras

President

2018/02/01

Dated

SAFETY ENFORCEMENT POLICY

Purpose
To ensure employees are adhering to company and legislative policies and procedures.

Policy
The management of **QC Installations** is committed to the safety excellence of its employees by providing an injury and accident free workplace. All employees are to abide by the regulations, safety rules, and the use of safe work practices and safe job procedures.

Safety violations will be handled in an objective but firm manner. The enforcement progression follows the following process with documentation at each stage:

VERBAL WARNING

WRITTEN WARNING

POSSIBLE DISMISSAL

*****The safety information in this policy does not take precedence over government OH&S legislation. All employees should be familiar with the OH&S Act and other applicable legislation.

andrew carras

President

2018/02/01

Dated

GENERAL RULES

1. Accidents, injuries, or "near misses", regardless of their nature, shall be promptly reported to supervisors.
2. Clothing shall be appropriate to duties being performed.
3. Smoking is permitted only in designated areas only.
4. Running is not permitted anywhere, except in the case of extreme emergency.
5. Safety glasses, goggles, or face shields shall be worn when operations where eye protection is required.
6. Hand tools shall not be used for any purpose other than that intended. LOCK OUT, TAG OUT tags must be attached to all inoperative tools and equipment until they have been repaired by qualified personnel.
7. Under the influence of, use of, and/or possession of any intoxicating beverage or illegal drugs on or at any work site is strictly forbidden and constitutes grounds for dismissal.
8. Violence of any kind will not be tolerated. **QC Installations** has a zero-tolerance policy for Workplace Violence. (Refer to Workplace Violence Policy for Specifics.)
9. Be familiar with and conform to safe work practices and job procedures.
10. Before commencing work, identify any potential hazard and plan the safe management of these risks.
11. Maintain good housekeeping practices to prevent accidents, injuries slips/trips/falls, or fires.
12. Wear the necessary personal protective equipment as required and deemed necessary by the supervisor.
13. Prior to commencing any work, insure that the area has been made safe for the work to be performed with tools and equipment in good working order. Report unsafe or hazardous conditions to the supervisor immediately.
14. Know the location of fire extinguishers and exits in your work area.
15. Beware of trained first aid personnel and location of first aid kits and other safety aids in your area.
16. An employee may refuse to perform duties, which are deemed to be unsafe or pose an imminent danger to that worker or any other worker.
17. All contractors and visitors must comply with the company's rules and safety manual guidelines.
18. Workers will be provided with suitable training from a competent person (usually management) to be competent in their job tasks. They will perform the work once

competent or under the direct supervision of a competent person. This includes the safe operation of tools and equipment.

19. **QC Installations** will ensure equipment and tools used on the work site are maintained to manufacturer specifications and government standards so that it will not endanger workers transporting or using specific items. The equipment will be maintained so it will function as intended, with safety devices operating properly, is able to perform the work properly and of adequate strength and is free from obvious defects.

INSPECTION POLICY

Purpose
The purpose of this policy to control losses of human and material resources by identifying and correcting unsafe acts and conditions.

Policy
This company will maintain a comprehensive program of safety inspections at all Job Sites.

Responsibilities
The Manager is responsible for overall operation of the program and will participate in site inspections at least once a year.

Superintendents are responsible for directing formal inspections on job sites that they control and for involving in such inspections. They will conduct quarterly site inspections.

Supervisors are responsible for conducting ongoing informal and formal inspections of areas where their crews are working. They will conduct a formal site inspection once a month.

Workers are responsible for participating in and contributing to the Inspection Program. They will participate in monthly inspections as directed by their Supervisor.

All employees and Contractors, no matter of level within the company, will conduct pre-use inspections on fall arrest equipment and powered mobile equipment (scissor lifts, boom lifts, etc.).

andrew carras

President

2018/02/01

Dated

INCIDENT/ACCIDENT INVESTIGATION AND REPORTING POLICY

Incidents: are defined as near misses or almost an accident and occupational illnesses.

Accidents: cause damage or injury to a person or property and cause loss of production.

At **QC Installations** all incidents and accidents are to be reported to the Supervisor or Management. All reports will be investigated to determine cause. Incident and accident reporting and investigation should be view as 'fact-finding' rather than a 'fault finding' activity. Therefore; the primary purpose is to determine the cause(s) of the incident/accident, so that a recurrence may be avoided.

Investigation of incidents and accidents will be the responsibility of Management and results will be thoroughly studied. Management will involve Workers when possible in the investigation process.

The investigation will involve collecting and assembling evidence. Things we will be looking for are any failed parts, any paperwork pertaining to accident or incident (e.g. vehicle inspections). Also, we will talk to and take statements from any persons around the situation and their proximity to what happened.

Any evidence collected will be thoroughly analyzed to see if we can determine any cause or failures that any have contributed to the incident.

After we thoroughly investigate the incident or accident we can make recommendations to prevent any reoccurrence. A written report will be made and presented to management for evaluation. After evaluation we can make any corrections or changes to our procedure and equipment that may help prevent another situation.

andrew carras | 2018/02/01

President | Dated

MODIFIED DUTIES POLICY

QC Installations recognizes their employees as the most valued resource and despite our best efforts and continued diligence to prevent injuries and illness on our worksites, they do occur. Thus, **QC Installations** has developed and implemented a Modified Work Program.

The purpose of this program is to ensure workplace related injuries and illnesses are accurately reported and documented, to ensure all employees received quality and timely medical attention and to ensure injured or ill employees are provided with viable employment until he/she is able to return to normal duties.

The administration of the program will be a collaborative effort between Management, the Worker, the attending physician and WCB representatives, if necessary.

QC Installations requires that every employee inform their doctor of the company's Modified Work Program. The physician's report will indicate the restrictions, types of duties and length of time necessary for recovery and will be referred to for determination of the modified work/position to be offered the employee.

andrew carras	2018/02/01
President	Dated

POLICY FOR PERSONAL PROTECTIVE EQUIPMENT

Purpose
To inform employees on PPE requirements while on the work site.

Policy
It is the policy of this company to have all workers use the proper Personal Protective Equipment (PPE) when and where required.

Requirements

- All employees shall wear hard hats, steel toe boots, and long pants. All other required PPE not mentioned above shall be supplied by the company.
- All PPE used shall be in good condition and maintained according to manufacturer's instructions.
- All PPE shall be CSA approved.
- Company-issued PPE will be inspected at the time of issue and before each use by the employee using the PPE.
- All PPE that has been removed from service will be tagged "OUT OF SERVICE" Any PPE tagged "OUT OF SERVICE" will not be returned to service until repaired and inspected by a qualified person.

No piece of PPE will be modified or changed contrary to its manufacturer's instructions or specifications or OH&S Legislation.

The safety information in this policy does not take precedence over OH&S legislation. All employees should be familiar with OH&S Act and Legislation.

andrew carras	2018/02/01
President	Dated

PREVENTIVE MAINTENANCE PROGRAM POLICY

Purpose
To ensure tools, vehicles, and equipment are maintained in a condition that will promote health and safety for the employee(s) using the equipment, tools, or vehicles or near them

Policy
It is the policy of this company to maintain all tools, vehicles and equipment in a condition that will maximize the safety of all personal. To accomplish this, a Preventive Maintenance Program shall be maintained and shall include the following.

- Adhere to applicable regulations, standards, and manufacturers specifications
- Services of appropriately qualified maintenance personnel
- Scheduling and documentation of all maintenance work

Responsibilities
- Management and employees are responsible to ensure the tools, equipment, and vehicles they are using are in safe working condition and free from defects.
- Damaged or defective equipment is to be tagged out and taken out of service until it is appropriately repaired or replaced
- All repairs on tools and equipment will be conducted by a competent person
- Employees are responsible for reporting damaged or defective tools, vehicles, or equipment to their Supervisor
- Management will make appropriate arrangements for repairs or replacement. They may also direct workers to perform this duty if needed.

andrew carras | 2018/02/01

President | Dated

HEALTH AND SAFETY RESPONSIBILITES

Senior Managers

- Establish a health and safety program
- Provide resources for the health and safety program
- Establish policies and procedures to meet legislative and industry standards
- Empower, support and provide leadership in the development and continuous improvement of the Health and Safety Management System,
- Provide all resources and equipment necessary to implement and maintain the program,
- Encourage all employees to be involved in the Health and Safety Management System,
- Ensure all operations including those of contractors and subcontractors meet legislative requirements

Managers

- Empower, support and provide leadership in the development and continuous improvement of the Health and Safety Management System,
- Provide all resources and equipment necessary to implement and maintain the program,
- Encourage all employees to be involved in the Health and Safety Management System,
- Ensure all operations including those of contractors and subcontractors meet legislative requirements,
- Ensure all incidents are reported and where necessary, investigated and corrective action is taken to prevent recurrence,
- Ensure training needs are identified and met,
- Take the necessary action to correct any unsafe working conditions brought to their attention by workers,
- Understand, implement, and enforce applicable Act, Regulations, Codes, General Safety Rules, Codes of Practice, Standard Operating Procedures,
- Provide appropriate supervision at worksites,
- Provide appropriate and well-maintained safety equipment for each task; and
- Evaluate hazard identification and assessment annually to ensure controls are effective.

Supervisors

- To understand the Health and Safety Management System and promote its objectives,
- Take the lead in mentoring and training front line employees,
- Ensure employees perform their duties safely and take proactive measures when the program doesn’t meet standards,
- Report all incidents and be involved in incident investigations and implement corrective action to prevent recurrence,
- Understand, implement, and enforce applicable Acts, Regulations, Codes, General Safety Rules, Codes of Practice, Standard Operating Procedures,
- Ensure appropriate and well-maintained equipment is available and utilized to perform the work activity,
- Meet regulatory compliance and conformance requirements,
- Ensure operations including those of contractors and subcontractors meet legislative requirements,

- Ensure workers are informed about job hazards and are prepared to deal with any site-specific hazards on the worksite; and
- Ensure personal protective equipment (PPE) is readily available at the worksite, correctly used, stored, maintained, and replaced when necessary.

Workers

- Adhere to regulations, guidelines, and safety standards as required by government regulatory agencies, and those communicated by management and supervisors,
- Follow all General Safety Rules, Codes of Practice, Standard Operating Procedures captured in the QC Installations' Health and Safety System Manual,
- Report any hazardous or unsafe working conditions to their immediate supervisor and, if possible, correct the unsafe condition,
- Observe activities of fellow employees to ensure their safety and the safety of those around them, and correct unsafe acts in a proactively manner to prevent an incident from occurring,
- Refuse to perform work where:
- The worker believes an imminent danger exists to the health or safety of themselves or others; and
- They are not competent to perform.
- Report all incidents, injuries, and occupational illness to their supervisor,
- Participate in all training programs required by the company; and
- Use, care and maintain the required personal protective equipment (PPE).

Contractors and Subcontractors

- Insist on safe performance throughout their operations by ensuring subcontractors and employees are competent to do their work properly and are aware of their responsibilities and accountabilities,
- Ensure an effective health and safety program is in place,
- Ensure health and safety programs and operations employees comply with contractual and regulatory requirements,
- Provide the time and resources required to enable contractors and subcontractors to conduct their activities safely,
- Identify and correct hazards, unsafe work conditions, and unsafe acts,
- Ensure appropriate and well-maintained equipment is available and utilized to perform the work activity,
- Ensure all incidents are reported and investigated and corrective action is taken to prevent recurrence,
- Ensure workers are informed about job hazards and are prepared to deal with any site-specific hazards on the worksite; and
- Ensure personal protective equipment (PPE) is readily available at the worksite, correctly used, stored, maintained, and replaced when necessary.

Visitors

- Report to the facility office so their presence is noted and recorded,
- Receive a site-specific health and safety orientation,
- Follow the instructions of the site supervisor or personal escort,
- Wear personal protective equipment (PPE) as and when required,
- Remain in the presence of the site supervisor or personal escort; and
- Check out at the facility office prior to departing the worksite.

SAFETY TRAINING POLICY

Purpose
The purpose of this policy is to provide for general and specialized safety and related training throughout the levels of organization.

Policy
The company will provide, and employees will participate in, all safety and related training that is necessary to minimize of human and physical resources of the company.

This Training will include, but limited to:

- Safety orientation for newly-hired personnel;
- Job-specific training;
- Safety training for supervisors and management;
- Specialized safety and related training; and
- Refresher and update training

Remember: Learning Continues for a Lifetime

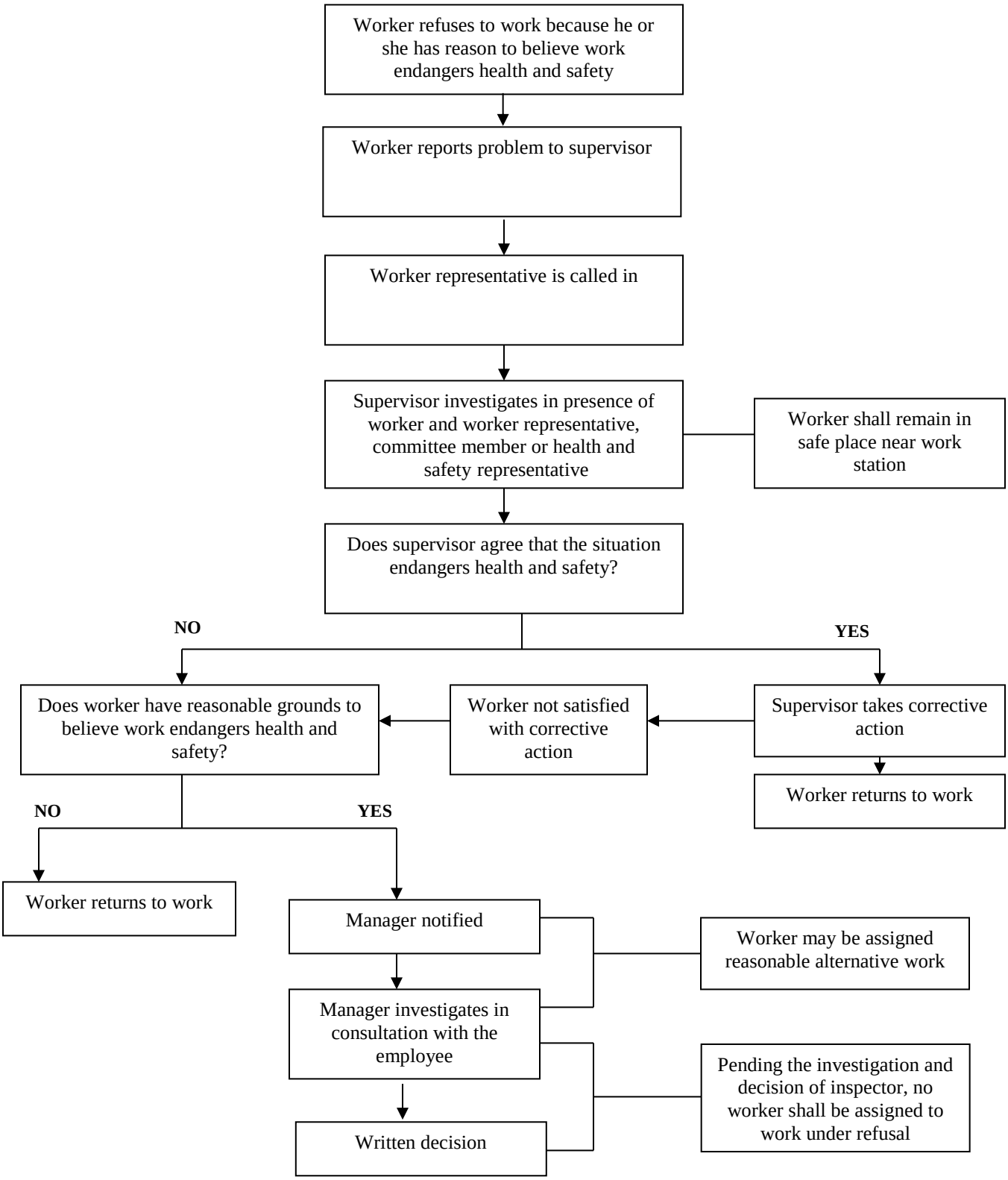
For more information, look at:

- Occupational Health and Safety Act and other applicable legislation.

andrew carras — President

2018/02/01 — Dated

UNSAFE WORK REFUSAL PROCESS



WORKER RIGHTS

Worker Rights and Duties Under Occupational Health and Safety Laws:
Workers, both employees and contractors, have rights and duties under Occupational Health and Safety Legislation.

Rights of Employees:
Under this legislation, employees have three important rights:

1. The right to know.
2. The right to participate.
3. The right to refuse dangerous work.

The Right to Know
All employees have a right to know what hazards are present on the job and how these hazards can affect them.

The Right to Participate
All employees have a right to take part in health and safety activities. For example, they can choose to be a health and safety representative or to be involved in the creation or modifying of the company policies and procedures. They also have a right to report unsafe practices and conditions.

The Right to Refuse Dangerous Work
All employees can refuse work that is dangerous to themselves or to co-workers. In this case, they must follow specific procedures.

Duties of Employers
For employees, it is the employer's responsibility to:

- Take every reasonable action to ensure the workplace is safe.
- Train employees on how to work safely with hazardous materials. They need to know how to use, store, handle and dispose of them. They also need to know what to do in an emergency.
- Supply personal protective equipment. They also need to make sure workers know how to use the equipment safely and properly.
- Report all critical injuries right away.
- Appoint a health and safety representative or set up a safety committee.

WORKPLACE VIOLENCE AND HARASSMENT POLICY

QC Installations Ltd. has zero tolerance for workplace violence.

Commitment
QC Installations is committed to a healthy, harassment-free work environment for all our employees. **QC Installations** has developed a company-wide policy intended to prevent harassment of any type of its employees and to deal quickly and effectively with any incident that might occur.

Definition of Harassment
Harassment occurs when an employee is subjected to unwelcome verbal or physical conduct because of race, religious beliefs, colour, place of origin, gender, mental or physical disability, ancestry, marital status, family status or source of income. Alberta human rights laws prohibit harassment in the workplace on these grounds.

Examples of harassment which will not be tolerated at **QC Installations** are: verbal or physical abuse, threats, derogatory remarks, jokes, innuendo or taunts about any employee's appearance, religious beliefs, colour, place of origin, mental or physical disabilities, ancestry, marital status, family status, source of income or gender. **QC Installations** also will not tolerate the display of pornographic, racist or offensive signs or images; practical jokes that result in awkwardness or embarrassment; unwelcome invitations or requests, whether indirect or explicit.

Definition of Sexual Harassment
Sexual harassment, being discrimination on the grounds of gender, is a violation of the Alberta Human Rights, Citizenship and Multiculturalism Act. Unwanted sexual advances, unwanted requests for sexual favors' and other unwanted verbal or physical conduct of a sexual nature, constitutes sexual harassment when:
1. Submission to such conduct is made either explicitly or implicitly a term of, or condition of, an individual's employment; or
2. Submission to, or rejection of, such conduct by an individual affects that individual's employment.

Sexual harassment can include such things as pinching, patting, rubbing or leering, "dirty" jokes, pictures or pornographic materials, comments, suggestions, innuendoes, requests or demands of a sexual nature.
The behaviour need not be intentional in order to be considered sexual harassment. All harassment is offensive and in many cases, it intimidates others.

Procedure for Ending the Harassment *If you are being harassed*:
1. Tell the harasser his/her behavior is unwelcome and ask him/her to stop.
2. Keep a record of incidents (date, times, locations, possible witnesses, what happened, your response). You do not have to have a record of events in order to file a complaint, but a record can strengthen your case and help you remember details over time.

3. File a complaint. If, after asking the harasser to stop his/her behavior, the harassment continues, report the problem to one of the following individuals:

   a. Manager or
   b. Your Supervisor

You also have the right to contact the Alberta Human Rights and Citizenship Commission to file a complaint of sexual harassment and, if circumstances warrant it, a charge of assault may be filed with the police.

Compliance
Compliance with this policy is mandatory and in accordance with all existing legislation, other employer policies and initiatives. Infractions will be considered a misconduct and appropriate remedies will be imposed.

andrew carras	2018/02/01
President	Dated

Chapter 2 **HAZARD IDENTIFICATION AND ASSESSMENT**

Job Inventory
An accountability profile formalizing all the tasks associated with each role carried out by management, supervisors, workers and employee will be formalized. A hazard identification and risk assessment matrix will be then be used by each employee to:

- Identify all tasks associated with their role,
- Determine all hazards associated with those tasks,
- Determine a risk rating,
- Determine a priority rating for control; and
- Implement control measures to prevent unsafe or unhealthy conditions/acts.

Refer to Hazard Identification and Risk Assessment Column JHA Forms.

Identification of Hazards
For each of the tasks identified in the process described in above, all identifiable **health** hazards will be determined for each position**.** This includes**:**

- Biological Hazards (allergens, animals, viruses, sick building syndrome)
- Physical Hazards (lighting, temperature, ergonomics)
- Chemical Hazards (hazardous atmospheres)
- Psycho-social Hazards (Stress, Fatigue, Road Rage, Job Dissatisfaction)

For each of the tasks identified in the process described in the above, all identifiable **safety** hazards shall be determined for each position. This includes:

- Physical hazards (slips/trips/falls, electrical hazards, walking surfaces, access/egress, cranes, hoisting etc.)

Health and Safety Hazard Risk Evaluation.
All health and safety hazards must be evaluated according to risk. Each hazard shall be reviewed and evaluated from 3 perspectives:

- What is the consequence if exposed to this hazard?
- How likely is it that an incident would occur if a worker would be exposed to this hazard?
- What is the exposure level to this hazard?

Each hazard shall be rated 1 to 5 & 10 (1 being lowest and 10 being highest) for **Consequences:**

1. First Aid
2. Medical Aid
3. Lost Time
4. Disability
5. Fatality/Multiple Fatalities

Each hazard shall be rated 1 to 5 (1 being lowest and 5 being highest) for **Likelihood:**

1. Almost impossible
2. Not likely
3. 50/50 chance of occurring
4. Very possible
5. Almost certain

Each hazard shall be rated 1 to 5 (1 being lowest and 5 being highest) for **Exposure:**

1. Yearly
2. Monthly
3. Weekly
4. Daily
5. Continuous

Refer to Hazard Identification and Risk Assessment Template Explanation later in this section of the Manual.

Prioritization of Hazards

Each of the hazards identified in the process shall be assigned a priority rating. Prioritizing hazards is as follows:

- The evaluation of hazards is the basis to rate hazards in terms of priority. The consequence, likelihood and exposure ratings are averaged to designate a number for each hazard. The rating is as follows:
  - 1 – 2.9 = no noticeable risk (white in colour)
  - 3.0 – 3.0 = low risk (green in colour)
  - 4.0 – 4.9 = medium/moderate risk (yellow in colour)
  - 5.0 or higher = high risk (red in colour),
- Concentrate on controlling the highest numbers or highest priority ratings (most hazardous) working down to controlling the lowest numbers or lowest priority ratings (least hazardous)

Employee Involvement

Each employee is most familiar with the tasks and hazards associated with performing their role. Therefore, all employees will be involved in conducting the hazard identification and assessment process for their position as well as conducting Field Level Hazard Assessments prior to starting work at the work site.

Hazard Assessment Training
All managers will be trained in the process of hazard identification and assessment by a safety professional; and

Managers will subsequently train all employees in how to perform a hazard task analysis for their position, evaluate the hazards associated with the tasks identified, prioritize the hazards and assign control methods to the hazards.

When we do Hazard Assessments we use Two Types

One for People and the Work They Do = Risk Assessment

One for Places and Things = Critical Task Analysis

This is what a "Risk Assessment" Looks Like

WORK AREA AND TASKS PERFORMED Day Shift Supervisor	HAZARD CATEGORY PH- CH- ER- EN-HH	HAZARDS IDENTIFIED: 1. Material Handling 2. Machine Hazards 3. Energy (electrical, steam, heat, etc. 4. Work Practice 5. Environmental	LIKELIHOOD (CHANCE) 1. Almost Impossible 2. Not Likely 3. 50/50 4. Very Possible 5. Almost Certain	EXPOSURE: FREQUENCY 1. Yearly 2. Monthly 3. Weekly 4. Daily 5. Continuous	CONSEQUENCE: OUTCOME OR RESULT 1. First Aid 2. Medical Aid 3. Lost Time (S.T.D.) 4. Disabling (L.T.D.) 5. Fatality 10. Multiple Fatalities	R.V.	EXISTING M OF CON ENGINEERING Elimination Substitution Design	ADMINISTRATIVE Policies Procedures Training Work permits Restricted Areas
SHIPPING and RECEIVING DEPARTMENTS									
Drive To Work	PH	Muscle Injuries	2	4	5	3.7			Policies
Walk to Office	PH	Slips/Falls	2	4	4	3.3			Policies
Computer Work	ER	Back/Neck Strain	3	4	2	3.0	Design		Policies
Start up Meeting	PH	Slips/Falls	2	4	2	2.7			Training
Walk Warehouse	PH	Struck by Moving Veh.	2	4	5	3.7			Restricted Areas
	PH	Slips/Falls	2	4	2	2.7			Policies
	PH	Falling Objects	2	4	5	3.7			
	PH	Chemical Exposure	2	2	5	3.0	Equipment Design		Orientations
Audit Staging lanes	PH	Slips/Falls	2	4	2	2.7			WHMIS
	PH	Struck by Moving Veh.	2	4	4	3.3			Restricted Areas
	EN	Environmental(Coolers)	2	3	1	2.0			
	CH	Chemical Exposure	2	4	5	3.7			Policies
	PH	Falling Objects	2	2	4	2.7			
	EN	Environmental(Coolers)	2	3	2	2.3			
Fixing PT Jam	PH	Dust Inhalation	4	3	1	2.7			Orientations
	PH	Muscle Injuries	4	4	2	3.3			Policies
Walking the WH	PH	Slips/Falls	2	4	2	2.7			Policies
	CH	Chemical Exposure	2	1	2	1.7			WHMIS
	HH	Inhalation of Chemicals	3	4	3	3.3			WHMIS
Sealing Trailers	PH	Falling Objects	2	4	3	3.0			
	PH	Muscle Injuries	2	4	2	2.7			Policies
						0.0			

This is what a Critical Task Analysis Looks Like

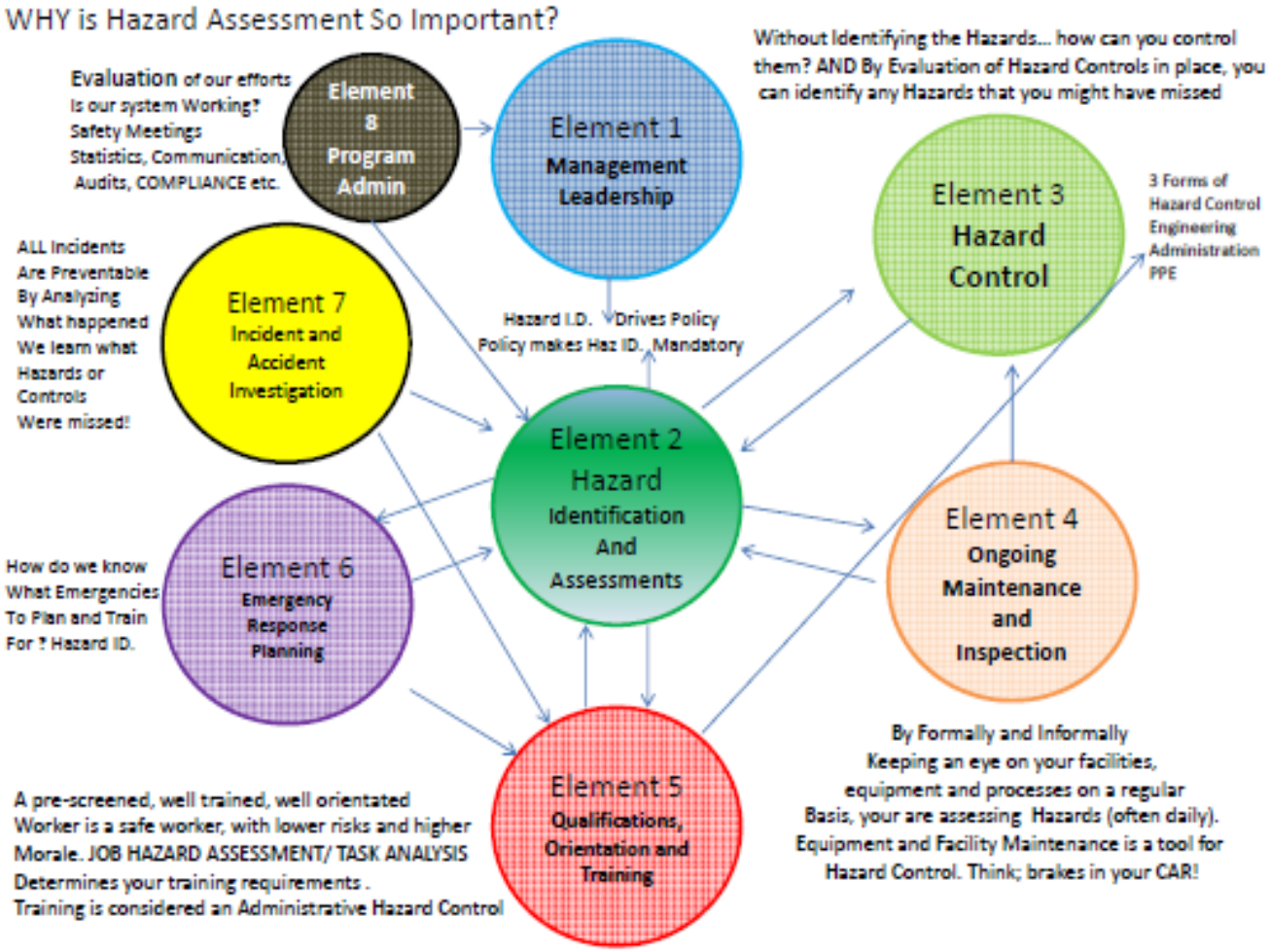
WULFTEC WRAP MACHINES HAZARD ASSESTMENT

Date Prepared: August 31 2011

Task	Hazards	Plans to Eliminate or Control the Hazards
Place pallet onto pallet staging area	Possible impact with protective barrier. Possible impact with wrapper. Possible impact with pallet staging plate.	Operators trained on wrapper procedure. Due diligence on operators part in staging pallet onto rotating plate.
Starting wrap machine	Trip and fall hazard. Possible impact with rotating pallet..	Operators trained on wrapper procedure. Operators must be aware of their surroundings when moving in and out of their forklift. Maintain safe distance from pallet when it is rotating.
During pallet wrap	Possible falling cases. Possible impact with rotating pallet	Operators to ensure stackability before placing pallet. Impact avoidance by abiding by marked areas to ensure no impact.
Removing wrapped pallet	Possible skin abrasion. Static shocks. Possible impact with other machines or pedestrians.	Operators trained to ensure wrap has been severed before removing pallet. Operators to use due diligence when backing out with wrapped pallet. Use of horn. Be aware of surroundings.
Replacing Film.	Possible electrical shock. Possible hand abrasions or cuts. Fingers caught in rollers. Trip and fall hazard.	Operators trained to power down machine before replacing wrap. Due diligence and attention to surroundings.

1

QC Installations Ltd



1) Management Leadership and Organizational Commitment
This component shows Management's commitment through policies and procedures, documentation, training, audits and assessments, the overall goals and objectives for their Health and Safety Program, the responsibilities of management, workers, visitors and contractors, and the resources made available for sustaining an effective program.

2) Hazard Identification and Assessment
Evaluation of all equipment, machinery, work areas and work processes to identify and analyze all potential sources of harm to workers. A record of all hazards should be kept, along with the degree of risk and level of potential exposure for workers.

3) Hazard Control
Control measures should be developed for each hazard identified. Records of safe work practices and procedures for hazardous operations should be readily available and all workers trained. Typical control methods include: Engineering, Administrative and Personal Protective Equipment.

4) Ongoing Inspections
To ensure that hazard control measures are in place and effectively protecting workers, a regular inspection program is important. Inspection tours provide important information about specific or potential hazards not previously identified, in turn providing a safeguard that controls, eliminates or reduces risks of those known hazards.

5) Qualifications, Orientation and Training
Worker training is an essential phase of an effective Health and Safety Program. Workers need to know how to do their jobs safely and without risk to their health. New and/or young workers need special consideration, new worker orientation should be completed within the first week on the job and critical information must be covered on the first day.

6) Emergency Response
A serious emergency such as an explosion, fire or flood could put any company out of business. Even the best Health and Safety Program cannot protect your operation from all natural or unexpected disasters; however, a good emergency plan can reduce the risk of loss.

7) Accident and Incident Investigation
When an incident occurs at any workplace it is important to investigate the causes in order to:
- make sure previously uncontrolled hazards do not remain a risk
- prevent the recurrence of similar incidents
- determine if training or changes in control methods.

8) Program Administration
Program administration ensures that all parts of a Health and Safety Management Program are properly documented and communicated to employees. Records of each of the steps previously outlined help to ensure that the program remains on track and is effective in reducing the risk of injury and ill health at the workplace.

See Appendix A for the company Risk Assessment

See Appendix B for Critical Task Analysis

See the Forms section for Field Level Hazard Assessment Forms

QC Installations Ltd

Chapter 3 **SAFE WORK PRACTICES**

Introduction
The following section of this manual contains a series of Safe Work Practices, typical in nature for the work being performed by **QC Installations** and modified as required to suit the project at hand.

Safe Work Practices where applicable are divided into three sections.

- Statement
- Overview
- General

The section described as ***Statement*** has been included where **QC Installations** feels a statement is required to address one or several concerns.

The ***Overview*** section summarizes Safe Work Practices in a brief form and should be read and understood by hands on people such as workers and supervisory personnel.

The ***General*** section should be read and understood by all but also serves as a guideline to the Management and Supervisory staff of **QC Installations**, it subcontractors and suppliers as to the requirements of **QC Installations** in the matters discussed.

Any review or revisions to the Safe Work Practices must be recorded in the Index & Review Log.

SAFE WORK PRACTICES - INDEX & REVIEW LOG

SWP	Item	Developed By	Date Prepared	Date Reviewed
1	Fire Prevention and Fire Fighting	RP	02/2014	02/2018
2	Lighting	RP	02/2014	02/2018
3	Electrical Cords	RP	02/2014	02/2018
4	Electrical Tools	RP	02/2014	02/2018
5	Electricity	RP	02/2014	02/2018
6	Electrical Hazards (Powerlines)	RP	02/2014	02/2018
7	Portable Cut Off Saw (Electric) / (Quick-Cut Saw)	RP	02/2014	02/2018
8	Jack Hammers, Rotary Drills, Chisels, Chippers (Electric)	RP	02/2014	02/2018
9	Power Mitre Saw	RP	02/2014	02/2018
10	Circular/Skill Saw	RP	02/2014	02/2018
11	Concrete Vibrator Tool (Electric)	RP	02/2014	02/2018
12	Woodworking Machines	RP	02/2014	02/2018
13	Portable Grinders (Electric)	RP	02/2014	02/2018
14	Grinding	RP	02/2014	02/2018
15	Hand Tools	RP	02/2014	02/2018
16	Pneumatic Tools, Compressors and Compressed Air	RP	02/2014	02/2018
17	Cartridge - Operated Tools (Explosive/Powder Actuated)	RP	02/2014	02/2018
18	Defective Tools	RP	02/2014	02/2018
19	Welding, Cutting and Burning	RP	02/2014	02/2018
20	Use of Portable Arc Welders	RP	02/2014	02/2018
21	Ladders (Portable and Fixed)	RP	02/2014	02/2018
22	Housekeeping	RP	02/2014	02/2018
23	Storage	RP	02/2014	02/2018
24	Basic Personal Protective Equipment	RP	02/2014	02/2018
25	Scaffolds (Prefabricated Metal)	RP	02/2014	02/2018

26	**Power Elevating Work Platforms and Aerial Devices (Scissor Lift, Giraffe, etc.)**	**RP**	**02/2014**	**02/2018**
27	**Hazardous Materials (WHMIS)**	**RP**	**02/2014**	**02/2018**
28	**Use of Propane**	**RP**	**02/2014**	**02/2018**
29	**Use of Cleaning Solvents and Flammables**	**RP**	**02/2014**	**02/2018**
30	**Handling Gases from Cylinders**	**RP**	**02/2014**	**02/2018**
31	**Flammable Gases (Hydrogen)**	**RP**	**02/2014**	**02/2018**
32	**Flammable Gases (Acetylene)**	**RP**	**02/2014**	**02/2018**
33	**Handling Cryogenic (Cold Liquid) Gases**	**RP**	**02/2014**	**02/2018**
34	**Fall Protection Plan**	**RP**	**02/2014**	**02/2018**
35	**Forklift and Telehandler Operation**	**RP**	**04/2014**	**02/2018**
36	**Fall Protection Code of Practice**	**RP**	**04/2014**	**02/2018**
37	**Hot Work**	**RP**		**02/2018**
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SAFE WORK PRACTICE # 1

FIRE PREVENTION AND FIRE FIGHTING

Overview

1. Store flammable liquids, solids and gases in designated areas and secure when required.

2. In confined spaces or places where flammable gases, vapours or dust can cause dangers:

    - use only suitably protected electrical equipment;
    - do not use open flame or sparking devices;
    - do not smoke
    - remove, without delay, oily rags or other foreign material which may ignite spontaneously;
    - verify that ventilation is in function.

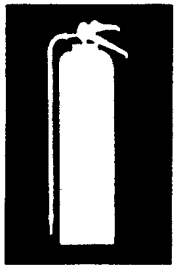
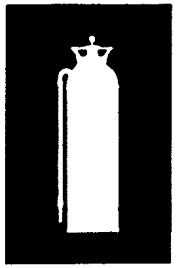
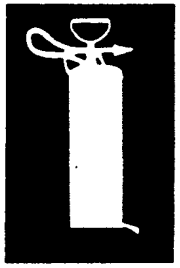
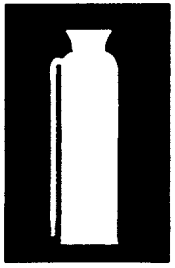
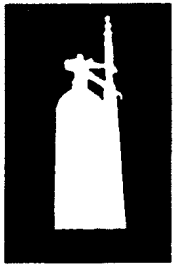
3. Do not allow to accumulate within the workplace combustible scrap materials, place in containers for scrap materials.

4. Do regular housekeeping of your work area; do not work in your own garbage or that of others.

5. Welding, flame cutting, and other hot work must be done with the knowledge and/or supervision of a foreman or superintendent and appropriate fire extinguishing equipment must be easily accessible, visible and at arm's length.

6. Do not encumber with any or all materials:
    - access to fire extinguishers;
    - access to fire hoses or fire hydrants
    - areas of access and egress and other areas designated as firefighting accesses or fire escape routes such as stairwells, corridors, doorways, etc.

Use the appropriate fire extinguishing equipment for a given type of fire.

Alberta WORKERS' HEALTH, SAFETY, AND COMPENSATION OCCUPATIONAL HEALTH & SAFETY DIVISION	WATER TYPE				CARBON DIOXIDE	DRY CHEMICAL	MULTI-PURPOSE
							
	STORED PRESSURE	CARTRIDGE OPERATED	WATER PUMP TANK	SODA ACID	CO2	DRY CHEMICAL	DRY CHEMICAL
CLASS A FIRES WOOD PAPER, TRASH HAVING GLOWING EMBERS ORDINARY COMBUSTIBLES (GREEN TRIANGLE)	YES	YES	YES	YES	NO (BUT WILL CONTROL SMALL SURFACE FIRES)	NO (BUT WILL CONTROL SMALL SURFACE FIRES)	YES
CLASS B FIRES FLAMMABLE LIQUIDS, GASOLINE, OIL, PAINTS, GREASE, ETC. ORDINARY (RED SQUARE)	NO	NO	NO	NO	YES	YES	YES
CLASS C FIRES ELECTRICAL EQUIPMENT EQUIPMENT (BLUE CIRCLE)	NO	NO	NO	NO	YES	YES	YES
CLASS D FIRES COMBUSTIBLE METALS COMBUSTIBLE METALS (YELLOW STAR)	SPECIAL EXTINGUISHING AGENTS APPROVED BY RECOGNIZED TESTING LABORATORIES						
USUAL OPERATION	UPRIGHT SQUEEZE HANDLE OR TURN VALVE	TURN UPSIDE DOWN AND BUMP	UPRIGHT AND PUMP HANDLE	TURN UPSIDE DOWN	SQUEEZE RELEASE	RUPTURE CARTRIDGE SQUEEZE NOZZLE TO RELEASE	RUPTURE CARTRIDGE SQUEEZE NOZZLE TO RELEASE
RANGE	30' - 40'	30' - 40'	30' - 40'	30' - 40'	3' - 8'	5' - 20'	17' - 25'
SERVICING	CHECK AIR PRESSURE	WEIGH GAS CARTRIDGE ADD WATER IF REQUIRED	CHECK PUMP AND FILL WITH WATER ANNUALLY	DISCHARGE ANNUALLY AND RECHARGE	WEIGH SEMI-ANNUALLY	WEIGH GAS CARTRIDGE AND CHECK CONDITION OF DRY POWDER	WEIGH GAS CARTRIDGE AND CHECK CONDITION OF DRY POWDER

Types of Fires

Class A: These fires consist of wood, paper, rags, rubbish and other ordinary combustible materials.

Recommended Extinguishers

Water from a hose, pump type water can, or pressurized extinguisher, and soda acid extinguishers.

Fighting the Fire

Soak the fire completely - even the smoking embers.

Class B: Flammable liquids, oil and grease.

Recommended Extinguishers

ABC units, dry chemical, foam and carbon dioxide extinguishers.

Fighting the Fire

Start at the base of the fire and use a swinging motion from left to right, always keeping the fire in front of you.

Class C: Electrical Equipment

Recommended Extinguishers

Carbon dioxide and dry chemical (ABC Units) extinguishers.

Fighting the fire

Use short bursts on the fire. When the electrical current is shut off on a Class C fire, it can become a Class A fire if the materials around the electrical fire are ignited.

General
All appropriate measures shall be taken by the employer to avoid the risk of fire, control quickly and efficiently any outbreak of fire and bring about a quick and safe evacuation of persons.

1. Sufficient and suitable storage shall be provided for flammable liquids, solids and gases.

2. Secure storage areas shall be provided for flammable liquids, solids and gases such as liquefied petroleum gas cylinders, paints and other such materials in order to deter trespassers.

3. In confined spaces and other places in which flammable gases, vapours or dusts can cause danger:

    - only suitably protected electrical installations and equipment, including portable lamps shall be used;
    - there shall be no naked flames or similar means of ignition;
    - there shall be notices prohibiting smoking;
    - oily rags, waste and clothes or other substances liable to spontaneous ignition shall be removed without delay to a safe place;
    - adequate ventilation shall be provided.

4. Combustible materials such as packing materials, sawdust, greasy/oily waste and scrap wood or plastics shall not be allowed to accumulate in workplaces but shall be kept in metal containers in a safe place.

5. Regular inspections shall be made of places where there are fire risks. These include the vicinity of heating equipment, electrical installations and conductors, stores of flammable and combustible materials, hot welding and cutting operations.

6. Welding, flame cutting, and other hot work shall only be done on the orders of a competent supervisor after appropriate precautions, as required, are taken to reduce the risk of fire. Suitable and sufficient fire-extinguishing equipment, which shall be easily visible and accessible. At least one appropriate fire extinguisher must be at arm's length.

7. Fire-extinguishing equipment shall be properly maintained and inspected at suitable intervals by a competent person. Access to fire-extinguishing equipment such as hydrants, portable extinguishers and connections for hoses shall be kept clear at all times.

8. All supervisors and a sufficient number of workers shall be trained in the use of fire-extinguishing equipment, so that adequate trained personnel are readily available during all working periods.

9. Where appropriate, suitable visual signs shall be provided to indicate clearly the direction of escape in case of fire.

10. Means of escape shall be kept clear at all times. Escape routes shall be frequently inspected particularly in high structures and where access is restricted, as in tunnel working.

11. Sufficient and suitable means to give warning in case of fire shall be provided where this is necessary to prevent danger. There shall be an effective evacuation plan so that all persons are evacuated speedily without panic and accounted for.

12. Notices shall be posted at conspicuous places indicating the telephone number and address of the nearest emergency services.

SAFE WORK PRACTICE # 2

LIGHTING

Overview

1. Ensure proper lighting intensity of work area an access to and from.

2. Do not install lighting at eye level so as to prevent blinding or hindering proper vision of yourself of other workers.

3. When ambient lighting is not sufficient to perform work use local lighting.

4. Lighting that is maneuvered and handled often must be protected by guards.

5. Avoid using the same power source for both lighting and tools.

6. Do not remove or displace lighting at exits, points of access and egress, stairwells, stairwell landings, corridors, near ladders.

7. Do not displace or remove emergency lighting or lighting used to enhance the view of emergency equipment.

General

1. Where natural lighting is not adequate to ensure safe working conditions, adequate and suitable lighting, including portable lighting where appropriate shall be provided at every workplace and any other place on the construction site where a worker may have to pass.

2. The intensity of a lighting system shall be a function of location and nature of work being executed. Artificial lighting shall, as far as practicable, not produce glare or disturbing shadows.

3. Stairwells and ladders leading to pits or underground chambers shall be lit at each landing and along their run.

4. Where necessary to prevent danger, lamps shall be protected by suitable guards against accidental breakage.

5. The cables of portable electrical lighting equipment shall be of adequate size and characteristics for the power requirements and of adequate mechanical strength to withstand severe conditions in construction operations.

6. Where exterior lighting is used, it shall not blind or hinder proper vision of traffic on or off site.

SAFE WORK PRACTICE #3

ELECTRICAL CORDS

Overview
Before utilizing electrical cords, the following practices must be reviewed and followed:

1. Never cut off, bend back or cheat the ground pin on three prong plugs.

2. Always inspect the power cord to ensure there are no split insulating coverings or bare wires.

3. Never use any power cord with damaged plug or receptacle ends.

4. Always use the proper size and gauge power cord required by the equipment to prevent overheating, voltage drops or tool burnout.

5. Never pull on any power cord to lower a tool or a piece of equipment.

6. Always inspect the area where a power cord is to be used to ensure no contact to pooling water.

7. If the tool being used blows fuses, never install any object other than the rated fuse and remove the tool and extension cord out of service.

8. Never attempt to rewire any power cord unless trained and competent to do so. Always use qualified personnel for any electrical repair.

9. Use electrical cords fitted with dead front plugs, this presents less risk of electrical shock and short circuits as compared to open front plugs.

10. Do not tie cord plugs to outlets; disconnect takes too long in case of the need to disconnect in an emergency.

SAFE WORK PRACTICE #4

ELECTRICAL TOOLS

Overview

1. Use only tools that are grounded or double insulated.

2. Make sure the casings of double-insulated tools are not cracked or broken.

3. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

4. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, and shock-resistant footwear.

5. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or electrocution.

6. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

7. Keep cords out of the path of electric tools and equipment.

8. Before making adjustment of changing attachment, disconnect electric tools from the power source. Switching off the tool may not be enough to prevent accidental startup.

9. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

10. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

11. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fiberglass ladders.

12. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturer recommendations.

SAFE WORK PRACTICE #5

ELECTRICITY

General (Provisions)

1. All electrical equipment and installations shall be constructed, installed and maintained by a competent person, and so used as to guard against danger.

2. Before construction is commenced and during the progress thereof, adequate steps shall be taken to ascertain the presence of and to guard against danger to workers from any live electrical cable or apparatus which is under, over or on the site.

3. All parts of electrical installations shall be so constructed, installed and maintained as to prevent danger of electric shock, fire and external explosion.

4. The electrical distribution at each site shall be via an isolator, which cuts off current from all conductors, is readily accessible and can be locked in the "off" position but not locked in the "on" position.

5. The power supply to all electrical equipment shall be provided with means of cutting off current from all conductors in an emergency.

6. All electrical equipment and outlets shall be clearly marked to indicate their purpose and voltage.

7. When the layout of an installation cannot be clearly recognized, labels or other effective means shall identify the circuits and equipment.

8. Circuits and equipment carrying different voltages in the same installation shall be clearly distinguished by conspicuous means such as coloured markings.

9. Adequate precautions shall be taken to prevent installations from receiving current at a higher voltage from other installations.

10. Where necessary to prevent danger, installations shall be protected against lightning.

11. Lines for signaling and telecommunication systems shall not be laid on the same supports as medium and high-voltage lines.

12. Only flameproof equipment and conductors shall be installed in explosive atmospheres or in storage places for explosives or flammable liquids.

13. A notice or notices shall be kept exhibited at suitable places:

    - prohibiting unauthorized persons from entering electrical equipment rooms or from handling or interfering with electrical apparatus;
    - containing directions as to procedures in case of fire, rescue of persons in contact with live conductors and the restoration of persons suffering from electric shock;
    - specifying the person to be notified in case of electrical accident or dangerous occurrence, and indicating how to communicate with him.

14. Suitable warnings shall be displayed at all places where contact with or proximity to electrical equipment can cause danger.

15. Persons having to operate electrical equipment shall be fully instructed as to any possible dangers of the equipment concerned.

16. All electrical equipment shall be inspected before it is taken into use on a site to ensure that it is suitable for its proposed use.

17. Apart from some exceptional cases, work on or near live parts of electrical equipment shall be forbidden.

18. Before any work is begun on conductors or equipment that do not have to remain live:

    - a responsible person shall switch off the current;
    - adequate precautions shall be taken to prevent the current from being switched on again;
    - the conductors or the equipment shall be tested to ascertain that they are dead;
    - the conductors and equipment shall be earthed and short-circuited;
    - neighboring live parts shall be adequately protected against accidental contact;
    - a lock-out procedure shall be implemented.

19. After work has been done on conductors and equipment, the current shall only be switched on again on the orders of a competent person after the earthing and short-circuiting have been removed and the workplace reported safe.

20. Electricians shall be supplied with sufficient adequate tools, and personal protective equipment such as rubber gloves, mats and blankets.

21. All conductors of electricity, and equipment shall be considered live unless there is certain proof of the contrary.

22. When work has to be done in dangerous proximity to live parts the current shall be cut off. If for operational reasons this is not possible, the live parts shall be fenced off or enclosed by qualified staff from the power station concerned.

23. Particular attention shall be paid to the earthing of apparatus, the continuity of protective conductors, polarity and insulation resistance, protection against mechanical damage and condition of connections at points of entry.

SAFE WORK PRACTICE #6

ELECTRICAL HAZARDS (POWERLINES)

Overview

1. Locate all underground and overhead services before starting work. Determine voltage of electrical utilities.

2. Have powerlines moved, insulated, or de-energized where necessary.

3. Make underground lines on all plans and drawings. Post warning signs along their route.

4. Avoid storing material or equipment under powerlines. If it must be stored there, have warning flags and signs to prevent other workers from using hoisting equipment to move or lift it.

5. With backhoes, cranes, and similar equipment near powerlines, use a signaler to warn the operator when the equipment or load approaches the minimum allowable distances:

    - 0 to 750 volts = 0.3 meters
    - 750 to 40,000 volts = 3 meters
    - 40,000 to 144,000 volts = 4.5 meters
    - 144,000 to 240,000 volts = 5 meters
    - over 240,000 volts = 7 meters

6. Before moving ladders, rolling scaffolds, or elevating work platforms, always check for overhead wires. Death and injury have been caused by electrical contact with access equipment.

SAFE WORK PRACTICE #7

PORTABLE CUT OFF SAW (ELECTRIC) / (QUICK-CUT SAW)

Overview

1. Before operating this power tool, the following practices must be reviewed and followed:

2. Appropriate personal protective equipment in addition to that which is mandatory on construction sites must be used, such as:
   - Snug fitting clothing;
   - Hearing protection;
   - Eye and face protection;
   - Heavy duty leather gloves;
   - Respiratory protection when dry cutting concrete or masonry;
   - Never wear loose clothing, neck chains, scarves or anything else that can get caught in rotating parts.

3. Inspect tool to ensure there are no worn electrical cords and that the on/off switch(s) is functioning properly. When operating outdoors or in wet conditions use a ground fault circuit breaker.

4. Inspect the saw to ensure side handles and guards are in place and are in good order.

5. Always unplug the saw prior to any blade adjustment, replacement or any other adjustments are made.

6. Always use the correct blade size and type for material to cut.

7. Do not twist the cutting wheel in the material being cut or apply extra force when cutting. Too much pressure or twisting when cutting can cause the cutting to bind or fracture leading to possible injury to persons or damage to saw.

8. Do not use feet to hold material to be cut. Keep hands and feet clear of the cutting wheel.

9. Do not use saw on unstable footing.

10. Use only manufacturers recommended replacement parts.

11. If any repairs are required, ensure a competent person either repairs the unit on site, or the unit is tagged for repairs and removed from service.

12. Do not distract a person using this tool.

General

1. Hand-held portable circular cut-off saws are commonly known as quick-cut saws in construction. They are widely used for cutting concrete, masonry products, sheet metal products and light steel sections such as angles and channels.

2. Operators should be instructed in the care, maintenance, and operation of quick-cut saws. They should read the operating manual, review the major points, and receive both verbal and written instruction.

3. In addition to the standard equipment mandatory on construction sites, operators of quick-cut saws should wear snug fitting clothing, hearing protection, eye and face protection, and heavy-duty leather gloves. (The dry cutting of masonry or concrete products calls for respiratory protection as well).

4. Use only tools that are grounded or double insulated.

5. Make sure the casings of double-insulated tools are not cracked or broken.

6. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

7. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, and shock-resistant footwear.

8. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, electrocution.

9. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

10. Keep cords out of the path of electric tools and equipment.

11. Before making adjustment of changing attachment, disconnect electric tools from the power source. Switching off the tool may not be enough to prevent accidental startup.

12. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

13. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

14. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fiberglass ladders.

15. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturer recommendations.

SAFE WORK PRACTICE #8

JACK HAMMERS, ROTARY DRILLS, CHISELS, CHIPPERS (ELECTRIC)

Overview
Before operating this power tool, the following practices must be reviewed and followed:

1. Appropriate personal protective equipment in addition to that which is mandatory on construction sites must be used, such as:

    - Eye and face protection;
    - Hearing protection;
    - Full clothing, a jumpsuit is preferable.

2. Inspect tool to ensure there are no worn electrical cords and that the on/off switch(s) is functioning properly. When operating outdoors or in wet conditions use a ground fault circuit breaker.

3. Inspect the tool to ensure side handles and guards are in place and are in good order.

4. Always unplug the tool prior to any bit replacements or any other adjustments are made.

5. Always use the correct bits or chisels for the material to be cut or drilled

6. Use firm steady pressure, never overload the tool with too much force. This may cause the bits to bind and kick back, leading to severe injury to persons and/or damage to the tool.

7. Never use the hammer action when drilling steel as this will cause the bits to fracture and may cause severe injury from flying debris.

8. Use only manufacturers recommended replacement parts.

9. If any repairs are required, ensure a competent person either repairs the unit on site, or the unit is tagged for repairs and removed from service.

10. Do not use feet as a means of guiding the tool bit.

11. Do not distract a person using this tool.

SAFE WORK PRACTICE #8

JACK HAMMERS, ROTARY DRILLS, CHISELS, CHIPPERS (ELECTRIC)

General

1. Operators should be instructed in the care, maintenance, and operation of jack hammers, rotary drills, chisels, and chippers. They should read the operating manual, review the major points, and receive both verbal and written instruction.

2. Use only tools that are grounded or double-insulated.

3. Make sure the casings of double-insulated tools are not cracked or broken.

4. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

5. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, shock-resistant footwear.

6. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, at worst, electrocution.

7. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

8. Keep cords out of the path of electric tools and equipment.

9. Before making adjustment of changing attachment, disconnect electric tools form the power source. Switching off the tool may not be enough to prevent accidental startup.

10. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

11. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

12. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fibreglass ladders.

13. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturers recommendations.

SAFE WORK PRACTICE #9

POWER MITRE SAW

Overview

1. Before operating this power tool, the following practices must be reviewed and followed:

2. Appropriate personal protective equipment in addition to that which is mandatory on construction sites must be used such as:

    - Eye and face protection;
    - Hearing protection;
    - Snug fitting clothing.

3. Inspect tool to ensure there are no worn electrical cords and that the on/off switch(s) is functioning properly. When operating outdoors or in wet conditions use a ground fault circuit breaker.

4. Inspect the tool to ensure side handles and guards are in place and are in good order.

5. Always unplug the tool prior to any blade replacements or any other adjustments other than normal angle adjustments for cutting.

6. Always use the correct sharp blade when cutting the required material.

7. Always ensure the tool is positioned on a firm level bench, platform or work surface.

8. Always keep the material to be cut firmly against the back-rail material guide and keep hands clear of blade path.

9. Do not attempt to rip materials with this tool.

10. Use only manufacturers recommended replacement parts.

11. If any repairs are required, ensure a competent person either repairs the unit on site, or the unit is tagged for repairs and removed from service.

12. Do not distract a person while using this tool.

General

1. Operators should be instructed in the care, maintenance, and operation of power mitre saws. They should read the operating manual, review the major points, and receive both verbal and written instruction.

2. Use only tools that are grounded or double-insulated.

3. Make sure the casings of double-insulated tools are not cracked or broken.

4. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

5. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, shock-resistant footwear.

6. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, at worst, electrocution.

7. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

8. Keep cords out of the path of electric tools and equipment.

9. Before making adjustment of changing attachment, disconnect electric tools form the power source. Switching off the tool may not be enough to prevent accidental startup.

10. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

11. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

12. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fibreglass ladders.

13. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturers recommendations.

SAFE WORK PRACTICE #10

CIRCULAR/SKILL SAW

Overview
Before operating this power tool, the following practices must be reviewed and followed:

1. Appropriate personal protective equipment in addition to that which is mandatory on construction sites must be used such as:

    - Eye and face protection;
    - Hearing protection;
    - Snug fitting clothing.

2. Inspect tool to ensure there are no worn electrical cords and that the on/off switch(s) is functioning properly. When operating outdoors or in wet conditions use a ground fault circuit breaker.

3. Inspect the tool to ensure side handles and guards are in place and are in good order.

4. Always unplug the tool prior to any blade adjustment or replacements.

5. Always use the proper sharp blade when cutting the required material.

6. Check the material to be cut for foreign objects or obstructions and remove.

7. When ripping material with this tool, always use both hands on the tool and where possible, use a wedge to keep the cut open behind the tool.

8. Use only manufacturers recommended replacement parts.

9. If any repairs are required, ensure a competent person either repairs the unit on site, or the unit is tagged for repairs and removed from service.

10. Do not distract a person while using this tool.

General

1. Operators should be instructed in the care, maintenance, and operation of circular/skill saws. They should read the operating manual, review the major points, and receive both verbal and written instruction.

2. Use only tools that are grounded or double-insulated.

3. Make sure the casings of double-insulated tools are not cracked or broken.

4. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

5. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, shock-resistant footwear.

6. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, at worst, electrocution.

7. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

8. Keep cords out of the path of electric tools and equipment.

9. Before making adjustment of changing attachment, disconnect electric tools form the power source. Switching off the tool may not be enough to prevent accidental startup.

10. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

11. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

12. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fibreglass ladders.

13. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturers recommendations.

SAFE WORK PRACTICE #11

CONCRETE VIBRATOR TOOL (ELECTRIC)

Overview
Before operating this power tool, the following practices must be reviewed and followed:

1. Appropriate personal protective equipment in addition to that which is mandatory on construction sites must be used such as:

    - Eye and face protection;
    - Rubber gloves;
    - Rubber boots;
    - Full clothing, a jump suit is preferable.

2. Inspect tool to ensure there are no worn electrical cords and that the on/off switch(s) is functioning properly. When operating outdoors or in wet conditions use a ground fault circuit breaker.

3. Always use the proper size head attachment and proper length drive shaft for the size of the wall or form to be vibrated.

4. Always ensure two people man the vibrator when the shaft length exceeds 8 feet or when the tool cannot be operated safely by one person.

5. Never allow the vibrator head to rest in any one position while running.

6. When vibrating concrete lifts, (layers) do not exceed the depth of the section poured or the section vibrated.

7. When raising the vibrator head above waist level to clear formwork make sure it is in the off position so as not to have residual concrete splash in your eyes or face.

8. Always ensure any residual concrete is cleaned from the tool after use.

General

1. Operators should be instructed in the care, maintenance, and operation of concrete vibrators. They should read the operating manual, review the major points, and receive both verbal and written instruction.

2. Use only tools that are grounded or double-insulated.

3. Make sure the casings of double-insulated tools are not cracked or broken.

4. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

5. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, shock-resistant footwear.

6. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, at worst, electrocution.

7. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

8. Keep cords out of the path of electric tools and equipment.

9. Before making adjustment of changing attachment, disconnect electric tools form the power source. Switching off the tool may not be enough to prevent accidental startup.

10. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

11. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

12. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fibreglass ladders.

13. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturers recommendations.

SAFE WORK PRACTICE # 12

WOODWORKING MACHINES

Overview

1. Shavings, sawdust, etc., shall not be removed by hand from woodworking machines or in their vicinity while the machines are working.

2. Where provided, chip and sawdust extraction systems shall be maintained in efficient working order.

3. Mechanical feeding devices shall be used whenever practicable.

4. All cutters and saw blades shall be enclosed as far as practicable.

5. Portable circular saws are designed that when the blade is running idle it is automatically covered. If the cover is not functioning or non-existent do not use the saw.

6. On band saws the entire blade, except the operating portion, are enclosed. Band wheels are enclosed with stout guards. If this is not the case with the band saw you are about to use, stop do not use it.

General

1. Operators should be instructed in the care, maintenance, and operation of woodworking machines saws. They should read the operating manual, review the major points, and receive both verbal and written instruction.

2. Use only tools that are grounded or double-insulated.

3. Make sure the casings of double-insulated tools are not cracked or broken.

4. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

5. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, shock-resistant footwear.

6. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, at worst, electrocution.

7. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

8. Keep cords out of the path of electric tools and equipment.

9. Before making adjustment of changing attachment, disconnect electric tools form the power source. Switching off the tool may not be enough to prevent accidental startup.

10. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

11. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

12. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fibreglass ladders.

13. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturers recommendations.

SAFE WORK PRACTICE #13

PORTABLE GRINDERS (ELECTRIC)

Statement
Abrasive wheels can cause severe injury. Proper storage of new wheels, proper use of wheels and proper maintenance of wheels must be observed.

Overview
1. Familiarize yourself with the grinder operation before commencing work.

2. Ensure proper guards are in place and safety glasses, face shields, gloves and safety boots are worn when using portable grinders.

3. Never exceed the maximum wheel speed (every wheel is marked). Check the speed marked on the wheel and compare it to the speed on the grinder.

4. When mounting the wheels, check them for cracks and defects, ensure that the mounting flanges are clean, and the mounting blotters are used. Do not over tighten the mounting nut.

5. Before grinding, run newly mounted wheels at operating speed to check for vibrations.

6. Do not use grinders near flammable materials.

7. Never use the grinder for jobs for which it is not designed, such as cutting.

General
1. Operators should be instructed in the care, maintenance, and operation of portable grinders (electric). They should read the operating manual, review the major points, and receive both verbal and written instruction.

2. Use only tools that are grounded or double-insulated.

3. Make sure the casings of double-insulated tools are not cracked or broken.

4. Always use a ground fault circuit interrupter with any portable electric tool operated outdoors or in wet locations.

5. Use hand tools with insulated handles and grips. Whenever required wear protective equipment, safety goggles, insulated gloves, shock-resistant footwear.
6. Do not hold water pipes or other grounded conductors when using electric tools. A defect in tool or cord will make you part of the circuit causing shock, a fall off your ladder, or, at worst, electrocution.

7. Before drilling, hammering or cutting with hand or power tools, check for electrical wires or equipment behind walls, above ceilings, and under floors.

8. Keep cords out of the path of electric tools and equipment.

9. Before making adjustment of changing attachment, disconnect electric tools form the power source. Switching off the tool may not be enough to prevent accidental startup.

10. Never by-pass broken switches on tools or equipment by plugging and unplugging the cord shutting off power will take too long in an emergency.

11. Any shock or tingle, no matter how slight, means that the tool or equipment should be checked and replaced if necessary.

12. Never use metal or metal-reinforced ladders near live wires or equipment. Use wooden or fibreglass ladders.

13. All dangerous moving parts of electric tools shall be enclosed, shielded or guarded as per manufacturers recommendations.

SAFE WORK PRACTICE #14

GRINDING

Statement
Severe injury may occur if proper protective equipment is not used and properly maintained.

Overview
1. Check the tool rest for the correct distance from the abrasive wheel, maximum 1/8" or 3mm.

2. Replace the grindstone when adjustment of the rest cannot provide 1/8" or 3mm clearance.

3. If the wheel has been abused and ground to an angle or grooved, reface the wheel with the appropriate surfacing tool.

4. Protect your eyes with goggles or a face shield at all times when grinding.

5. Each time a grinding wheel is mounted, the maximum approved speed stamped on the wheel bladder should be checked against the shaft rotation speed of the machine to ensure the safe peripheral speed is not exceeded. A grinding wheel must not be operated at peripheral speed exceeding the manufacturer's recommendation.

6. The flanges supporting the grinding wheel should be a maximum of 1/3 the diameter of the wheel, and must fit the shaft rotating speed according to the manufacturer's recommendation.

7. Bench grinders are designed for peripheral grinding. Do not grind on the side of the wheel.

8. Do not stand directly in front of grinding wheel when it is first started.

SAFE WORK PRACTICE # 15

HAND TOOLS

Overview

1. Inspect the tool to be used to ensure there are no missing parts, such as guards, grips, handles, etc.

2. Hand tools and implements shall be tempered, dressed and repaired by competent persons.

3. The cutting edges of cutting tools shall be kept sharp.

4. Heads of hammers and other shock tools shall be dressed or ground to a suitable radius on the edge as soon as they begin to mushroom or crack.

5. When not in use and while being carried or transported sharp tools shall be kept in sheaths, shields, chests or other suitable containers.

6. Only insulated or non-conducting tools shall be used on or near live electrical installations if there is any risk of electrical shock.

7. Only non-sparking tools shall be used near or in the presence of flammable or explosive dusts or vapours.

8. Do not use any tool that has cracked or split handles.

9. Do not use chisels with mushroomed striking heads or chipped chisel points.

10. Do not use ant drill bit that is chipped or bent and always ensure the proper bit for the material to be drilled is used.

11. Never use a drill bit to rout out a hole to a larger size, use the proper sized drill bit to do the job.

12. Never use tools, other than a hammer to pound objects or to plum up materials you are working on. This will lead to needless damage and may cause the tool to malfunction causing injury.

13. Never use screw drivers to pry or as chisels.

14. Always ensure tools are kept in an organized fashion and never leave tools scattered around the work site or station.

SAFE WORK PRACTICE # 16

PNEUMATIC TOOLS, COMPRESSORS AND COMPRESSED AIR

Statement
Air powered tools in construction range from stapling guns to jack hammers. If not used prudently they can kill.

Overview
1. Compressed air must not be used to blow debris or to clear dirt from any worker's clothes.

2. Ensure that the air pressure has been turned off and the line pressure relieved before disconnecting the hose or changing tools.

3. All hose connectors musts be of the quick disconnect pressure release type with a "safety chain/cable".

4. Wear personal protective equipment such as eye protection and face shields and ensure other workers in the area are made aware of or have restricted access to the hazard area.

5. Hoses must be checked on a regular basis for cuts, bulges, or other damage. Ensure that defective hoses are repaired or replaced.

6. A proper pressure regulator and relief device must be in the system to ensure that correct desired pressures are maintained.

7. The correct air supply hoses must be used for the tool/equipment being used.

8. The equipment must be properly maintained according to the manufacturers requirements.

9. Follow manufacturer's general instructions and comply with legislated safety requirements.

General
1. Operating triggers on portable pneumatic tools shall be:
   - placed as to minimize the risk of accidental starting of the machine;
   - arranged as to close the air inlet valve automatically when the pressure of the operator’s hand is removed.

2. Hose and hose connections for compressed-air supply to portable pneumatic tools shall be:
   - designed for the pressure and service for which they are intended;
   - fastened securely to the pipe outlet and equipped with a safety chain, as appropriate.

3. Pneumatic shock tools shall be equipped with safety clips or retainers to prevent dies and tools from being accidentally expelled from the barrel.

4. Pneumatic tools shall be disconnected from power and the pressure in hose lines released before any adjustments or repairs are made.

5. Compressors and Pneumatic Tools shall be examined, tested and issued with a certificate by a competent person in cases and at times prescribed by manufacturer codes, acts or regulations.

6. Compressors shall be equipped with:

    - automatic devices that will prevent the maximum safe discharge pressure from being exceeded;
    - a quick-release valve;
    - suitable arrangements for preventing contamination where persons are working in confined spaces.

7. Compressors in which explosive mixtures of gas may form shall be protected against sparking.

8. Where compressor cylinders are equipped with water-cooling jackets it shall be possible to observe the water flow.

9. Intercoolers and after coolers shall be able to withstand safely the maximum pressure in the air-discharge piping.

10. Where necessary to prevent danger, air-discharge piping of compressors shall be provided with:
    - a fusible plug;
    - insulating covers to protect workers against bums, and to prevent fire risks.

11. Where stop valves are installed in air-discharge piping:
    - they shall be easily accessible for inspection and cleaning;
    - one or more safety valves shall be installed between the compressor and the stop valve.

12. Air receivers shall be equipped with:
    - a safety valve;
    - a pressure gauge;
    - a drain cock.

13. Air receivers shall be provided with suitable openings for inspection and cleaning.

14. The safe working pressure shall be marked in a distinctive colour on the pressure gauge.

15. Where necessary to prevent danger, a pressure-reducing valve or a stop valve, or both, shall be inserted in the piping between the air receiver and the compressor.

16. Between the receiver and each consuming equipment, there shall be a stop valve.

SAFE WORK PRACTICE # 17

CARTRIDGE - OPERATED TOOLS (EXPLOSIVE/POWDER ACTUATED)

Statement
There are a number of tools utilizing an explosive charge in use throughout the construction industry to drive fastenings.

The manufacturers of these devices provide detailed instructions regarding their use and maintenance. These instructions, along with the legislation specifically set out for their use, shall be closely adhered to at all times.

Overview
1. Only properly trained and qualified operators are to use this type of tool. The user shall possess proof of this training issued by the manufacturer, authorized dealer/distributor, or other competent source.

2. The tool must be CSA standard approved for "Explosive Actuated Fastening Tools".

3. The tool should be loaded just prior to use with the correct load for the job anticipated. Tools should never be loaded and left to sit or be moved to an alternate work site after being loaded.

4. The tool should never be pointed at anyone, whether loaded or unloaded. Hands should be kept clear of the muzzle end at all times.

5. Cartridge-operated tools should always be stored in their proper lockable boxes.

6. Cartridge-operated tools must never be used in an explosive atmosphere.

7. When used, the tool must be held firmly and at right angles to the surface being driven into.

8. Eye protection must be worn by the operator. Where there is a danger of spalling, full face protection must be worn. Hearing protection is also to be worn in confined areas.

9. To prevent free-flying studs, ensure that the material being driven into will not allow the stud to completely pass through it (i.e. glass block, hollow tile etc.)

10. Manufacturers' recommendations should be consulted and followed whenever there is a doubt about the material being driven into, maintenance procedures, or load strength to be used.

11. Always be aware of the other workers. Where a hazard to other workers is created by this operation, signs and barricades identifying the hazard area are mandatory.

12. Use low velocity cartridge operated tools if available.

General

1. Whenever practicable, a low-velocity tool shall be used.

2. Cartridge-operated tools shall have:

    - a guard or protective shield that cannot be removed without rendering the tool inoperative;
    - a device that prevents the tool from firing inadvertently, for example if it is dropped or while it is being loaded;
    - a device that prevents the tool from firing if it is not approximately perpendicular to the working surface;
    - a device that prevents the tool from firing if the muzzle is not pressed against the working surface.

3. The recoil of a cartridge-operated tool shall not be capable of injuring the user.

4. A cartridge-operated tool, before each occasion of use, shall be inspected to ensure that it is safe to use, and in particular;

    - that the safety devices are in proper working order;
    - that the tool is clean;
    - that all moving parts work easily;
    - that the barrel is unobstructed.

5. At intervals recommended by the manufacturer the tool shall be completely dismantled and inspected for wear on the safety devices by a competent person.

6. Cartridge-operated tools shall only be repaired by the manufacturer or by competent persons.

7. Cartridges shall not be stored nor cartridge tools operated:

    - in a place or environment where these could explode accidentally;
    - in an explosive atmosphere.

8. When not required for use, inspection or other purpose, cartridge-operated tools shall be kept in a suitable container that:

    - is made of suitable material
    - is clearly marked to indicate its contents;
    - is kept locked when not in use;
    - contains nothing except the tools and cartridges.

9. No cartridge-operated tool shall be stored or transported loaded or left loaded when not in use.

10. Cartridge-operated tools shall be accompanied by instructions for their maintenance and use and shall only be operated by persons trained in their safe use.

SAFE WORK PRACTICE #18

DEFECTIVE TOOLS

Statement
Defective tools can cause serious and painful injuries. If a tool is defective in some way, don't use it. Defective tools must follow the tagging/lockout procedure.

Overview
1. Be aware of problems like:

    - chisels and wedges with mushroomed heads;
    - split or cracked handles;
    - chipped or broken drill bits;
    - wrenches with worn out jaws; and
    - tools which are not complete, such as flies without handles.

2. To ensure safe use of hand tools, remember:

    - never use a defective tool;
    - double check all tools prior to use; and
    - ensure defective tools are repaired.

3. Air, gasoline or electric power tools, require skill and complete attention on the part of the user even when they are in good condition. Don't use power tools when they are defective in any way.

4. Watch for problems like:

    - broken or inoperative guards;
    - insufficient or improper grounding due to damage on double insulated tools;
    - no ground wire (on plug) or cords of standard tools;
    - the on/off switch not in good working order;
    - tool blade is cracked;
    - the wrong grinder wheel is being used, or
    - the guard has been wedged back on a power saw.

SAFE WORK PRACTICE #19

WELDING, CUTTING AND BURNING

Statement
Work involving welding, cutting and burning can increase the fire and breathing hazard on any job, and the following should be considered prior to the start of work.

Overview
1. Always ensure that adequate ventilation is supplied since hazardous fumes can be created during welding, cutting or burning.

2. Where other workers may also be exposed to the hazards created by welding, cutting and burning, they must be alerted to these hazards or protected from them using "screens".

3. Never start work without proper authorization.

4. Always have fire-fighting or prevention equipment on hand before starting welding, cutting or burning.

5. Check the work area for combustible material and possible flammable vapours before starting work.

6. A welder should never work alone. A fire or spark watch should be maintained.

7. Check cables and hoses to protect them from slag or sparks.

8. Never weld or cut lines, drums, tanks, etc. that have been in service without making sure that all precautions have been carried out and permits obtained.

9. Never enter, weld or cut in a confined space without proper gas tests and a required safety lookout.

10. When working overhead, use fire resistant materials, (blankets, tarps) to control or contain slag and sparks.

11. Cutting and welding must not be performed where sparks and cutting slag will fall on cylinders (move all cylinders away to one side).

12. Open all cylinder valves slowly. The wrench used for opening the cylinder valves should always be kept on the valve spindle when the cylinder is in use.

SAFE WORK PRACTICE #20

USE OF PORTABLE ARC WELDERS

Statement
Portable arc welders are a piece of equipment that must be treated like a vehicle. Do not operate them indoors.

Overview
1. Be sure the machine is firmly attached to the transporting unit.

2. Check all fluid levels, water, oil and gas to be sure they are at acceptable levels for operation.

3. When fueling, DO NOT "top off" the gas tank. Gasoline expands as the outside temperature rises, this may result in seepage and an ensuing fire.

4. Do not fuel the machine while it is running.

5. Be sure the radiator and gas caps are in proper working order and securely attached.

6. Do a "walk around" to check for damage and obvious leaks.

7. Any repairs should be done by qualified mechanics or technicians.

8. Make sure all cables are wound securely when transporting.

9. Ensure the side covers are kept closed to protect the machine from any damage from external objects and outside weather, as well as to protect the operator and others from the moving parts of the machine.

SAFE WORK PRACTICE #21

LADDERS (PORTABLE AND FIXED)

Statement
Every year many accidents with lost-time injuries are caused by improper use of ladders. The following are major causes or accidents:

1. Ladders are not held, tied-off or otherwise secured.

2. Slippery surfaces and unfavorable weather conditions cause workers to lose footing on rungs or steps.

3. Workers fail to grip ladders adequately when climbing up or down.

4. Workers take unsafe positions on ladders such as leaning out too far.

5. Placing on poor footing or at improper angles caused ladders to slide.

6. Ladders are defective.

7. High winds cause ladders to topple.

8. Near electrical lines, ladders are carelessly handled or improperly positioned.

Overview
Before utilizing any ladder, the following practice must be reviewed and followed:

1. Always inspect the ladder to ensure all components are in place, there are no loose or missing rungs and that side rails are in good condition.

2. Never use the last two rungs of any ladder as a workstation.

3. All ladders should be CSA approved and certified.

4. Always face the ladder when working or climbing up or down and while working from it, and never overreach in any direction.

5. Never, under any circumstance use painted wooden ladders.

6. Never use a metal or electrical conducting ladder near electrical sources.

7. Clear scrap and material away from the base and top of the ladder since getting on or off the ladder is relatively hazardous.

8. Secure the base and top of the ladder against accidental movement.

9. Set the ladder on a firm and level surface. On soft uncompacted, or rough soil, use a mudsill.

10. Single width job-built ladders are only meant for one worker at a time. A double-width ladder can be used for two workers, providing they are on opposite sides.

11. Make sure that rails on ladders extend at least three feet (1 m) above the landing. This allows for secure grip while stepping on or off.

12. Set ladders one foot (0.3 m) out for every four feet (1.2 m) up, depending on length of the ladder.

13. Before setting up ladders, always check for overhead powerlines.

14. Do not position ladders against flexible or moveable surfaces.

15. Maintain a 3-point contact when climbing up or down. That means two hands and one foot or two feet and one hand on the ladder at all times.

16. Keep your centre of gravity between the side rails. Your belt buckle should never be outside the side rails.

17. When climbing up or down do not carry tools or material in your hands. (use a hoist rope instead).

18. Keep boots clean of mud, grease or any slippery material, which could cause loss of footing.

19. When working three meters or more above the ground or floor, wear a safety belt or safety harness with the lanyard tied off to the structure.

20. Never erect ladders on boxes, carts, cables, or other unstable surfaces.

21. Use fall-arrest equipment such as ladder climbing devices or lifelines when working from long ladders or when climbing vertical fixed ladders and secure yourself to the structure.

22. Do not set up ladders in doorways, passageways, driveways or any other locations where they can be struck or knocked over.

23. Before erecting, using or working from ladders, always check for electrical hazards. Never use aluminum ladders near live electrical equipment or wires.

General

1. Inspect ladders for structural rigidity.

2. Inspect non-skid feet for wear, imbedded material, and proper pivot action on swivel feet.

3. Replace frayed or worn ropes on extension ladders with type and size equal to manufacturer's original rope.

4. Check aluminum ladder for dents and bends in side rails, steps, and rungs. Do not use metal pipe to replace a rung.

5. Check wooden ladders for cracks, splits, and rot.

6. Check all ladders for grease, oil, caulking, embedded stone and material or other materials that could make them unsafe.

7. Only personnel competent in this kind of work should repair ladders.

8. Defective ladders should be taken out of service and either tagged for repair or scrapped.

SAFE WORK PRACTICE #22

HOUSEKEEPING

Statement
Many injuries result from poor housekeeping. Improper storage of materials and cluttered work areas are not safe. To maintain a clean hazard-free workplace, management, supervision, and workers must co-operate.

Overview
1. Gather up and remove debris as required to keep work and travel areas orderly.

2. Keep equipment and the areas around equipment clear of scrap and waste.

3. Keep stairways, passageways and gangways free of material supplies and obstructions at all times.

4. Secure loose or light material stored on roofs or on open floors to prevent blowing by the effects of the wind.

5. Pick up, store, or dispose of tools, material, or debris which may cause tripping or other hazards.

6. Before handling used lumber, remove or bend over protruding nails and chip away hardened concrete.

7. Do not permit rubbish to fall freely from any level to another, use toe-boards.

8. Do not throw materials or tools from one level to another.

General
1. Dispose rubbish.

2. Cleanup is a duty of all workers.

3. Materials are to be piled, stacked, or otherwise stored to prevent tipping and collapsing.

4. Materials are to be stored away from overhead powerlines.

5. Work and travel areas are to be kept tidy and well fit.

6. Post signs to warn workers of hazardous areas.

SAFE WORK PRACTICE #23

STORAGE

Statement
Storage areas should be at least 1.8 meters (6 feet) from roof or floor openings, excavations, or any open edges where material may fall off. Near openings, arrange material so that it cannot roll or slide in the direction of the opening.

Overview
1. Flammable Materials:

   - use copper grounding straps to keep static electricity from building up in containers, racks, floorings and other surfaces;
   - store fuel only in containers approved by the (CSA) or under Laboratories of Canada (ULC);
   - ensure that electric fixtures and switches are explosion proof where flammable materials are stored.

2. Hazardous Chemicals:

   - refer to material safety data sheets (MSDS) for specific information on each product;
   - follow manufacturer recommendations for storage;
   - observe all restrictions concerning heat, moisture, vibration, impact, sparks, and safe working distance;
   - post warning signs where required;
   - have equipment ready to clean-up spills quickly;

3. Bags and Sacks:

   - do not pile bagged material more than 10 bags high unless the face of the pile is supported by the walls of a storage bin or enclosure;
   - do not move piles more than 10 bags high unless fully banded or wrapped;
   - cross-pile bags and sacks for added stability. Pile only to a safe and convenient height for loading and unloading.

4. Compressed Gas Cylinders:

   - store and move cylinders in the upright position. Secure cylinders upright with clippings or rope;
   - lock up cylinders to prevent vandalism or theft;
   - wherever possible, store cylinders in a secure area outdoors;
   - keep full cylinders apart from empty cylinders;
   - store cylinders of different gases separately;
   - keep cylinders away from heat sources;

- when heating with propane, keep 45 kilogram (100 lb.) cylinders at least 4.5 metres (15 feet) away from heaters; keep large tanks at least 7.6 metres (25 feet) away.

5. Lumber:

- Remove nails during dismantle;
- Stack on level sills;
- Stack reusable lumber according to size and length
- Support lumber at every 1.3 metres (4 feet) span;
- Cross-pile or cross-strip when the pile will be more than 1.3 metres (4 feet) high.

SAFE WORK PRACTICE #24

BASIC PERSONAL PROTECTIVE EQUIPMENT

Overview
The following are the minimum recommended requirements for personal protection:

1. For your personal safety on the job do not wear:

    - Loose clothing or cuffs;
    - Greasy or oily clothing, gloves, or boots;
    - Torn or ragged clothing;
    - Finger rings.

2. Neck chains are hazardous and must be worn under clothing so that they do not hang out. Long hair must be tied back or otherwise confined.

3. Clothing made of synthetic fibres can be readily ignited and melted by electric flashes. Cotton or wool fabrics are more flame resistant and therefore recommended.

4. Construction workers must obtain and wear at all times on the job a Canadian Standard Certified Class B safety hat.

5. Safety hats must not be painted.

6. The shell and suspension of safety hats must be inspected regularly and replaced if cracks, deep scratches, or other defects are detected.

7. At all times on the job, construction workers must wear CSA - Certified Grade I footwear. Such boots bear a green triangular patch stamped with the CSA registered trademark on the outside and inside.

8. Each worker should have hearing protection available at work since continuous exposure to excessive noise from certain construction activities can lead to hearing loss.

9. Hearing protection is available in these general types:

    - Disposable ear plugs (made of pliable material one size fits all but can be used only once);
    - Permanent plugs (must be fitted to provide a good seal but can be washed and reused);
    - Earmuffs (when properly fitted and worn, these generally provide more protection than earplugs).

10. Personnel working in noisy areas or with noisy equipment such as circular saws, hammer drills, powder actuated fastening tools, and screw guns should wear hearing protection.

11. For basic eye protection, wear properly fitted individual quality glasses with side shields. Specific classes of eye protectors should be matched to specific hazards, consult the next table.

12. See Section 11.0 Personal Protective Equipment and Protective Clothing for a more detailed description.

SAFE WORK PRACTICE #25

SCAFFOLDS (PREFABRICATED METAL)

Overview

1. Before using or setting up any scaffold the following practice must be reviewed and followed:

2. Avoid the use of built-up wood framed scaffolds, use prefabricated metal scaffolds whenever possible, this reduces the risk of fire.

3. Inspect all components to ensure all pieces are present and in good condition.

4. Always follow the manufacturer assembly instructions and the Occupational Health and Safety Act. (fall protection and scaffolding regulations)

5. Always ensure the base for which the scaffold is to be erected is on firm ground or mud sills and never use blocking to adjust for uneven grades, always use screw jacks.

6. Before using a scaffold verify that the "three-to-one rule" is respected. The ratio of the height to the least lateral dimension should not exceed 3 to 1 unless:

    - the scaffold is tied into the structure.
    - the scaffold is properly stabilized by guy wires.
    - The scaffold is secured by outrigger stabilizers sufficient to maintain the 3 to 1 ratio.

7. Always use access designated for the purpose when climbing the scaffold, never climb by means of the bracing.

8. Secure wall anchoring or bracing every point where the height is three times the width of the scaffold.

9. Always install guard rails at working level prior to starting any work.

10. Always ensure any platforms are the proper width 500 mm for light duty scaffolds and 1 metre for heavy duty scaffolds.

11. Never use a ladder or other make shift devices on any scaffold to increase the height.

12. Always review the maximum load capacity of the scaffold manufacturer prior to use and never exceed the rating with personnel, equipment materials or a combination of.

13. Control loads being lifted onto a scaffold by means of a hand rope (tag line).

14. Distribute loads on a scaffold evenly.

15. Only load on scaffold materials that are required for immediate use.

16. Do not use exterior scaffolds in bad weather conditions such as, heavy rain, strong winds, lightning storms, freezing rain, etc.

General

1. Where work cannot safely be done on or from the ground, or from part of a building or other permanent structure, a safe and suitable scaffold shall be provided and maintained, or other equally safe and suitable provision shall be made.

2. Scaffolds shall be provided with safe means of access, such as stairs, ladders or ramps. Ladders shall be secured against inadvertent movement.

3. All scaffolds and ladders shall be constructed, erected and used in accordance with codes, acts and regulations.

4. Every scaffold shall be properly designed, constructed, erected and maintained so as to prevent collapse or accidental displacement when properly used.

5. Every scaffold and part thereof shall be:

   - designed so as to prevent hazards for workers during erection and dismantling;
   - designed so that guard rails and other protective devices, platforms, putlogs, rakers, transoms, ladders, stairs or ramps can be easily put together;
   - of suitable and sound material and of adequate size and strength for the purpose for which it is to be used and maintained in a proper condition.

6. The employer shall provide competent supervision to ensure that all scaffolds are used appropriately and only for the purpose for which they are designed or erected. In transferring heavy loads on or to a scaffold a sudden shock shall not be transmitted to the scaffold.

7. When necessary to prevent danger, loads being hoisted on or to scaffolds shall be controlled, e.g. by a hand rope (tag line), so that they cannot strike against the scaffold.

8. The load on the scaffold shall be evenly distributed, as far as practicable, and in any case, shall be so distributed as to avoid disturbance of the stability of the scaffold.

9. During the use of a scaffold care shall constantly be taken that it is not overloaded or otherwise misused.

10. Scaffolds shall not be used for the storage of material except that required for immediate use.

11. Workers shall not be employed on exterior scaffolds in weather conditions that threaten their safety.

12. Sufficient suitable and sound material shall be provided and used in the construction of scaffolds.

13. Timber used in the construction of scaffolds shall be straight-grained, sound, and free from large knots, dry rot, worm holes and other defects likely to affect its strength.

14. No rope, which is defective whether through contact with acids or other corrosive substances or otherwise, shall be used on scaffolds.

15. Ladders, boards and planks used in scaffolds shall not be painted so that any defects are visible.

16. All frames, braces and fittings used in metal scaffolding shall be of a standard and type approved by the manufacturer. All components shall be free from damage and distortion and shall be maintained in good condition.

17. Frames, braces and fittings from one manufacturer shall not be intermingled with the same of another manufacturer.

18. Tubes shall be free from cracks, splits and excessive corrosion and be straight to the eye, and tube ends cut cleanly square with the tube axis.

SAFE WORK PRACTICE #26

POWER ELEVATING WORK PLATFORMS AND AERIAL DEVICES (SCISSOR LIFT, GIRAFFE, ETC.)

Statement
Elevating work platforms are assigned for different uses. It's essential to have the right machine for the job. The selection factors include:

- lifting capacity;
- surface conditions;
- platform size and configuration;
- mobility;
- material to be lifted;
- access;
- terrain or building obstructions;
- degree of operator training and skill.

Overview
1. For the specific unit in use, operators must know:

   - manufacturer's operating manual;
   - manufacturer's warning and caution signs on the machine;
   - location of all emergency controls;
   - daily maintenance checks to perform;
   - applicable regulations;
   - always check for overhead powerlines before moving the machine or operating the platform. Observe limits of approach around live electrical wires and equipment;
   - before leaving the machine unattended lock or otherwise prevent its unauthorized use;
   - keep platform load below maximum rated working load, preferably below 2/3 (67%) of rated capacity.

2. Make sure that all controls are labeled with action and directions.

3. Keep guardrails in good condition and make sure that chain or gate at openings are secure before moving platform.

4. Shut off power and insert required props before servicing machine or checking for problems.

5. Never remove guardrails when platform is raised.

6. Don't jam controls through neutral to reverse direction of movement or operation. Move control gradually, pausing slightly in neutral, for safer smoother operation.

7. Deploy stabilizers or outriggers according to manufacturer's instructions before raising platform basket, or bucket.

8. Position boom in line with direction of travel wherever possible.

9. Keep ground personnel away from machine and out from under platform, bucket or basket.

10. Never allow workers to walk the boom to go on or off the platform or bucket.

11. Never try to move, push, lift, or free the machine by telescoping the boom.

12. Make sure that extension cords are long enough to reach the expected platform height.

13. Do not load in excess of rated working load.

14. Use on a firm level surface, must be operated according to manufacturer's written instructions.

General

1. Power elevating work platforms and aerial devices and their constituent elements and attachments shall be of good design and construction, sound material and adequate strength for the purpose for which it is used.

2. Power elevating work platforms and aerial devices shall be accompanied at the time of delivery to the construction site with instructions for use and with a test certificate from a competent person.

3. The maximum safe-working load or loads shall be clearly indicated at a conspicuous place.

4. If safe-working loads are variable, each maximum safe working load at the condition which it is applicable, shall be clearly indicated by effective means.

5. Controls for the positioning of a basket, bucket, platform or other device shall be equipped with positive pressure controls.

6. Power units shall be equipped with positive drives for both raising and lowering the basket, bucket, platform or other device.

7. Power elevating work platforms or aerial devices shall be equipped with an interlock device to limit the movement forwards or backwards when the height of the platform exceeds that specified by the manufacturer.

SAFE WORK PRACTICE # 27

HAZARDOUS MATERIALS (WHMIS)

Overview

1. Before handling hazardous material, the following practices must be reviewed and followed:

2. Inspect the container for labels or identifying symbols. If none exist or they are not legible, contact the supervisor prior to using, opening or moving the container.

3. Do not remove or alter labels.

4. Always reference the supplier / manufacturers MSDS sheets prior to use. These are always accessible in the job site trailer or other designated areas.

5. Always follow the instructions on MSDS sheets for the required PPE, safe use, and storage or disposal.

6. Never transfer a hazardous product to another container without following the proper procedure for transfer from one container to another. The new container must be labeled with proper identification.

7. Always ensure you have the proper training in the WHMIS system for the products you are working with or near. If any additional training is required, notify your supervisor before proceeding.

8. If you do not understand the information given on MSDS Sheets, do not use the product, see your supervisor for adequate training.

SAFE WORK PRACTICE # 27

HAZARDOUS MATERIALS (WHMIS)

General

1. The supplier and employer each have responsibilities that must be met to ensure the proper implementation of the WHMIS material safety data sheet system.

2. Employers are responsible for seeing that every container of hazardous material entering the workplace has the proper label attached, that there is an up-to-date SDS for each product available for everyone in the workplace to see, and that workers receive training in the meaning of this information and how to use it to protect their health and safety on the job.

3. The receiving employer must make sure the supplier labels are in place, and the labels must meet the specifications of WHMIS. These requirements include use of distinctive WHMIS border around the supplier label, the proper hazard symbol or symbols, and certain types of information presented in both English and French.

4. Hazardous materials must be easily identifiable to workers on the job. This is the purpose of the WHMIS label which is the first hazard warning workers are likely to see.

5. In most cases, a label will be a supplier label - the label placed on a container of hazardous material by the supplier before shipping. Or, the supplier label may be included with the shipment and placed on the containers by the receiver when the shipment arrives at the workplace where the hazardous material will be used. In other cases, the label may be a workplace label.

6. Workplace labels are also used on a hazardous material, which has been transferred from its original container into another container after arrival in the workplace. Both supplier labels and workplace labels are required to present certain kinds of information for the benefit of workers who use the materials or come into contact with them on the job.

7. A label must be made of strong enough material to remain attached and readable under normal conditions of transport, use and storage. It may be attached to the product or container, or it may be printed, stenciled or embossed on it. It should be positioned so that it will be easily seen under normal conditions.

8. Workplace labels must be revised and updated when new information becomes available that necessitates a change in any of these contents. The revised label must not contradict the SDS for that material.

9. Suppliers must revise the label and apply the revised label to all subsequent sales of the controlled product if new information becomes available.

10. No person shall remove, alter or deface a required label, and if so, must be replaced as soon as possible with either a supplier label or workplace label.

11. SDS's must be readily available to all workers at all times.

12. A copy of a SDS must be obtained on or before date of receipt of product on the workplace.

13. Employers must ensure that a copy of all data sheets which are required for the workplace shall be made readily available at the worksite to:

    - workers who may be exposed to the hazardous material; and
    - the joint health and safety committee, if any, or to a health and safety representative, if any.

14. Employers must ensure workers can understand the information on the label and are aware of the need to review the applicable SDS.

15. Each SDS must be available in English and in any other language prescribed by regulations (usually the next most common language used in the individual workplace).

16. Employers shall take steps to obtain from a supplier an up-to-date SDS when the data sheet information has been changed by the manufacturer.

17. Employers shall ensure that an up-to-date supplier material safety data sheet is obtained from a supplier the first time a controlled product is received in the workplace.

18. Update such "employer prepared data sheets":

    - as soon as practical but not later than 90 days after new hazard information becomes available to the employer; and
    - at least every three years.

19. Provide information in the employer's possession on any hazardous material in the workplace, including confidential business information, to a doctor or nurse who request information on the product for the purposes of making a medical diagnosis or rendering medical treatment in an emergency.

20. Employers must add any new hazard information to the supplier data sheet, on the basis of the ingredients already disclosed on the document, if the supplier is unable to provide an updated data sheet, (for reasons such as having gone out of business or no longer producing the material in question).

WHMIS 2015

Workplace Hazardous Materials Information System

f a c t s h e e t s

These Fact Sheets summarize key requirements of WHMIS 2015 which incorporates the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) for Canadian Workplaces. See WHMIS.org for more information.

Pictograms and Their Hazards

WHMIS 2015	Types of Hazards
	Gases under pressure
	Flammables (gases, aerosols, liquids, solids), Pyrophoric (liquids, solids, gases), Self-reactive substances and mixtures, Self-heating substances and mixtures, Substances and mixtures which, in contact with water, emit flammable gases, Organic peroxides
	Oxidizing (liquids, solids, gases)
	Acute toxicity (fatal or toxic)
	Carcinogenicity, Germ cell mutagenicity, Respiratory sensitization, Reproductive toxicity, Specific target organ toxicity - single exposure, Specific target organ toxicity - repeated exposure, Aspiration hazard
	Acute toxicity (harmful), Skin irritation, Eye irritation, Skin sensitization, Specific target organ toxicity - single exposure (respiratory irritation or drowsiness or dizziness)
	Corrosive to metals, Skin corrosion, Serious eye damage
	Self-reactive substances and mixtures, Organic peroxides
	Biohazardous infectious materials

WHMIS 2015 does not incorporate the GHS Explosives and Environmental Hazard Classes.

	Explosives
	Hazardous to the aquatic environment
	Hazardous to the ozone layer

The requirements for pictograms are based on the severity of the hazard. In some cases no pictogram is required. For Physical and Health Hazards Not Otherwise Classified, the supplier must use a WHMIS 2015 pictogram appropriate for the hazard.

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CCOHS

SAFE WORK PRACTICE #28

USE OF PROPANE

Overview

1. Nylon slings must be used in a "choker" fashion when loading, off-loading or lifting propane tanks.

2. "Lifting lugs" provided on tanks are not to be used. Slings are to be wrapped around the shell of the tank.

3. Tank valves and regulators are to be removed from the tank prior to any movement of the tank.

4. Crane hooks shall be equipped with a "safety latch".

5. All trucks, cranes or equipment used to handle propane tanks must be equipped with a fire extinguisher appropriate for the size and type of tank being handled.

6. Except in an emergency, any movement or repositioning of tanks shall be performed by a competent worker.

7. Tanks are not to be heated to increase flow.

8. When in use, propane bottles are to be securely held in an upright position.

9. Tanks are not to be hooked up and used without proper regulators.

General

1. Since propane is heavier than air and invisible, it is a special concern when it is used on the job site.

2. All installation s and use of this product on the job site must comply with the Government Legislation set out for its safe use.

3. Suppliers delivering the product or setting up the equipment at the site must be part of the safe work practice.

SAFE WORK PRACTICE #29

USE OF CLEANING SOLVENTS AND FLAMMABLES

Overview
The following instructions or rules apply when solvents/flammables are used:

1. Use nonflammable solvents for general cleaning.
2. When flammable liquids are used, make sure that no hot work is permitted in the area.
3. Store flammables and solvents in special storage areas.
4. Check toxic hazards of all solvents before use (MSDS).
5. Provide adequate ventilation where all solvents and flammables are being used.
6. Use goggles or face shields to protect the face and eyes from splashes or sprays.
7. Use rubber gloves to protect the hands.
8. Wear protective clothing to prevent contamination of worker's clothes.
9. When breathing hazards exist, use the appropriate respiratory protection.
10. Never leave solvents in open tubs or vats - return them to storage drums or tanks.
11. Ensure that proper containers are used for transportation, storage and field use of solvents/flammables.
12. Where solvents are controlled products, ensure all employees using or in the vicinity of use or storage are trained and certified in the Workplace Hazardous Materials Information System. Ensure all WHMIS requirements are met.

General
1. Cleaning solvents are used in the day-to-day construction work to clean tools and equipment. Special care must be taken to protect the worker from hazards that may be created from the use of these liquids. Wherever possible, solvents should be nonflammable and nontoxic.

2. The site supervisory staff must be aware of all solvents/flammables that are used on the job and be sure that all workers who use these materials have been instructed in their proper use and any hazard they pose.

SAFE WORK PRACTICE #30

HANDLING GASES FROM CYLINDERS

Overview

1. Only equipment suitable for pressures involved can be used with high-pressure gases. The pressure ratings for all containers and hardware must be known and equipment must not be used where limits will be exceeded. A container for compressed gases should be maintained with a positive internal pressure at all times.

2. Regulators designed for the purpose must be used to control pressures to operating requirements. Manual throttling of flow is not sufficient.

3. Safety relief devices must be provided to limit system pressures to meet requirements of the specific containers, hardware and process operating conditions.

4. All piping and system components must be carefully checked for leaks before release for service.

5. Valves used on cylinders should meet Compressed Gas Association connection standards for the gas being handled.

6. Only materials recommended for the particular gas service involved shall be used in piping, fittings or equipment. Details are given under precautions for specific gases, particularly acetylene and cryogenic gases.

7. All CGA Bulletins, NFPA Codes and local regulations should be followed in making gas installations.

8. Where necessary to obtain permits, licenses, or approvals, the requirements of jurisdictions having authority shall be followed.

Safe Work Practice #31

Flammable Gases (Hydrogen)

Statement

Hydrogen is a very flammable gas requiring only small energy sources to cause ignition. Its very low density requires different handling precautions from other gases. Ventilation openings must be provided in the highest areas where gas could be confined. Also, overhead electrical exposures must be avoided. No open flames, sparks or hot surfaces can be permitted where hydrogen is stored or used. Care must be taken in all connections to prevent leaks, which can occur easily with hydrogen because of its low molecular size.

Overview

1. Keep hydrogen away from sources of ignition. Do not permit accumulation of gas from leaks.

2. Care is necessary in preventing hydrogen from accumulating in confined spaces together with air where it can form an explosive mixture. The flammable limits for hydrogen in air are from 4 to 75 percent by volume. Ignition can occur with low energy so sources of static electricity as well as electric power sources must be prevented from contact with hydrogen. Electrical grounding is necessary for all hydrogen installations.

3. Liquid hydrogen poses problems because of its extreme cold, which can cause personnel injuries and liquefaction of air surrounding uninsulated piping.

4. When working around liquid hydrogen protect your eyes with safety goggles or face shield to prevent contact with the extremely cold liquid or gas. Use gloves in handling equipment and wear clothing, which will protect against and shed cold liquid.

5. Hydrogen is odorless and cannot be readily detected when it displaces oxygen in enclosed spaces. Work in well-ventilated areas. Do not enter equipment, which has contained hydrogen until it has been purged with nitrogen and then with air so that at least 18 percent oxygen is available for breathing.

6. Use only equipment, which has been particularly designed for hydrogen service, either liquid or gas. Ground piping and equipment to prevent static discharge or difference in electrical power potential.

7. Do not allow pressures below atmospheric to develop in piping or containers, since air may enter and make an explosive mixture with the hydrogen. Compressors must be equipped with a low-pressure shutdown in the suction line.

8. All electrical equipment must be explosion-proof. Tools used around hydrogen must be non-sparking (brass or aluminum bronze is required).

9. Where liquid hydrogen flows through uninsulated lines, make certain that no hydrocarbons are present to cause a dangerous situation with condensed air and released oxygen from the air.

10. Gaseous hydrogen must be controlled by a pressure regulator when it is used from a high-pressure source such as a cylinder or tube trailer.

SAFE WORK PRACTICE #32

FLAMMABLE GASES (ACETYLENE)

Statement

Acetylene is a flammable gas, which must be handled with special storage containers, used specifically for this type of gas. Unlike other commonly used gas, it must be regulated to pressures below 15 psig when not stored in special containers.

Overview

1. Care is necessary in storage of acetylene cylinders. Store outdoors or in well-ventilated areas away from hot surfaces or flammable materials and ignition sources such as flames or equipment, which can generate a spark such as open electric motors.

2. Cylinders must be stored in the upright position.

3. Acetylene cylinders should not be dropped or handled in such a manner as to damage the filler.

4. Do not use leaking cylinders or equipment. Tighten packing of leaking valves and do not allow leaks at connections. If leaks cannot be stopped, replace equipment or cylinders. Remove leaking cylinders to a safe open area and apply a warning tag.

5. Do not tamper with the fusible plug safety devices. If there is a leak at the fusible plug, do not strike or try to peen shut. Set aside as for leaking valves.

6. Personal precautions should be taken. Work in areas, which are well ventilated. Acetylene is non-toxic but if it displaces oxygen in the air to levels below about 18 percent, it can cause the symptoms of asphyxia, dizziness, unconsciousness, and even death. However, acetylene has a distinctive odor, which is readily detected in low concentrations, so that warning is given of the possible hazard. Articles of clothing, which develop static charges, should not be worn where acetylene is handled in volume and leakage may be present.

7. Equipment precautions should be taken. Use only cylinders and equipment especially designated for acetylene. Do not ever attempt to put acetylene in any other container, equipment, or pipeline at pressures above 15 psig. This can be done only at filling plants with proper manifolds, flash arresters, and cylinders with acetone solvent.

8. Make certain all hardware is steel, or brass with copper content below 65%. In addition, no silver or mercury can be present where acetylene can attack it.

9. Correct any leak situations. Leaking cylinders, which cannot be stopped, should be placed out-of-doors and returned for repair.

10. All electrical equipment must be explosion-proof. Tools used around acetylene must be non-sparking (brass or aluminum bronze is required).

General

1. Acetylene mixed with air or oxygen in a confined space will explode when ignited.

2. Acetylene can decompose explosively if piped at pressures above 15 psig and exposed to mechanical shock or ignition source.

3. Acetylene forms explosive compounds with copper, silver, and mercury. Use steel pipe, fittings, and pressure gauges with steel or stainless steel bourdon tubes.

4. Copper alloys, if used, must contain less than 65% copper.

5. Acetylene has a very wide flammability range in air of 2.5 to 81 percent by volume. Also, very low energy sparks such as static electricity can cause ignition and explosion.

SAFE WORK PRACTICE #33

HANDLING CRYOGENIC (COLD LIQUID) GASES

Overview

1. Use personnel protective equipment such as gloves, goggles, or face shields when operating with these extremely cold liquids which can splash, squirt or spill and cause "burns" similar to frostbite.

2. Never confine cryogenic liquids such as liquid oxygen, nitrogen, argon, etc., in pipelines having safety relief devices set at appropriate pressure for the system.

3. Use only materials, which do not become brittle at the low temperatures. Do not use carbon steel. Suitable materials are brass, stainless steel, and aluminum.

4. Cryogenic liquids expand to many times their liquid volume when vaporized. Inert gases such as nitrogen and argon can cause displacement of air and asphyxiation in enclosed spaces. Do not remain in such areas without air masks or breathing equipment if considerable liquid has been spilled.

5. Use only hardware, which is designated for cryogenic service. For oxygen, equipment must also be cleaned as for oxygen gas service.

6. All piping must be leak-checked before use in cryogenic service and rechecked in cryogenic operation. Connections and packings may require tightening.

7. Piping arrangements must allow for contraction under low temperatures by use of piping bends or flexible sections.

8. Storage vessels used for cryogenic liquids must have insulation arrangements suitable for the purpose.

9. Do not enter cryogenic tanks without life-support equipment unless they have been purged and have an atmosphere of breathing air.

10. Work in tanks or other enclosed spaces, where oxygen concentrations of less than 18% require use of air packs, should be performed with a "buddy system" and lifelines.

SAFE JOB PROCEDURE #34

FALL PROTECTION PLAN

Overview
This procedure is specifically for planning out when, where, and what type of fall protection is to be used on a work site for specific tasks to meet legislative standards. This process is to ensure worker and contractor safety on the work sites.

A Fall Protection must be implemented as per Alberta OH&S Code Part 9 Section 140. This procedure will be implemented when:

- An employee will be working at a height of 3 metres (10 feet) or more,
- An employee will be working at a height, that may be less than 3 metres (10 feet), but could result in them falling onto or into an object that could cause injuries, and
- A suitable guardrail or other fall prevention system is not able to be used or used completely for the duration of the task.

If any of these criteria are met a Fall Protection Plan must be put into place as described in this procedure.

Process

1. Determine if a worker or contractor is will be performing tasks that meet the above criteria.
2. The Supervisor or a designated competent worker or contractor must fill out the Fall Protection Plan form.
3. The employees who are affected by the plan must be informed and they have to review the information
4. The plan will be posted on the site or made available to employees and contractors.
5. If the tasks change or there is a change to the job which affects the fall protection plan, the plan must be updated and revised to address the changes.

Procedure

1. The hazards associated with the tasks have to be identified and assessed for risk and documented on the form.
2. The type of fall protection that is to used needs to be selected and documented. This can include any one or a combination of:
    - Guardrails
    - Fall Prevention System
    - Fall Arrest System
3. Document the type of anchor(s) to be used to secure the fall prevention or arrest system to which may include the following examples:
    - Tie-off adapter wrapped around structural components of the building

- Engineered points on lift equipment
- Temporary tie-off points (e.g. roofing adapter, etc.)

4. Determine the fall distance(s) that could occur and document on the fall protection plan.
5. Document the process for assembling the fall protection system, maintain it, inspect it, use, and disassemble it.
6. Establish an emergency response procedure for rescuing an individual who has fallen.

SAFE WORK PRACTICE #35

FORKLIFT AND TELEHANDLER OPERATION

Statement
Work involving operation of a forklift or Telehandler must be performed safely to protect the operator and others on the work site.

Overview
1. Check fluids and oil daily, as well as fan belt and radiator for blockages.

2. Ensure that a pre-use inspection is completed for the equipment before use.

3. Make sure pathway is clear of debris, e.g. Banding, wood pieces, nails etc.

4. When moving tall items or your vision is obstructed by the load you are carrying, drive in reverse at all times.

5. Drive with forks in lowest position when driving forward.

6. Always check behind you before backing up.

7. Ensure reasonable speed is maintained inside the building at all times.

8. Never use forks as a hoist for others, use portable man-lift to raise and lower maintenance personnel.

9. When entering and exiting building, honk horn so people are aware of forklift.

10. Keep hands clear of moving mast parts.

11. Respect right of way to other forklifts operating inside and outside of the building.

12. Never carry passengers on forklift.

13. Only designated operators may operate all forklifts.

14. Always apply the emergency brake and put the transmission in Neutral when leaving or machine is stationary.

15. Use a spotter when moving large or long loads with the Telehandler

16. When lifting items high such as on a roof or suspending items to install them, use a spotter and make sure the area is clear of pedestrians.

SAFE WORK PRACTICE #36

FALL ARREST CODE OF PRACTICE

Purpose
To ensure that all reasonable safety precautions and training have taken place to prevent falls from an elevation.

Hazards
Fall hazards may occur at the worksite. It is important for the hazards to be identified prior to the work starting so that proper controls can be implemented. The company will take all reasonable steps to eliminate the hazard. If they can't be eliminated, then the workers will have to be protected using a fall arrest system.

Hazards have been assessed for each job site and for each specific job assignment within the organization.

Training
- A qualified trainer must train each user in the proper use and inspection of the fall arrest system.
- Trainers will be required to attend a formal session by a qualified instructor on the proper use, care, and maintenance of a fall arrest system. A qualified outside consulting agency may be used to provide training.
- No employee can use a fall arrest system unless they have had proper training and are authorized to do so.
- Training will include, but is not limited to:
    - How to identify fall hazards at the work site,
    - Review of OH&S legislation,
    - An understanding of the fall protection plan,
    - Fall protection methods that will be used at the work site,
    - How to assess specific anchors and select them properly,
    - How to connect the fall arrest system properly,
    - Information on the effect of a fall on the human body,
    - Pre-use inspection,
    - How to put the full body harness on properly, and
    - Practice of the items listed above.

General Use of a Fall Arrest System
1. A personal fall arrest system is to be used when an operator is being elevated more than 9 feet off of the ground when operating a boom truck, scissor lift, another type of lift equipment, or where a fall hazard exists that can't be controlled through engineering controls.
2. A system will be used when the worker is elevated less than 9 feet off the ground and there is an object that poses a hazard or if they are working over an opening in the floor.

3. All lift equipment operators must complete an informal pre-use inspection of the fall arrest system before operating the equipment.
4. Operators will use either a personal issued harness or sign a harness out from their Supervisor.
5. Operators will use either shock-absorbing lanyards or self-retracting lanyards that are in good condition and are authorized by the company.
6. Operators will use the fall arrest system as described in their training.

Equipment
All employees will use a full-body harness and a lanyard at all times. The exception is if a fall restraint system is being used on a roof. All equipment will meet CSA Standards, ANSI/ASSE Standards, and CEN Standards.

Fall arrest system will include:
- Full-body harness
- Shock absorbing lanyard or self-retracting lanyard
- Properly selected anchor point

Fall restraint system will include:
- Full-body harness
- Rope lanyard of a maximum length to restrain the user from getting close to the edge of the roof
- A properly selected anchor point.

Temporary Anchors will be:
- Wire rope anchors that meet CSA Standards
- Tie-off adapters that are made of webbing and is CSA certified.
- Roof restraints will be assembled and installed as per the manufacturer's instructions.

Pre-use Inspection and Annual Inspection Procedures
All employees must conduct an informal pre-use inspection of the fall arrest equipment before they use it. The inspection will look for any defects in the webbing and hardware. All inspections will follow the manufacturer's specifications. Any deficiencies will result in the equipment being taken out of service immediately.

All equipment will have a formal inspection conducted on an annual basis. This inspection will be documented and kept on file for the life of the equipment.

Defective or Damaged Equipment
All damaged or defective equipment will be decommissioned. The item will have a final inspection done to record that the equipment will be taken out of service. Once the inspection is complete, it will be cut up and discarded. It will be replaced by an item of equal or better quality.

Assembly of a Fall Arrest System
If a fall arrest system is to be used on lift equipment, scissor lifts, or boom supported lifts, the system will be assembled in the following manner:

- Pre-use inspection of the anchor, lanyard, and full-body harness.
- Donning of the full-body harness and adjusting it for proper fit.
- Hook up the lanyard to the D-ring on the harness and the other end to the anchor point on the equipment.

Rescue
This is intended to cover all fall incidents from elevating equipment or a work area that fall hazards exist and where a fall arrest system is required. All incidents have the potential for serious injury and should be treated as such.

In the event that a fall has been reported to management and the person is hanging in their harness the following must be done:

Emergency responders are to dispatch safety personnel to the scene immediately.

Emergency medical services must be called to attend to the scene. There are possibilities of internal injuries, neck injuries, or other unknown injuries caused by the fall.

For a fall from lift equipment, scissor lift, or boom supported lifts, the rescue process is as follows:

1. Call for emergency response, don't try and handle everything yourself.
2. The pressure put on the person due to hanging needs to be relieved as soon as possible as the blood flow is restricted.
3. Use the manual lower valve to release the hydraulics on the machine and slowly lower the person to the ground.
4. Un-hook the person from the lanyard and perform First Aid or get the First Aid attendant immediately.
5. Keep them stabilized until emergency services arrive.
6. Report the incident to management and fill out incident reports.
7. Secure the scene so that an investigation can take place.

For a fall from a platform or stationary area:

1. Call for emergency response, don't try and handle everything yourself.
2. The pressure put on the person due to hanging needs to be relieved as soon as possible as the blood flow is restricted.
3. The best scenario is to use a piece of elevating equipment to retrieve the person. If this is not possible, wait for emergency response from local emergency services.

4. If you get them down, un-hook the person from the lanyard and perform First Aid or get the First Aid attendant immediately.
5. Keep them stabilized until emergency services arrive.
6. Report the incident to management and fill out incident reports.
7. Secure the scene so that an investigation can take place.

If a self-retracting lanyard was used to arrest the fall, it must be recertified as per manufacturer's instructions before it can be used again. The harness that was used to arrest the fall must be decommissioned as well as the shock absorbing lanyard (if one was used). The person who was assigned the harness will be issued a new replacement.

All fall incidents need to be treated as serious and must be reported to management.

SAFE WORK PRACTICE #37

HOT WORK

Purpose
The purpose of this procedure is to outline the requirements for hot work tasks.

Scope
This procedure applies to all **QC Installation** workplaces.

Procedure
No **QC Installations** employee or Contractor is permitted to undertake any hot work activities unless their role specifically requires them to do so and have completed a risk assessment.

Hot work task identification
The employees are to identify all tasks which have the potential to generate heat, flames or sparks. Examples include:

- Welding
- Burning
- Flame cutting
- Brazing/soldering
- Plasma cutting
- Grinding
- Metal spraying

The employee is to record identified hot work tasks in the hazard assessment and must fill out a Hot Work Permit.

Record hot work risk controls
The employee is to identify, implement and record risk controls to manage hot work tasks in the hazard assessment using the hierarchy of controls. Examples include:

- Elimination – use pre-cast components e.g. purchase materials already joined.
- Substitution – conduct arc welding instead of flux-cored wire welding to reduce the risk of exposure to radiation and fumes
- Engineering – install local extraction ventilation systems, isolation of ignition sources, and installation of welding bay screens
- Administration – develop and provide training in Safe Work Procedures for employees
- Personal Protective Equipment (PPE) – spark/fire resistant clothing or welding masks

Isolation of ignition sources
The employee is to ensure that all hazardous areas/items surrounding the hot work area are isolated or otherwise controlled. This may include removing flammable materials and cordoning/screening off the area to prevent the ignition of any materials, contaminants, agents, or conditions that may be harmful to persons undertaking the tasks and others or property.

Fire watch personnel
Management or Contractor is to ensure that a trained fire watch observer is appointed and present for the entire duration of the hot work task. The fire-watch observer must be able to operate fire and emergency equipment and wear PPE (e.g. welding mask).

Employees undertaking hot work tasks
Employees undertaking hot work tasks, as part of their role, must complete a risk assessment using the hazard assessment form and must complete a Hot Work Permit. They must identify:

- removal of ignition sources and flammable material
- isolation of work area and signage
- emergency Procedures
- provision of PPE
- fire watch observer

SAFE WORK PRACTICE #38

LIGHT DUTY VEHICLE AND TRAILER USE POLICY

Overview
This safe work practice is to provide instruction and rules regarding the use of company light duty vehicles (pickup trucks, cars, and vans) and towing trailers.

Requirements for both vehicle and trailer use
To comply with government legislation and laws, **QC Installations** requires certain information to be provided by the employee prior to authorization to operate a company vehicle.

- Only authorized employees can operate a **QC Installations** vehicle.
- All employees that will be required to operate a company vehicle are required to submit a driver's abstract provided by the government of Alberta.
- All employees that operate a company vehicle will report any deficiencies or damage to their Supervisor immediately.
- Any traffic violations will be paid by the employee and is not the responsibility of **QC Installations**.
- Any accidents/incidents will be investigated by **QC Installations** management.
- Violations of company policies and procedures may result in disciplinary action.

Vehicle Use

- All operators will ensure that the cab is clean.
- All operators will ensure that proper regular maintenance is carried out and completed (i.e. every 5000 to 6000 kms).
- Smoking is not permitted in company vehicles.
- All operators will ensure that any items being transported are properly secured so they will not fall out or off.

Trailer Use

- All **QC Installations** employees will have basic trailer towing instruction that will be conducted in-house by the H&S Coordinator prior to towing a trailer.
- When towing a trailer, the operator must ensure that the trailer is secured properly to the vehicle. Ensure that the safety chains are also secured in the proper criss-cross pattern as per training.
- Never try to hook up and tow a trailer where the hitches are incompatible.
- When towing a trailer, the operator must ensure that the brakes and lights function properly before leaving the property.
- If items are longer than the box of the truck or the trailer (1.5 metres) a red flag must be placed on the end of the item prior to moving the vehicle.
- When the trailer is being removed or un-hitched, the support leg must be supported by a proper footing to prevent the trailer from tipping over.
- Never exceed the load or towing capacity of the trailer, vehicle, or the hitch.

- If vision is blocked when reversing, if there are a lot of obstacles, or pedestrians, use a spotter to help direct movement.
- If you are unsure about proper and safe use of a trailer, ask your Supervisor.

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Chapter 4 **SAFE JOB PROCEDURES**

Introduction
The following section contains a series of Safe Job Procedures for tasks that are relevant to our scope of work and are frequently encountered.

All workers and supervisory personnel shall familiarize themselves with the procedures outlined. Any review or revision of a procedure must be recorded on the Index & Review Log.

SAFE JOB PROCEDURES - INDEX & REVIEW LOG

SJP #	Item	Date (M/Y)	Developed By	Review /Revision Date	Review /Revision By
1	Off-loading and handling materials	02/2014	RP	02/2018	RP
2	Lifting Materials	02/2014	RP	02/2018	RP
3	Lockout	02/2014	RP	02/2018	RP
4	Dry Chemical Fire Extinguishers	02/2014	RP	02/2018	RP
5	Scaffolding	02/2014	RP	02/2018	RP
6	Hoarding	02/2014	RP	02/2018	RP

SAFE JOB PROCEDURE # 1

OFF-LOADING AND HANDLING MATERIAL

1. Cordon off limits on area of about 5 m (16 feet) around the loaded vehicle. The only personnel and vehicles allowed within the cordoned area are those involved with the off-loading to ensure safe operating distance for the forklift or other equipment.

2. Whenever possible, designate a particular area, on site for on and off loading and perform such operations as often as possible in the designated area.

3. As materials arrive on site verify that strapping used to bundle materials, are still rigid and firmly in place or that crating is sound after transport.

4. Use a crane or other appropriate offloading equipment to unload materials, do not push loads off of vehicles.

5. If offloading equipment with lifting hooks, verify number and location of lifting hooks and use the appropriate sling arrangement. A lifting diagram is usually supplied with equipment. This should be read carefully.

6. Attach a guideline or tag line to any load, which may become unmanageable in order to prevent the swinging of the load when it is being raised or lowered. This is especially important when it is necessary to swing the load in areas where men are working.

7. Read and follow Safe Job Procedure for Rigging along with this Job Procedure.

8. The operator of the lifting equipment being used has complete responsibility when hoisting his lifts and must also verify the total weight being lifted.

9. The designated signalmen shall be the only person giving signals to the operator of the lifting equipment.

10. When the load is secured by the rigger(s) an "all ready" signal shall be given by the signalmen to the operator.

11. Stand clear of taut cables and lifting devices.

12. Designate an offloading area on site to receive materials. Cordon off limits the required area to receive the load. The only personnel and vehicles allowed within the cordoned area are those involved with the offloading.

13. Remove debris and materials from the offloading area (lay down area) to receive loads and lie the load flat, on timbers whenever possible.

14. Leave passageways around the various loads in the laydown area.

15. Remove slings when they are slack and lifting equipment operator has ceased maneuvers. The signalman shall signal the rigger(s) when de-slinging can begin.

16. Once the slings are removed from the load, the signalman shall signal the lifting equipment operator to raise slowly until the slings or lifting equipment cable has cleared the load. All personnel shall stand clear during this operation.

SAFE JOB PROCEDURE #2

LIFTING MATERIALS

1. Plan your move:
   - size up the load and make sure pathway is clear;
   - get help as needed;
   - use a dolly or other device if necessary.

2. Use a wide-balanced stance with one foot slightly ahead of the other.

3. Get as close to the load as possible.

4. Tighten your stomach muscles as the lift begins.

5. When lifting, keep your lower back in its normal arched position and use your legs to lift.

6. Pick up your feet and pivot to turn - don't twist your back.

7. Lower the load slowly, maintaining the curve in your lower back.

8. Avoid lifting above shoulder height.

9. Do not catch falling object.

10. Push rather than pull. Pushing allows you to maintain the normal curves in your back.

SAFE JOB PROCEDURE # 3

LOCK OUT

General

1. The general goal of a lock out procedure is to eliminate the risk of accidents by cutting the sources of energy that would start up equipment on or near where work is being performed.

2. Lock out procedures may vary from site to site or from one equipment to another due to multiple powering sources or complexities of systems.

3. All documentation such as tagging and lock out requests, lock out log books, etc., as well as awareness of on-going lock outs shall be under the control of the person named as the tagging authority.

Process

1. Receive work assignment. You must be fully trained and authorized to perform this kind of work.

2. Locate the area and identify the equipment or machinery to be worked on.

3. Ensure the system is isolated and the machine is stopped. Identify all power sources affecting the equipment or machinery: electrical, pneumatic, hydraulic, steam, gravity, momentum, interlocks, computer-control, robotics or other devices.

4. Determine whether lock out is required to perform the work assignment, i.e., ask…what would be the result if any of the power (energy) sources were activated? If the answer is 'no result', then follow normal safe work procedures.

5. Padlocks shall have a unique key.

6. Seek the help of qualified operations personnel.

7. Locate all sources of power on the equipment or machinery.

8. Determine whether it is physically possible to lock out each power source.

9. Have qualified personnel shut down the equipment or machinery, lowering or blocking all moving parts. Install your personal safety lock(s) with tag indicating name, employer, time/date and work location. Make a record of all locked out switches, etc.

10. Any power or product remaining in the equipment or machinery must be discharged, disconnected or rendered inoperable by qualified personnel.

11. Ensure all personnel are in the clear. With extreme caution, try to start the equipment or machinery manually or test with a CSA-Certified Potential Test Indicator to ensure that all components are de-activated and de-energized, including interlocking or dependent systems, which could feed the locked-out system.

12. Look for any movement; test functions.

13. If none observed, try to restart again.

14. Look for any movement; test functions.

15. If none observed, return the control to the off or neutral position and confirm that all power sources are at a zero-energy state.

16. Carry out work assignment.

17. If work extends beyond one shift, locks must be removed by the outgoing shift and replaced by the oncoming shift.

18. When work is complete and area ready to resume operation, remove all locks, tags and lock out devices, checking each item off the record made in step 10. Check that all personnel are clear of the equipment or machinery.

19. Have qualified personnel restart the equipment or machinery.

20. Assignment is complete once equipment or machinery is operating satisfactorily.

Particulars

There are only two circumstances for which it is justified to cut a padlock used in a lock out procedure.

1. If a worker loses his or her key and the equipment is still tagged and locked, the tagging authority shall proceed to the removal of the padlock(s) with the site superintendent witnessing the event. A written record shall be kept of the event and signed by the worker, tagging authority and superintendent.

2. If a worker has completed his or her work and forgotten to remove the padlock(s) the worker's immediate supervisor shall contact the worker and have the padlock(s) removed. If the worker is no longer on site, the worker's immediate supervisor shall contact the worker and request if the padlock can be removed. If yes, the worker's immediate supervisor shall proceed to the removal of the padlock(s) with the site superintendent witnessing the event. A written record shall be kept of the event and signed by the worker, tagging authority and superintendent. Under all other circumstances it is forbidden to remove a worker's padlock.

SAFE JOB PROCEDURE # 4

DRY CHEMICAL FIRE EXTINGUISHERS

Job Steps

1. Remove extinguisher from hanger.
2. Carry extinguisher in upright position to fire.
3. Pull pin of extinguisher, hold hose or horn in one hand.
4. Use the extinguisher by pointing it at the base of the fire. Move the hose in a sweeping motion.
5. Promptly report use of extinguisher.
6. Bring the extinguisher to the site office trailer.
7. Take extinguisher out of service and have it re-charged.

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SAFE JOB PROCEDURE # 5

SCAFFOLDING

1. Choose the right system for the job. Considerations include:
   - the weight of workers, tools, materials, and equipment to be carried by the scaffold;
   - site conditions (interior, exterior, backfill, concrete floors, variation in elevation, etc.);
   - height to which scaffold will be erected;
   - type of work to be done from the scaffold;
   - duration of work;
   - experience of supervisor and crew;
   - requirements for pedestrian traffic;
   - weather conditions;
   - ladders or other access;
   - obstructions;
   - building configuration;
   - special erection or dismantling problems.

2. Before erecting a scaffold check the scaffold materials for:
   - damage to frames, braces, and other structural components;
   - damage to hooks on manufactured platforms;
   - splits, knots, and dry rot in planks;
   - compatibility of components;
   - enough components for the job.

3. Verify the location for:
   - ground conditions;
   - overhead wires;
   - obstructions;
   - variations in surface elevation;
   - tie-in locations and methods.

4. Install all bracing, parts, fittings and accessories in accordance with manufacturers' instructions. Always use base plates. They allow for minor adjustments to keep the scaffold plumb and level. Nail ball plates to mudsills.

5. Horizontal bracing on the first tier helps to square up the scaffold before base plates are nailed to mudsills.

6. Always install guardrails, when the scaffold reaches the desired level, put up a guardrail. This applies to all scaffolds regardless of height. If manufactured guardrails are not available, use wood or tube and clamp guardrails.

7. Always install guardrails, when the scaffold reaches the desired level, put up a guardrail. This applies to all scaffolds regardless of height. If manufactured guardrails are not available, use wood or tube and clamp guardrails.

8. Where frames are not equipped with ladder rungs, install ladders as each tier goes up. Climbing up and down scaffolds frequently leads to injuries, which ladders can help prevent.

9. When the first tier of scaffold is erected check if plumb. Settlement or slight variations in the fit of the components may require adjustments as tiers are added to the scaffold tower. The scaffold frame should be checked for plumb after each tier is added.

10. Stability (Three-To-One-Rule)
    On a scaffold the ratio of height to least lateral dimension should not exceed 3 to 1 unless:
    - the scaffold is tied into the structure;
    - the scaffold is properly stabilized by guy wires or;
    - the scaffold is secured by outrigger stabilizers sufficient to maintain the ratio.

    Stabilizers widen the base of a scaffold and allow it to rise proportionally higher. Stabilizers must be equally extended on each side of the scaffold to meet the three-to-one rule.

11. Dismantling:
    Dismantling proceeds in reverse order to erection. Each tier should be completely dismantled and lowered to the ground before the next tier is dismantled.

SAFE JOB PROCEDURE # 6

HOARDING

Exterior
The two main things to be aware of when planning to erect a temporary enclosure are wind and snow load, for exterior winter applications.

Enclosing the Exterior of a Building

1. Formulate plan of what needs to be done.

2. Discuss plan with all personnel involved.

3. Make sure that the scaffold is erected according to proper safe work practices and procedures - see safe work practices and procedures for scaffolding.

4. Where possible anchor the top of the scaffold with guy wires back to a secure point on the ground at the proper angle, or to the building in a safe secure manner.

5. Securely attach 2 x 4 to the exterior uprights of the scaffold.

6. Securely attach 2 x 4 or larger lumber (depending on distance scaffold sections are apart, and distance from scaffold to the other supporting structure) to the top of the scaffold from section to section, at the same side as the uprights.

7. A pony wall on the roof of the building should be higher than the scaffold so that roof members are sloped to allow for snow to slide off and allowances for head room. If possible, pony wall should be anchored to the roof.

8. Roof framing should be of adequate size to carry any snow load and should be placed on edge. Lumber should be placed perpendicular to the roof members at the half way position between the two support structures.

9. When placing tarps to the framing structure, be sure to close tarps so that there is no or very little opportunity for the wind to get inside of the hoarding.

10. Never leave a large opening in the hoarding for an extended amount of time where the wind may be allowed to get inside and cause a sail effect. Be sure to close off the hoarding if not finished in one day.

11. If the entire building is not enclosed, the "loose" ends of the scaffold should be anchored to the ground by guy wire on both sides where possible.

12. Entryways should be constructed for easy access but to keep the heat in and the wind out.

13. Air quality should be checked on a regular basis.

14. If a strong wind does get into the hoarding, try to secure the area that the wind is getting into or release the tarps in other areas to reduce pressure and to minimize problems with the rest of the enclosure.

Free Standing Enclosure (for block walls)
With free standing hoarding use previous principals outlined with the following exceptions.

1. Scaffold must be tied back to a proper anchor point at the ground by guy wires at the proper angle and must be done from both sides.

2. The wall section opposite the scaffold should be built with material that is strong enough to withstand extreme wind conditions and the base should be properly anchored to the ground.

3. Guy wires for bracing the new wall can easily be passed through the tarps to proper anchor points.

Interior
When building an interior enclosure within a high traffic area, or public area, ensure the following:

- Build walls of sound material within proper trade practices.
- Make sure the wall is secured properly.
- Make sure the area is well marked to prevent public access.
- Make sure the wall is sealed to prevent dust or debris from entering public areas.

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Chapter 5 **INSPECTIONS**

ON-GOING INSPECTIONS

Formal Process for Inspections

- All employees have a responsibility to be involved in the formal inspection process prior to work each day in the field and quarterly within the office environment; and
- Informal inspections will also be conducted through the following:
    - Walk around inspections will be included in the course of daily work activities. If hazards are presented, they should undergo immediate corrective action as soon as possible.

Refer to Site Inspection Report Form
See the Corrective Action Log in Appendix C

Managers

- Provide resources for site supervisors and contractors to implement appropriate health and safety controls for hazards identified through inspections,
- Assist with follow up resolution of deficiencies identified through inspections; and
- Participate in one formal site inspection annually.
- Conduct pre-use equipment inspections

Supervisors

- Lead each quarterly site inspection and be involved in each pre-job hazard assessment; and
- Review all site information pertinent to site inspections (including the prime contractor's inspections) and ensure corrective action occurs in a timely manner.
- Conduct pre-use equipment inspections

Workers and Contractors

- Must cooperate and be involved in inspections (as per the predetermined frequency set forth above) as required on each site,
- Must identify control methods for correcting deficiencies in a timely manner; and
- Must assist in the implementation of control methods to prevent any potential recurrence of hazards.
- Conduct pre-use equipment inspections

Inspection Training

- Training with a safety professional will be conducted for all employees to include:
    - Practical training where sample inspections will be conducted with a more experienced employee or contractor (on the job); and
    - Refresher training annually for all employees to review changes to the process.

Site-Specific Inspection Checklist

- All sites must have a site-specific checklist that contains sections that have been identified as potential hazards through the hazard identification and assessment process. This may include, but is not limited to:
    - Site conditions and layout,
    - Safety equipment (to include first aid/fire prevention equipment),
    - Powered Mobile Equipment (Forklift safety etc.),
    - Workplace behaviours,
    - PPE,
    - Atmospheric monitoring,
    - WHMIS controlled products and product handling; and
    - Hand and portable tools.

Inspection Report Review by Management

- All formal inspections must be reviewed and signed off by management to ensure:
    - The appropriate corrective action has been implemented in a timely manner; and
    - To monitor the effectiveness of the inspection process.

Corrective Action

- Employees conducting the inspections must ensure that hazards identified during inspections are eliminated or reduced,
- Managers will ensure appropriate hazard controls are implemented in timely manner as stated in our policies.
- Appropriate records of corrective actions will be kept in a central repository; closed and signed off by a manager.

Reporting System for Unsafe/Unhealthy Conditions

- All reported unsafe or unhealthy conditions will be immediately assessed and controlled
- A worker will be designated to correct the hazard and a target date will be given for completion,
- A hazard report must include the following:
    - Date & Location reported,
    - Description of the hazard,
    - The risk it presents,
    - Control measures needed,
    - Interim actions taken, if any,
    - The signature of who reported the hazard; and a review and sign off by a manager at least one level higher than the person doing the inspection

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Chapter 6 **TRAINING**

SAFETY TRAINING

Prerequisite Training

- For each role within the organization:
  - Minimum qualifications for each position shall be pre-determined for the hiring process (i.e. educational background and experience); and
  - All contractors must have the following health and safety certifications.
- All field and impacted office workers are required to obtain and maintain the following certificates as they relate to the work being done and/or the specific work environment:

Training Requirements

Course	Renewal* Frequency (years)	Manager	Supervisor	Worker
WHMIS	3	Yes	Yes	Yes
First Aid	3	Yes	Yes	Yes
Equipment Training	3	Yes	Yes	Yes
Fall Arrest	3	Yes	Yes	Yes

- Workers may also be required to have the following certificates if they are related to their current job function:
  - Inspection and Maintenance Procedures
  - Incident Investigation; and
  - Hazard Assessment, Elimination, and Control.
  - Safe Driving
- Additional courses and/or certifications may be mandated, at the discretion of QC Installations in response to new regulations, changes in responsibilities, specific worksite hazards, or personal skills.

Employee Orientation

- The new employee orientation will commence prior to any work being done.

Critical Health and Safety Issues

- The critical health and safety issues that must be addressed before an employee begins work are:
  - Recognition and refusal of tasks/ work that pose a risk or hazard,
  - The emergency response plan and procedures,
  - The duty to report incidents and accidents including near misses,
  - The responsibility to report unsafe acts and conditions,
  - Hazard identification, assessment and control of critical hazards; and
  - Organization Rules to include the following policies and procedures:

- Safety responsibilities,
- Job responsibilities,
- Job expectations and employee conduct,
- General Safety Rules
- Standard Operating Procedures; and
- Codes of Practice.

Job-Specific Training

- Employees who are newly hired, transferred or promoted shall receive on-the-job-training or external training in:
  - All the skill and knowledge requirements applicable to the new position; and
  - All requirements necessary to complete the job in a healthy and safe manner.
- Wherever practicable, competency in all skill requirements shall be assessed by a competent trainer or supervisor, and
- Records of on-the-job training completion will be kept in a central repository in Calgary office.

On-going and Refresher Training

- All recertification training is the responsibility of employee to complete prior to expiry. This may include, but is not limited to:
  - Skills Upgrading,
  - Standard First Aid,
  - WHMIS,
  - MHE
  - Fall Arrest
- Refresher training will be provided by QC Installations annually to include:
  - A review of the elements of the original orientation
  - A review of all job health and safety requirements; and
  - Changes to the health and safety management system elements.

Competency

Employees will be verified as being competent to perform their duties by the Senior Manager. Competency verification is important to ensure employees know how to perform their duties and tasks safely and efficiently. Competency verification will be conducted approximately one to three months after the employee is trained and has had time to perform those duties under supervision of a competent person.

Competency verification will include:

- Observation by the Senior Manager of the employee performing their duties
- Documented sign-off acknowledgement by the Senior Manager to confirm the individual is competent in their duties.

See the On-the-job Training and Competency Form in the Forms Section

Chapter 7 **EMERGENCY RESPONSE PLAN**

QC Installations is committed to carrying on its business at the highest achievable standards to protect the health and safety of employees, the public and the environment. To achieve this, we have our Safety Manual that includes specific policies and procedures.

However, should an unforeseeable event take place, we have developed an Emergency Response Plan (E.R.P.) to ensure prompt and efficient action is taken.

The E.R.P. outlines the responsibilities and required actions of the Company in the event of an emergency situation occurring. An emergency situation is any incident that has the potential to cause immediate harm to the workers, property, public and/or the environment.

Emergencies do not occur as a planned event. Therefore, we suggest that all personnel who are identified in this section by either name or job description review the information closely, so that they will be able to re-act positively in an Emergency situation.

All new hires will be supplied a copy of the E.R.P. during their orientation and will be instructed as to the importance and implementation of the plan, as well as the specific responsibilities within the plan.

In an emergency situation, time is the most critical factor in prompt implementation of an emergency response plan. The quicker the initiation - the more orderly the operation. The first responder to the incident/accident must activate the plan immediately.

An emergency response plan must be considered a "live" program in order to achieve a reasonable level of success, should an emergency occur. To maintain the plan in the best possible condition, the following steps are to be taken:

- Company representative should contact each Government Agency & every contractor every 12 months to ensure that the telephone number is correct and that the agency or company is still able to provide the required support.
- If there are any changes to the manual, all changes shall be distributed to all plan holders, in which an acknowledgement form of delivery is required.

The Senior Manager will receive a call of the incident. You will immediately advise him of all the details of the incident.

Information recorded should include the following:

- Date & time of incident reported
- Name, address, & phone number of person reporting the incident
- Information obtained from the reporting person
- Date & time of arrival at the scene
- Location of the site
- Suspected cause from first impression KEEP CONFIDENTIAL – DISCLOSE ONLY TO MANAGEMENT UNTIL DIRECTED BY MANAGEMENT TO DO OTHERWISE
- Actions taken by others on site
- Admit no guilt & assume no responsibility

- Refer any media questions to the Senior Manager

The size and type of an emergency is determined by its potential to cause harm to workers, property, public and the environment. Different emergencies will require slightly different response strategy. This section lists the common types of Emergencies that may occur to **QC Installations.**

Potential Emergency Situations (reference the Risk Assessment)

- Fire/Explosion
- Medical Emergency
- Fatality
- Spills/Environmental Release
- Property Damage
- Motor Vehicle Accident
- Natural Disasters
- Weather Related Occurrences
- Workplace Violence

Definition of Emergency Situations

Vehicle Accident

- Motor vehicle accident with an estimated damage of less than $1,000.00
- Motor vehicle accident with estimated damages in excess of $1,000.00
- Vehicle fire or load fire

Environmental Incident

- Spill of non-toxic material
- Spill of Dangerous Goods

Property Damage

- Fires in and around buildings and equipment
- Vandalism

Environmental Occurrence

- Extreme cold conditions or extreme hot conditions,
- Heavy snow fall,
- Heavy rain fall, flooding, and
- Strong winds and/or a tornado.
- Power outage

Fire/Explosion

- Explosion of propane tanks
- Combustion of flammable materials

Medical Emergencies

- First Aid occurrences
- Medical Emergencies

Natural Disasters

- Earthquakes
- Wildfires
- Floods
- Tornados

Workplace Violence

- Verbal Violence
- Physical Violence
- Threats

FIRE EMERGENCY PROCEDURES

Each office building or other workplace shall have a posted Fire Emergency Procedure. All employees shall be made familiar with this procedure.

Regular exercises or fire drill shall be conducted to ensure optimum fire-fighting and evacuation preparedness. A semi-annual frequency is recommended.

Each work activity shall be evaluated for fire hazard to ensure that the proper Fire-Retardant Clothing (FRC) is available and being worn for that activity.

At the office
If an emergency arises in our office building, use normal procedures. For example:

FIRE!

- Activate the alarm
- Evacuate the building (Take a "roll call" at the Emergency Muster Point to ensure everyone is out and safe – also instruct all employees to close their office doors as they depart to easily illustrate that they have evacuated)
- Call fire department
- Call management
- Keep area clear
- Extinguish fire if possible with fire extinguisher.
- DO NOT put yourself or anyone else in danger

On Location
As we are always working on location with a prime contractor, we must follow their safety policies and evacuation procedures. These policies and procedures are pointed out at the pre-job safety meeting. If any concerns arise, or if you are unsure of any emergency procedures, ask the general contractor representative for clarification. Procedures could include sounding the alarm, evacuating to the muster point, and informing site management.

Explosion
- Activate the alarm immediately
- Assess the scene and provide First Aid as necessary
- Call 9-1-1 and report the incident

Fire Prevention
All employees shall be constantly on the alert for conditions which might contribute to a fire and to remove or report the hazard.

Oily rags, waste material, paper, and other combustible materials shall be stored in metal containers. These containers shall be emptied regularly.

Do not use gasoline or other ‘flammable’ liquids as degreasing or cleaning agents. Use only approved solvents or other combustible liquids.

Fire Fighting Equipment
All employees shall know the location of fire-fighting equipment and extinguishers in their work area. Access to any fire-fighting equipment must never be blocked by any material, equipment or vehicles.

All equipment shall be inspected at least monthly to ensure that it is in place, accessible, and fully charged. Further inspection and maintenance shall be conducted in accordance with the manufacturer’s instruction.

Never return a discharged fire extinguisher to its normal location. Take it out of service for recharging and replace it with a fully charged unit.

Never use water on fixtures that contain live electrical circuits, such as an electrical breaker pan.

Fire Extinguishers
Fires can cause downgrading incidents with resultant losses manifested by human suffering, property damage, work interruption and financial loss. In order to prevent fires and to extinguish small fires effectively, workers should understand the basic elements of a fire and the different classes of fires.

A fire will occur when the three elements of a "FIRE TRIANGLE" are present.
They are:

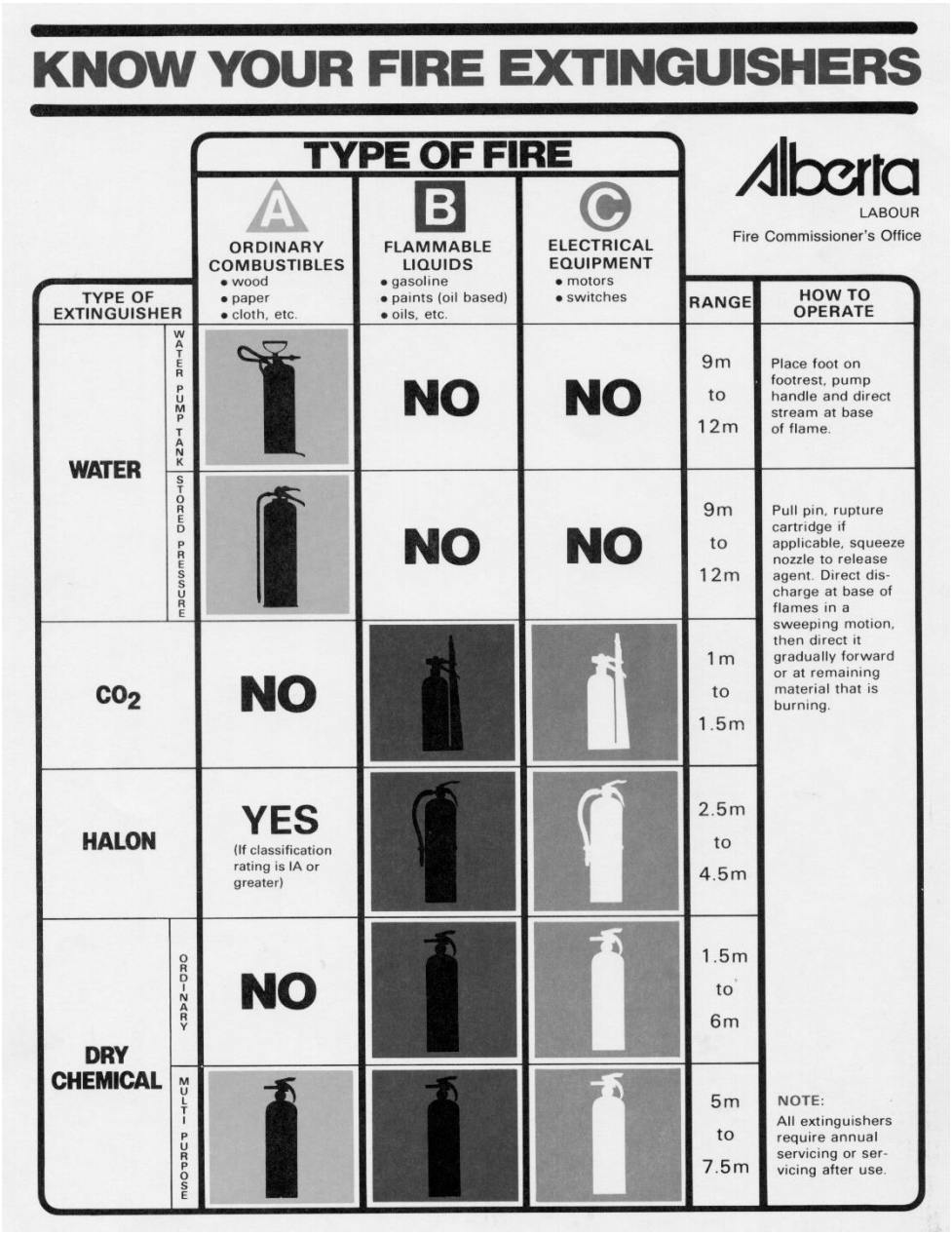
FUEL OXYGEN OR OXIDIZER HEAT

The basic principle in fire extinguishment is to remove one or more of the elements of the "Fire Triangle” If the "Fire Triangle" is not complete, a fire will not occur.

Fires can be very complex depending on the material involved, size and location of the fire. Fires are classified into 4 main classes based on the type of fuel involved. This classification is very beneficial when the subject of fire extinguishment is concerned. Fire extinguishers can be more effective against some fires than others. In certain cases, a fire extinguishing material may actually aid the fire. Employees of **QC Installations** will receive training on fires and fire extinguisher procedures

Fire Classes	Extinguishers
A - Ordinary combustibles (Wood, paper, rags)	ABC Dry Chemical Water, Sand
B - Rising Vapour Liquids (Petroleum products)	ABC or BC Dry Chemical Water mist, CO2, Foam, Shut off the flow
C - Energized Electricity	ABC or BC Dry Chemical CO2, Turn off the power
D - Combustible Metals (Magnesium, titanium)	AFFF Foam

See Next Page for Fire Extinguisher Chart.



KNOW YOUR FIRE EXTINGUISHERS

Alberta LABOUR
Fire Commissioner's Office

TYPE OF EXTINGUISHER		TYPE OF FIRE A: ORDINARY COMBUSTIBLES • wood • paper • cloth, etc.	TYPE OF FIRE B: FLAMMABLE LIQUIDS • gasoline • paints (oil based) • oils, etc.	TYPE OF FIRE C: ELECTRICAL EQUIPMENT • motors • switches	RANGE	HOW TO OPERATE
WATER	WATER PUMP TANK		NO	NO	9m to 12m	Place foot on footrest, pump handle and direct stream at base of flame.
WATER	STORED PRESSURE		NO	NO	9m to 12m	Pull pin, rupture cartridge if applicable, squeeze nozzle to release agent. Direct discharge at base of flames in a sweeping motion, then direct it gradually forward or at remaining material that is burning.
CO_2		NO			1m to 1.5m	
HALON		YES (If classification rating is IA or greater)			2.5m to 4.5m	
DRY CHEMICAL	ORDINARY	NO			1.5m to 6m	
DRY CHEMICAL	MULTI PURPOSE				5m to 7.5m	NOTE: All extinguishers require annual servicing or servicing after use.

Fire Fighting Procedures

- Protect yourself and other people
- Sound an alarm
- Select the proper extinguisher and use it correctly

Do NOT endanger yourself or others

EMERGENCY PHONE NUMBERS:

Management/ Employees for Emergency Response		
1	Andrew (Andy) Carras	(403)803-2453
2		
3		
4		

Other Emergency Numbers	
Stars	(888) 888-4567
Workplace Health and Safety	(866) 415-8690
WCB	(403) 292-6102
Poison Control	(403) 670-1414
Dangerous Goods Spills & Incident	(800) 272-9600
Gas Co. (ATCO)	(866) 511-3447
Electric (Enmax)	(403) 342-8274
AB First Call	(800) 242-3447

FIRST AID

General Procedures

All first aid cases shall be reported to your Supervisor immediately and recorded on incident reports for review and investigation.

Employees will be trained in and should be familiar with techniques of First Aid and cardiopulmonary resuscitation (CPR) and the means of summoning emergency medical aid. The emergency responders are designated as QC Management as well as individuals designated by the general contractor.

Each workplace shall have, as a minimum, the required number of trained First Aiders as required by federal and/or provincial regulations.

Contractors are responsible for providing complete first aid supplies and facilities, as required under the OH&S First Aid Regulations.

Injuries are classified as the following:

- First Aid – the individual had to use supplies from the First Aid kit but was able to return to work without medical attention
- Medical Aid – the individual had to seek assistance from a medical doctor, paramedic, physiotherapist, or had to be transported to a hospital
- Lost-Time – the individual was injured bad enough to miss work past the initial day of the injury
- Fatality – the individual died due to the trauma that was suffered during the incident

Reporting

All incidents, no matter how minor they may appear, must be reported to a Supervisor. As well, there are specific circumstances requiring reporting incidents to Workplace Health and Safety and to WCB.

- First Aid – reported to QC Installations management
- Medical Aid – reported to WCB and QC Installations management
- Lost-time – reported to WCB and QC Installations management. If the individual is admitted into the hospital it is also reported to Workplace Health and Safety
- Fatality - reported to Workplace Health and Safety, WCB, and QC Installations management.

Supplies

Employees shall be familiar with the location and contents of the First Aid kits at their workplace and in their vehicle. Typically, there is a First Aid kit with the General Contractor on site as well as one in QC's trailer or vehicle.

Contents of the First Aid kits shall be inspected regularly, and expended or outdated items replaced.

Temperature Injuries and Illnesses

Exposure to cold weather can cause two types of cold injuries:

- Frostbite – a local tissue damage
- Hypothermia – a generalized cooling of the body

The risk of frostbite or hypothermia is produced when:

- Low temperature is combined with strong winds (Wind-chill)
- The person is elderly, in poor health, or very young
- The person is in a weakened condition due to:
    - Lack of food
    - Fatigue
    - Use of alcohol, tobacco, or drugs
- Clothing is wet (from sweating or immersion in water)
- Clothing does not retain your body heat (i.e. cotton)
- Exposure to cold is for a long period of time

To prevent cold injuries:

- Use clothing for Cold Weather Operations:
    - Take extra clothing when outside in cold weather
    - Wear several layers of loose fitting clothing that breaths, preferably wool, cotton or other flame-resistant materials are best next to the skin. DO NOT use Nylon or polypropylene materials
    - Thermal underwear, lined water proof gloves, cold weather mask or wool scarf
    - Wear water resistant and windproof clothing with light weight high insulating lining
    - Waterproof safety toed boots
    - Keep head and neck covered
    - Avoid getting wet, even by sweating
- Have essential Foods and Liquids for cold weather operations:
    - Eat well-balanced meals with adequate liquid intake
    - Eat high-energy foods often at regular intervals, such as protein and energy bars, etc.
    - Drink lots of hot sweet drinks like soup or tea. Cold water is fine if nothing else is available
    - Eat warm food, not cold, if possible
    - Carry dehydrated rations

Frostbite

A localized cooling of the body and has two forms:

Superficial

- Affects the entire thickness of the skin.
- Usually in the ears, face, fingers, and toes

Symptoms:

- White, waxy skin
- Skin is firm to touch, but tissues underneath are soft
- Pain, then numbness of the skin

First Aid:

- Prevent further heat loss, move to a warm, sheltered area
- Re warm the frost-bitten part gradually with the heat of your body: firm, steady pressure of a warm hand; breathing on part; placing part in contact with your own body
- DO NOT apply direct heat
- DO NOT rub, or put snow on frost bitten area

Deep Frostbite

- Far more serious
- Affects the tissues beneath the outer layer of the skin
- Usually involves an entire hand or foot
- Superficial frostbite may progress into deep frostbite

Symptoms:

- White, waxy skin that turns greyish blue as frostbite progresses
- Skin feels hard and cold
- Numbness in the area
- May be in an unresponsive, frozen state, if body is in a cool area and is stiff and rigid

First Aid:

- Call medical help immediately
- Prevent further heat loss, move to a warm, sheltered area
- Be gentle with the frozen part to prevent further tissue damage
- Do not rub limbs or allow casualty to move unnecessarily
- Do not warm or thaw frozen part, unless medical help unavailable, and threat of re freezing does not exist

Hypothermia

A generalized cooling of the body. It usually occurs in temperatures below freezing, although it can develop in temperatures well above freezing. Hypothermia may progress from mild to moderate to severe.

Symptoms:

- Mild: Normal pulse and breathing, shivering, mental state is conscious, but withdrawn
- Moderate: Pulse and breathing is slow and weak, violent shivering or no shivering, and is clumsy and falls, mental state is confused, sleepy, and irrational
- Severe: Pulse is weak, irregular, or absent; breathing is slow or absent, shivering has stopped, mental state is unconscious

First Aid:

- Prevent further loss of body heat
- Obtain medical help immediately
- Move casualty as little as possible, movement may cause the heart to fail
- Move from a cold environment to a warm shelter
- Remove wet clothes and place under warm covers
- Warm the person by applying hot water bottles or warm towels under neck, armpits and thighs. Or huddle the person for warmth
- Keep the person awake if possible
- Remove from wind, huddle him if necessary
- Give warm, sweet drinks or sweet foods that can be turned into energy quickly. No coffee or caffeine drinks.
- Do not immerse victim in a hot bath
- Do not massage person to warm them
- Monitor breathing and pulse
- If breathing is ineffective, provide assisted breathing
- Unconscious-no breath or pulse- give Artificial Respiration, give CPR only if can be maintained without interruption until medical help arrives

Never assume a casualty in severe hypothermia is dead until his body is warm again and there still are no signs of life.

Refer to wind chill chart on next page for more information on the afore-mentioned.

Wind Chill Calculation Chart

/T air (°C)	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50
V_{10} (km/h)												
5	4	-2	-7	-13	-19	-24	-30	-36	-41	-47	-53	-58
10	3	-3	-9	-15	-21	-27	-33	-39	-45	-51	-57	-63
15	2	-4	-11	-17	-23	-29	-35	-41	-48	-54	-60	-66
20	1	-5	-12	-18	-24	-31	-37	-43	-49	-56	-62	-68
25	1	-6	-12	-19	-25	-32	-38	-45	-51	-57	-64	-70
30	0	-7	-13	-20	-26	-33	-39	-46	-52	-59	-65	-72
35	0	-7	-14	-20	-27	-33	-40	-47	-53	-60	-66	-73
40	-1	-7	-14	-21	-27	-34	-41	-48	-54	-61	-68	-74
45	-1	-8	-15	-21	-28	-35	-42	-48	-55	-62	-69	-75
50	-1	-8	-15	-22	-29	-35	-42	-49	-56	-63	-70	-76
55	-2	-9	-15	-22	-29	-36	-43	-50	-57	-63	-70	-77
60	-2	-9	-16	-23	-30	-37	-43	-50	-57	-64	-71	-78
65	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79
70	-2	-9	-16	-23	-30	-37	-44	-51	-59	-66	-73	-80
75	-3	-10	-17	-24	-31	-38	-45	-52	-59	-66	-73	-80
80	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81

where Tair = Actual air temperature in °C

V_{10} = Wind speed at 10 metres in km/h (as reported in weather observations)

Approximate Thresholds:

Risk of frostbite ir prolonged exposure: windchill below	-25	
Frostbite possible in 10 mir utes at	-35	Warm skin, suddenly exposed. Shorter time if skin is cool at the start.
Frostbite possible in less than 2 minutes at	-50	Warm skin, suddenly exposed. Shorter time if skin is cool at the start.

Heat Illnesses

There are three types of heat illnesses:

- Heat Cramps
- Heat Exhaustion
- Heat Stroke

These three illnesses are caused by:

- The body's inability to maintain a normal temperature of 37 degrees Celsius
- Long exposure to hot conditions
- Overexposure to the sun
- Lack of fluids to replace lost body fluids
- Vigorous or hard labour in a hot environment

To prevent heat illnesses:

- Expose the body gradually to a hot environment

Treatment:

- Place worker in cool place to rest
- Give as much water as individual will take
- Seek medical help if pain continues

HEAT EXHAUSTION

More serious than heat cramps. Occurs when a hot environment and high humidity prevent the body from cooling when you sweat excessively, and/or excessive sweating causes a loss of important body fluids

Symptoms:

- Excessive sweating
- Cold, clammy, pale skin
- Weak and rapid pulse
- Nausea and Vomiting
- Unconsciousness
- Blurred Vision
- Dizziness
- Cramps in legs and abdomen

Treatment:

- Rest worker in a cool place with feet and legs elevated
- Remove excessive clothing
- Loosen tight clothing at neck and waist
- Give as much water as individual will take
- If the casualty is vomiting give nothing by mouth, ensure an open airway and get medical help immediately
- If the casualty is unconscious, obtain medical help immediately, place person into the recovery position, monitor ABC'S and give first aid as needed

HEAT STROKE

A life-threatening illness and has two forms:

Classic - when the body's temperature control fails
Exertional – occurs as a result of heavy physical exertion in high temperatures

Symptoms:

- Body temperature rising rapidly to 40 degrees C and above
- Pulse weakens more and more over time
- Flushed, hot, skin. May be dry or sweaty
- Noisy breathing
- Vomiting
- Restlessness
- Convulsions

- Unconsciousness
- Headache
- Dizziness

Treatment:

- Send for medical help immediately. Heat stroke is deadly
- Reduce body temperature immediately to prevent brain damage:
    - Move person to a cool, shaded place
    - Ensure a clear airway and adequate breathing
    - Remove clothing
    - Immerse in a cool bath and watch closely
    - Sponge with cool water in armpit, neck, and groin area
    - Cover with wet sheets and use a fan to cool air overtop
    - When the body feels cooler to the touch, cover with a dry sheet
    - Monitor temperature, if rises again – repeat procedure
    - Give on-going casualty care until medical help arrives
    - Place unconscious casualty in the recovery position
    - Place conscious casualty in the shock position

External Emergency Services

In the instance where emergency services are needed from an external source the following process must be followed:

Ambulance Service

- If an injury occurs that required immediate transport to a hospital call 9-1-1 and give the operator your location and a description of the incident.
- Provide First Aid to those that you can.
- Cooperate with the ambulance attendants.

Transportation of Injured Personnel

For minor injuries, personnel will be transported by a QC Management member to the hospital, clinic, or emergency centre. All major injuries or suspected major injuries, the individual will be transported via ambulance.

SUGGESTED “GRAB AND GO” WINTER SURVIVAL BAG

- Cell or Bag Phone (Depending on location a Sat Phone)
- Ice scraper/snowbrush
- Folding or Avalanche Shovel
- Tow rope or chain
- Booster cables
- Road flares, Warning Triangle or Warning Lights
- Gas line antifreeze
- Flashlight and batteries
- First aid kit
- Fire extinguisher
- Small tool kit
- Extra clothing and footwear
- Blanket or Sleeping Bag
- Non-perishable energy foods – e.g., chocolate or granola bars, juice, instant coffee, tea, soup, bottled water
- Candle and a small tin can
- Matches
- Pocket Knife or Multi-Tool
- Incident an Accident Investigation Kit.
- (Forms, Pen and Digital Camera)

Motor Vehicle Accident Procedures
Motor vehicle accidents can occur at any time. Knowing what to do in case of either being involved or witnessing a motor vehicle accident can possibly save lives.

- Assess the scene.
- Call 9-1-1 if necessary (for injured people, major vehicle damage)
- Perform First Aid
- Assist emergency responders
- Report the incident to the office

Spill
There are many type of spills that could occur. This could be a spill of a liquid or chemical, release of gases, or a spill of a solid material. The question to ask is "Is the item hazardous to life or the environment"? Depending on the material, gas, or liquid, governing agencies or local emergency responders (fire department) may have to be notified.

- Review the SDS of the chemical or substance for spill response
- Call 9-1-1 immediately to report the spill. Give them your exact location and description of the incident.
- Stay uphill or up wind.
- Perform First Aid to those that require it.
- Keep people away from the area.
- Assist emergency responders

Property Damage
Property damage is identified as any company owned or operated equipment, tool, vehicle, project, or item on site that is damaged in some way.

- Assess the damage
- Report it to Management
- Call emergency services if necessary

Natural Disasters and Weather-Related Occurrences

- Dress appropriately for weather conditions. Treat frostbite and heat related illnesses as per the First Aid protocol.
- For a power outage, make sure all power equipment and tool are turned off and meet at the front desk or a designated meeting area.
- For tornado and high wind events, stay inside and away from windows.
- Meet at muster point and follow the Fire protocol
- Follow directions of the Incident Commander, Site Manager, or QC management

Workplace Violence

See the Workplace Violence Policy for definitions and reporting.

- Try to de-escalate the situation by being non-confrontational
- Seek assistance immediately
- Do not threaten or provoke further violence
- Leave the area if necessary
- Call 9-1-1 if required

Chapter 8 **INVESTIGATION PROCEDURE**

Incident Reporting Procedure

- All accidents and/or incidents must be reported immediately by phone or in person Management.
- Those employees involved in the accident/incident will be required to fill in an incident report to describe the details of the incident and provide additional information when requested.
- The types of incidents or near losses/misses that could have resulted in an incident, must be reported immediately fit into the following categories:
    - Injury/illness:
        - First Aid,
        - Medical Aid,
        - Lost Time,
        - Disability; and
        - Fatality,
    - Damage to asset:
        - Fires,
        - Explosions,
        - Property damage,
        - Theft,
        - Motor vehicle accidents; and
        - Damage to buildings.
    - Environmental damage or contamination:
        - Spills; and
        - Releases: and
    - Reputational damage:
        - As a result of a major incident where losses of interest to the general public can lead to business interruption.
    - Near-miss
        - Any close call that could have resulted in an injury, accident, or damage
    - Incident
        - Any occurrence that does not fall under the other headings such as Workplace Violence

Where appropriate the following incident types must be reported immediately to Workplace Health and Safety: (OH&S)

- An injury or accident that results in death,
- Injury resulting in an employee being admitted to a hospital,
- Unplanned or uncontrolled explosion, fire or flood that causes a serious injury or that has the potential of causing a serious injury,
- Collapse or upset of a crane, derrick or hoist; and
- Collapse or failure of any component of a building or structure necessary for the structural integrity of the building or structure.
- An injury (even minor) must be reported to the Provincial Workers Compensation Board where medical attention has been administered by a doctor that may result in lost time.

Incident Investigation Procedure

- QC Installations employees on site will follow the incident investigation procedure set forth by the prime contractor,
- All office employees will follow the incident investigation procedure set forth by QC Installations Health and Safety Management System,
- The phases of incident investigation are as follows:
    - Respond to the emergency immediately by taking charge and controlling the scene:
    - Notifications must be made to QC Installations Management; and
        - Keep those who are not needed out of the area.
    - Collect relevant information regarding the incident and record it on the incident report such as:
        - What appears to have happened?
        - Who should be interviewed?
        - What materials or tools have malfunctioned?
        - What is the estimated cost?
    - Analyze any data to determine causes:
        - Identify substandard acts and conditions; and
        - Determine direct, indirect and root cause.
    - Ensure corrective action is implemented in a timely manner:
        - Systems may need to be locked out immediately,
        - Spills or leaks may require clean up; and
        - Control methods must be enforced.
    - Review findings and recommendations:
        - Management must follow up to ensure the correct steps were taken to remediate all risk factors and implement appropriate corrective action; and
        - Management must sign off and close the incident following a thorough review of all findings and corrective action.
    - Follow through on the effectiveness of the corrective action:
        - Management must follow through for the investigation to be effective,
        - It ensures that the intended actions were completed; and
        - It ensures that the completed actions did not have an unexpected or undesired effect over time.
    -

Refer to Accident/Incident Reporting Form

Investigation Training

- Key employees must be formally trained in incident investigation techniques; and
- All employees will be trained by the key employees to understand how to report incidents, what to report and how to be involved in an effective investigation.

Worker Involvement

- All contractors and workers on site may be involved in the incident investigation process where required; and
- Contractors and workers may be involved as a part of an investigation team to establish immediate, basic and ultimately root cause.

Root Cause Analysis

- All incidents must be analyzed to determine the root cause,
- This is completed through a problem-solving causation model to include the following steps:
    - First, the direct cause must be determined; the incident itself,
    - Second, all immediate causes must be determined. The two categories under immediate causes are:
        - Substandard acts/practices; and
        - Substandard conditions.
    - Third, the basic causes must be determined. The two categories under basic causes are:
        - Personal factors; and
        - Job/system factors.
    - Finally, the root cause must be determined based on the symptoms found in each of the previous steps. The root cause of any incident proves failure within systems or the inability to maintain compliance with standards.

Refer to Accident/Incident Reporting Form

Corrective Action

- Once the necessary corrective actions are identified to reduce all of the risks/symptoms and the root cause, those involved in the investigation must ensure that the necessary corrective action is implemented; and
- If the actions must be initiated as soon as practicable.

Management Review

- All incident investigation reports will be reviewed by management,
- Management will provide follow through to ensure the effectiveness of the control methods and corrective action implemented; and
- Management will sign and close the incident.

Communications

- Management will develop, maintain and distribute statistical summaries of all incidents and investigations; and
- All employees will receive updates of incident findings and corrective action by means of safety alert, lessons learned report or through health and safety meetings. The intent of communications is to prevent recurrence,

WCB Reporting

A WCB Report must be completed and submitted under the following circumstances:

- A worker is injured and loses consciousness,
- A worker is sent for medical treatment by a first aid person or a supervisor,
- An injury or disease needs medical attention,
- A worker states he or she is going to get medical treatment or has already received treatment,
- A worker is, or claims to be, unable to do his or her job because of injury or disease, on the day of the injury or any subsequent days; or

- The incident breaks an artificial limb, eyeglasses, dentures, or hearing aid, or the worker claims it did.

NOTE: Independent contractors must deal directly with the WCB. **QC Installations** will, where appropriate, provide information or advice on the processing of claims.

Chapter 9 **PROGRAM ADMINISTRATION**

Communications

- There will be daily pre-work health and safety meetings on the work sites and monthly meetings in the office if there are no active work sites, where health and safety topics, initiatives, and discussion of incidents will occur. Management and all employees are expected to participate in these meetings.
- Meetings will be documented to record attendance, topics discussed, any new initiatives, items brought forward for discussion, feedback, questions, and follow up to these items by management.

Refer to Health and Safety Meeting Minutes.

Follow-Up

- All follow up procedures are tracked and recorded to completion in the corrective action log. Management will track all reports including hazard assessments, inspections, accident/incident investigations to flag and provide corrective action,
- Opportunities for improving the Health and Safety Management System will be actioned in the corrective action log as a result of monitoring the number and severity of incidents, monitoring absenteeism, through ongoing maintenance records, through health and safety audits, through industry ratings and by monitoring the action plan process.

Refer to Corrective Action Log/ List

Contractor Involvement

- A contractor/consultant will receive a health and safety handbook prior to commencement of work,
- Whenever a concern is brought forward, it is addressed until resolution can be attained,
- Managers and supervisors (contractors) must ensure health and safety policies and hazard control methods are followed by conducting pre-job hazard analysis prior to work on our site,
- Pre-job safety meetings will be held to discuss health and safety issues prior to all work starting,
- The Contractor's company must provide an orientation to all new employees and provide refresher training annually, if sending new employee to Mode Yard Care's Calgary sites.
- The managers or site supervisors (contractors) must ensure they are following policies and using the controls put into place for their safety; and
- Management and site supervisors (contractors) must endorse all health and safety rules and performance standards through onsite observations, discussions with the prime contractor and through jobsite inspections.

Record Keeping

- Records relating to all aspects of the Health and Safety Management System shall be kept for a minimum of three years.

Health and Safety Statistics

- All health and safety records including incidents, corrective action and preventive maintenance will be reviewed and analyzed regularly for the purpose of identifying trends or patterns to determine program needs.

See the Statistical Report Form

Analysis and Trending

- Quarterly and annual loss summaries will be compiled and analyzed in a Quarterly Loss Summary Report and Year End Loss Summary Report to quantify loss control activities and risk.
- This will meet the needs of due diligence requirements in accordance with the OH&S Act, identify loss trends and measure the performance of the Health and Safety Management System.

Health and Safety Management System Audits

- An annual health and safety program audit is to be conducted to ensure the company is maintaining the program and for the purpose of maintaining its Certificate of Recognition (COR/SECOR).
- After the initial COR/SECOR audit, the company will require:
    - Year 1- Internal/Maintenance Audit,
    - Year 2- Internal/Maintenance Audit; and
    - Year 3- External/Recertification Audit.

Action Plan

- Action plans will be developed to correct all deficiencies identified through:
- The statistical analysis and the audit process.

Action Plan Implementation

- The action plan implementation process will be as follows:
    - Identification of the deficiency,
    - The planned action,
    - The target date for completion,
    - The employee responsible to carry out the action, and
    - The corrective action completion date.