
18.0 WORKING IN THE SHOP, OFFICE AND/OR FIELD

The shop presents different areas of potential danger not associated with our normal day to day surveying. The following are areas of concern and precautions required.

Grinder Used for Sharpening Tools:

- Safety goggles must be worn at all times
- Gloves must be worn at all times
- Insure the proper grinding technique is being used
- Insure that no one is standing in the area
- Insure that the operator does not have articles of clothing that can be caught in the grinder

Stamping of Survey Posts:

- Gloves, safety goggles and hearing protection must be worn at all times
- Vice grips must be used to hold the stamps
- Insure the post is firmly held in position by the large vice

Storage of Survey Equipment:

- Equipment and supplies stored on the shelves and cupboards present potential areas of danger - care should be taken when removing supplies from overhead.

18.1 Safe Work Practice – Batteries Charging & Servicing

GENERAL

Protecting workers from injuries associated with charging and servicing batteries.

APPLICATION

Batteries contain sulphuric acid and should be handled by trained personnel and are charged in approved battery charging areas.

PROTECTIVE MECHANISMS

Safe work procedures
MSD'S
PPE
Safety shower and eyewash station

SELECTION AND USE

As per safe work procedure

SUPERVISOR RESPONSIBILITY

Supervisors are responsible to facilitate and/or provide proper instruction to their workers on protection requirements and training.

WORKER RESPONSIBILITY

1. Ensure the charger is off before attaching or removing clamp connections.
2. Attach clamps to the battery in proper polarity.
3. Ensure proper ventilation is in place where batteries are charged.
4. Inspect for defective cables, loose connections, corrosion, cracked cases or covers, loose hold-downs and deformed or loose terminal posts.
5. Replace worn or unserviceable parts.
6. Tighten cable clamp nuts with the proper size wrench.
7. Utilize a cable puller to remove a cable clamp from the battery terminal.
8. Remove corrosion on the terminal posts, hold-down tray and hold-down parts.
9. Use a tapered brush to clean battery terminals and the cable clamps.
10. Clean dirt from the battery with baking soda solution.
11. Utilize a battery carrier to lift a battery.
12. Ensure battery cells are not filled above the level in indicator.

18.2 Safe Work Practice – Office Safety

GENERAL

Protecting workers from injuries associated with office environment.

APPLICATION

To ensure employees are aware of the potential and existing hazards in the office environment.

PROTECTIVE MECHANISMS

Safe Work procedures
ERP (Emergency Response Plan)
Manufacturer's recommendations
Alberta Fire Code
Local Legislation
MSDS

SELECTION AND USE

As per safe work procedure
ERP
MSDS

SUPERVISOR RESPONSIBILITY

Supervisors are responsible to facilitate and/or provide proper instruction to their workers on protection requirements and training.

WORKER RESPONSIBILITY

1. Ensure you are conversant with emergency evacuation.
2. Ensure that all electrical cords are in good condition and are not overloaded.
3. Ensure that computer monitors are adjusted to correct height and kept clean.
4. Ensure fans/space heaters are used to manufacturers specifications.
5. Ensure floors and aisles are kept clear and not cluttered.
6. Ensure that only one drawer of filing is open at one time and that drawers are closed when not in use.
7. Ensure proper type of fire extinguishers are available.
8. When transporting materials of a heavy nature ensure that handcarts and trolleys are used properly.
9. Operate microwave according to manufacturer specifications.
10. Ensure coffee makers are used according to manufacturer specifications.
11. Ensure photocopier is maintained according to manufacturer's specifications.

12. Ensure chairs are in good repair.
Ensure rugs are kept clean and in good repair – free of tripping hazard.

18.3 Working in or Around Trenches, Excavations, Tunnels or Underground Shafts

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Working in or Around Trenches, Excavations, Tunnels or Underground Shafts

- (1) Generally, no employee shall enter an excavation, trench, tunnel or underground shaft with the exception of those employees designated as “inspectors” by the company. Inspectors may enter excavations or trenches as it is a function of their job requirements. Inspectors shall not enter the confined spaces of tunnels or shafts. Inspectors, before entering either a trench or excavation, shall ensure that, if they are more than 1.5 metres in depth and closer to the wall or bank than the depth of the excavation, they will be protected from cave-ins or sliding materials by:
 - (a) the cutting back of the walls of the excavation or trench to reduce the height of the remaining vertical walls, if any, to not more than 1.5 metres,
 - (b) the installation of temporary protective structures, or
 - (c) a combination of cutting back of the walls and the installation of temporary protective structures.

- (2) Where the cutback method is used, the walls must be cut back:
 - (a) in hard and compact soil, to not less than 30 degrees from the vertical, and
 - (b) in other soils to not less than 45 degrees from the vertical.

- (3) The inspector shall ensure that:
 - (b) temporary protective structures in an excavation or trench of 3 metres or less in depth are constructed of materials of sufficient strength to prevent the walls of the excavation from caving in or otherwise moving into the excavation;
 - (c) temporary protective structures in an excavation over 3 metres in depth are designed and certified by a professional engineer;
 - (d) where a foundation may be affected by an excavation, the foundation is supported before proceeding with the work by a temporary protective structure designed, constructed and installed in accordance with the specifications of a professional engineer;
 - (e) loose materials are scaled or trimmed from the sides of an excavation where workers are or will be present; the spoil pile is piled so that:
 - (i) it is kept at a distance of at least 1 metre from the edge of the excavation, and
 - (ii) the slope of the spoil pile adjacent to the excavation is at an angle of not less than 45 degrees from the vertical.
 - (f) ladder is provided in the trenches.
 - (f) in cases where trenches are supported, the Inspector shall seek confirmation from the Contractor that the support devices have been certified by a Professional Engineer.

(4) When workers are carrying out an excavation or trench in the vicinity of an overhead power line, the inspector shall ensure that the work is carried out in a manner that will not reduce the original support provided for the power line poles.

18.4 Formal Check In Procedure for Working in Remote Areas

1. Before starting work away from your vehicle in a remote area call and provide:
 - a) Your destination
 - b) Your planned work activities
 - c) When you expect the work to be completed

2. If it becomes apparent that more time is required to complete the work, call back to provide a revised estimate.

3. After you complete the work inform the check-in person.

If you **DO NOT** report within 1 hour of your estimated time, the check-in Person will try to contact you and if unable commence a search.

Check in people are one of the following:

Darrin Trydal – 518-7493
Matthew Barnfield – 814-2239
Rick Badger – 518-1425

18.5 Safe Work Practice – Driving (Winter)

Protecting workers from injuries associated with winter driving.

Application: Operation of motor vehicles must be performed according to:

1. All vehicle codes
2. Traffic laws
3. Company procedures
4. Manufacturer's recommended operating guidelines.

Protective mechanisms: Safe Work Procedures Highway Traffic Act
Company Rules & Manufacturers Recommendations

Responsibility:

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1. Ensure you have a valid operators license.
2. Be Conversant with traffic laws & regulations.
3. Drive defensively.
4. Ensure vehicle has emergency equipment.
5. Ensure to clear all windows, mirrors and light of snow and ice.
6. Avoid using cruise control on ice road.
7. Accelerate gently to reduce spinouts.
8. Ensure winter clothing does not restrict movement, vision or hearing.

18.6 Safe Work Practice – Computerstation / Workstation

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18.7 Job Procedure– Loading Paper In Engineering Printer

18.8 BEAR SAFETY

GENERAL

Bears, and people share many common traits. The most important one in regards to safety is that bears, like people, are very unpredictable. There are no set of guidelines that will keep a person completely safe from bears, but there are general procedures that will minimize the danger of bear encounters.

MYTHS

This is a section aimed at clearing up any dangerous misconceptions that people have about bears and bear behaviours.

Grizzly Bears are more dangerous than Black Bears.

This is a common misconception about bears. In fact, most fatal bear attacks involve Black Bears. Black bears are also more common than Grizzly Bears, and because of this, they are less afraid of humans and more likely to cause a problem. Also, the average person may have trouble identifying the species of a bear, so bears should always be judged on behaviour, rather than appearance.

I can outrun a bear.

Bears can run faster than a thorough-bred racehorse. Running will also trigger the bears chase instinct. Back away slowly whenever possible, running will just worsen the situation.

Bears can't run downhill.

Many people believe that since a bear's front legs are shorter than its back legs, it will become unbalanced when running downhill. This is a dangerous belief. Bears can in fact run downhill, and they can do it much better than humans can.

Do not make eye contact with a bear.

Most people believe that making eye contact with a bear will initiate an attack, since it is an aggressive gesture. If a bear is stalking you or generally acting aggressive, it is best to act aggressive as well. Convincing the bear that you are not worth the effort is your best defense. Make eye contact, yell, wave your arms and throw sticks and rocks if possible. If you are in a group, do not get separated and work together to deter the bear.

Playing Dead will reduce the severity of a bear attack.

Playing dead is becoming less and less of an effective way of surviving an actual bear attack, since bear attacks are becoming more predatory in nature; the bears intent is to kill. Never play dead with any bear, always fight back.

AVOIDING DANGEROUS BEAR ENCOUNTERS

Every bear encounter is different, and it is difficult to know what to do in every situation. You will be required to use your best judgment whenever you encounter a bear. To avoid an encounter with a bear, the following procedures are useful:

1. Always expect to encounter a bear.
2. Work in pairs whenever possible.
3. Make noise when in the bush.
4. Be extra cautious in berry patches.
5. Any time you smell rotten meat or see evidence of a bear kill, quickly and quietly go back the way you came, and leave the area immediately.

BEAR ATTACKS

Bear attacks are generally rare, but they do happen, and it is best to be prepared for one. Always have a defense strategy planned when in bear habitat.

When you encounter a bear, the following guidelines are most effective to deal with the situation safely.

Encounter strategy Guidelines:

1. Never expose yourself to a possible bear attack without a defensive system (see below).
2. Never play dead with any bear, always defend yourself.
3. If the bear is showing anger, ready your defensive system, and if possible, back away slowly.
4. If a bear is stalking you, ready your defensive system, maintain eye contact, and quickly chase it away by yelling, throwing rocks, beating sticks together, etc.
5. If you cannot determine what is going on, or if you want to boil this all down to only one guideline, ready your defense system, stand your ground quietly, and defend yourself.

DEFENCE STRATEGIES

Tree Climbing: This can be an effective strategy in some cases, but there are cases of the bear climbing up the tree and pulling people out of them. Always assume the bear you are dealing with, regardless of species, can climb trees. In most cases of people climbing trees to escape bears, it has been successful when the victim used branches and their jackets to beat the tree to deter the bear from climbing, or hitting it when it got too close.

Backpacks: On many occasions backpacks have save people from death or a more serious injury. If you can keep a backpack between you and the bear during an encounter, do so. Dropped packs may distract some bears, but not all.

Weapons: Most companies do not allow firearms or other devices such as pepper spray to be used by employees, so in most cases weapons will include sticks and rocks. Always use the best weapon at your disposal.

Sows and Cubs: This is the bear encounter that one should be most concerned about. Always try to avoid cubs whenever possible, since the mother will stop at nothing to stop

any proposed threat. Leave the area immediately if possible, and follow the Encounter Strategy Guidelines found above.

18.9 WORKING ALONE

If a worker is to be working alone at a worksite and assistance is not readily available in the case of an Emergency due to injury or illness, then working alone is to be considered a hazard and shall be assessed as one on the Hazard Assessment Form (Tailgate Sheet).

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Precautions Required:

- Effective radio, telephone, or other electronic communication between the worker who works alone and someone capable of assisting the worker in an emergency due to injury or illness.
- If electronic communication is not practicable or possible, then a supervisor or competent worker must visit the worker who works alone at regular intervals or the worker who works alone must make contact in some way with the Supervisor or competent worker. Regular intervals refers to intervals of time appropriate to the nature of the hazard associated with the worker's work site.
- Reference to Part 28 of the Occupational Health and Safety Code.

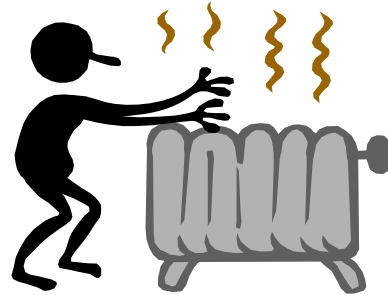
18.10 WORKING ON ICE

If a worker is to work on ice and the water beneath is more than 1m deep at any point, then the employer (Supervisor) must ensure the ice will support the load to be placed on it. The ice shall be checked prior to work being done and as often as necessary throughout the job to ensure the safety of the workers.

Reference: Part 12, Section 195 of the Occupational Health and Safety Code.

Refer to Section 15.3 of the Beirsto Lehnert Ketchum Safety Manual for Ice Thickness Chart. These charts are giving thickness for Blue Ice. White Ice is only half as effective as Blue Ice. Other factors to consider are running water, spring fed lakes and streams, layers of water between layers of ice and air temperature.

18.11 SPACE HEATER SAFETY



SPACE HEATER SAFETY

- Buy a space heater that has been tested and labelled by a nationally recognized testing company. It should also have a tip over switch that will turn off unless the unit is in an upright position.
- Avoid using an extension cord with your heater. If you must use an extension cord, make sure it's heavy duty. It should be marked with a power rating at least as high as that on the label of the heater itself (usually orange)
- Heaters should have a 3 prong grounded plug and use 3 hole wall outlets
- Heaters should never be used for drying clothes, warming bedding, heating food, thawing pipes or anything other than supplemental heating.
- Inspect your space heater before using. Discontinue use if heater has fraying insulation, broken wires or shows any sign of overheating.
- Select a space heater with a guard around the heat source. This will keep children, pets and clothing away from the heat source. The Heater should be kept away from drapes, furniture and other flammable materials.
- Read the Manufacturer's Operating Instructions and keep the Owners Manual in a convenient place to refer to when needed.
- Avoid using your space heater in the bathroom. If you must, never touch the heater when you're around water.
- Always turn the heater off when you leave the room.

18.12 SAFE WORK PRACTICE

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SAFE WORK PRACTICE

TITLE	Cell Phone Usage
GENERAL	Protecting workers from injuries associated with the use of cell phones while operating a motor vehicle.
APPLICATION	Using a cell phone improperly while operating a motor vehicle may be hazardous to the worker and general public and is not allowed.
PROTECTIVE MECHANISMS	Safe work procedure Highway Traffic Act Local Regulations Manufacturers Recommendations
SELECTION AND USE	Safe work procedure Manufacturer recommendations
SUPERVISOR RESPONSIBILITY	Supervisors are responsible to facilitate and/or provide proper instruction to their workers on protection requirements and training Enforcement Compliance
WORKER RESPONSIBILITY	<ol style="list-style-type: none"> 1. Make driving your first priority. 2. Cell phone usage while driving is not allowed. Let your voice mail take your incoming calls. 3. Hands-free devices are also disallowed. 4. Taking notes or looking up phone numbers while driving is not allowed 5. Ensure cellular phones are turned off when refueling.
<p>* The information presented in this publication is intended for general use and may not apply to every circumstance. It is not a definitive guide to government regulations and does not relieve persons using this publication from their responsibilities under applicable legislation. The Alberta Construction Safety Association does not guarantee the accuracy or, nor assume liability for, the information presented here. Individual counseling and advice are available from the Association.</p>	

Revised: December 11, 2007

18:13 USING THE JACKHAMMER SAFELY

Before Using the Hammer

- When loading the generator, lift with your legs and ask for help.
- Read the operator's instruction manual before using the tool.
- Be sure electric models with a three-wire system are properly grounded to reduce the risk of fire and electric shock. This is not necessary for double insulated models. Use a ground fault interrupter (GFI) for maximum safety protection.
- Be sure the extension cord for electric models is a size large enough for the distance from the receptacle to tool.
- On engine-driven, air models always fill the gas tank out of doors with engine shut off and cool. Never handle fuel while smoking or in the presence of sparks or open flame. Allow the engine to cool briefly if you need to refuel during operation.
- Always wear proper protective equipment. Safety glasses or shield, safety helmet, hearing protection, safety shoes, breathing protection, sturdy long pants, and long-sleeved shirt are essential.
- Check all bits to see that they are sharp. If not, sharpen according to the manufacturer's recommendations. Always use eye protection when operating a grinder.
- Use tie-downs when transporting jack and generator to and from the job site.

Operating the Jackhammer

- Before using the jackhammer, make sure the pin is securely in the ground.
- Always disconnect the electric power or air supply before inserting or removing tools.
- Be sure all tools are properly locked into the unit before operating.
- Never pull or drag extension cords behind the truck when moving from pin to pin.
- Keep all bystanders, children and pets out of the work area.
- Prevent back injuries by using your leg muscles to lift the machine into operating position.
- Allow the tools to do the work by using a grip light enough to maintain control.
- Take rest breaks as needed.
- If stopping work for a short period of time or for the day, unplug the electricity or stop the compressor.

18:14 SAFE WORK PRACTICE: WINCH SAFETY TIPS

Operating a Winch

- Make sure you have a good pair of leather work gloves, never handle the cable with bare hands since a frayed cable can cut skin to the bone.
- Utilize your common sense when using the winch.
- Check the winch before and after each use. Make sure to fix it before it fails and you need it the most.
- Try to winch in a straight line as it uses less energy and puts less strain on the equipment.
- Pulleys (Snatch blocks) halve the strain and the speed but you need double the amount of rope.
- Never straddle a winch rope.
- Clear fouled equipment with a stick and not your hands or fingers.
- Free-spool to pull the winch line out.
- Keep the winch line tight when reeling it in.

One of the most common winch related accidents is having your fingers or hand caught in the cable as the last of it winds onto the drum. The best way to avoid this is to hold the hook or strap and **not** the cable.