

THE PACIFIC GROUP OF COMPANIES SAFETY RULES AND SUPPLEMENTARY INSTRUCTIONS POLICY

All THE PACIFIC GROUP OF COMPANIES workers will be instructed in and provided with written rules and supplementary instructions as necessary to minimize accidents. THE PACIFIC GROUP OF COMPANIES will determine which rules and supplementary instructions are needed by:

- ◆ reviewing inspection, accident investigation and first aid records,
- ◆ observing employees performing their work activities,
- ◆ evaluating worker and safety committee recommendations,
- ◆ reviewing WCB requirements, and
- ◆ analyzing new work processes and contract specifications.

Supervisory staff are responsible for ensuring worker understanding of, and compliance with, general safety rules and supplementary instructions.

The safety rules and instructions provided in our program may not cover all the health and safety requirements employees will be expected to follow for each different situation - they are intended to remind employees of the more obvious conditions. **If any employee has any concerns regarding the health or safety of a work process, they are encouraged and directed to consult with their immediate supervisor for additional instructions. The basic philosophy of THE PACIFIC GROUP OF COMPANIES is "Safety Is The First Consideration." There is no chance worth taking that may jeopardize the safety or health of any employee or the public.**

Supplementary instructions will be enforced in the same manner as safety rules and the WCB Regulation. Compliance with the WCB's Regulation and our safety program requirements is mandatory on all our projects. Wilful or negligent non-compliance with good health and safety practices by any employee may result in injury or damage and will result in disciplinary action.

The following is our supervisors' **guideline** for disciplinary action for safety infractions.

- 1) On the first offense, the employee will be given a verbal warning
- 2) On the second offense, the employee will be given a written warning.
- 3) On the third offense, the employee will be suspended for 3 days without pay.
- 4) On the fourth offense, employment will be terminated.
- 5) If the safety violation is of a serious nature, such as wilful contravention of fall protection or excavation requirements, the employee may be suspended without pay or terminated without prior warning.

NOTE: Second and third offenses will be responded to as stated regardless of whether they are a repeat of the same type of offence.

THE PACIFIC GROUP OF COMPANIES GENERAL SAFETY RULES

- 1) Hard hats must be worn at all times on the construction site unless the employee is:
 - ◆ inside a vehicle that provides protection from falling objects,
 - ◆ operating equipment that is equipped with overhead protection, or
 - ◆ in a work location that has been designated by the project supervisor as having no danger of head injury from falling, flying, or thrown objects or other harmful contacts.
- 2) All employees are required to wear appropriate safety footwear to protect them from injury.
- 3) Eye protection must be worn when grinding, chipping, mixing grout, blowing, burning, drilling, welding, or performing other work procedures where exposure to an eye injury hazard is present.
- 4) Hearing protection devices (muffs and/or plugs) must be worn when there is excessive noise (85 dB or greater daily average) and when directed by your supervisor.
- 5) Respiratory protection that has been fit-tested must be worn or carried on your person in those locations identified by your supervisor. If any of this equipment is not readily available or is in unserviceable condition, alert your supervisor and it will be provided or replaced.
- 6) Personal flotation devices (life jackets), with at least 200 cm² (32 in²) of white or silver retro-reflective material fitted on surfaces normally above the water surface, must be worn properly zippered, buckled or tied on where a drowning hazard exists.
- 7) Fall protection must be used in fall hazard areas (areas where it is possible to fall 3 m (10 ft) or more, or where there is an injury hazard greater than the hazard of hitting the ground - e.g.: above operating equipment or protruding rebar).
- 8) Every employee must wear clothing appropriate for work. Sleeved shirts and long pants are the minimum requirement.
- 9) All hazardous conditions (work procedures, atmospheres, defective or malfunctioning tools, equipment, structures, protective clothing or equipment) must be immediately corrected and/or reported to your immediate supervisor.
- 10) If you have any concerns or questions regarding the safety of a work procedure, consult with your immediate supervisor before proceeding with the task. Your supervisor has the final word on safety on site, but if you feel there is a risk involved in following supervisory personnel instructions, do **not** carry on with the job. Contact THE PACIFIC GROUP OF COMPANIES head office immediately to discuss the situation. You will not be reprimanded in any way for questioning the safety of a work procedure.

- 11) Equipment and machinery must be shut down AND locked-out before oiling, adjusting, repairing or maintaining. Shut down equipment and machinery before fueling.
- 12) Use the tools and equipment necessary to do your job safely and use them in the way they were meant to be used. Take good care of tools and equipment - keeping equipment in good working order helps prevent accidents.
- 13) Inform others if you are going to work above or below them and ensure that safe guards or precautions have been arranged. Never leave tools or equipment in an elevated position where they can be knocked off onto another person.
- 14) Seatbelts must be worn by drivers and all passengers as required by law.
- 15) All rigging, hoisting and work platform procedures must be performed safely in compliance with the WCB Regulation. Appropriate slings, chokers, etc. must be used for all lifts.
- 16) All injuries must be reported to your immediate supervisor and first aid at the earliest practicable opportunity. **If a serious accident occurs do not change anything at the accident location unless it is necessary to prevent further injury.** Emergencies that occur on "after-hours" jobs, in addition to reporting to the appropriate authorities (police, ambulance, fire department, WCB) must also be reported to:

Safety Manager

Name

291-1255

Telephone Number

341-3097

Cellular Number

- 17) If you are under the influence of, or impaired by, illicit drugs or alcohol, stay off the project site. You will not be allowed to work if it becomes evident that your ability to work safely is impaired by these substances.
- 18) Only authorized persons may operate company vehicles and powered mobile equipment.
- 19) Maintain good housekeeping in your work area and, where practicable, secure it against unlawful access during the off-shift.
- 20) Heed all safety guards, barriers, signs and tags and never render inoperable any safety device. Report any safety devices or guards that are not performing their intended function to your immediate supervisor for correction. These devices are in place for **your** protection.
- 21) Use of hazardous materials must conform with manufacturer recommendations. A manual of Material Safety Data Sheets (MSDSs) for our WHMIS-controlled substances is available for reference. Contact your supervisor.
- 22) Use proper lifting techniques to avoid sprains, strains and back injuries. Get help or use lifting equipment for heavy or cumbersome loads. Guard against getting into an unbalanced position when pulling, prying or pushing - particularly at heights.

- 23) Sub-trades are largely responsible for their own safety, but they must abide by the instructions of our supervisory personnel. If you see them doing something that may cause a health or safety hazard to themselves or others, please report it at the earliest opportunity to your immediate supervisor.
- 24) For your own safety and that of your fellow employees, **please take particular care when working in excavations, on scaffolds or other elevated platforms, and near power lines.** These are the areas of our industry where the most serious accidents occur. When you are involved in these jobs take an extra moment to anticipate and minimize potential hazards to yourself and others.
- 25) The WCB Regulation sets the minimum health and safety standard. A copy is on site. Cooperate with WCB officers. Feel free to discuss intent of the Regulation; they are willing to discuss any safety concern.
- 26) Be safety smart - consult the safety program on site. Your participation in our program is encouraged, expected and for your benefit. Some methods of getting involved include:
 - Obtaining, renewing or upgrading required certificates (first aid, hearing testing, etc.) prior to their expiry,
 - Don't just attend safety meetings, participate in them (e.g.: bring a topic to discuss),
 - Make suggestions to your supervisor on how we can improve safety on the job,
 - Work safely and encourage fellow workers to do the same.

**“To ignore safety practices doesn’t indicate bravery, only foolishness.
To do things safely and correctly is the mark of a wise person, not a timid one.”**

PLEASE BE CAREFUL - YOUR LIFE MAY DEPEND ON IT!

THE PACIFIC GROUP OF COMPANIES SUPPLEMENTARY INSTRUCTIONS

Accident and Injury Reporting

(Core manual Section 6 - *Accident and Incident Investigations*)

- 1) All **work-related** accidents, injuries and diseases must be reported to your supervisor and the first aid attendant at the earliest opportunity. The first aid attendant will enter a written record of your treatment in the first aid record book and, where necessary, will complete a WCB Form 7A (*First Aid Report*) and forward it to the project supervisor. You will be requested to complete a WCB Form 6A (*Worker's Report of Injury or Industrial Disease to Employer*) to give to your supervisor. Your supervisor will coordinate investigation of the injury and complete an Accident Investigation Report for submission along with the Forms 7A and 6A to head office for review. Where required by the WCB Regulation,

THE PACIFIC GROUP OF COMPANIES Head Office will complete a WCB Form 7 (*Employer's Report of Injury or Occupational Disease*) based on your supervisor's Accident Investigation Report and the Forms 6A and 7A and submit it to the WCB.

- 2) If an injury occurs while no supervisory personnel are immediately present, at the earliest opportunity report the accident to THE PACIFIC GROUP OF COMPANIES head office at telephone (604) 291-1255
Where possible, your report must be made before the end of the shift.

If a serious injury occurs on an "after-hours" site it must be reported at the earliest practicable opportunity to:

Safety Manager	291-1255	341-3097
Name	Telephone Number	Cellular Number

- 3) Where an accident results in death or a critical condition with a risk of death, the following authorities must be notified immediately:

- Local police (contacted by supervisor)
- Ambulance (contacted by supervisor)
- Management (contacted by supervisor)
- Workers' Compensation Board (contacted by management)

- 4) Where an accident results in structural failure or collapse in or around the project site the following persons are to be notified immediately:

- Management (contacted by supervisor)
- Workers' Compensation Board (contacted by management)

- 5) If necessary, employees may report injuries directly to a medical practitioner but must subsequently provide THE PACIFIC GROUP OF COMPANIES with:

- the reasons for not first reporting to first aid and your supervisor;
- the date and time of visit;
- the doctor's diagnosis and directions; and
- a completed WCB Form 6A.

- 6) All incidents involving damage to Company vehicles, equipment or property must be reported to your supervisor. If your supervisor is not immediately available, the damage must be reported to THE PACIFIC GROUP OF COMPANIES head office at telephone (604) 291-1255

If substantial property damage occurs on "after-hours" sites it must be immediately reported to:

SAFETY MANAGER	291-1255	341-3097
Name	Telephone Number	Cellular Number

A follow-up written report must be prepared and submitted by each employee directly involved in vehicle and property damage.

- 7) Near misses that had the potential of resulting in a serious injury or property damage must be reported to your immediate supervisor for investigation.
- 8) Where practicable, the site supervisor must ensure all accidents are immediately investigated and an investigation report is completed and submitted to head office within 24 hours.
- 9) Head office personnel are responsible for completing the WCB Form 7 (*Employer's Report of Injury or Occupational Disease*) and submitting the form to the WCB within 3 days of the initial report of injury.

Accident Scene Preservation

In the event of a serious accident (fatality or accident resulting in a critical condition with a risk of death), **nothing must be removed from or changed at the accident location** before a WCB representative has given clearance to do so, **except where necessary to facilitate rescue operations or to prevent imminent injury.**

Asbestos Project Notification

The owner or the principal contractor must ensure that the WCB receives a Notice of Project at least 24 hours before beginning work on the following types of projects:

- a) Removing, encapsulating or enclosing friable asbestos building materials.
- b) Demolishing, dismantling or repairing any part of a structure or building in which insulating materials containing asbestos have been used or in which asbestos-containing products have been manufactured.

The notification must include:

- a) name and address of the principal contractor (if any) and the owner,
- b) address or location of the project,
- c) starting date and estimated duration of the project,
- d) a description of the project, including its size, estimated cost of labour and materials,
- e) detailed written work procedures which will be used to minimize the risk to workers who might be exposed to asbestos material.

NOTE: Notice of Project Asbestos (NOPA) Forms are available from the WCB. A copy

of the completed form is to be posted at the job site.

Asbestos Recognition

Asbestos is the generic name for a group of naturally occurring fibrous minerals. Asbestos colour may range from white to a pale yellow, green or blue. Asbestos fibres are very harmful to the lungs. They may cause lung scarring (asbestosis), lung lining scarring (pleural scarring), cancer of the lung lining (mesothelioma) and lung cancer. Time lapse before the disease becomes evident may be 20-40 years. Workers who smoke have a 10-15 times greater risk of lung cancer from asbestos exposure than workers who do not smoke.

The high strength, flexibility, heat and chemical resistance, and frictional properties of asbestos led to its widespread use in electrical insulation, high strength asbestos cement products, pipe covering, floor tiling and asphalt. A good measure of the hazard posed by asbestos is its **friability - the ease with which it can be crumbled or pulverized**. Products with "bound" asbestos do not pose a hazard unless they are cut, sawn, ground or sanded.

- 1) If workers unexpectedly discover a material they believe may be asbestos where they are working (e.g.: inside a pipe chase), they must alert their supervisor immediately.

The supervisor will take immediate actions including:

- alerting workers in the vicinity to the presence of the material,
 - removing the workers from the environment where exposure may occur,
 - restricting access to the area and posting warning notices,
 - contacting an approved asbestos removal contractor to take a sample, and provide an assessment,
 - where necessary, coordinating the removal or encapsulation of the asbestos (only low risk abatement activities will be undertaken by THE PACIFIC GROUP OF COMPANIES . High risk abatement procedures will be contracted out.),
 - filing a complete report with head office.
- 2) In circumstances where it is necessary that work continue in the hazard area, workers who may be affected by the presence of asbestos will be provided with written procedures and protective clothing and equipment, which must be used.

Asbestos "Low Risk" Work Activity Procedures

Low-risk work activities include working near undisturbed friable asbestos-containing materials. Another example is moving asbestos-containing waste material that is contained within a cleaned, sealed bag and then double-bagged involved in such activities should have some knowledge of the hazards of asbestos and the location of the materials.

Supervisors must clearly identify all locations of asbestos containing materials, and ensure that all workers have been instructed in any work procedure restrictions needed to prevent contact with asbestos-containing materials.

Asbestos “Moderate-risk” Work Activities

Activities that carry a moderate risk of exposure to airborne asbestos fibres include:

- Using hand tools to cut, shape, drill, grind, or remove non-friable manufactured products containing asbestos, e.g., asbestos cement pipe
- Drilling (with wetting agents, or with local exhaust ventilation) through non-friable asbestos-containing materials
- Backing mounting screws out of asbestos cement products and removing the boards or tiles intact
- Buffing floor tiles with a coarse disc
- Collecting asbestos samples for laboratory analysis
- Analyzing samples of asbestos or asbestos-containing materials in a laboratory
- Removing any part of a false ceiling to gain access to a work area (for example, during inspection) when friable asbestos containing materials are, or are likely to be, lying on the surface of the false ceiling
- Removing drywall materials where joint-filling materials containing asbestos have been used
- Removing vinyl-asbestos floor coverings or other non-friable materials where the procedures do not create any friable waste
- Removing an entire piece of equipment or pipe with the asbestos-containing material remaining effectively intact (“wrap and cut” procedure)
- Demolishing a block wall (of cement, for instance) that has asbestos debris in its cavity
- Note: The amount of asbestos contamination found when the cavity is open may change the risk level to high.
- Dismantling a treated enclosure at completion of an asbestos removal project
- Setting up and removing a glove-bag apparatus for the removal of pipe insulation when the insulation is in good condition
- Using a prefabricated glove bag to remove asbestos insulation from piping systems
- Note While the area outside a glove bag is considered a moderate-risk area, the work activity inside a glove bag is considered high-risk; if a glove bag is torn or punctured, the risk level outside the bag automatically increases and the site-specific emergency procedures must be implemented.
- Clean-up activities that carry a moderate risk of exposure to airborne asbestos fibres include:
 - Using a HEPA-filter vacuum to clean ceiling tiles or light fixtures with light to moderate contamination
 - Using a HEPA-filter vacuum to clean an area before setting up an enclosure
 - Dismantling a treated enclosure at completion of an asbestos removal project
 - Setting up and removing a glove-bag apparatus for the removal of pipe insulation when the insulation is in good condition
 - Using a prefabricated glove bag to remove asbestos insulation from piping systems
 - Note While the area outside a glove bag is considered a moderate-risk area, the work activity inside a glove bag is considered high-risk; if a glove bag is torn or punctured, the risk level outside the bag automatically increases and the site-specific emergency procedures must be implemented.
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- Using a HEPA-filter vacuum to clean ceiling tiles or light fixtures with light to moderate contamination
- Using a HEPA-filter vacuum to clean an area before setting up an enclosure

Asbestos “Moderate-risk” Procedures

Anyone involved in any moderate-risk work activity must follow written work procedures similar to those described here.

To ensure that anyone in or near the work area is not exposed to airborne asbestos fibres, the following must be done:

1. Clearly mark the designated work area boundary by placing barricades, fences, or similar structures around the work area.
2. Place signs around the work area warning people not to enter the work area unless authorized to do so.
3. Wear appropriate protective clothing:
 - Clothing material must resist penetration by asbestos fibres. Clothing must be impervious to penetration by asbestos fibres if workers are permitted to wear street clothing underneath.
 - Clothing must cover the body and fit snugly at the neck, wrists, and ankles.
 - Clothing must include head covering and laceless rubber boots that are acceptable for the specific worksite conditions.
 - Immediately repair or replace torn clothing.
4. Wear a respirator fitted with a “100” (HEPA) filter.
5. Do not use compressed air to clean up or remove dust or materials from work surfaces or clothing.
6. Use polyethylene (poly) drop sheets and seal windows, doorways, and other openings to prevent the spread of asbestos dust to other work areas.
7. Before starting any work that is likely to disturb friable asbestos-containing materials on the surfaces of anything in the work area, clean up the friable materials by damp-wiping or using a vacuum cleaner equipped with a HEPA-filtered exhaust.
8. During the work, clean up dust and waste (wetted if possible) using a vacuum cleaner equipped with a HEPA-filtered exhaust, or by wet-sweeping or mopping.
9. Immediately upon finishing the work, complete the following tasks:
 - Wet drop sheets and barriers.
 - Fold them to contain any remaining dust.
 - Bag or place them in a sealable container.
 - Dispose of them as asbestos waste.
10. Before leaving the work area, complete the following tasks:
 - Clean protective equipment and clothing by damp-wiping or using a vacuum cleaner equipped with a HEPA-filtered exhaust before taking them outside the contaminated work area.
 - Leave any protective clothing worn in the work area in the designated storage area or facility for cleaning, or place disposable protective clothing in a sealable container and dispose of it as asbestos waste.
 - Launder non-disposable clothing
11. Place asbestos waste in a sealable container and label the container to identify its contents, hazard(s), and the necessary precautions for handling the waste materials. To prevent any interference with the work activity, do not allow containers of asbestos waste to accumulate in the work area. Remove containers from the work area at the end of each work shift, if not more

often, and ensure that the containers remain under effective control if they are stored at the worksite before being disposed of.

12. Before removing asbestos waste containers from the work area, clean their external surfaces by wiping with a dampcloth or using a vacuum cleaner equipped with a HEPA filtered exhaust. Double bagging is a good practice.

13. After completing the work, provide the owner or employer occupying the area with documentation stating that it is safe for unprotected workers to re-enter the work area.

Blasting- general rules

- 1) All personnel within the influence of the blast area must obey the instructions of the Blaster in Charge at all times
- 2) All blasts must be properly designed and thoroughly planned in order to prevent misfires or other unplanned events
- 3) Compliance with all local, provincial and federal regulations is mandatory
- 4) Suitable warning signs will be posted at all entrances to job sites. Where necessary, the blasting area should be delineated using cones, caution tape or other effective means of cordoning an area off
- 5) Before commencing work on a blast site, the area is to be inspected thoroughly for hazards such as; open cracks from back break, overhangs, loose debris, mud or ice (slipping hazards) drop offs or any other obvious hazard.
- 6) No unauthorized personnel are to enter the blasting area without first obtaining the permission of the “ Blaster in Charge”
- 7) No smoking or open flames are allowed within 15 metres of the blasting area
- 8) All unnecessary materials are to be removed from the blasting area before the commencement of loading operations. Power cables, air lines , etc must also be relocated before loading commences
- 9) All blast holes are to be checked for depth and inclination prior to loading to ensure that they have been drilled to proper design grade and to ensure that sufficient burden exists on the front row holes. Excess over drilling is to be adjusted by backfilling with drill cuttings
- 10) The blaster in charge should review drill logs or verbally check with the drillers regarding the hardness of the rock, the presence of open voids, mud seams, slips or any other conditions that may have an effect on the loading operations
- 11) Redrills must be carried out before loading commences in the area
- 12) No holes are to be loaded within 6 meters of an operating drill unless written permission is first obtained from the WCB
- 13) Prior to loading in an area where stray currents may be suspected, stray current

testing must be carried out with a blasters multimeter. If instrumentation is not available, then Nonel or electronic detonators should be used

- 14) With the approach of an electrical storm, all loading operations are to cease, truck mount magazines are to be locked and all personnel are to evacuate the site until the storm has passed. This applies to both electric and non- electric blasting operations
- 15) When carrying out work within 2 metres of a drop off or open face, workers must use a fall protection system meeting the requirements of WCB OHSR part 11 and this safety program (see **Fall Protection**)
- 16) Refer to **Standard Operating Procedures for Surface Blasting Operations** for more information

Cardio-Pulmonary Resuscitation (CPR)

- 1) Ensure there is no further danger to yourself or others as you approach the downed worker.
- 2) **Determine if victim is unconscious**, by using the "shout and shake" method.
- 3) **Call for assistance** and assign someone to call an ambulance and report back to you.
- 4) **Check for breathing.**
- 5) If not breathing, **open the airway** - do a finger sweep, tilt victim's head back and lift the chin.
- 6) **Check breathing.**
- 7) If victim still not breathing, **give 2 full ventilations** and check chest movements.
- 8) **Check carotid pulse** in neck on either side of windpipe.
- 9) If pulse is present, **continue ventilations.**
- 10) If no pulse is present, **begin chest compressions. (Single Operator: Count 15 compressions for every 2 ventilations. Two operators: Count 5 compressions for each ventilation.)**

Clothing

- 1) Workers must wear clothing that provides ample protection from weather and job-related hazards. Sleeved shirts and long pants are required on THE PACIFIC GROUP OF COMPANIES job sites.

- 2) Where clothing may come in contact with moving parts of equipment, tools or machinery, the clothing must not be torn, ragged, or loose, and pants must not have cuffs.
- 3) High-visibility apparel (vests) must be worn on projects where there is exposure to the danger of moving vehicles and at all times on shoring and excavation sites.

Cold Temperatures

- 1) Where a work environment has a wind chill temperature less than -7°C , a heated shelter (trailer, vehicle or building) will be made available for workers to warm up.
- 2) Workers must use the shelter if there is an onset of symptoms of impending hypothermia.
- 3) Workers who are at risk of hypothermia or other cold-related injury must wear adequate insulating outer clothing including hand protection, foot protection, head covering and/or face masks appropriate to the hazard.
- 4) If work takes place outdoors in snowy or icy conditions and there is excessive sunlight glare or blowing ice crystals, workers must wear eye protection appropriate to the hazard.

Compacting and Jackhammering

Suitable protective equipment must be worn, including protective eyewear, hearing protection, dust masks and foot protectors.

Compressed Gas Cylinders

- 1) Cylinders and any other container of substances under pressure must be protected from excessive heat, sparks, molten metal, electric current, flames and physical damage and should be stored in dry locations to prevent corrosion.
- 2) Cylinders and other containers of pressurized substances may only be modified or repaired in accordance with the manufacturer's instructions.
- 3) Cylinders and other containers of pressurized substances, other than hand-held aerosol spray cans, must be equipped with appropriate pressure relief mechanisms.
- 4) Compressed gas containers that require pressure testing must bear a valid, current indication of testing.
- 5) Compressed gas cylinders must not be hoisted by slings or magnets, dropped, subjected to impact, handled by the regulator, or used as a roller or work support.

- 6) Compressed gas cylinders must be secured (strapped or chained) to prevent falling or rolling during storage, transportation or use and, where practicable, kept in an upright position.
- 7) Cylinders must be prevented from bumping together during transport and must be transported with protective caps in place.
- 8) Empty cylinders and cylinders not in use must have the valve closed. When opening a cylinder valve avoid standing in front of the regulator.
- 9) Acetylene cylinders stored in a horizontal position must stand in a vertical position for at least one hour prior to use.
- 10) Compressed gas cylinders must be marked to indicate their pressure rating and contents.
- 11) Oxygen cylinders and their fittings must not come in contact with grease or oil, including that from hands, gloves or clothing.
- 12) Oxygen must never be used as a substitute for compressed air.
- 13) Empty cylinders must have the pressure regulator removed, the protecting cap put on (unless integral guards are provided) and be marked "empty" or "MT".
- 14) Prior to filling, thoroughly inspect the cylinder for bad dents, damaged foot rings or protective collars, corroded areas, leaks or any other conditions that indicate possible weakness. Remove damaged cylinders from service.
- 15) Cylinders must not be filled beyond their marked capacity.

Confined Spaces

If you have to work in confined spaces, you know your job can be dangerous. Serious injury or even death in a confined space may result from suffocation, poisoning, entrapment, electric shock, falls and heat stress. Most confined space accidents can be prevented if you are aware of and address the potential hazards of the job.

A confined space is any enclosed or partially enclosed space (may be open or closed-topped) that:

- a) is not designed or intended for human occupancy except for the purpose of performing work;
- b) has restricted means of entry and exit; and
- c) may become hazardous to a person entering it due to:
 - its design, construction, location or atmosphere,

- the materials or substances in or near it, or
- any other hazards relating to it.

Confined space hazards include, but are not limited to:

- a) Hazardous atmosphere:
 - the air might not have enough oxygen,
 - the air may be toxic, flammable, corrosive, irritating or asphyxiating.
- b) Engulfment/entrapment:
 - potential of being trapped in liquid or solid material (e.g grain in a silo).
- c) Danger from unexpected movement of machinery.
- d) Electrocutation.
- e) Heat Stress.
- f) Becoming wedged in a tight part of the space.
- g) Physical dangers such as slips, falls, debris, etc.

Each of these hazards is more serious in a confined space since rescuers can have a difficult time recovering you if you need help.

- 1) Any entry, including "partial entries", into a confined space requires your supervisor's approval and the completion and signing of an "entry permit". The permit identifies the hazards in the space and how to control them. Prior to entry, the entry supervisor must review the permit with the workers, ensure all hazard controls are in place, and sign the permit. A completed "Hot Work" permit should be attached to the entry permit if hot work is necessary.
- 2) Always review the requirements of the WCB's Regulation and THE PACIFIC GROUP OF COMPANIES written rules and procedures **prior** to a confined space entry. The written procedure for the work, developed by supervisory or safety staff **must** be followed.
- 3) Barriers and signs must be erected as needed to protect workers from vehicular traffic and pedestrians from inadvertently entering the space.
- 4) All input lines must be locked-out, blinded, or disconnected and capped so that no hazardous substances can enter the space.
- 5) Any hazardous materials in the space must be removed. If necessary, hazardous residue in the space must be cleaned out, purged or inerted.
- 6) If ventilation is necessary, begin ventilating prior to the work so that the air will be

safe before anyone enters. Verify breathing safety by air testing.

- 7) The atmosphere must be tested prior to and during the work and a written record of the test results must be maintained. Oxygen content should be between 19.5% and 23.5%. Flammable gases must be kept below 10% of their lower flammable limit. Toxic materials must not exceed their permissible exposure levels. If the air is unsafe the hazard must be controlled before initial or continued entry is allowed.
- 8) Personal protective equipment appropriate to the hazards in the confined space must be identified on the permit and used.
- 9) If continuous communication between the attendant and workers in the confined space will be difficult or impossible, choose and list devices such as intrinsically safe radio equipment before the entry.
- 10) **Most fatalities that occur in confined spaces are would-be rescuers!** Even if a worker is downed, **NEVER attempt a rescue without proper protective equipment, procedures and assistance!** The safest way of leaving a confined space when conditions deteriorate is self-rescue - **evacuate the space at the FIRST sign of trouble.** Only workers trained in rescue can enter the space for the purpose of rescue.
- 11) The entry supervisor must order all workers out of the confined space in any of these hazardous situations:
 - A condition arises that is not anticipated or allowed by the entry permit,
 - Any signs of overexposure to a contaminant (e.g.: dizziness, confusion, breathing difficulty, etc.) are noticed in any entrant,
 - Something occurs outside the space that could cause danger inside (e.g.: a release of toxic heavier-than-air fumes in the vicinity).

Contact Lenses

(Also see “*Personal Protective Equipment*” in this Section)

Workers wearing contact lenses must inform their supervisor so that the lenses can be removed in case of an accident. Don't wear contact lenses where gases, vapours, flying objects, dust or other materials are present that may harm the eyes or be absorbed by the lenses.

Correction of Unsafe Conditions

If you identify an unsafe condition or practice that is easily correctable, you are expected to correct the hazard. If the easily correctable hazard was of a potentially serious nature, it must also be reported to your supervisor for recording on the PACIFIC GROUP OF COMPANIES Inspection Report form. If the unsafe condition is not easily correctable, immediately report it to your supervisor who will determine and implement

any necessary corrective action and record it.

Cut off Saws

Before using the **Cut Off Saw**, there are several special considerations you must understand. Such considerations include:

1. Ensure that you have and use suitable eye protection before proceeding with the cut
2. Ensure that you are familiar with the cut off saw operations prior to using it.
3. Do not wear loose clothing and tie back long hair while operating the cut off saw.
4. Ensure that the immediate work area is clear of tripping and slipping hazards.
5. Know the location of the machine shut off switch.
6. As operating the cut off saw exposes the operator to a continuous vibrating motion, whenever possible rotate the work task between workers.
7. **WARNING!** When cutting metal, a cut off saw generates sparks, which can ignite clothing and combustible material in the immediate area.
8. Do not use damaged blades!
 - Ensure that the machine is properly set up prior to using it. This includes:
 - Oil and gas are at the required levels
 - The correct saw blade has been chosen for the material being cut – ensure that the RPM rating is appropriate for the saw
 - The saw blade is firmly secured
 - All protective guards are in place on the tool and are fully functioning to provide maximum coverage
 - Ensure that the engine is stopped and allowed to cool down prior to refueling and wipe off any spilled fuel.

When making a cut:

1. Do not twist or force the blade, just guide the blade as the cut is made.
2. Ensure that the engine does not labour when cutting.
3. Be aware of the hazard of kickback when cutting materials and understand how to prevent such hazards (not forcing the blade into the material, using water when cutting concrete, etc).
4. Use water as a lubricant when cutting concrete. Doing this not only assists with a smooth cut but also lengthens the life of the saw blade and reduces the amount of

dust generated by the cut.

5. Hold the saw firmly with both hands and position your body to the side of the saw – Do not work directly over top of the saw.
6. Do not use the side of the abrasive blade to grind.
7. If the saw stalls, remove it from the cut before attempting to restart.
8. Always reduce the pressure being applied as you near the end of the cut.
9. Limit the use the cut off saw inside a trench or in enclosed areas to reduce the amount of accumulated exhaust fumes which could affect workers. If cut off saw use cannot be limited inside a trench, ensure that there is adequate ventilation to remove the exhaust fumes from the work area.

Demolition Work

(Also see “*Asbestos Project Notification*” in this Section)

- 1) Prior to commencement of demolition work:
 - a) the supervisor must contact management to ensure that a WCB Notice of Project (N.O.P.) has been completed and submitted to the WCB if:
 - i) total cost of labour and materials for the project exceeds \$100,000; or
 - ii) all or part of the temporary works, except pre-engineered or pre-manufactured components, are required to be designed by a professional engineer, or
 - iii) the activity involves the removal, encapsulation or enclosure of friable asbestos building materials, or
 - iv) the activity involves demolition, dismantling, or repair of any part of a structure in which insulating materials containing asbestos have been used, or in which asbestos products have been manufactured, or
 - v) the activity involves a significant disturbance of lead-containing coatings, or
 - vi) activities may expose workers to a significant risk of occupational disease, or
 - vii) the structure to be demolished is:
 - a building, silo, chimney or similar structure more than 6 m (20 ft) in height, or
 - a bridge, or
 - an earth or water retaining structure more than 3 m (10 ft) in height, or
 - viii) workers will be working in a compressed air atmosphere or an underground working, tunnel, cofferdam, caisson, or
 - ix) the project includes a trench less than 3.7 m (12 ft) wide at the bottom, more than 1.2 m (4 ft) in depth and more than 30 m (100 ft) in length that a worker may be required to enter, or
 - x) the project includes any other excavation more than 1.2 m (4 ft) in

depth that a worker may be required to enter.

- b) an inspection of the site must be undertaken for identification of asbestos, lead or other heavy metal or toxic, flammable or explosive materials that may be handled, disturbed or removed.
- c) the inspection report referred to in "b" must be made available at the work site, including any plans, drawings or specifications, as appropriate, to show the locations of hazardous substances.
- d) any hazardous materials identified must be safely contained or removed.
- e) a Demolition Support Plan, as prescribed by a professional engineer, must be obtained, submitted to the WCB and Head Office and posted at the project location. (**NOTE:** If the nature and method of demolition will not endanger workers and the stability of adjoining grounds or structures will not be compromised, an engineered plan is not required.)

The Plan must include a schedule, based on the stages of demolition, for installation of the support system components. (**NOTE:** The temporary support system may be required to support the weight of building materials that remain on the floor as well as any equipment or machinery involved in the demolition activities.)

- f) All potentially hazardous services (hydro, gas, water, sewer) must be disconnected.
 - g) All glass and sash must be removed if it places workers at risk.
- 2) Where practicable, demolition must proceed from top to bottom of the structure.
 - 3) If hazardous materials that were not previously identified in the pre-job inspection are discovered during demolition work, work must cease until the materials are contained or removed.
 - 4) Before demolishing interior or exterior walls within 3 m (10 ft) of any opening in a floor immediately below, the hole must be securely covered and marked. THE PACIFIC GROUP OF COMPANIES 's standard symbol for marking covers for floor openings is a large Ø in red or orange paint) or workers must be removed from the lower levels and prevented access until after the walls are demolished. Walls must not be left standing in an unstable, dangerous condition.
 - 5) Materials and debris from the demolition work must be promptly removed from the work location. If such material and debris is to be thrown from the building, the drop location must be barricaded against entry (structural members must be lowered rather than dropped from the building).
 - 6) Chutes provided for removal of masonry and other rubble and debris must be enclosed and gates or stops provided at each point of entry and discharge. The area of discharge must be barricaded against entry or the chute must empty into a container. Warning signs stating "Danger - Chute - Sliding materials" must be

posted adjacent to the chute outlet.

- 7) Stairways and handrails must be left intact until they are no longer required to access a level.
- 8) Work sheds, vehicles, porta-potties and tool boxes must be located away from the hazard of falling materials.
- 9) During demolition the supervisor must ensure:
 - a) safe access and egress to and from work areas,
 - b) work areas are arranged to allow safe movement of workers, materials and equipment,
 - c) floor openings are guarded,
 - d) handrails and stairways are left intact as long as possible,
 - e) housekeeping is maintained,
 - f) temporary lighting is provided.
 - g) Emergency procedures are developed for
 - Removal of injured worker
 - Evacuation
 - Fire
 - Accidental exposure to asbestos
 - Spill procedures

Drilling

1. All services including Telus, Teresan gas lines, Storm, Sewer pipe ect. To be located prior to drilling.
2. Site is to be excavated for drilling as per engineer instructions.
3. Carefully mark out anchor locations including overburden to be drilled (note: pitch calculator should always be use to determine run and rise of drill angle).
4. Before starting the compressor, make sure all air valves are in the off positions & check oil and water levels. Ensure that a backflow arresting device is used whenever municipal water lines are hooked into.
5. While compressor is warming up, the drill helper will grease the airtrac and visually inspect all hoses fittings.
6. Operator will move airtrac into position, with helper supporting bull hose at back of airtrac. The helper will also at this time, site in alignment of boom 90 degrees to face of wall. He then will move to the front of airtrac and, with a degree protractor, he will let operator know when desired angle is achieved.
7. With helper to the side, operator will drill down first length of steel, leaving first steel down in hole. He will then move slide back to accept next length of steel. The helper will now add next length and repeat till the desired length is achieved.
8. Driller will now pull back and remove drill steel one length at a time, until last length left; driller is now ready to move to next location.

Clean-Up

- Clean up tracks at the end of every shift.
- Clean slide and centralizer daily
- In the winter months, drain water tank / park tracks on wood dunage / run tanner gas through airlines
- When drilling IBO anchors, Airtrac should be rinsed down to keep grout from setting up on equipment.

Electrical Safety

(Also see “*Locating Underground Services*” in this Section)

- 1) All temporary wiring must be installed and maintained in accordance with applicable codes.
- 2) Place temporary electrical cords so as to minimize tripping hazards.
- 3) Splices in electrical cords must retain the mechanical and electrical strength of the original.
- 4) Energized wiring in junction boxes, circuit breaker panels, etc. must be protected from accidental contact whenever it is left unattended.

- 5) Temporary lighting lamps that are broken or burned out must be replaced as soon as possible. Do not remove bulbs from other areas to provide lighting.
- 6) Do not work on any circuits when standing on metal or in water.
- 7) Workers (other than qualified, properly instructed workers working in an emergency situation) must not work, stack materials, erect scaffolds, or use tools or equipment in proximity to power lines within the limits of approach specified in the following table unless the workers are protected in accordance with the requirements of the WCB Regulation.

VOLTAGE	MINIMUM DISTANCE
751 V to 75 KV	3 m (10 ft)
over 75 KV to 250 KV	4.5 m (15 ft)
over 250 KV to 550 KV	6 m (20 ft)

Sufficient **distance must be added** to the specified minimum distance to prevent unplanned or accidental movements bringing the worker, tools, equipment or material within the specified distance. The specified distance used, applies to all parts of the equipment, including booms, hoisting cables and any part of the load being raised. Distances must be increased to provide for any change in boom angle, swing of the hoisting cable and the load while it is being raised, lowered or moved laterally, to ensure that safe distance is maintained at all times. Operators must give consideration to the probability of hazard from switching surges, altitude, humidity, line configuration, etc.

** Note: Limits of approach may require a greater distance as determined by the client (e.g. Cominco has established a 7.5 m (25 ft) limit of approach). If a client's requirements exceed those of the WCB or Pacific Blasting & Demolition Ltd, the client's requirements must be met.*

- 8) When overhead power lines are encountered within a work area, alert your supervisor. Your supervisor will ascertain the voltage and minimum distance required and will have a WCB Form 30M33 (Assurance in Writing) completed.
- 9) When job circumstances require that work be done closer than the limits of approach stated above, the following procedure must be followed prior to commencing work:

An assurance in writing must be obtained from and signed by the person(s) controlling the electrical system. The assurance must state that during the work period, the electrical conductors will be de-energized or effectively guarded against contact, or displaced/re-routed away from the work area. The assurance must be available for inspection at the project site.
- 10) Employees (other than qualified electricians) and equipment must not touch or handle electrical guarding. Whenever guarding is used, a qualified safety watcher (trained and experienced journeyman electrician) must be posted to control the

approach of equipment, tools and workers and prevent contact with the guarding.

Emergency Procedures

(Also see Section 10 - *Emergency Preparedness*)

Project supervisors will ensure written emergency procedures are prepared for each project of substantial duration (2 weeks or greater). The emergency procedures must be reviewed with all site personnel to ensure all parties are familiar with the procedures and routes to follow in the event of accident, fire or other disaster.

Emergency response assistance program (ERAP Explosives)

INTRODUCTION:

This plan is designed to meet the requirements under Part 7 of the Transportation of Dangerous Goods Regulations. It will be used to ensure the company acts in a manner consistent with the intent to protect public safety, property and the environment in the event of an accident involving the transportation of explosives.

It is the company policy that all employees have a good understanding of the contents of this plan, know their role, their responsibilities, and be aware of the individuals involved and their roles. In addition, key personnel must be familiar with emergency response equipment, where it is located, and how to access it quickly. They must act in an efficient and cooperative manner when called upon during an emergency.

SCOPE OF PLAN:

Pacific Blasting & Demolition Ltd. is located at 3183 Norland Avenue in Burnaby, British Columbia. Our activities include the use of explosives in heavy construction, residential blasting and road construction. Our explosives supplier, Orica delivers the following products to our explosives magazines.

<u>High Explosives</u>	<u>Blasting Agents</u>	<u>Detonators</u>
Powerprimer	Amex II	Electric Detonators
Powerfrac	ANFO WR	Non-electric Detonators
Giant Gel	Apex Ultra	
Detonating Cords		

Pacific Blasting & Demolition Ltd. has 4X4 Powder Trucks designed and approved for the transportation of explosives. Vehicles have steel Day Boxes lined with 15 mm of plywood, locking lids and the appropriate TDG placards. Pacific Blasting also has Powder Trucks equipped with lockable fibreglass canopy inserts designed for the transport of explosives. As well, every Powder Truck is equipped with dry chemical fire extinguishers and first aid kits. These vehicles are the only ones authorized for the transport of explosives.

It is company policy and the law that all employees handling, offering for transport, and transporting explosives have been trained as per Transportation of Dangerous Goods (TDG) Regulations. Only those company personnel issued a training certificate signed by the president, for (TDG) purposes are allowed to handle or transport explosives. In addition, it is the responsibility of the blaster or driver, as the case may be, to ensure that transportation is done safely and legally. This means that all safety equipment required on the vehicles is present and operational; the appropriate TDG placards are displayed while transporting explosives and suitable documentation is completed and accompanies the vehicle whether or not transportation takes place on public or controlled access roads. It is through the shipping documents that include our emergency telephone number, that company management may be alerted about an emergency if the driver is incapacitated.

**ERAP activation phone number 604 291 1255 (during business hours)
604 612 9940 (after hours)**

From the explosives magazine, we ship explosives at a maximum of 300 kg per load to the job site. All transportation of explosives is normally done during our normal working hours 0730 to 1800 hours.

The type of problems which we may be required to respond to include:

- Motor vehicle accident requiring simple transfer of explosives to an alternate vehicle designed for the transport of explosives.
- Motor vehicle accident with or without injuries, where explosives have been scattered on or around the roadway.
- Motor vehicle accident with fire and potential for detonation, and finally in a worst case;
- Motor vehicle accident with detonation.

Our actions, through advice to first responders on the scene, or company personnel at the site, should always be carried out keeping in mind safety of the public and other personnel. Public road closures as a result of transportation accidents with explosives are inconvenient, costly and potentially very hazardous. Our aim through timely and effective action is to reduce the risk to the public, property owners and the environment from the hazards of the explosive products we consign and carry if there is ever an accident.

- Any questions from the media must be referred to the company president .

Environmental and Medical Monitoring

Environmental and/or medical monitoring will occur on all projects where it is required by the client, the WCB Regulation, or has been ordered by an officer of the Board.

Falling Objects

- 1) Prevent access of personnel by barricading the area designated for waste disposal from upper floors of structures.
- 2) Always use toeboards on floor openings, elevated work platforms and scaffolds if materials, tools or equipment may otherwise be able to fall off and create a danger to other workers or there is a danger of slipping off the work surface due to environmental conditions or work practices being used.

Fall Protection

(Also see “Scaffolding” and “Scissor Lifts, Booms, and Giraffes” in this Section, and “Fall Protection” and “Site-Specific Fall Protection Plan” in Section 11 - Support Programs)

- 1) The preferred method of fall protection is guardrails. Whenever practicable, fall hazard areas (areas where it is possible to fall 3 m (10 ft) or more, or where there is an injury hazard greater than the hazard of hitting the ground - e.g.: protruding rebar or operating equipment) including floor openings, elevator shafts, scaffolding, slab edge, and roofs must be protected by proper guardrails. Guardrails must include:
 - top rails 102 cm to 112 cm (40 in to 44 in) above the work surface,
 - midrails approximately midway between the underside of the top rail and the top of the toeboard, if one is provided, or the work surface if no toeboard is provided,
 - toeboards (if there is a danger to other workers from tools, materials, equipment or debris falling off the edge of the work surface, or there is a danger of slipping off the work surface due to the environmental conditions or work practices).
- 2) The fall hazard area extends 2 m (6 ft 6 in) back from any unprotected edge **plus** the height of any elevated work platform such as a ladder. For example, a worker 1.5 m (5 ft) up a ladder is in the fall hazard area if within 3.5 m (11 ft 6 in) from a slab edge. Any worker within the fall hazard area must use fall protection such as guardrails, fall restraint or fall arrest equipment or a safety monitor.
- 3) Where work is being done in a location where workers are not protected by permanent guardrails and from which a fall of 7.5 m (25 ft) or more may occur or where a safety monitor/control zone system is used for fall protection, the supervisor must complete a THE PACIFIC GROUP OF COMPANIES *Site Specific Fall Protection Plan*, review the plan with affected workers and ensure the plan remains readily available at the job site prior to commencing work at the location.
- 4) Your supervisor's permission is required to bypass existing guardrails or barriers erected to prevent access to an area where a fall hazard exists. Guardrails and barricades that have been temporarily removed must be replaced as quickly as

possible.

- 5) In situations where guardrails are impracticable a fall restraint system must be used. (*Fall restraint systems* or *work positioning systems* prevent workers from falling from the position they are working in or prevent them from traveling to an edge from which they could fall. These systems include safety belts or harnesses, lanyards, lifelines and any other connecting equipment used to secure a worker to an individual anchor or horizontal lifeline system.) When fall restraint devices are temporarily removed or are impracticable, workers must be protected by fall arrest equipment. (*Fall arrest systems* stop a worker in mid-fall before striking a lower surface. These systems include personnel nets or full body harnesses with lanyards, shock absorbers, lifelines (vertical or horizontal) and other connecting equipment used to secure the worker to an anchor.) When fall arrest systems are not practicable or will result in hazards that are greater than if the system were not used, a safety monitor/control zone system or other procedures determined in consultation with the WCB may be used.
- 6) Fall-restraint and fall-arresting devices must meet CSA standards or other standards acceptable to the WCB. The user prior to each work shift of use must inspect fall restraint and arrest equipment, including anchors. Defective devices must be removed from service and returned to your supervisor or directly to BelPacific Excavating and Shoring Limited Partnership's head office.
- 7) Independently anchored lifelines and safety harnesses are required for all workers on swing stages which are 3 m (10 ft) or more above a floor or grade. All lifelines and lanyards used without lifelines must be securely anchored 3.5 kN (800 lb) for fall restraint and 22 kN (5000 lb) for fall arrest).
- 8) Unless otherwise designed and certified by a professional engineer, a vertical lifeline must:
 - a) have a breaking strength of not less than 26.7 kN (6,000 lb),
 - b) be free of knots and splices except at its termination (termination knots and splices must not reduce breaking strength to less than 22 kN (5,000 lb),
 - c) extend to within 1.2 m (4 ft) of ground level or other safe lower surface,
 - d) limit free fall of a worker to 1.2 m (4 ft) without a shock absorber and 2 m (6.5 ft) with a shock absorber,
 - e) not exceed 91 m (300 ft) in length,
 - f) be installed and used in a manner that will minimize a worker's swing,
 - g) only be used by one worker at a time,
 - h) be protected from abrasion from sharp or rough edges,

- i) be made of wire rope if tools that could severe, abrade, or burn the lifeline are to be used and the line is not in proximity to an energized electrical conductor, and
 - j) be secured to an independent anchorage point.
- 9) Permanent horizontal lifeline systems must be certified by a professional engineer. Temporary horizontal lifeline systems for fall restraint must provide an ultimate load capacity of at least 3.5 kN (800 lb) for each worker attached to it. Unless certified by a professional engineer, temporary horizontal lifeline systems used for fall arrest must meet the requirements in the WCB's Regulation:
- a) the horizontal lifeline must be a minimum 12 mm (.5 in) diameter wire rope with a minimum breaking strength of 89 kN (20,000 lb),
 - b) the lifeline must be free of splices except for end terminations,
 - c) the span must be at least 6 m (20 ft) and not more than 18 m (60 ft),
 - d) end anchors and connecting hardware (e.g.: shackles and turnbuckles) must have an ultimate load capacity of at least 71 kN (16,000 lb),
 - e) the lifeline must have an unloaded sag approximately equal to the span length divided by 60,
 - f) the elevation of the line at any point must be at least one metre (39 in) above the work surface,
 - g) the worker's free fall distance must be limited to 1.2 m (4 ft),
 - h) a minimum of 3.5 m (12 ft) of unobstructed clearance must be available below the work surface,
 - i) no more than 3 workers may be attached to a horizontal lifeline, and
 - j) the horizontal lifeline must be installed so that it does not impede the safe movement of workers.
- 10) Control zones are not permitted as a fall protection system where the slope of the working surface exceeds 4 vertical in 12 horizontal. The width of a control zone must be determined having regard to whether the working surface is sloped or slippery and whether powered equipment is to be used, but in no case may the width be less than 2 m (6.5 ft). If workers will be working in the vicinity of the control zone, the line defining the control zone must be physically marked. Where a safety monitor is permitted to be used as the means of protection in a fall hazard area (see item 5 above), the safety monitor must be experienced in the work being monitored and must:
- a) be present at all times workers are in the control zone (fall hazard area),
 - b) have complete authority over the work as it relates to the prevention of

falls,

- c) engage in no other duties while acting as safety monitor,
 - d) be located so as to have a clear view of the work,
 - e) be able to have normal voice communication with the workers in the control zone,
 - f) be instantly distinguishable from other workers (e.g.: wears a high-visibility vest or a different coloured hardhat),
 - g) monitor a maximum of 8 workers,
 - h) ensure that only those workers required for the work at hand are allowed in the control zone.
- 11) Floor openings must be barricaded or covered with adequate planking securely fastened in place. All temporary covers for floor openings must be marked to indicate their purpose. The Pacific Group of Company's standard symbol for marking covers for floor openings is a large Ø in red or orange paint.

Fire Protection and Prevention

- 1) The best means of fighting fires is to prevent them. All employees are responsible for doing everything they can to prevent fires. If you observe a potential fire hazard, please report it to your supervisor so that the hazard can be eliminated or fire suppression equipment can be issued and maintained at the hazard location.
- 2) Smoking is permitted in designated smoking areas only.
- 3) Be aware of the locations and types of fire extinguishers in your work area. There are four general classes of fires, and each requires a particular type of extinguishing agent. Portable fire extinguishers are labeled as to the types or classes of fires they should be used on.
 - a) CLASS "A" FIRES occur in materials such as rags, paper, wood and trash.
 - b) CLASS "B" FIRES arise from the vapour-air mixtures found with flammable liquids such as gasoline, oil, grease, paints and thinners.
 - c) CLASS "C" FIRES are electrical fires, or fires occurring in or near electrical equipment, thereby presenting the additional hazard of electrical shock.
 - d) CLASS "D" FIRES involve combustible metals (e.g.: sodium or magnesium).
- 4) If a fire occurs, try to extinguish it, if necessary summoning the assistance of fellow workers. If there is any indication that the fire will not be able to be extinguished simply, then an alarm must be raised and evacuation procedures implemented.
- 5) The worker who first reported the fire must inform his immediate supervisor of the circumstances of the fire.
- 6) Fire suppression equipment must be readily accessible and in working condition.
- 7) Tampering with fire suppression equipment is a serious offense and is prohibited.
- 8) Aisles, passageways, doorways and stairways must never be obstructed.

HOW TO USE A PORTABLE FIRE EXTINGUISHER

P...Pull the pin.

A...Aim extinguisher nozzle at base of flame.

S...Squeeze the trigger while holding extinguisher upright.

S...Sweep the extinguisher from side to side, covering the area at the base of the flame.

REMEMBER: Should your path of escape be threatened... Should the extinguisher run out of agent... Should the extinguisher prove to be ineffective... Should you no longer be able to safely fight the fire... THEN RAISE THE ALARM AND LEAVE THE AREA IMMEDIATELY.

Flammable Liquids

- 1) Flammable liquids must be stored in special storage areas, away from heat, spark, flame and the direct rays of the sun, and in a location where flammable vapours cannot be communicated to open flame. Bungs must be screwed tightly into barrels to prevent vapour loss.
- 2) When flammable liquids must be used or stored inside a building, approved safety cans must be used.
- 3) The fuel tanks of mobile equipment must not be filled
 - a) while the engine is running
 - b) while anyone is smoking in or around the vehicle
 - c) while there is any known spark, flame or other ignition source in the immediate area.
- 4) Volatile or flammable materials must not be carried on a vehicle transporting workers unless such materials are carried:
 - a) in an isolated compartment accessible only from the outside, or
 - b) in an inside compartment separated from all persons by a firewall.
- 5) Metallic or conductive containers used to transfer gasoline or other flammable liquids to other similar containers must have static electricity controlled through the use of container contact or grounding.
- 6) Glass, plastic or other non-conductive containers with a capacity of 23 litres or more that are used to transfer a flammable liquid must have static electricity controlled by:
 - limiting flow to less than one metre per second (200 fpm),
 - using a nozzle extending to the bottom of the container,
 - using anti-static additives, or other effective means.

- 7) Gasoline must only be dispensed from storage containers by means of an approved pump.
- 8) Gasoline must not be used as a fire starter.
- 9) If flammable liquids are dispensed or transferred inside a flammable liquid storage room, the room must be adequately ventilated (1cfm/sq ft) to the outdoors, makeup air ducts must be equipped with fire dampers and the door to the room must be self-closing.
- 10) Except for packaging used to contain flammable/combustible liquids, combustible shelves, racks, and other materials are not permitted inside a flammable/combustible liquids storage room/cabinet unless required as part of the fire separation.

Floor Openings

Floor openings and pits must always be barricaded or covered with adequate planking securely fastened in place. All temporary covers for floor openings must be marked to indicate their purpose. The Pacific Group of Companies' standard symbol for marking covers for floor openings is a large Ø in red or orange paint.

Forklifts

(Also see "*Obstructed Vision*" in this Section)

Forklift operators must follow all applicable **Vehicle and Mobile Equipment** safety rules. In addition the following rules apply specifically to forklift operation:

- 1) Materials and equipment must be loaded on the forklift in a manner that prevents any movement of the load, which could create a hazard to workers.
- 2) All loads which could be subject to shifting during transportation must be restrained if such shifting would result in the forklift becoming unstable.
- 3) Carry loads as low as possible.
- 4) Do not drive with arms, head or legs outside the confines of the forklift. Any operator who can not clearly see the load or off-load points and the full path of travel must use a signal person.
- 5) Sound horn and slow down when approaching pedestrians, doorways, ramps and other forklifts.
- 6) Forklifts being used indoors must be taken outside for refueling.
- 7) Forklifts used indoors must be shut down when not in use, to minimize emissions into the work area.

- 8) Observe and obey the load capacity of the forklift.
- 9) When shutting a forklift down: level and lower the forks, apply the parking brake and put the controls in neutral.
- 10) Do not elevate anyone on the forks unless they are in a professional engineer-approved man cage that is secured to the forklift.

Formwork and Falsework

(Also see “Guardrails” in this Section)

- 1) Concrete formwork, falsework and reshoring erection drawings and supplementary instructions certified by a professional engineer must be available at the work site during erection, use and removal of the formwork and falsework.
- 2) Formwork and falsework must be constructed of the materials and in the manner specified in the engineered plans.
- 3) Manufactured formwork components must be used and maintained in the manner specified by the manufacturer.
- 4) Immediately prior to a pour, the formwork and falsework for the pour must be inspected by a professional engineer who will then certify in writing that the specifications have been met. **If a gangform is being reused on the same job site without modification**, an inspection by a qualified person must be performed before each pour, in which case **a new inspection certificate from a professional engineer is not required**.
- 5) Foundation load-bearing capacity must be protected from potential deterioration resulting from weather or other causes.
- 6) Protruding reinforcing rod ends that may present a hazard to workers must be guarded to prevent tripping and impact hazards.
- 7) Guardrails that meet WCB requirements must be installed where necessary
- 8) Workers underneath formwork during a pour must only be under those areas where concrete has not been placed.
- 9) Pouring of concrete or placing of other loads must stop when any weakness, undue settlement or distortion of the formwork occurs, and may restart only after the formwork has been repaired or strengthened in a manner specified by a professional engineer.
- 10) No loads other than those specified must be placed on uncured concrete structures.
- 11) Dismantling of formwork must follow the directions specified in the plans.

- 12) Dismantled formwork must be stacked or stored in a manner that meets the requirements stated under **Housekeeping**.

"Good Neighbour" Policy

Maintain responsible relations with members of the public and persons from neighbouring properties in order to minimize any inconvenience, which may result from the construction or demolition activities.

Protection of the public must be ensured through the use of barricades, fences and overhead protection as well as signal persons for directing traffic on public roads. Open mesh fencing or "keyholes" may be provided to satisfy public curiosity while protecting them from job site hazards.

Grinders

- 1) Always wear eye protection when operating a grinder.
- 2) Remove or confine loose or hanging articles (e.g. ties, jewellery or long hair) that could get caught in the grinder and roll up sleeves.
- 3) Adjust and tighten wheel guards in place.
- 4) If a spark guard is installed, adjust it to direct the sparks in a safe direction.
- 5) Check to ensure that blotters and wheel flanges have been used to mount the wheels onto the shaft.
- 6) Adjust and tighten the tool rest so that its upper edge is not below the centre line of the wheel nor further than 3 mm (1/8") from the grinding surface.
- 7) Inspect the wheels to ensure they have a speed rating greater than or equal to the grinder's speed rating and that they are in good condition. Cracked or chipped wheels must be replaced.
- 8) Do not stand in line with the wheel when starting the grinder.
- 9) Do not use the side of the wheel when grinding; use the face only.
- 10) Use pliers or a vice grip to hold small items.
- 11) If the wheel vibrates: dress it (on the face only), replace it or replace the shaft bearings if they are worn.
- 12) Allow the object you were grinding to cool before handling it.
- 13) Unplug or lockout the grinder before doing repairs.
- 14) Never leave a grinder unattended while the wheels are turning.

Grouting procedures

Set-Up

1. Set-up hoses and put safety whips at all connections.
2. Set-up adequate water supply to grout plant.
3. Grout bags should be readily and easily accessible.
4. Make sure all operating levers or valves are in the off position.
5. Visually inspect mixing hopper and pump hopper, making sure both are clear of any material.
6. Turn on air supply at compressor.
7. Put some water in the pump hopper and try pumping. See that everything runs ok; try the agitator for rotation.
8. Grease all fittings and top up all oil levels.
9. With agitator slowly turning, mix grout. (With Microsil anchor grout, 20 liters of water to 2 bags of grout first rib on 5gallon pail.) Grout =1bag to 9 to 11 liters of water.
10. Drain or pump remaining water from pump hopper and fill with grout. Pump until grout comes out at end of grout pipe

Clean-Up

Wash out mixing hopper until clean.

Take drain plug off pump hopper and clean.

Put plug back in and fill hopper with water. Pump until clean, clear water is visible at end of grout line.

Take grout hose off, and then blow with air. Drain all water from grout plant.

Hand Tools

- 1) Don't use tools for jobs they are not intended for - there is an appropriate tool for every job.
- 2) Don't apply excessive pressure on tools.
- 3) Carry sharp tools in a heavy belt or apron rather than pockets, and hang tools at your sides, not behind your back. When climbing a ladder or climbing on a structure, carry tools in a manner that does not interfere with using both hands.
- 4) Wear appropriate personal protective equipment (safety glasses, gloves, etc.).
- 5) Maintain tools carefully, keep them clean and dry, and store them properly after use. Inspect tools for defects prior to use.
- 6) Replace cracked and broken handles on files, hammers, sledges and screw-drivers. Re-dress burred or mushroomed heads of striking tools.
- 7) Exercise extreme caution when using tools near live electrical circuits. Do not use cushion grip handles as a replacement for insulated handles.
- 8) Pull on wrenches and pliers. Never push unless you are using an open hand. Face adjustable wrenches forward, and turn wrench so pressure is against the permanent jaw.

- 9) Don't increase leverage by adding sleeves to increase tool length - there is an appropriate tool for every job.
- 10) Don't cut or chip towards yourself when using cutting tools or chisels.
- 11) Do not re-dress, grind, weld or heat-treat hammer heads.
- 12) Do not use one hammer to strike another.
- 13) Don't use dull chisels. Re-dress heat-treated tools with a whetstone rather than a grinder.
- 14) Don't use C-clamps to construct scaffolds or platforms for workers.
- 15) Don't hoist with C-clamps, use proper lifting clamps.

Hazard Reporting

(Also see "*Correction of Unsafe Conditions*" in this Section)

- 1) Report all hazards of a serious nature to your supervisor.
- 2) If the risk is serious, put up a temporary barrier, attach a "danger" tag or take any other appropriate step to prevent possible accidents or personal injury, then report it to your supervisor.
- 3) If the hazard is easily correctable, correct it **and** bring it to the attention of your supervisor.

Hearing Testing

To comply with the requirements of the WCB Regulation - all workers exposed to construction site noise are required to have annual hearing tests and participate in the Company hearing conservation program.

Housekeeping

- 1) Work areas must be kept clean and free from obstructions at all times. Tools, loose objects, oil, grease and other materials left lying about are hazards.
- 2) Tidy your work area at the end of your shift, immediately after finishing a job, and as necessary.
- 3) Any sizeable spills of toxic, flammable or corrosive materials must be cleaned up immediately using the method described in the appropriate Material Safety Data Sheet (MSDS) or on the container label. Large spills of such materials must be reported to your supervisor.
- 4) All employees must help to keep work sites clean and free of tripping/slipping hazards by depositing refuse in designated containers.
- 5) Materials, tools and equipment must not be stored in stairways, corridors, catwalks, ramps, passageways, and exits. Materials stored overhead must be protected against falling into work areas.
- 6) Broken glass and other "sharps" must be disposed of in designated trash containers.
- 7) All material must be properly stacked and secured to prevent sliding, falling or collapse. Pipe, conduit, and bar stock should be stored in racks or stacked and blocked to prevent movement.
- 8) All materials must be stacked or stored in a manner that permits safe access to and egress from a work area.

Impairment/ Substance Abuse

All supervisory personnel are responsible and will be held accountable for taking immediate and appropriate action should they become aware that either alcoholic beverages or illegal drugs are stored or consumed within the confines of job sites, on Company property or in Company vehicles. Supervisory personnel that have reasonable and probable cause to believe that illegal drugs are possessed or stored on or in Company property, must contact the head office. Head office will contact the police for further advice and action.

The following instructions apply to **all** personnel:

- 1) Possession or consumption of alcohol or illegal drugs on Company projects or on or in Company property will result in, at minimum, an immediate suspension. (If specifically authorized by appropriate management personnel, alcoholic beverages may be permitted at Company facilities for special occasions.)
- 2) Operation of Company vehicles while under the influence of alcohol or drugs will result in, at minimum, an immediate suspension.
- 3) Where it becomes apparent that an employee's substance abuse is influencing work performance, the employee will be approached by their supervisor, along with a union representative, confronted with the issue, suspended for the remainder of the work day and given the opportunity to voluntarily seek assistance from the Construction Industry Rehabilitation Plan (604) 521-8611. If the problem persists, the employee will be suspended and the union and the Rehabilitation Plan will be provided with all records of the employee's unsatisfactory incidents in job performance as well as their dates, times, and places of occurrence.
- 4) Workers must inform their immediate supervisor if they are under the influence of prescription medications while on the job. Employees using prescription medication must discuss the potential side effects of medication with their physician and with their supervisor and/or site medical personnel prior to being assigned work.
- 5) Employees deemed, by their physician, unfit to perform their assigned duties safely, by reason of influence of medication, may be subject to reassignment to a less hazardous job or to a temporary medical leave.

Improper Conduct

- 1) Engaging in horseplay, fighting, practical joking and other similar potentially hazardous conduct is forbidden and will result in disciplinary action.
- 2) Knowingly or intentionally engaging in hazardous behaviour is forbidden and will result in disciplinary action.

Ladders

- 1) Manufactured ladders must meet CSA, ANSI or other standards acceptable to the WCB.
- 2) Ladders must be inspected for defects prior to use. Ladders with broken rungs, split rails, worn or broken safety feet, frayed or damaged ropes or other defects which may affect user safety, must be taken out of service and reported to your supervisor.
- 3) When in use, portable single or extension ladders must be placed approximately 1/4 of their length away from the base of the structure they are leaned against and secured against movement (e.g.: tied off or held). Ladder feet must be placed on a firm surface. A 2" x 6" board should be placed under ladders equipped with spurs.
- 4) Always use ladders of sufficient length. Adding makeshift extensions or working from the top two rungs or steps of ladders not intended for such use is dangerous and prohibited.
- 5) Ladders used for ascending or descending from one level to another must extend at least 1 m (3 ft) above the upper landing unless there is inadequate clearance and the ladder is securely "tied off".
- 6) "Job constructed" ladders must have side rails constructed from #2-Grade or better 38 mm x 89 mm (2 in x 4 in nominal) for ladders up to 5 m (16 ft) in length, and from #2-Grade or better 38 mm x 140 mm (2 in x 6 in) for ladders from 5 m to 7.3 m (16 to 24 ft) in length. The distance between inner faces of the side rails must not be less than 38 cm (15 in) nor more than 50 cm (20 in). Cleats must be 19 mm x 64 mm (1 in x 3 in nominal) for ladders up to 5 m (16 ft) and 19 mm x 89 mm (1 in x 4 in nominal) for ladder lengths from 5 m to 7.3 m (16 ft to 24 ft) spaced at 30 cm (12 in) centres. Wood species is limited to the following groups: Douglas Fir-Larch, Hem-Fir, Spruce-Pine-Fir, or Coast-Sitka-Spruce.
- 7) Metal ladders or wire reinforced wooden ladders must not be used in proximity to energized electrical equipment.
- 8) Ladders used in locations where they may be struck by workers or equipment in the area, must have a watcher stationed at the bottom. Ladders must not be left standing in such a location when not in use.
- 9) Doorways must be blocked, locked or guarded while ladders are used in front of them.

- 10) Protective coatings on wooden ladders, other than a small amount for identification purposes, must be of a transparent type to enable proper inspection for defects.
- 11) Workers on ladders must use suitable hoisting equipment to lift or lower heavy or bulky items.
- 12) When working from a ladder you must maintain three points of contact (e.g. two feet and one hand) with the ladder.
- 13) Avoid over-reaching while working from a ladder - move the ladder or work from scaffolding.
- 14) Never use ladders in a horizontal position as runways or scaffolds.
- 15) For obvious reasons, don't place ladders against window panes.
- 16) Ladders may only be used by one person at a time.
- 17) Manufactured ladders must be marked for grade and use and used in accordance with manufacturer's specifications.

Lead

- 1) If there is a potential for hazardous exposure to airborne lead in a construction project, air monitoring must be conducted during the first shift of the project and as necessary during the project to ensure that controls are effective and respiratory protection is adequate.
- 2) Warning signs must be posted at the boundaries of the work area where hazardous lead exposures could occur.
- 3) The work area must be kept as free as practicable from accumulations of lead dust. Removal of lead dust must be done by a means that minimizes dispersal of the dust.

Loading/Unloading Dump Trucks

- 1) All truck drivers for the trucking companies must be alert to workers, moving equipment and materials being transported by cranes when entering and traveling on the project site.
- 2) Truck drivers for the trucking companies must wear a hard hat, steel toed boots and high visibility apparel (vests) whenever they leave the cab of their truck on a project site.
- 3) Truck drivers for the trucking companies are to remain in the truck while awaiting their turn to be loaded and during the loading procedure.
- 4) The excavator operator will position trucks by means of communicating to the driver with hand signals and the excavator horn. Trucks should be spotted in a position so that the loading machine does not swing over the truck cab.
- 5) Persons, other than the truck operator, must stand well clear of loading operations. The restricted area extends from 3 m (10 ft) in front of the front bumper of the truck back to and including the complete length of the hitch if the truck is towing a pony. The restricted area also includes the complete swing radius of the excavator counterweight and the bucket and also extends 3 m (10 ft) out past the far side of the dump truck.
- 6) Truck drivers for the trucking companies and other operators of equipment must not drive into the swing radius of cranes, excavators or shovels when such equipment is in operation.
- 7) Truck drivers for the trucking companies may leave the loading position only upon receiving the signal to do so from the excavator operator.
- 8) Rocking the truck to loosen a load is dangerous and should be avoided. Trucks must not be driven with the box raised.
- 9) Never position yourself under the raised box of a truck unless it is safely blocked up from the frame of the truck by a heavy timber or other safety device.
- 10) Anyone trying to contact the excavator operator or the truck driver during the loading operation must make eye contact with both the truck driver and the excavator operator. The excavator operator must stop operations before anyone enters the restricted area. When leaving the restricted area, the person must leave in full view of the truck driver and the excavator operator. Loading may only restart once the person has left the restricted area.

Locating Underground Services

The following procedures are to be complied with prior to drilling or digging into areas where underground services are or may be located.

- 1) Specifications of the site are to be examined carefully by the supervisor prior to below grade drilling or digging. During this drawing review, **all** underground services are to be noted.
- 2) Existing utilities drawings obtained by management or the supervisor from the Municipal Utilities Department, BC Hydro, BC Gas and BC Telephone showing plan, elevation and sections are to be compared to the site's specifications. If there are any discrepancies, the supervisor must advise the appropriate authority (Municipal Utilities Department, BC Hydro, Teresan or Telus). Appropriate authorities must also be advised when our drilling or digging operations will occur close to their services and if their presence on site is required for further information or access into manholes.
- 3) If any anchors are within 1 m (3 ft) of underground services, especially BC Hydro ducts or Teresan gas piping, the supervisor must request site specifications to be revised to suit.
- 4) *BC 1 Call* should be contacted during normal business hours, at least two full working days prior to a planned excavation, for assistance in locating all underground utilities. To access the system dial:
 - (toll free) 1-800-474-6886,
 - (cellular) *6886, or
 - (Greater Vancouver) 257-1940.

If access into existing utility manholes is required for the location of existing underground services, the appropriate authorities are to be notified. BC Hydro representatives are the **only** personnel allowed to enter a BC Hydro manhole due to liability issues. Drawings of all of BC Hydro's facilities can be arranged by calling 1-877-520-1355 (province wide) or 604-528-1693 (Metro Vancouver). If difficulty arises in interpreting these drawings call 604-803-2040 for assistance.

- 5) If removal of a utilities manhole lid is required to check the information received from the Utilities Department's drawings, then a gas detector and respirator (if required) must be used and Confined Space Entry procedures strictly adhered to.
- 6) Prior to drilling or digging near services close to the grade elevation, the supervisor must have his crew hand excavate in several locations to confirm the exact location of the underground service.
- 7) Prior to drilling or digging close to an underground service, an accurate layout procedure by the supervisor using a measuring tape must take place, marking the holes' location on the unexcavated berm or face.

Lockouts

Lack of control of hazardous energy sources results in some of the most horrific and severe injuries in our industry. Most injuries and fatalities that could have been prevented by a proper lockout can be traced to one or more of these causes:

- Failure to disconnect from a power source,
- Failure to stop equipment,
- Failure to relieve or control stored energy (e.g. raised loads),
- Accidental starting and restarting of machinery,
- Failure to clear work areas before activating or reactivating equipment.

Hazardous energy is not restricted to electricity. It includes hydraulic energy, pneumatic energy and pressurized liquids and gases. Whenever you are going to perform any work on any equipment, including elevators and escalators, where an unexpected start-up or release of stored energy could cause injury, you must perform lockout procedures.

- 1) Understand the equipment and be aware of its potential hazards. If you require more information confer with your supervisor.
- 2) A proper lockout device must be used when performing maintenance or repair work on air, electric, hydraulic or steam-driven equipment. All equipment must be locked and tagged in accordance with the requirements of the WCB's Regulation.
- 3) Installation, maintenance and repair work on machinery, equipment or hazardous energy sources must not be performed unless there is no hazard to workers while doing the work.
- 4) Where it is essential that machinery or equipment remain in operation, only those parts of the machine or equipment that must remain in operation may be operating. All other parts, which can present a hazard, must be locked-out.
- 5) Work other than that described in 4) above must not begin until all isolating devices have been secured in the "off" or "stop" position by the use of locks.
- 6) The first worker applying a lock in the lockout procedure must ensure that the locked-out equipment cannot be operated and has been tagged. If more than one worker is assigned to a task, each worker must place his own lock and tag on the isolating devices.
- 7) Installation, maintenance and repair work on machinery and equipment must not begin until all parts, extensions and attachments have been secured against inadvertent movement and all sources of stored energy have been released.
- 8) Any lock used in lockout procedures must be marked to identify the worker whose lock it is and be operable only by that worker's key and the supervisor's master key.

- 9) Lockout locks must be removed only by the person identified on the lock. Master keys may only be used to remove lockout locks in emergencies, and only by a supervisor. When master keys are used to remove a lock a written report must be made and forwarded to management at head office. The report must indicate the date, location, supervisor and a description of the circumstances of the emergency.
- 10) In the event that the work is not completed before the shift ends, workers coming on shift must place their own locks on all isolating devices **before** the workers coming off shift remove their locks. Alternatively, a supervisor may lock out the equipment during shift changes to allow workers going off shift to remove their locks.

Manual Handling of Materials and Musculoskeletal Injury Prevention

(Also see "*Musculoskeletal Injury Prevention*" in Section 11 - *Support Programs*)

- 1) Practice good housekeeping.
- 2) Pre-plan procedures to ensure the proper tools, equipment and number of personnel are available.
- 3) Minimize the distance materials have to be moved - plan storage and movements properly.
- 4) Store materials at or above hip height to minimize unnecessary bending.
- 5) Break or divide heavy or large loads into smaller loads for easier transport.
- 6) Use personal protective equipment such as knee pads, and gloves.
- 7) Don't swing and throw heavy loads.
- 8) Talk with your supervisor about alternating activities if you have been assigned repetitive work.
- 9) Where practicable, use dollies, hoists, forklifts or other equipment to do a job more efficiently.
- 10) Where practicable, use extended handles on tools to reduce the need for crawling when doing floor level tasks.
- 11) Take a minute to stretch/warm up before any repetitive or heavy lifting jobs.
- 12) Do not attempt to lift objects that are obviously too heavy or bulky for one or which require getting into an awkward position. Get help.
- 13) Be ready to lend a hand to fellow employees with lifting tasks.

- 14) Ensure you have a firm grip on the object before lifting it, and ensure your hands and body are in the clear.
- 15) Watch out for slivers, nails and sharp ends when handling objects. If possible these must be removed from the object.
- 16) Ensure that you have a clear view of your route when carrying materials.
- 17) When lifting:
 - a) keep your back as nearly upright as possible,
 - b) use leg muscles instead of back or stomach muscles,
 - c) avoid twisting motions - turn with your feet.

Obstructed Vision/ BACK UP ALARMS

When a vehicle or equipment operator's vision is obstructed, the unit should not be moved until suitable precautions have been taken to protect the operator and any other workers from possible injury. Precautions must include:

- a) inspection, on foot, of the area into which the equipment will be moved, or
- b) direction by a signal person wearing a high visibility vest and stationed in a safe position in continuous view of the operator and having an unobstructed view of the area into which the equipment will move, or
- c) direction by a traffic control or warning system, and
- d) when reversing, the repeated sounding of an audible warning device while the equipment is in motion.

Personal Protective Equipment

- 1) **All** personal protective equipment must meet applicable standards acceptable to the WCB.
- 2) Hearing protection (muffs and/or plugs) is required in any work location where there is noise of 85 dBA or greater and where your supervisor determines hearing protection is necessary. Under most circumstances hearing protection will be required when working in the vicinity of operating power equipment or tools. (To assist in determining noise levels, a "rule of thumb" is: to clearly hear someone speaking where there is a background noise of 85 decibels, they could speak normally at 30 cm (1 ft) distance but would have to yell at 1.2 m (4 ft).

- 3) Hard hats must be worn at all times on the construction site unless the employee is:
- inside a vehicle,
 - operating equipment that is equipped with overhead protection, or
 - in a work location that has been designated by the project supervisor as having no danger of head injury from falling, flying, or thrown objects or other harmful contacts.

Hard hats must be CSA-approved and have a properly adjusted suspension. Non-conductive safety headgear is required when exposed to electrical hazards.

- 4) All employees are required to wear appropriate footwear to protect them from injury. Workers on job sites must wear CSA or ANSI approved above-the-ankle-footwear that provides toe protection and sole puncture protection (CSA has a green triangle patch on the right boot).

NOTE: The WCB recognizes that there are job activities where such footwear could create a hazard to the worker or damage the work environment. The WCB will accept: light, soft soled footwear for roofers applying asphalt shingles or similar materials that can be damaged by heavy footwear, and for carpet layers and similar finishing trades where there is constant kneeling. Ironworkers climbing or walking steel do not require safety toes but must wear substantial footwear with leather uppers reaching past the ankle. These trades are still required to wear CSA approved footwear that provides toe protection and sole puncture protection when accessing other areas of the project site.

- 5) Eye protection must be worn when grinding, chipping, mixing grout, blowing, burning, drilling, welding, or performing other work procedures where exposure to an eye injury hazard is present. Wear safety goggles over non-safety prescription glasses where an eye hazard exists.
- 6) Respiratory protection that has been fit-tested must be worn or carried on your person in those locations identified by your supervisor. If any of this equipment is not available or is in poor condition, alert your supervisor and it will be provided or replaced.
- 7) Personal flotation devices (life jackets), with at least 200 cm² (32 in²) of white or silver retro-reflective material fitted on surfaces normally above the water surface, must be worn properly zippered, buckled or tied on where a drowning hazard exists
- 8) Fall protection must be used in fall hazard areas (areas where it is possible to fall 3 metres (10 ft) or more, or where there is an injury hazard greater than the hazard of hitting the ground - e.g.: above operating equipment or protruding rebar).
- 9) Workers must wear hand/arm protection when handling materials likely to puncture, abrade, or irritate hands and arms, unless the use of this equipment introduces equal or greater hazards.

- 10) Workers exposed to the hazards of mobile equipment on the site must wear Type 3 high visibility apparel.
- 11) Use additional protective equipment such as barrier creams, aprons, etc. as the work requires them.

Pneumatic Tools

- 1) Only authorized, experienced and trained workers may use pneumatic tools.
- 2) Inspect the tool before connecting to the air supply. Ensure screws and caps are securely tightened. Check hoses for cuts or bulges, and replace if defective.
- 3) Pneumatic tools must be held against the work surface before pulling the trigger.
- 4) Safety features must not be disengaged or overridden.
- 4) Operating triggers must never be held in the "on" position while moving between work positions.
- 5) Operating triggers must never be secured in the "on" position under any circumstances.
- 6) The air supply must be disconnected before adjustments or repairs are made to the tool.
- 7) The manufacturer-specified air pressure for tools, hoses and fittings must never be exceeded.
- 8) Safety "whip-checks" must be attached at all air hose connections.
- 10) Do not use compressed air to blow debris or clean dust from clothes.
- 9) Where practicable, avoid laying hoses across pedestrian and vehicular access routes.

Powder Actuated Tools

- 1) Before using powder-actuated tools (PATs), you must be trained in the use of the specific model of tool and authorized by your supervisor to use the tool.
- 2) Safety glasses or goggles and hearing protection must be worn when using PATs.
- 3) For obvious reasons, never use PATs in explosive or flammable atmospheres.
- 4) Only qualified persons may repair PATs.

- 5) Always hold a PAT perpendicular to and against the work surface when operating it.

Power Tools

- 1) Power hand tools must meet standards (CSA, ULC, etc.) acceptable to the WCB.
- 2) Inspect tools, power cords and electrical fittings for damage prior to each use. Repair or remove from service and replace damaged equipment.
- 3) Ensure all belt and pinch point guards are in place and functioning.
- 4) Do not wear gloves, loose clothing or jewellery while using revolving/rotating power tools.
- 5) Switch tools off before connecting them to a power supply.
- 6) Do not use electric tools in wet or damp locations without a Ground Fault Circuit Interrupter (GFCI).
- 7) Ensure tools are properly grounded (3-prong plug) or are double insulated.
- 8) Keep power cords clear of tools during use.
- 9) Suspend power cords over aisles or work areas, when possible, to minimize stumbling or tripping hazards and prevent damage to the cords
- 10) Do not carry electrical tools by the power cord.
- 11) Avoid octopus (overloaded) connections.
- 12) Wear approved safety glasses or goggles when using power tools for grinding, cutting and sanding operations.
- 13) Lower table saw blades to the minimum amount of exposure while material is being cut to minimize the risk of cutting fingers.
- 13) Always use a push stick, template or jig if there is a risk of hand injury when feeding woodworking machinery.
- 14) If a guard in woodworking machinery is impracticable for a specific operation it may be removed, but an appropriate push stick, feather board, jig or similar device must be used to prevent hands entering the cutting area. Guards must be replaced upon completion of the operation.
- 15) Radial arm saws must be adjusted to prevent any part of the saw blade traveling past the forward edge of the cutting table

- 16) A hand-fed circular saw with rip-type teeth must have kickback fingers, and a splitter or spreader to prevent kickback unless the saw is being used for dadoing, rabbeting or grooving.
- 17) A hand-held circular saw must have a guard that automatically adjusts to the thickness of the material being cut and covers the cutting area of the blade when the saw is removed from the material.
- 18) Prior to drilling into walls or the ground, accurately determine and mark the location of utilities.

Rigging, Slings and Hoisting

(Also see "*Hand Signals*" in this Section)

Most employees on job sites will at some point be involved in rigging or landing a load of materials. When in doubt about **any** aspect of safe rigging, slinging or hoisting speak with your supervisor or an experienced rigger before proceeding. Unsafe hoisting and landing of material and equipment (particularly when near overhead power lines) contributes to multiple fatalities in the BC construction industry every year.

- 1) Rigging and slinging work may only be done by or under the supervision of qualified and authorized workers.
- 2) When signaling is required, visual signals are preferred. Signals must only be given by one person at a time and the signal person must have a clear, unobstructed view of both the load and the operator of the lifting equipment. Signal persons must wear a high visibility vest.
- 3) Store and use hoisting equipment with care to prevent damage. Cable clips, shackle pins, heel pins, wedge sockets, anchors, sheaves and slings must be visually inspected prior to use and installed and used in accordance with the requirements of the WCB Regulation and the manufacturer's recommendations.
- 4) Avoid sharp bends, pinching, and kinking in rigging components. Thimbles should be used in sling eyes. In a choker hitch, slings must be long enough so the choker fitting chokes on the webbing and not on the other fitting.
- 5) Don't wrap the hoist line around the load. Attach the load to the hook by a sling.
- 6) Don't use nylon and polyester slings at temperatures in excess of 180°F (82°C).
- 7) Safe working loads of rigging components must be determined by a professional engineer if a manufacturer's specification is not available, or there are signs of stress or damage, or a WCB officer determines it is necessary.
- 8) Sharp edges and corners of the material being rigged must be protected to prevent damage to the choker. Use softeners to prevent slippage and damage.

- 9) All components must be of an adequate strength for the application. Only forged alloy steel load-rated hardware (stamped or tagged with its SWL) may be used for overhead lifting. Ensure that the safe working load of all hardware is compatible with the rope or chain used with it.
- 10) Do not use open hooks. Safety hooks, moused hooks or shackles (shackle pins must be secured) must be used for all hoisting operations.
- 11) Make sure loads are balanced in the hook. Eccentric loading can result in a hazardous reduction in capacity. Open hooks are not to be used in any circumstances where accidental dislodgement of the load from the hook could cause injury to workers.
- 12) Tag lines must be used when hoisting and rigging loads and rigging must not be rigged from unsound structural points.
- 13) Hooks which have opened more than 15% of the normal throat opening or twisted more than 10% from the original plane of the hook, or are otherwise cracked or defective must be removed from service.

POLYPROPYLENE AND NYLON ROPE	
Chalky exterior	Overexposed to sunlight (UV) rays possibly from being left unprotected outside. Remove from service and replace.
Dusty residue when twisted open	Wearing from inside out. Usually due to overloading. If extensive, replace rope.
Frayed exterior	Damaged by abrasive or sharp edges. Strength may be reduced.
Broken strands	Remove from service and replace.
Cold or frozen	Thaw and dry at room temperature.
Reduced width	Usually indicates previous overloading. Use caution and reduce lifting capacity or remove from service and replace.

WIRE ROPE AND WIRE ROPE SLINGS

Rusty, dry	Apply clean light oil. Do not use engine oil
Excessive outside wear	Indicates rope has been used over rough surfaces or with misaligned or incorrect sheaves. Reduce load capacity according to wear. If any of the outside individual wires are more than 1/3 worn away, replace and remove from service.
Broken wires	In running ropes, up to 5 allowed in one rope lay or 2 in one strand in one rope lay or, in standing ropes, up to 2 in one lay and a maximum of 1 at an end connection. If any of these limits are exceeded, replace rope and remove from service.
Crushed, jammed or flattened strands	Replace and remove from service.
Bulges in rope	Replace and remove from service.
Gaps between strands	Replace and remove from service.
Core protrusion	Replace and remove from service.
Heat damage, torch burns or electric arc damage	Replace and remove from service.
Frozen	Allow to warm at room temperature. Avoid sudden loading of cold rope.
Kinks, bird-caging	Replace and remove from service.
Size reduction	Replace and remove from service if reductions are in excess of 0.4 mm (1/64 in) for ropes up to and including 8 mm (5/16 in), 1 mm (3/64 in) for ropes greater than 8 mm (5/16 in) up to and including 19 mm (3/4 in), 2 mm (1/16 in) for ropes greater than 19 mm (3/4 in) up to and including 29 mm (1 1/4 in) or, 3 mm (3/32 in) for ropes greater than 29 mm (10 in).
Sharp bends	Sharp corners should be avoided. Use pads such as soft wood, rubber hose, old carpet, etc. to avoid damaging slings and ropes.

MANILA ROPE

Manila rope is not recommended for use in construction and is **prohibited** for use in fall restraint and fall arrest systems.

Dusty Residue when twisted open	Wearing from inside out. Usually due to overloading. If extensive, replace rope.
Broken strands, fraying, spongy feel	Remove from service and replace.
Wet	Reduce maximum load limit.
Frozen	Thaw and dry at room temperature.
Mildew or dry rot	Remove from service and replace.
Dry and brittle	Do not oil. Wash with cold water and hang in coils to dry at room temperature.

CHAIN SLINGS

Capacity safety tag	Use only alloy steel identified by an "A" or "8" for overhead lifting.
Stretched or deformed links	Return to manufacturer for repair or remove from service.
Cracks, nicks or gouges	Return to manufacturer for repair or remove from service.
Failure to hang straight	Return to manufacturer for repair or remove from service.
Corrosion pitting	Return to manufacturer for repair or remove from service.
Burns	Return to manufacturer for repair or remove from service.
Reduction in chain diameter of any link	Reference the requirements of the WCB Regulation regarding chain sling wear rejection criteria. If allowable limits exceeded, remove from service.

POLYPROPYLENE AND NYLON WEB SLINGS

Chalky exterior appearance	Overexposed to sunlight (UV) rays. Should be checked by manufacturer or replaced and removed from service.
Frayed exterior	May have been shock-loaded or abraded. Inspect very carefully for signs of damage.
Breaks, tears or patching	Replace and remove from service.
Frozen	Thaw and dry at room temperature before use.
Oil contaminated	Replace and remove from service.

Right to Refuse Unsafe Work

- 1) Never carry out or cause to be carried out any work process, or operate or cause to be operated any tool, appliance or equipment that would create an undue hazard to your health or safety or to the health or safety of any other worker. ("Undue hazard" means: a danger that is not normal for that occupation, or a danger under which a person engaged in that occupation would not normally carry out his work.)
- 2) You will not be disciplined for exercising this right.
- 3) If you exercise your right to refuse unsafe work, you must immediately report the problem to your supervisor.
- 4) Your supervisor will investigate and either correct the problem or inform you that the report was not valid.
- 5) If there is no resolution at this point, the supervisor will re-investigate in the presence of your selected alternative.
- 6) If there is no resolution at this point, your supervisor **and** you or your worker representative must notify the WCB, which will then investigate. The WCB will issue orders if deemed necessary.
- 7) You may be temporarily assigned to alternative work at no loss in pay until the matter is resolved.

Scaffolding

- 1) **Each major component of manufactured scaffolding must be marked to identify the manufacturer. A copy of the manufacturer's technical data (load rating, component weight, erection procedures, applicable standard) for scaffold components in use must be available to the workplace where the scaffolding is being used.** If the manufacturer cannot be identified or the manufacturer's technical data is not available, a component may only be used in accordance with written instructions from a professional engineer.
- 2) Inspect all parts of the scaffold before using and regularly during use. Do not use damaged or heavily rusted equipment; the strength of equipment in this condition is not known. If in doubt, do not use the scaffold. Scaffolds may only be erected or dismantled by trained and authorized persons.
- 3) It is recommended that scaffold frames and components manufactured by different companies not be intermixed. **If components from more than one manufacturer are used, ensure they are compatible.**
- 4) The WCB Regulation requires that sawn wood scaffold planks for a maximum span of 3 metres (10 ft) be not less than 2 in x 10 in nominal lumber graded "Select Structural - Scaffold Plank", 2 in x 10 in nominal lumber graded "Select Structural - Joists and Planks", 2 in x 10 in rough sawn lumber graded "No. 2 and Better - Joists and Planks", **or** 2 in x 10 in nominal lumber graded "No. 2 and Better - Joists and Planks" provided the planks are doubled up (one on top of the other with no need to nail or glue them together).

For a maximum span of 1.8 metres (6 ft) and light duty work, lumber must be graded "No. 2 and Better - Joists and Planks" and be not less than 2 in x 10 in nominal.
- 5) Planks selected should be hand-picked for minimal knots and shallow slope of grain.
- 6) Manufactured scaffold planks must be either ANSI, CSA or WCB approved and must be used in accordance with the manufacturer's instructions and limitations.
- 7) Two planks lying side by side are to be used and are to extend not less than 15 cm (6 in) and no more than 30 cm (12 in) beyond the end supporting members and must be secured (e.g.: cleated) against dislodgement. Do not leave openings greater than 25 cm (10 in) in width.
- 8) Open ends and sides of scaffold platforms must be provided with upper guardrails and midrails. Toeboards (at least 10 cm (4 in) in height with a maximum clearance of 13 mm (1/2 in) above platform) are required where there is a danger to workers from tools, materials or equipment falling from scaffolds or work platforms and where environmental conditions or the work procedure creates a hazard of workers slipping from the scaffold.

- 9) Scaffolding must be restrained from tipping - secure it to the building structure, at a minimum, every 6 m (20 ft) vertically (the height of the lowest tie should not be less than 3 x the base dimension of the scaffold) and every third bay or 6.4 m (21 ft) (whichever is less) horizontally if the height exceeds the minimum base dimension by a factor of 3 to 1 or greater. **NOTE:** Each building tie must be capable of resisting a working load of 4 kN (900 lb) or a proportionately equivalent load where ties are placed closer together than the minimum regulated distance.
- 10) When there are uneven grade conditions use adjusting screws rather than blocking to achieve a level surface (height adjustment devices must not extend more than 2/3 of their total length or 60 cm (24 in), whichever is less). Do not force braces to fit. Instead, plumb and level the scaffold during the erection; this will make fitting easy.
- 11) **Do not climb the outside of scaffold frames between landings.** Access to scaffold levels up to 9 m (30 ft) above grade may be made via end frames with a ladder-type structure (horizontal members evenly spaced at approximately 30 cm (12 in) on center), a vertical or portable ladder or stairway, attached to the scaffold. Access to scaffold levels above 9 m (30 ft) must be made via a fixed vertical ladder with fully guarded (except at the ladder) rest platforms at least every 9 m (30 ft), end frames with a ladder-type structure (horizontal members evenly spaced at approximately 30 cm (12 in) on center) with fully guarded (except at the ladder) rest platforms at least every 9 m (30 ft), an approved temporary passenger hoist or an attached stairway erected for the full height of the scaffold.
- 12) **Avoid overloading scaffolds.** Do not keep more material than that required for a day's work on the scaffold. Distribute scaffold loads as evenly as possible rather than concentrating them in the centre of the scaffold. Seven foot length planks are considered by the WCB to be heavy duty scaffold components with a maximum load capacity of 75 pounds per square foot if the material is evenly distributed on the planks. Ten foot length planking is considered light duty and is limited to an evenly distributed load of only 25 pounds per square foot - around 200 pounds per plank. **NOTE:** When calculating load limits, remember to include the weight of workers who will also be on the planks.
- 13) Locking devices (stud and wingnut locks, sliding locks and gravity locks) should be inspected regularly and even more frequently if powered or vibrating equipment is being used on the scaffold.
- 14) Do not use ladders or other devices on top of scaffolds to increase the working height.
- 15) Remove snow and ice from the scaffold before work is done.
- 16) Remove all light-weight materials at the end of the work period so that they will not blow off should a storm develop.
- 17) Do not throw or drop objects from the scaffold. Use a hand line to raise or lower.

Scaling rules

- 1 Arrive for work rested and fit for work. If you are impaired due to a lack of sleep or otherwise, **inform your supervisor.**
- 2 **Do a visual check of all of your equipment and fill out your scalers checklist before you access the slope!**
- 3 Inform your supervisor of any problems discovered in your pre scaling inspection
- 4 Take a moment to stretch and warm up before accessing the slope. Stretching helps to prevent soft tissue injuries.
- 5 Know who the designated first aid attendant for the job is. Review any and all emergency procedures before accessing the slope.
- 6 Review the directions to medical aid, you may have to drive an injured worker.
- 7 Determine tie off locations for scaler's ropes and tie off at two locations using bowline and half hitch knots.
- 8 Don scaling belts and hardware and proceed to position on slope. Ensure horizontal carabineer is oriented with the gate facing down and the safety clip screwed on tight.
- 9 Do final check of knots and tie offs.
- 10 Scale from the top down as thoroughly as possible. Any missed debris may pose a hazard to you as you progress down the slope.
- 11 Always scale from a position of safety, above the material you are trying to move. Ensure you have a clear area of escape if large objects come loose unexpectedly.
- 12 Do not attempt to move objects which may not be contained within the landing area below. A Scaling Supervisor should inspect large boulders or other large structures before attempting to move.
- 13 Always Scale with in pairs. Ideally the most experienced scaler should be paired with the least experienced taking extra care to maintain visual and verbal contact at all times.
- 14 Never work directly above or below another scaler or below any operating machinery.
- 15 If someone yells "look out!" or "ROCK!" move your body as close to the slope as possible. **Don't look up!**
- 16 Never leave scaling bars or other small tools in an elevated position without securing them against falling.
- 17 If you are working with slack on your line, you must have a fall arresting device connected to your back "D" ring. A suitable prussic sling will suffice for this. A fall arresting lanyard and rope grab will also suffice.

- 18 Once traffic has resumed following a closure, limit your movements on the slope as much as possible so as to minimize the chance of dislodging any material.
- 19 Scalers must ensure that their rope ends are rolled up and secured away from where they are scaling. This will ensure that any falling material does not catch on or damage their rope.
- 20 Watch out for your co workers and they in turn will be watching your back

Scissor Lifts, Booms and Giraffes

(Also see "*Vehicles And Mobile Equipment*" in this Section)

- 1) Equipment must be used and maintained in accordance with applicable requirements of the WCB Regulation.
- 2) Guardrails, safety chains and toeboards must be in place
- 3) Fall arrest equipment secured to a suitable anchorage point must be in place and used on all elevating work platforms. (Does not apply to scissor lifts and similar elevating work platforms used on a firm, level surface.)
- 4) If a unit is fitted with outriggers, it must be equipped with notices indicating the circumstances under which the outriggers must be used.
- 5) Carrier vehicles of elevated work platforms must be immobilized against inadvertent motion before workers occupy the platform.
- 6) Scissor lifts must be guarded where there is a possibility of workers inadvertently coming into contact with any hazardous moving parts of the lifting mechanism.
- 7) All vehicle-mounted giraffes or self-propelled boom-supported elevated work platforms must be subject to non-destructive testing every 24 months.
- 8) Every elevating work platform must be provided with an emergency stop button on the platform and an emergency lowering control.
- 9) Every elevating work platform must be fitted with a warning system for forward, reverse, up and down motions.
- 10) All self-propelled elevating work platforms (except truck-mounted platforms) must be fitted with tilt angle indicators or warning devices as described in the applicable requirements of the WCB's Regulation.

Signs and Tags

- 1) Accident prevention signs and tags must be placed where there is an immediate or potential hazard.
- 2) The only persons authorized to remove an accident prevention sign or tag are

the person who placed it or a supervisor.

Silica Exposure Program

Silica dust is present in nearly every aspect of the construction work that we do. It is generated, for the most part, by cutting, grinding, chipping and hammering of concrete, mixing grout containing silica (generally 13 to 18 percent), and when drilling into rock.

The disease known as silicosis is a scarring of the lung tissue resulting from fibres embedding into the lungs. It can take many years to develop as layers of scar tissue develop, however, it can also be caused by a major acute exposure to silica fibres.

The Pacific Group of companies will take every practical precaution to protect workers from being exposed to silica.

Safety measures shall include the consideration of a primary control method using water, ventilation, vacuum systems, isolation of tasks, administrative controls to minimize risk of exposure, and finally personal protective equipment (in our case ½ mask respirators with HEPA cartridges, NOTE: ALL ½ MASKS MUST BE FIT TESTED PRIOR TO USE BY THE WORKER AND RECORD OF TEST RETAINED)

The Exposure limit for Silica Crystalline, Quartz, Respirable Dust is 0.1 mg/m³ (Part 5 of the British Columbia Workers' Compensation Board Occupational Health and Safety Regulations). It is, however, an ALARA (As Low as Reasonably Achievable) substance and a suspected human carcinogen. In most cases it can be reduced to non-detectable levels with wetting, ventilation, and distance from the source of dust generation. When these methods are not practicable or do not completely eliminate the dust then ½ mask fit tested respirators with HEPA filters shall be used as per the Respiratory Protection Program (Chapter 11 of the Safety Program)

Swing Stages

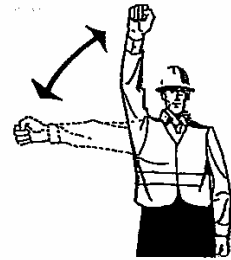
- 1) **Always** inspect swing stage equipment prior to use; never use defective equipment. **If you have any doubts regarding the safety of or safe use of swing stage equipment consult with your supervisor.** Your supervisor will ensure defective equipment is tagged and repaired or removed from the job site.
- 2) Survey the planned work location for hazards such as power lines, obstructions that could tip the swing stage, overhead hazards, etc. Correct any unsafe conditions or report them to your supervisor for correction prior to operating the equipment.
- 3) Follow all manufacturers' recommendations. Where the manufacturers' recommendations provide a lower standard of safety than the WCB's Regulation - follow the WCB's Regulation.
- 4) **Do not alter or dismantle swingstage equipment without the supervision and direction of a qualified person.**

- 5) Inspect wire rope during each ascent or descent. Never use wire rope that is kinked, birdcaged, corroded, undersized or damaged in any way. Protect swing stage ropes from the adverse effects of chemicals, undue heat, electrical current, and tool damage. Never use ropes with knots in them. Clean and lubricate wire rope in accordance with the wire rope manufacturer's instructions.
- 6) The total load on suspension ropes must not exceed 1/10 of the rope's strength. Always maintain at least 4 wraps of wire rope on drum type hoists.
- 7) Never exceed the safe working load specified on the swing stage.
- 8) Independently anchored lifelines and safety harnesses are required for all workers on swing stages which are 3 m (10 ft) or more above a floor or grade. (This does not apply where a boatswain's chair is suspended by a block and tackle system, acceptable to the Board, which is manually operated by the worker in the chair.)
- 9) Wear fall protection equipment when rigging on exposed floors or roofs.
- 10) Do not move suspended scaffolds horizontally when occupied.
- 11) Ensure all electrical power sources and power cord connections are grounded and protected with circuit breakers. Restrain power cord connections to ensure they do not separate.
- 12) Immobilize the swing stage when leaving it unattended.
- 13) Use particular care when operating swing stage equipment during windy conditions.

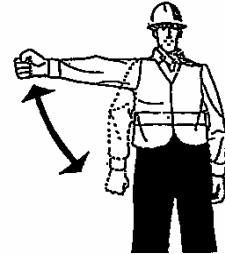
Traffic Control

To instruct a partner to halt traffic from the other direction

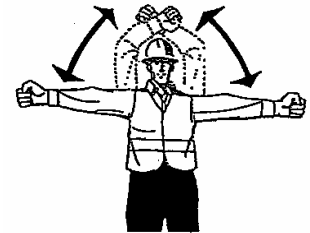
- Raise free hand with fist clenched, straight above the shoulder. Move entire arm slowly from the upright position to a position directly out to the side at shoulder height. Repeat signal as long as necessary.



To indicate an all clear situation and instruct partner to allow traffic to proceed from other direction - Move the free hand directly out from the side at shoulder height. Lower the entire arm until it rests against the side of the body. Repeat signal as long as necessary.



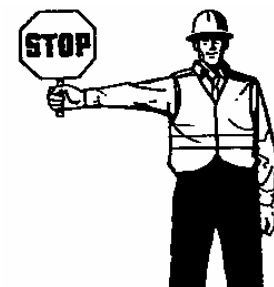
To instruct a partner to stop all vehicles in event of approach of emergency vehicles or other emergency such as out-of-control vehicles entering the control zone - Drop the STOP/SLOW paddle. Raise both arms to the side at shoulder height, then rapidly move both arms from the shoulder level to a point above the head where the wrists will cross. Continue signal until the partner is seen to take necessary action.



To stop traffic by day - Face traffic and display static STOP paddle in left hand. When approaching vehicle has almost stopped, use right arm to indicate stopping point.



Normal signal



*Alternative - reverse of normal signal

To stop traffic by night - Face traffic and display static reflectorized STOP paddle in left hand and flashlight, with red signaling baton attached, in right hand. Move arm from 3 to 6 o'clock position and back. When approaching vehicle has almost stopped, use flashlight/baton to indicate stopping point.



Normal signal

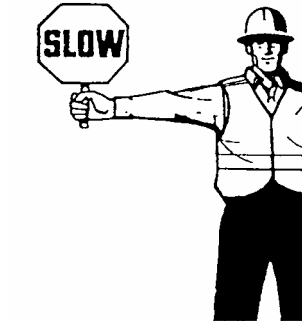


*Alternative - reverse of normal signal

To slow traffic by day - Face traffic and display static SLOW paddle in left hand. If traffic slows below desired speed, give appropriate "Move Traffic" signal.

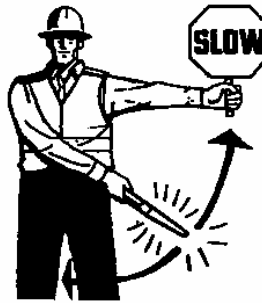


Normal signal

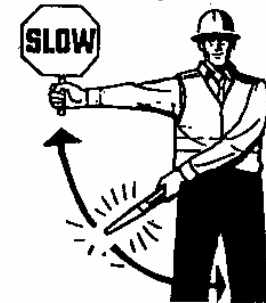


*Alternative - reverse of normal signal

To slow traffic by night - Face traffic and display static reflectorized SLOW paddle in left hand and flashlight, with red signaling baton attached, in right hand. If traffic slows below desired speed, give appropriate "Move Traffic" signal



Normal signal

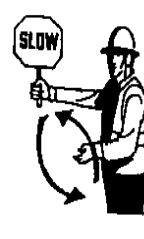


*Alternative - reverse of normal signal

To move traffic slowly by day - Face across the approach traffic lane and look across right shoulder at traffic to be moved. Display static SLOW paddle in left hand. Advance traffic by rotating lower right arm in an elliptical manner, in the direction vehicle wheels will rotate.

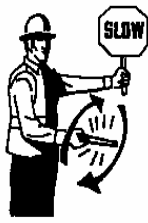


Normal signal



*Alternative - reverse of normal signal

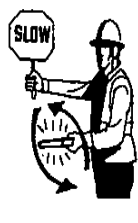
To move traffic slowly by night - Face across the approach traffic lane and look across right shoulder at traffic to be moved. Display static reflectorized SLOW paddle in left hand and flashlight, with red signaling baton, in right hand. Advance traffic by rotating lower right arm in an elliptical manner, in the direction vehicle wheels will rotate.



Normal signal



*Alternative - reverse of normal signal



To move traffic at posted speed by day - Face across the approach traffic lane and look across right shoulder at traffic to be moved. Lower left arm to conceal paddle and motion traffic on with right arm at shoulder level.



Normal signal



*Alternative - reverse of normal signal



To move traffic at posted speed by night - Face across the approach traffic lane and look across right shoulder at traffic to be moved. Lower left arm to conceal paddle and hold flashlight, with red signaling baton, in right hand. Motion traffic on with right arm at shoulder level



Normal signal



*Alternative - reverse of normal signal



* **NOTE:** Use alternative signals only when the traffic control person is located on the right side of traffic under his or her control.

Trenching, Shoring and Excavations

(Also see "Locating Underground Services" in this Section)

Trenching and excavating operations present many occasions where there is the potential for serious injury or death. The following rules will be enforced without exclusion:

- 1) Excavation work must be carried out in accordance with the specifications and requirements of a registered professional engineer and/or those of the WCB Regulation.
- 2) The location of underground utility services must be accurately determined and

marked before starting excavation work.

- 3) Excavation work close to a utility must be undertaken in conformity with applicable provincial and federal regulations and with the requirements of the owner of the service.
- 4) When possible, trenches must be kept less than 1.2 m (4 ft) deep. Workers must not enter any excavation more than 1.2 m (4 ft) deep unless:
 - a) the sides of the excavation are sloped to a safe angle or benched as specified in the WCB's Regulation or in accordance with the designs and instructions of a professional engineer, or
 - b) the sides have been supported by the use of sheet piling, or shoring and bracing meeting the standards set out in WCB Regulation , or
 - c) the workers are protected by other means.
- 5) Sloping of the sides of excavations may be done instead of shoring only where workers have protection equivalent to that provided by shoring. In no case may a slope be steeper than 3/4 horizontal to 1 vertical.
- 6) Trench support systems must be inspected daily and must be maintained in fully effective condition.
- 7) Shoring uprights must extend from at least 30 cm (1 ft) above ground level to within 60 cm (2 ft) from the bottom of the trench except where roadway covers are utilized.
- 8) The work procedures for installation or removal of shoring, must ensure that workers are not exposed to undue risk. In general, shoring must be installed from the top down and removed in reverse order.
- 9) When workers are required to enter excavations more than 1.2 m (4 ft) deep, a safe point of entry and exit must be provided within 8 m (25 ft) of the immediate work area.
- 10) Excavated material must be kept back a minimum distance of 60 cm (2 ft) from the edge of the trench and 1.2 m (4 ft) from any other excavation.
- 11) Water must not be allowed to accumulate in excavations where it may affect the excavation's stability or endanger workers.

Vehicles and Mobile Equipment

The Pacific Group of Companies has adopted the following policy regarding the use of Company vehicles:

- 1) Drivers are responsible for basic vehicle maintenance, including:
 - a) maintaining oil and water levels,
 - b) ensuring tires are properly inflated,
 - c) giving notification for service due, and
 - d) keeping the vehicle interior and exterior clean and tidy

Failure to perform these basic responsibilities will result in the following:

- a) 1st failure - written notice to driver and supervisor,
 - b) 2nd failure - Company vehicle operating privileges withdrawn.
- 2) All drivers of Company vehicles must possess a valid, appropriate driver's license.
 - 3) Every worker required to drive a Company vehicle or operate mobile equipment must have read the safety rules applicable to mobile equipment and vehicles.
 - 4) Workers must not operate Company vehicles while impaired by alcohol, fatigue, sickness or drugs (prescription or recreational).
 - 5) Seatbelts must be worn by drivers and all passengers.
 - 6) Operators must use running lamps or illuminated headlamps during daytime hours.
 - 7) Workers must not operate mobile equipment unless they have been adequately instructed in the safe use of the equipment and have demonstrated to a supervisor that they are competent to operate the equipment. This rule does not apply when a trainee is operating the equipment under the supervision of an authorized instructor.
 - 8) Unauthorized workers must stay off powered mobile equipment while the equipment is in motion.
 - 9) Operators of THE PACIFIC GROUP OF COMPANIES' mobile equipment or vehicles are responsible for the safe operation of the equipment. They must maintain full control of the equipment, and must comply with all laws and rules regarding the operation of the equipment.
 - 10) If an operator has reason to believe that the equipment or a load is hazardous

they must report it to their supervisor.

- 11) Immediately before putting mobile equipment in motion, check loads for condition of blockings, hold-downs, lashings and clearance signals
- 12) Operators must obey all signs governing the movement, operation or parking of vehicles on any work site or public or private road.
- 13) The mobile equipment operator is the only worker allowed to ride the equipment, unless seats or other safe facilities for other workers are provided and used. Workers must not ride with any part of their bodies outside the vehicle or equipment, or stand in or on any vehicle or equipment unless protected against being thrown off balance.
- 14) Workers must not get on or off a moving vehicle except in an emergency.
- 15) Operators must not leave the controls unless the equipment or vehicle has been secured against movement by setting parking brakes and transmission locks, lowering any blades, buckets or forks to the ground and chocking wheels where necessary.
- 16) Operators must keep the cab, floor or deck of mobile equipment free of materials, tools or other objects that could create a tripping hazard, interfere with the operation of controls or interfere with exiting the vehicle.
- 17) Tools and equipment carried in any part of a vehicle or piece of mobile equipment where workers are riding must be placed or secured to prevent injury to workers.
- 18) Mobile equipment used for lifting or hoisting must be operated within the safe working load limits.

Vehicle Breakdowns and Accidents

- 1) If a vehicle breaks down, operators must get the vehicle off and away from the travelled portion of the road if possible (this particularly applies to emergency vehicle routes on the project site). If they can't, then they must:
 - a) activate vehicle emergency flashers,
 - b) if visibility is poor because of fog, rain, hill, curve, dusk, etc., set out flares or flashers supplied with the vehicle,
 - c) set flares or flashers 32 m (100 ft) behind and 32 m (100 ft) in front of the vehicle. (Do not set out flares if you are well off the road.)
- 2) Immediately report all Company vehicles breakdowns to head office.
- 3) Report accidents involving Company vehicles as described in "*Accident and*

Injury Reporting". Give all the details possible, such as width of roads, length of skids, presence of traffic signs, vision obstructions, names and addresses of persons involved and witnesses. In case of an accident the operator must:

- a) pull off the road, if possible, to avoid obstructing traffic,
- b) place warning reflectors on the road as necessary,
- c) render first aid to any person who may be injured,
- d) report the accident to his supervisor as soon as possible,
- e) refrain from entering into any argument or dispute with the driver of the other vehicle, pedestrians or bystanders,
- f) make no admission of liability or offer any settlement of claim,
- g) record license plate numbers and driver's license numbers of any other involved persons (including witnesses), and
- h) make arrangements with your supervisor to report the accident to the necessary authorities.

Welding, Cutting, Brazing and Burning

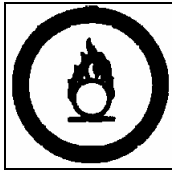
- 1) Only authorized and qualified persons are permitted to use acetylene or propane fired devices.
- 2) Inspect equipment prior to use. Alert your supervisor if the equipment requires repair or removal from service.
- 3) Remove or protect combustible materials from the sparks and heat created by the welding operation.
- 4) Never weld, cut or do other hot work on drums, tanks, barrels or other containers until you are absolutely certain that all materials which, when subjected to heat may produce hazardous (poisonous, explosive, flammable, etc.) vapours, have been removed.
- 5) A Class ABC fire extinguisher of adequate size must be kept nearby, ready for use when welding, cutting, brazing or burning.
- 6) Always wear appropriate, approved eye protection when welding, cutting, brazing or burning to protect against sparks, debris and ultraviolet rays.
- 7) Workers adjacent to the welding should be protected by non-combustible screens or wear eye protection.
- 8) Gases and metal fumes present a health hazard to welders. Good ventilation and/or respiratory protective equipment must be present or employed to minimize

the hazard.

- 9) Reverse gas flow (check) valves and flash back arrestors must be used in all oxy-fuel systems.
- 10) Close all cylinder valves and bleed the lines when work is finished. Hoses with leaks, burns or worn areas must be replaced or repaired.
- 11) If an arc welding machine is wet, thoroughly dry and test it prior to use.
- 12) Spread coiled welding cables out and attach the ground lead securely to the work.
- 13) Never coil welding cables around your body when welding.
- 14) Wear non-combustible clothing and fasten collars and sleeve cuffs. Never wear cuffed pants or overalls or open footwear when welding, brazing, burning, etc.

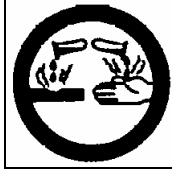
Workplace Hazardous Materials Information System (WHMIS)

- 1) All employees must be trained in WHMIS requirements.
- 2) Read and follow the information provided on labels and in the Material Safety Data Sheet (MSDS), before using or handling the WHMIS controlled product.
- 3) Follow any additional procedures or instructions provided by your supervisor for the safe use and handling of hazardous materials.
- 4) Report to your supervisor any containers that are unlabelled or improperly labelled.
- 5) The amount of a hazardous substance in a work area should not exceed the amount reasonably required for the work in progress in one work shift.
- 6) Never store incompatible substances (consult MSDS) in a manner that would allow them to mix in the case of container leakage or breakage.



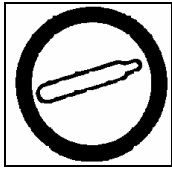
Oxidizing
Material

These materials react chemically with many other materials such as cleaners, greases, oils, etc. causing enough heat to spontaneously combust or ignite surrounding materials.



Corrosive
Material

Due to their acidic or alkaline nature these materials can corrode metal and burn skin, eyes and other tissue resulting in permanent scarring or blindness. Identified by "pH" (0-5 acid, 9-14 base).



Compressed
Gas

These materials include compressed gases, dissolved gases and gases liquefied by compression or refrigeration. Puncturing, heating or damaging the material container may result in explosion.



Flammable
&
Combustible
Material

These materials are very hazardous due to their ease of flammability and ability to create an explosive atmosphere. Ensure there is good ventilation and remove all ignition sources. Water may be a poor extinguishing agent.



Poisonous &
Infectious
Material (1)

Exposure to these **very** toxic materials may result in serious irreversible health effects such as: cancer, birth defects, genetic damage, lung, skin or eye injury. Many of these materials may enter the body through skin absorption or breathing.



Poisonous &
Infectious
Material (2)

Exposure to these toxic materials may cause immediate eye, skin or lung irritation. Serious permanent health effects may result from long term or repeated exposure.



Poisonous &
Infectious
Material (3)

Exposure to these toxic materials may result in disease or infection.



Dangerously
Reactive
Material

Improper handling of these materials may result in fire, explosion, the production of dangerous toxic gas or other hazardous conditions as a result of decomposition, shock, temperature or pressure changes or exposure to other substances.

Ventilation

1. Supervisors must ensure every interior workplace has the means to ensure the supply of a sufficient quantity of fresh air.
2. Workers must ensure that they do not commence work in an area where air quality issues have not been addressed
3. Ventilation must be effective, especially where toxic or irritating substances such as fumes, gases or dust might be liberated. In addition, ventilation is used to maintain comfortable working temperatures for people and equipment.
4. Whenever possible exhaust from internal combustion engines operated indoors must be vented to the outdoors.
5. Where an interior workplace is not supplied with air by mechanical means it will be ensured that the workplace provides for suitable openings, evenly distributed in relation to the total area of the floor, so as to provide an adequate supply of fresh air.
6. Portable ventilation systems must be set up in such a way so as not to create a hazard in another work area.
7. Supervisors must ensure that either local exhaust ventilation systems to extract contaminants at the source, or copious general ventilation to dilute contaminants which have escaped into the atmosphere, will be used to reduce the employee's exposure.
8. If ventilation cannot maintain exposure levels to airborne contaminants to below the exposure limits required by the WCB, work must cease until the problem has been addressed.

For ventilation requirements for confined space entry see **Confined Spaces**

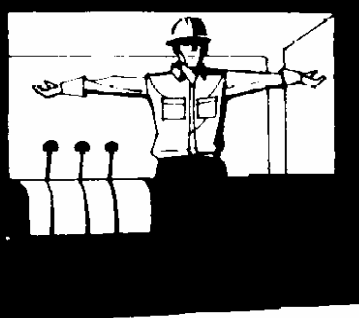

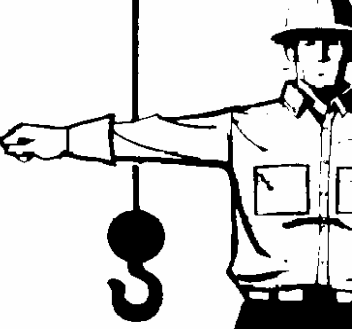

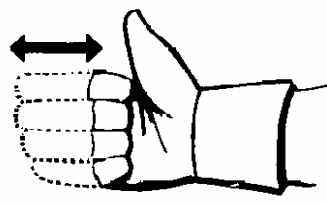
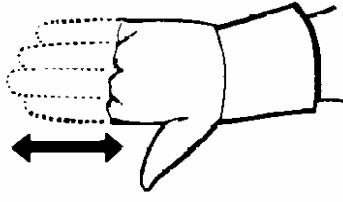
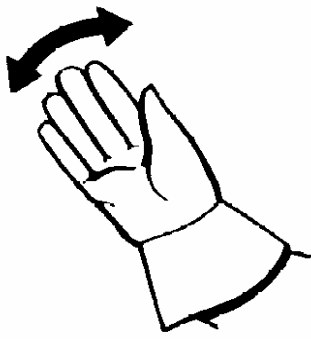

Standard Hand Signals for Controlling Crane Operations, Crawler, Locomotive and Truck Cranes

<p>HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.</p>	<p>LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.</p>	<p>USE MAIN HOIST. Tap fist on head; then use regular signals.</p>
<p>USE WHIPLINE. (Auxiliary Hoist). Tap elbow with one hand; then use regular signals.</p>	<p>RAISE BOOM. Arm extended, fingers closed, thumb pointing upward.</p>	<p>LOWER BOOM. Arm extended, fingers closed, thumb pointing downward.</p>
<p>MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as example).</p>	<p>RAISE THE BOOM AND LOWER THE LOAD. Arm extended, fingers closed, thumb pointing upward, other arm bent slightly with forefinger pointing down and rotate hand in horizontal circles.</p>	<p>LOWER THE BOOM AND RAISE THE LOAD. Arm extended, fingers closed, thumb pointing downward, other arm with forearm vertical, forefinger pointing upward and rotate hand in horizontal circles.</p>

Standard Hand Signals for Controlling Crane Operations, Crawler, Locomotive and Truck Cranes

<p>SWING. Arm extended, point with finger in direction of swing of boom.</p>	<p>STOP. Both arms outstretched at the sides horizontally, fingers outstretched.</p>	
<p>TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>	<p>DOG EVERYTHING. Clasp hands in front of body.</p>	<p>TRAVEL. (Both Tracks). Use both fists in front of body, making a circular motion about each other, indicating direction of travel; forward or backward. (For crawler cranes only.)</p>
<p>TRAVEL. (One Track). Lock the track on side indicated by raised fist. Travel opposite track in direction indicated by circular motion of other fist, rotated vertically in front of body. (For crawler cranes only.)</p>	<p>EXTEND BOOM. (Telescoping Booms). Both fists in front of body with thumbs pointing outward. One hand signal may be used.</p>	<p>RETRACT BOOM. (Telescoping Booms). Both fists in front of body with thumbs pointing toward each other. One hand signal may be used.</p>

Standard Hand Signals for Controlling Crane Operations, Crawler, Locomotive and Truck Cranes

		
<p>MAGNET IS DISCONNECTED. Crane operator spreads both hands apart — palms up.</p>	<p>OPEN CLAM SHELL BUCKET. Arm extended, palm down, open hand.</p>	<p>CLOSE CLAM SHELL BUCKET. Arm extended, palm down, close hand.</p>
		
<p>HOIST SLOWLY TO CLEAR FOULED LINE. Hands crossed in front, above shoulders, fingers relaxed.</p>	<p>BOOM UP AND LOWER THE LOAD. One hand.</p>	<p>BOOM DOWN AND RAISE THE LOAD. One hand.</p>
		
<p>STOP. One hand.</p>	<p>WHIP LINE. One hand.</p>	

Standard Hand Signals for Controlling Crane Operations, Overhead and Gantry Cranes

<p>HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.</p>	<p>LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.</p>	<p>BRIDGE TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.</p>
<p>TROLLEY TRAVEL. Palm up, fingers closed, thumb pointing in direction of motion, jerk hand horizontally.</p>	<p>STOP. Both arms outstretched at the sides horizontally, fingers outstretched.</p>	
<p>MULTIPLE TROLLEYS. Hold up one finger for block marked "1" and two fingers for block marked "2". Regular signals follow.</p>	<p>MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist Slowly shown as example.)</p>	<p>MAGNET IS DISCONNECTED. Crane operator spreads both hands apart — palms up.</p>

THE PACIFIC GROUP OF COMPANIES

EMPLOYEE SAFETY COMMITMENT

To be completed upon hire and renewed on an annual basis.

I, (Print Name) _____ have been briefed on the requirements of the Company Health and Safety Program and have undergone a safety orientation specific to my duties. If I have any questions regarding the safety requirements of my work or if I identify any potential hazard that I am unsure how to address, I will contact my supervisor for additional instructions before proceeding with the job. I will not knowingly disobey any requirements of the Workers' Compensation Board's Regulation or THE PACIFIC GROUP OF COMPANIES 's Health and Safety Program.

(Signature) _____

(Date) _____

THE PACIFIC GROUP OF COMPANIES

SUBCONTRACTOR SAFETY COMMITMENT

I, (Name) _____, Of (Company Name) _____

known as the subcontractor, will ensure that all our employees are familiar with and will comply with all applicable requirements of the Workers' Compensation Board's Regulation and THE PACIFIC GROUP OF COMPANIES 's Health and Safety Program. I will provide THE PACIFIC GROUP OF COMPANIES with notice of any activity our employees may undertake that may create a hazard to employees of other employers. I will ensure that the notice is provided in a timely manner to allow THE PACIFIC GROUP OF COMPANIES to coordinate our workers' activities with those of the other employer's workers' to minimize the risk associated with our hazardous activities.

I understand that a copy of this commitment will become a part of the project record file may be forwarded to the Workers' Compensation Board for their records.

WCB Firm Number _____

FIRM CONTACT # _____

Signature _____

JOB # _____

Title _____

(Date) _____