

**DOURO ROOFING
& SHEET METAL CONTRACTORS LTD.**
Roofing Contractors Since 1981

**COMPANY SAFETY
POLICY MANUAL**

In conjunction with

Canadian Roofing Contractors Association &
Construction Safety Association of Ontario.

**DOURO ROOFING
& SHEET METAL CONTRACTORS LTD.
COMPANY HEALTH & SAFETY POLICY**

At Douro Roofing & Sheet Metal Contractors Ltd. our goal is to maintain a safe and healthy work environment for our employees, customers, suppliers, contractors, and / or subcontractors as well as those who live and work near our offices and job sites.

This health and safety manual is designed to provide assistance to all employees of Douro Roofing & Sheet Metal Contractors Ltd. in keeping a safe working environment while on company property, on the job site, and during performance of their jobs.

Miguel Beites

Darcy Beites

Date:

Date:

**EMPLOYEE ACKNOWLEDGMENT
SAFETY IS A RESPONSIBILITY THAT
MUST BE SHARED BY EVERYONE.**

The following page is an acknowledgement of the company's health and safety policy which you are required to sign. It will confirm that you have read and understood the Douro Roofing & Sheet Metal Contractors Ltd. Health & Safety Policy and that you will strictly adhere to this policy during the course of your employment.

As an employee, I have read, understood and agree to adhere to the Douro Roofing & Sheet Metal Contractors Ltd. company's Health & Safety Policy, in conjunction with the Province of Ontario Occupational Health and Safety Act and Regulations (OHSA).

This signed acknowledgement of Douro Roofing & Sheet Metal Contractors Ltd. Health & Safety Policy will be retained on file at our Head Office.

Employee Name

Signature

Date

- EMPLOYEE COPY -

SUBCONTRACTOR / SUPPLIER ACKNOWLEDGEMENT

As a Subcontractor / Supplier, I have reviewed and agree to the Douro Roofing & sheet Metal Contractors Ltd. Health & Safety Policy in conjunction with the Province of Ontario Occupational Health and Safety Act and Regulations.

This signed acknowledgement of Douro Roofing & Sheet Metal Contractors Ltd. Health & Safety Policy will be retained on file at our Head Office.

Sub-Contractor

Authorized Signature

Date

- SUBCONTRACTOR / SUPPLIER COPY -

TABLE OF CONTENTS

Duties & Responsibilities	7
Disciplinary Action	8
W.H.M.I.S.	9
Personal Protective Equipment	9
Fall Protection	11
Protecting the Public	12
Planning, Setup & Housekeeping	13
Tools & Equipment	16
Ladders	18
Vehicle Safety	19
Fire Protection	19
Kettles	20
Propane	21
Solvents & Adhesives	21
Hoisting	22
Material Handling	23
Reporting Accidents & Injuries	23
Workplace Safety & Insurance Board	23
In Cases of Injury	24
First Aid	24
Breathing	25
Bleeding	25
Unconsciousness & Fainting	26
Shock	26
Burns & Scalds	27
Heatstroke	28
Frostbite	29

SUB-CONTRACTORS

The health and safety practices of this company shall apply to all employees of other companies working or performing their duties on our property or job sites.

We require that all sub-contractors understand, accept and work according to the following conditions and responsibilities:

- Understand your obligations and strictly adhere to meeting compliance with the Occupational Health and Safety Act and Regulations along with site specific regulations.
- Read, understand and comply with the Douro Roofing & Sheet Metal Contractors Ltd. Health & Safety Policy, a copy of which has been given to you.
- Provide Current Material Safety Data Sheets (MSDS) for products or materials to be used on our projects (WHMIS) prior to bringing such products or materials on site.
- Advise and inform all your suppliers and visitors of the Douro Roofing & Sheet Metal Contractors Ltd. Safety Policy requirements.
- Understand that substandard conditions and substandard practices will not be tolerated and disciplinary action can be taken.
- Understand that good housekeeping and an orderly work site must prevail at all times.

DUTIES AND RESPONSIBILITIES

The Employer / Contractor Must:

- **Ensure that all employees are trained and hold updated certificates as required.**
- Ensure that all sub-contractors follow the site health and safety policy.
- Coordinate all activities so that the health and safety of workers are protected and maintained.
- Supervise work accordingly.
- Ensure competency of supervisors, foremen and workers and ensure ongoing training and education.
- Expect workers not to take unnecessary risks to get the job done.
- Evaluate worksite hazards and take necessary steps to minimize them.
- Plan properly to ensure that the right equipment, tools and materials are available and in good order, including those for first aid and fire prevention.
- Ensure that the job can be completed in a safe manner in the allotted time.
- Ensure that the health and safety of everyone is protected by adhering to the policy and procedures set out in this book and as required by the OHS and Regs.
- Inform all employees of any client / customer specific safety policies which are not mentioned in this document.

Supervisors and Foremen Must:

- Allow his men time to warm-up/stretch in order to avoid injuries.
- Ensure that the health and safety of employees and contractors are protected by strictly adhering to the policy and procedures set out in this booklet and as required by the OHS and Regs.
- Ensure that employees are trained in using the proper personal protective equipment (PPE), and that they understand the Workplace Hazardous Material Information System (WHMIS).
- Ensure that employees are competent with their tools and equipment, and only use tools and equipment that are in good order.
- Ensure that employees are informed of work site hazards and minimize them to the best of their ability.
- Ensure that proper tools and equipment are always available to employees.
- Ensure that proper clean-up and housekeeping is maintained.
- Develop job specific emergency procedures and communicate them to employees.
- Maintain a safe working environment and act on all reported hazards.
- Ensure that all accidents are reported, properly investigated and recorded.
- Perform tailgate safety meetings at least once a week for feedback from his men.

Crewmen and Sub-Contractors Must:

- Know and understand the company's health and safety policy.
- Work safely and avoid taking any risk that could cause injury.
- Never work in a manner that may endanger anyone.
- Never engage in pranks, contests, unnecessary running or rough and boisterous conduct on the project.
- Never be under the influence of alcohol or drugs while on any job-site or while in control of, or in a company vehicle or piece of equipment.
- Ensure that everyone wears the proper personal protective devices and clothing and uses the proper equipment for the job.
- Report to the employer or supervisor any problem with equipment which may endanger personnel.
- Report to the employer or supervisor any hazard or non-compliance on the job.
- Ask the supervisor or foreman for information or direction when in doubt.
- Report ALL accidents no matter how minor.
- Maintain good housekeeping practice through proper clean-up, storage, and garbage disposal and provide proper access.
- Designate a safety representative amongst them. Who could relay any problems to the supervisor.

Suppliers / Truck Drivers Must:

- Ensure that all safety equipment is used as required on project site such as safety glasses, boots, hats, vests etc.

DISCIPLINARY ACTION

All employees will be subject to disciplinary action for the following offences, while on company property or during the performance of your job:

- All safety violations which do or could endanger life or damage company or client property and contravene the Health and Safety Policy.
- Fighting or engaging in any "Horse Play".
- Possession of firearms, or other weapons or explosives.
- Removing without authority, destroying or tampering with any safety device.
- Removal without authorization or company or client property.
- Being intoxicated as a result of alcohol or drugs.
- Failure to comply with the use of required personal protective clothing or equipment.
- Failing to report any personal or vehicle accident no matter how small.
- Immediate dismissal could occur if a life has been put in jeopardy.

- Dismissal can occur following one verbal and one written notice being issued to an individual.

8

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

All hazardous materials found in the workplace must be identified in accordance with the Workplace Hazardous Material Information System (WHMIS) requirements of the Occupational Health and Safety Act.

Material Safety Data Sheets will be provided and maintained in each office and Supervisor / Foreman's vehicle, to assist all employees in how to handle, store and dispose of these materials.

All employees who work with or in close proximity to hazardous materials must have formal training under the WHMIS regulations.

PERSONAL PROTECTIVE EQUIPMENT

It is the employees' responsibility to provide and wear the proper protective equipment and clothing as required by the OHSA and Regs. As well, employees must provide and wear additional protective equipment required or supplied by the employer. This may include, but is not limited to, the clothing and equipment listed below.

Head Protection

Wear a Canadian Standards Association (CSA) class E or G certified hard hat. Inspect the shell and suspension of your hard hat regularly and replace when outdated, cracked, deeply scratched or otherwise defective. Do not paint hard hats since paint can reduce impact resistance. All employees require the company logo on their hard hat.

Foot Protection

Roofers must wear boots meeting OHSA Regulations such as CSA-certified Grade 1 footwear or CSA-certified footwear with heavy-duty toe and sole protection and a metatarsal guard on site. Roofers' long pants should cover the top part of the boots. This prevents hot asphalt from entering and burning the feet in case of spillage.

Hand Protection

All employees are required to wear protective safety gloves. Leather and cotton gloves are best as they offer grip and comfort. Gloves should fit snugly to the wrist to prevent hot liquid from trickling into the hand. Use tape to bind the gloves tighter to the wrist.

Clothing

On the job do not wear loose or ragged clothing or cuffs, greasy or oily clothing, gloves or boots, finger rings or earrings. Keep neck chains under clothing so they do not hang out. Long hair will be tied back, especially working near hoists and conveyors. Clothing made of synthetic fibers can be easily ignited and melted by hot asphalt or electrical flash.

Cotton or wool fabrics are more flame-retardant and therefore recommended as work clothes.

In case of skin contact with a hazardous or corrosive substance, wash off immediately with water to avoid burns. Remove any contaminated clothing to avoid irritation.

Pant legs should be cuff-less. Cuffs trap dirt and liquid. Wear pant legs over boots, especially when transporting or working with hot asphalt. Keep boots under the pant leg. This will keep accidentally-spilled asphalt outside the boot, away from feet. Roofers will wear long-sleeved shirts, buttoned at the cuffs. Kettle-persons should also wear protective over-sleeves. Employees will dress accordingly to weather conditions.

Eye Protection

Wear properly fitted industrial eye protection in the form of spectacles and side shields on jobsites. Since roofers spend a great deal of time exposed to the sun, glasses with UV protection are strongly recommended. Sunglasses are not allowed inside buildings due to the darkness. Spectacles with side shields may be a better alternative to goggles for certain applications.

Use goggles for dust and flying particles, or when drilling into concrete or masonry. Goggles or face-shields providing splash protection are required for roofers working with the kettle or tanker.

Hearing Protection

Roofers working in noisy areas or with noisy equipment will wear hearing protection. Hoist motors, cutters, sweepers and noise from inside or from the vicinity of the

job site can produce noise levels exceeding 90 decibels. Noise at these levels is harmful over prolonged periods. For instance, a worker exposed to 99 decibels risks hearing damage after one hour, but could safely work the shift if properly fitted hearing protection is worn.

There are three types of hearing protection:

- disposable earplugs (made of pliable material, one size fits all but can be used only once);
- permanent plugs (must be fitted for a good seal but can be washed and re-used);
- earmuffs (when properly fitted and worn, these generally provide more protection than earplugs.) Earmuffs are mandatory on Falconbridge property.

FALL PROTECTION

Working from Scaffolds

Work platforms must be fully planked. Guardrails consisting of top-rail, mid-rail and toeboard are required when the platform is 2.5 metres (8 feet or more) above floor level. Wheels and castors must be locked when personnel are working from the scaffold. A rolling scaffold more than 2.5 metres (8 feet) high must not be moved with workers on it unless:

- They wear safety harnesses with lanyard tied to a fixed support
- And the floor is a smooth level.

Working from Suspended Access Equipment

A worker must wear a safety harness with the lanyard tied off to:

- an independent lifeline if the stage has only two independent suspension lines or
- the stage, if it has four dependent suspension lines (two at each end).

Working Near Unprotected Openings and Edges

A worker must wear a safety harness with the lanyard tied off to a fixed support when there is a risk of falling more than 3 metres (10 feet) or falling onto operating machinery, toxic substances, liquid tanks or other hazardous materials.

Safety Harnesses and Lanyards

- Safety harnesses and lanyards must be CSA-certified. Such equipment will carry the CSA label.

- Safety harnesses must be snug-fitting and worn with all the hardware and straps intact and properly fastened and cleaned.

11

- The D-ring must fit between the upper part of the shoulder blades for the harness to work properly.
- Lanyards must be 16-millimetres (5/8 inch) diameter nylon or equivalent.
- When the lanyard is wire rope or nylon webbing, a shock absorber must be used.

Lifelines

All lifelines must be:

- 16-millimetres (5/8 inch) diameter poly-propylene or equivalent,
- used by only one worker at a time, free from any danger of chafing, free of cuts, abrasions and other defects.
- long enough to reach the ground or knotted at the end to prevent the lanyard from running off the line and,
- secured to a solid object (stopping a worker's fall can put a load as high as 2,000 pounds on the lifeline anchorage).

Rope-Grabbing Devices

To attach a lanyard to a lifeline, use a mechanical rope-grab that meets CSA Standard Z259.2. If a mechanical rope-grab is not available, then use a triple sliding hitch.

- Be sure to allow a 12-inch dead end.
- Tighten the hitch on the lifeline so the hitch won't slip.
- Position the hitch on the life line above head height.
- The lifeline must: reach the ground or, reach a secure and accessible level above ground or, be knotted, cable-clipped or otherwise provided with a positive stop to keep the hitch from running off the end of the lifeline.
- If you do fall, do not grab the hitch, lanyard or lifeline. To work properly the hitch must come under a load.

A fall-arrest system is not required for work at the roof perimeter if workers are protected from the hazard of falling by temporary or portable guardrails or by a parapet wall 90 cm (3 feet) or more in height.

- All personal protective devices must be inspected daily for cleanliness and defects.

PROTECTING THE PUBLIC

- Minimize danger to the public by using minimum 6" danger signs, barricades or flashing lights.

- Do not leave equipment or material where it may obstruct public.
- Place equipment where fumes and dust will not be drawn into windows or air intakes of nearby buildings.

12

- Before leaving the job site at night, lock and secure ladders, kettles, trucks, hoisting machine, and other equipment.

PLANNING, SETUP AND HOUSEKEEPING

Two-thirds of roofing injuries are related to material handling and poor housekeeping practices.

Reduce material handling injuries by:

- limiting double handling and,
- using devices that minimize manual labour.

Housekeeping injuries can be reduced by:

- proper planning, setup and good housekeeping practices.

Proper Planning

Proper planning includes:

Good bidding practices, which take into account the following:

- assessing the job site,
- identifying setup for safe access, storage space, and garbage disposal,
- identifying site hazards and restrictions such as public entry, fire escapes, and powerline locations and,
- allowing adequate time for set-up and clean-up
- Considering safety issues such as public access, location of the kettle, fall protection requirements, locations and type of hoist required, and fire watch.
- Clear communication between the estimator, project manager, supervisor, general contractor, and client.
- Arrangements for first aid and emergency procedures.
- Ensuring proper use of protective equipment for all workers.
- Briefing workers on site health and safety policy, hazards and emergency procedures.

Setting Up

When setting up, take into consideration:

- Public and worker protection in all aspects of the job.
- Firm ground for storage and hoisting purposes.
- Proper anchors for lifelines and fall protection (see fall protection section – page 7).
- Carrying capacity of the roof for the purpose of storage and hoisting.

- Location of powerlines.
- Overhead obstructions when hoisting.
- Location of cables, heating and cooling units on the roof.
- Condition of electrical cables for the heating and cooling units.
- Vents and air intakes that can draw fumes into the building and vicinity.

13

- Proper signage to alert both workers and public about hazards.
- Check for risk of possible fires when torching is done.

When leaving for the day:

- Secure all lids and spigots on kettles.
- Lock and secure all trucks, hoists, box trailers and equipment.
- Prevent access to the roof by removing ladders and locking them up in a horizontal position.
- **Perform fire watch when torching is done. (one hour after torch has been extinguished) Heat sensor readings to be performed and recorded.**

Access

- Allow proper access for personnel, material movement and garbage disposal. This includes the proper setup and maintenance of ladders. Ladder rungs and landing areas should be free of mud, ice and water. More than half of all ladder injuries occur on the top or bottom landing areas.
- Proper setup of fall protection (see fall protection section – page 7).
- Clear a walking path in the winter to work areas.
- Safety rails are to be installed on both sides of ladder on the roof.

Roof Access

Stairs or Elevators

Whenever possible, roofers should make use of existing stairs or elevators for access to the roof area.

Ladders

Where stairs do not exist, or for other reasons are not available to the roofing crew, ladders may be used, provided the ladders:

- are in good condition,
- comply with the requirements of Sections 78-84 or the Regulations for Construction Projects,
- are tied off or secured to the structure at the top and bottom.
- are set up so that a slope of at least 3 to 1 and not more than 4 to 1 (vertical to horizontal) is maintained for sloped ladders,

- extend at least 90 cm (3 feet) above the roof access level,
- are no longer than 20 metres (66 feet) for a sloped ladder,
- have areas around the top and bottom kept free of material, garbage and debris and cleared of ice, snow and other slippery substances.
- Are equipped, in the case of vertical ladders with a cage or ladder climbing device with rest platforms at intervals not greater than 9 metres (30 feet).

14

Materials and equipment shall not be carried by hand up or down a ladder. Tools should be carried up or down only in a tool pouch. Maintain 3 point contact at all times (two hands and one foot or two feet and one hand).

It is also required that a weighted barrier or bump line be set up where the ladder emerges at roof level. The bump line will warn workers that the edge is close by.

Guardrails

At the start of a roofing operation, a temporary guardrail or warning barrier must be erected where the parapet wall is not at least 90 cm (3 feet) in height. Guardrails need not enclose the whole roof but only the section being worked on.

Fall protection to be in place when installing or dismantling temporary guardrails.

Guardrails should be provided around all roof openings not fitted with permanent or temporary coverings.

Where permanent covers or hatches are installed, they should be kept closed during roofing operations, except when they are removed to complete the application of felts over the curb on which they are set.

Where temporary covers are used, they should extend no more than 15 cm (6 inches) beyond the side of the openings they are covering. This allows most of the roofing work to be completed with the cover in place.

Temporary guardrails around the work area must be securely attached to the building.

Where guardrails around openings or hatch covers must be removed to complete the roofing work, the workers doing the work should be protected by using a fall-arrest system. The work area should also be roped off and danger signs posted to warn other workers of the hazard.

Storage

- Store material properly, away from fire hazards.
- Secure materials to prevent accidental rolling or falling from building edges and floor openings.
- Keep materials at least two metres away from roof edges or openings. Rolls of material such as sheet ply should be bundled to prevent accidental toppling and rolling.

15

- Secure material such as insulation and plywood sheets to prevent high winds from blowing them away.
- Keep storage area orderly and store material in designated areas, free of tripping hazards.
- Distribute material evenly when it must be stored on the roof. Ensure that the weight in any one place does not exceed roof capacity.

Garbage Disposal

- Dispose of garbage immediately to remove underfoot hazards.
- Pick up as you go to keep the roof / floor free of garbage build-up that may hide roof openings and other hazards.
- When using a chute, ensure that the bin below is covered to avoid dust build-up and a danger sign is posted.
- Designate an area for waste disposal. Avoid double handling.
- Remove full waste containers and replace them immediately with empty ones.
- Be aware of windows, light fixtures, service lines, etc. to avoid property damage when lowering and / or removing containers.

Miscellaneous

- All workers shall make time to maintain good housekeeping.
- Keep barricades and warning signs in place. If they are removed for installation, loading and unloading purposes, replace them immediately after the task is finished.

TOOL AND EQUIPMENT

Proper use of tools and equipment makes your job safer and more efficient. If you do not understand how to properly operate the equipment, ask for instruction.

Common causes of hand and power tool accidents include the following:

- Using the wrong tool for the job.
- Tools falling from overhead.
- Sharp tools carried in pockets.

- Excessive vibration.
- Using tools with mushroomed heads.
- Carrying tools by hand up or down ladders.
- Using damaged electrical cords or end connectors.
- Failure to use ground fault circuit interrupters (GFCI's) especially outdoors.
- Using defective tools.

Basic hazard awareness and common sense can prevent serious injuries.

- Always wear eye protection.
- Wear hearing protection as noise levels dictate.

16

- Keep tools and equipment clean and in good working order.

Prevent mushrooming. Tools which are struck by hammers, such as chisels or punches, should have the head ground periodically to prevent mushrooming.

Keep hand tool cutting edges sharp. Sharp tools make work easier, improve the accuracy of work, save time, require less effort, and are safer than dull tools.

- Inspect tools / equipment (ie: oil levels) before using to ensure they are in good condition. If they are not in good working order, tag and return the defective tool/equipment for repairs.
- Shut off equipment and disconnect power before refueling, repairing or cleaning.
- Maintain control of equipment – don't let it run you.
- Never use tools you are not trained to use.
- Always be sure that guards are in place and working.
- Never climb ladders with tools in your hand.
- Keep cutting tools sharp and protect the cutting edge. Carry them in pouches or holsters and use them with caution.
- Use only the machine or tool designed for the job.
- Electrical tools and equipment must be properly grounded or double-insulated.
- Do not drop or throw tools or other materials from any height.
- When you are sweeping or cutting, try to stay downwind of other workers.
- Check wheels on rolling equipment. Replace wheels with flat spots. Block wheels when equipment is not in use.
- All equipment and tools are to be inspected and/or maintained by our mechanic at completion of projects in order to guarantee its proper function on the next project.

LADDERS

- check the ladder for defects at the start and end of each shift.
- Ladders found to be defective should be taken out of service and tagged as **DANGER DO NOT USE**.

- The base of the ladder should be placed approximately 25% of its length away from the base of the structure to be mounted.
 - The top of the ladder should be tied off or otherwise secured.
 - Short ladders must never be spliced together to make a long ladder.
 - Unless suitable barricades have been erected, ladders should not be set up in passageways, doorways, driveways, or other locations where they can be struck by persons or vehicles.
 - Ladders should not be placed against flexible or moveable surfaces.
 - Always face the ladder when climbing up or down and when working from it.
 - Never climb up or down a ladder while carrying anything in your hands. Tools, equipment and materials should be hoisted up and down.
- 17**
- When erecting a long, awkward or heavy ladder, two or more workers should share the task to avoid injury.
 - No work is to be performed from a ladder.

VEHICLE SAFETY

Follow the common-sense rules of good driving – don't tailgate, observe the speed limit, stay alert, use your mirrors, expect the unexpected, drive defensively. In addition, there are special rules that apply to roofing trucks.

- Driver must have a valid applicable Driver's License.
- Check the load before your drive – be sure that it is evenly distributed and within the vehicle's capability.
- Ensure that material and equipment do not obstruct your line of sight, mirrors, lights, etc...
- Tie equipment down. Secure propane tanks in an upright position.
- Place proper lids on flammable liquid containers.
- Check the kettle or anything else you are towing.
- Are the hitches on the truck and kettle in good condition?
- Do you have proper safety chains?
- Are they hooked up correctly?
- Are your lights and brakes connected and working properly?
- Check regularly to make sure that bearings are in good condition and tires are inflated to manufacturer's specifications.
- There is a large blind area behind most roofing trucks. Don't backup without assistance.
- Carry a fully charged 4A40OBC (ABC) fire extinguisher and fully stocked first aid kit in the vehicle.

- Make sure that oil, brake and steering fluids, windshield washer, and water levels are full or at safe levels, and that horns, windshield wipers and front and tail lights are working properly.
- Follow good driving habits and obey the law.
- Drive defensively.
- Observe the speed limit, do not run amber lights.
- Stay alert, expect the unexpected
- Use vehicle mirrors.
- Remember that the truck cannot stop as quickly with a trailer in tow. Allow an extra margin of distance for a slower stop.
- Remember that the vehicle has the “Company Name” on it and respect for other drivers is imperative.
- All documentation required during the use of a vehicle is to be in the vehicle.

18

FIRE PROTECTION

Fires are the greatest hazard in the roofing industry. It is everyone’s responsibility to understand how to operate a fire extinguisher and know where they are situated on a job site.

- NEVER USE WATER ON BURNING BITUMINOUS MATERIALS SUCH AS ASPHALT AND COAL TAR PITCH; ALWAYS USE A FIRE EXTINGUISHER.
- NEVER FIRE A BURNER WITHOUT A FIRE EXTINGUISHER CLOSE AT HAND.
- At least one extinguisher must be kept on the roof and one in every truck.
- Fire extinguishers should be inspected monthly and serviced yearly by qualified personnel.
- Remember to replace the extinguisher immediately after discharging it and before continuing any roofing.
- Spontaneous combustion in roofing mops can cause fires. Mops should be removed from the roof at the end of each working day and left in the kettle or placed on the ground away from all combustible materials.
- Should a fire extinguisher be used, remember to temporarily leave the area until the oxygen has been replenished in that area.

KETTLES

Start Up

- Set kettles on smooth, level ground in an area clear of flammable debris or materials, and as close as possible to the point of application. Make sure that the rear leveler leg is in a secure down position.

- A fully charged ABC rated fire extinguisher should always be available close to, but not on the kettles.
- Before lighting the burner, check the kettle vat for moisture. Moisture in hot bitumen will cause foaming and bubbling. This can result in overflow or splattering of scalding materials.
- Before firing, check hoses, gauges, fuel tanks, burners, and other equipment for defects and make sure that the kettle lid fits tightly.
- Propane gas cylinders must be secured in an upright position.
- NEVER light the burner while it is in the burner well. An excessive accumulation of propane in the well can cause a flashback.

Light the burner outside and then place it in the heating tube. Remember that the flames are hard to see on a bright day.

- Place the burner in a safe spot when it is removed from the kettle.
- Always turn off the burner and engine before refueling.
- Secure burners, lid, draw-off cock and fuel and night.

19

- Asphalt temperature readings are required every two (2) hours and to be properly recorded.

Kettle Loading

- Adding cold bitumen to the kettle can be a hazardous operation. Wear the proper protective clothing, CSA certified face shield and protective spectacles or goggles (see page 1).
- Cut cold bitumen into small chunks so that it won't splash hot stuff when lowered into the kettle.
- The kettle should never be loaded full. Bitumen expands when heated and may overflow.
- Avoid stirring the hot bitumen manually. If it must be stirred by hand, use a solid piece of wood of sufficient length. Never use a hollow pipe because moisture in the pipe can cause the hot material to flow up through the pipe and result in serious burns.
- While the flash point of asphalt is not a precise temperature, the material should not be heated above 260 degrees C (500 degrees F).
- Make sure the kettle has cooled before traveling on roads.

Kettle Fires

When a kettle fire occurs:

- Turn off the fuel supply at the tank and close the lid.
- Call for help.

- The best way to put out a kettle fire is to close the lid. But some kettle fires are stubborn. Often the outside of the kettle will catch fire if poor housekeeping has allowed it to become coated with bitumen.
- Remember, a kettle man should always have a fully charged ABC fire extinguisher nearby.

PROPANE

- Propane certification is required by all Douro Roofing & Sheet Metal Contractors Ltd. employees.
- Store, transport and use propane cylinders in a secure, upright position.
- Never check for leaks with a match or other open flame. Use soapy water and watch for bubbles.
- Use the right-sized wrenches to connect regulators to tanks.
- Make sure that pressure release valves point away from the kettle.
- Always wear gloves when hooking up burners and handling propane tanks.
- Liquid propane tanks should be opened fully when in use and closed tightly when not in use.
- Make sure that the protective collar on the cylinder valve is always in place.
- Do not leave propane burners running outside the kettle where someone can walk into the flame. **20**
- Do not point burners at combustible materials or at anything containing trapped air such as tires.
- By law, there can be no more than 5 propane cylinders per vehicle.
- Propane Hoist
 - Hoisting with proper basket
 - Drop on roof in a dolly with extinguisher attached.
 - Check hoses.

SOLVENTS AND ADHESIVES

Job Site Use and Storage

- Always use adhesive in open or well ventilated areas. If ventilation is poor, use fans or other means to provide positive circulation in order to keep exposure at acceptable limits.
- Store only enough solvent-bearing adhesives on the roof for use that day. Do not leave adhesives on the roof overnight. Store remaining materials on the ground at least 15 metres (50 feet) from the building in a controlled area or in a locked and enclosed trailer. Manufacturer-supplied adhesives should be stored in their original containers.
- Organic cleaning solvents should only be used from CSA certified containers. Storage on the roof should not exceed one day's supply.

- Cloths or shop rags used for cleaning should be removed from the roof nightly to prevent spontaneous combustion.
- Smoking should be prohibited within 15 metres (50 feet) of any organic solvents used in cleaning or adhesive application.
- Take care that solvent vapors are not ignited by acetylene or electric welding or any equipment producing open flames.
- Adequate fire extinguishers should be readily accessible at all times.

Warehouse Storage

Label the contents of all adhesive and organic solvent containers.

- A separate, isolated and secured area should be allocated for storage of adhesives and organic solvents.
- Flammable materials must not be stored near building exits.
- Material containers should be handled individually and with extreme care.
- Immediately dispose of all empty pails and containers.

HOISTING

Hoists should be used for vertical lifting only.

- Inspect machinery before using. Never assume that you'll find equipment in the same condition that you left it.
 - Make sure that the hoisting area is clear of overhead wires.
- 21**
- Do not exceed rated capacity of the hoist.
 - Use safety hooks or shackles to attach the load.
 - Before hoisting, make sure that the load is secure and that ground personnel are clear of the hoisting area.
 - Use tag lines to control the load under windy conditions.
 - Do not hoist over open doorways.
 - Keep fingers and clothing clear of hoist machinery.
 - When lowering materials, keep the load under control. Apply brakes smoothly and avoid sudden stops.
 - At night all ropes and cables should be up and the hoist well secured.
 - Attach (fix) Hoist as required.

MATERIAL HANDLING

Use assistive devices such as cranes, hoisting machines, roofing buggies, rollers, wheelbarrows, carts and dollies to move material. Use manual handling as the last resort. To help prevent injuries caused by manual handling, three factors are necessary.

Correct Posture

Correct posture is not an erect military pose but an alignment that maintains the naturally occurring curves in your spine. You have two inward curves in your spine at the neck and lower back. You also have an outward curve in your upper back. Keeping your spine aligned in the manner reduces everyday stress and minimizes the effects of the normal aging process on the spine.

Proper Lifting

Lifting a weight that is too heavy, lifting in an awkward position, twisting your body while lifting, or doing excessively heavy work are all common causes of lower back problems. The proper lifting techniques described below can minimize the stress on your muscles and spine.

- Plan your move.
- Size up the load and make sure your path is clear.
- Get help as needed.
- Use a cart or other materials handling equipment if possible.
- Use a wide-balanced stance with one foot slightly ahead of the other.
- Get as close to the load as possible.
- Tighten your stomach muscles as the lift begins.
- When lifting, keep your lower back in its normal arched position and use your legs to lift.
- Pick up your feet and pivot to turn. Don't twist your back.
- Lower the load slowly, maintaining the curve in your lower back.

22

- Support yourself by placing one hand on a secure object or on your thigh, this can reduce stress on your spine and knees.
- Any activity that unevenly loads the spine may aggravate your back. Avoid one-handed carrying if possible. Try to distribute the weight evenly on each side. If you can't avoid one-handed carrying, such as with a single pad, hold the free arm straight out as a counterbalance.
- If two people are carrying a load, they should be similar in height. Before starting, they should plan their lifting strategy and decide who will take charge.
- Lifting or lowering over a roof's edge should be done as little as possible. Not only is there a danger of falling, but the task is hard on the back, shoulders and arms. If you are lifting or lowering over the roof edge, make sure that the hoist line is in good condition, leather gloves are worn, roof edge is clear of material, your footing is firm and your back is straight.

Safe Carrying

- Never carry tools and equipment up a ladder.
- Carry two half-full buckets of hot stuff on flat roofs.

- Learn the proper way to lift a bucket stuck to the roof. DO NOT jerk it loose – pry it loose.
- Never lift a bucket above hip level.
- Avoid walking in hot stuff, it is slippery and can cause falls and burns.

REPORTING ACCIDENTS AND INJURIES

Studies have shown that for every three property damages accidents, one injury is likely to occur, and that for every 20 near misses, one incident will cause property damage. It is important that accidents, injuries and near misses be reported. The purpose of reporting is not to lay blame, but mainly to find ways of preventing similar accidents from reoccurring.

When an accident or near miss occurs, it must be investigated. The process should be one of fact-finding, not blaming. The findings of the accident investigation and report should be made known to all personnel on site.

Once the causes are found, steps must be taken to prevent the incident from happening again.

WORKPLACE SAFETY & INSURANCE BOARD

Essentially, all employees are covered by the Workplace Safety and Insurance Board. The Act provides protection for workers injured in an accident on the job or for certain job related industrial diseases.

23

The reporting of an accident does not however automatically make it a valid claim. The Workplace Safety and Insurance Board reserves the right to reject any claim.

IN CASS OF INJURY / INCIDENT

The Crewman Must:

- Promptly obtain first aid.
- Immediately notify the job site supervisor/foreman of any injury/accident. Failure to report promptly can affect WSIB benefits and subject the employer to fines.
- Choose a physician and understand that once chosen, a change of physician cannot be made without the permission of the WSIB.
- Complete and promptly return all report forms received from the WSIB.

The Supervisor/Employer Must:

- Make sure that first aid is given immediately.
- Record the first aid treatment or advice given to the worker.
- Provide immediate transportation to a hospital, doctor's office or the worker's home if necessary.
- Submit to the employer a full report of the accident.

The Employer Must:

- Report to WSIB, within three days of learning of an accident, an Employer's Report of Accidental Injury / Industrial Disease.
- Pay full wages for the day shift on which the injury occurred when compensation is payable for loss of earnings.
- Notify the Ministry of Labour, health and safety representative and/or committee as required by legislation.

In cases where alcohol or drugs are suspected on an injury/incident, the employer or its representative hold the right to have the employee tested.

FIRST AID

The purpose of first aid is to, prevent death, prevent injuries from becoming worse, and to promote recovery.

Priorities in first aid care are:

- Breathing
- Severe bleeding and,
- Unconsciousness

24

BREATHING

If the victim is unconscious, check for breathing. Listen at the mouth and nose. Watch and feel for chest movement. If the victim is not breathing;

- Make sure that the airway is open.
- Recheck breathing and, if the victim is breathing, ensure that the breathing is maintained.
- If the victim is not breathing, blow two breaths into their lungs. Check for a pulse. If a pulse is present, continue artificial respiration.
- If the victim does not have a pulse, call for help immediately, then start artificial respiration.

BLEEDING

Deal with severe bleeding before treating less serious injuries. The simple formula for control of bleeding is **Rest, Elevate and Direct Pressure : R.E.D.**

- Keep victim at rest in order to slow circulation.
- Elevate bleeding part.
- Apply direct pressure to the wound.
- Continue to apply direct pressure with your hand over the dressing. Do not remove a blood-soaked dressing. Place another dressing over the soaked dressing and continue pressing.
- Secure a bandage and maintain elevation once bleeding is controlled. The bandage is too tight if the victim complains of tingling or numbness or skin becomes discoloured and bluish-grey.
- With long gaping wounds or wounds in fleshy areas where direct pressure is difficult, press the sides of wound firmly together and hold until bleeding stops.

Embedded Objects

Embedded objects such as pieces of metal or glass should not be removed from a wound. If the object is small and does not protrude too far, the wound should be:

- “Tented” so that no direct pressure is applied to the object.
- Protected by a ring pad or stacked bandage to ensure that the embedded object does not press on the wound.
- Dressed so that the ring pad is secured in place by a narrow bandage.
- Immobilized to reduce movement.

Internal Bleeding

Internal bleeding results from injuries inside the body and can cause death. Internal bleeding can occur in different areas, such as the skull, chest or abdominal area.

25

Although often concealed, internal bleeding can sometimes be recognized by blood coming from the nose, ear, mouth or being present in the urine. Often the victim shows signs of shock. Get the victim medical aid as soon as possible and make them comfortable while waiting for medical help.

- Position the victim to slow the progress of shock. If the person is unconscious, place them in the recovery position. Lay the victim with the injured side down to prevent blood seeping from the injured side to the uninjured side.
- Loosen any tight clothing.
- Keep casualty warm, reassure them that help is coming.
- If the victim complains of thirst, moisten their lips with a damp cloth or sponge, but do not give anything to eat or drink.

UNCONSCIOUSNESS AND FAINTING

As soon as the victim is out of danger from further injury, ensure that their breathing is maintained or restored. Assess the neck area for injury so the correct airway opening technique can be applied and maintained. Remove any knocked-out teeth or loose dentures from mouth. Once the breathing is restored, the casualty can be treated for other injuries. Treat severe bleeding first, then tend to other injuries.

Maintain an open airway by placing the unconscious breathing victim in the recovery position whenever possible. If left on their back, the victim's tongue may fall to the back of the throat, obstruct the airway and stop breathing.

Treating for fainting consists of the following:

- Seat the person with their head lowered below the level of their heart, or lay the person down on their back and raise their feet about 30 cm above their head.
- Ensure a supply of fresh air.
- Loosen any tight clothing around the neck, waist and chest.
- Place the person in the recovery position.
- Make them comfortable as consciousness returns. Keep the victim resting or lying down for 10-15 minutes.

SHOCK

Shock can be caused by internal or external injuries, burns, heart failure, or a traumatic injury.

Symptoms

- Pale, cold sweaty skin.
- Bluish-grey discoloration of skin.
- Shallow, rapid breathing at first, then sighing and gasping for air later.
- Weak, rapid pulse.
- Restlessness, thirst and or nausea.
- Faintness possibly leading to unconsciousness.

26

First Aid

- Treat cause(s) of shock.
- Reassure the victim by keeping them informed of what is done and why.
- Handle the casualty gently.
- Loosen clothing around the neck, waist and chest.
- Keep victim warm with clothing or blankets, but not with hot water bottles.
- If the victim complains of thirst, wipe face and moisten lips.

BURNS AND SCALDS

Roofer burns have three main sources:

- Open flame and hot metal surfaces.
- Hot bitumen.
- Corrosive chemicals.

Open Flame and Hot Metal Surfaces

- To relieve pain, immediately immerse injured part in clean cold water. If this is not possible, apply towels soaked in cold water to the injured area.
- Change towels frequently.
- Limit cooling to 20% or less of body area.
- Start cooling as soon as possible and apply for a maximum of 10 minutes.
- Get medical help.
- Cover the affected area with clean sterile dressing.
- Do not remove clothing or material stuck to the burned area.
- Do not break blisters.
- Do not breathe, cough, touch or break blisters over burned area.

Hot Bitumen

- Cool as quickly as possible by immersion of burned area in, or by the application of, cool water for 10 to 15 minutes.
- If the burned area covers more than 10% of the body surface, 5 to 10 minutes of cooling is sufficient.
- Do not remove asphalt stuck to the burned area. Do not use gasoline to wash the burned area.
- Get immediate medical attention.

27

Corrosive Chemicals

- Remove any contaminated clothing.
- Brush excess chemical off skin.
- Acid or alkali burns should be vigorously flushed with water for 15 – 20 minutes.
- Non-water soluble chemical burns should have mineral oil applied liberally for one minute, and then be flushed for 60 minutes.
- Get medical attention.

HEATSTROKE

Heatstroke is caused by the failure of the body to cool itself. Heatstroke may occur in hot, humid weather where a roofer is engaged in heavy physical activity. Heatstroke threatens life and the person may die unless treatment is started quickly to reduce the victim's temperature to 38 degrees C.

Symptoms

- Flushed, hot, dry skin.
- Pulse is rapid and full in initial stages, then becomes weak in later stages.
- Person has a temperature of 40 degrees C. (104 degrees F) or higher.
- Sudden collapse and loss of consciousness.
- Children may experience convulsions.

First Aid

- Reduce victim's temperature as fast as possible.
- The casualty should be moved to a cool place and sponged with cool water.
- Keep cool, fresh air circulation around the victim.
- Where practical, remove victim's clothing and wrap body in a cool, wet sheet or towels.
- Where practical, immerse the victim in a cool bath. Care must be taken against drowning as the victim may lose consciousness.
- Get medical attention.

Heat Exhaustion

When a body sweats excessively to dissipate heat, the resulting loss of body salts and fluids causes a muscular reaction called heat cramps. Prolonged exposure to a hot environment causes heat exhaustion.

28

Symptoms

- Weak and rapid pulse.
- Rapid and shallow breathing.
- Blurred vision.
- Cold and clammy skin.
- Nausea and vomiting.

First Aid

- Move the victim out of the heat.
- Have the victim rest.
- Loosen any tight clothing.
- Keep the victim's head low; raise their legs and feet slightly.
- For cramps, give a glass of lightly salted water (add ½ teaspoon of salt). Give as much as the victim will drink.
- Watch breathing.
- Get medical help.

FROSTBITE

Frostbitten skin is white, waxy and firm or hard to the touch.

- Provide victim with shelter, warmth and hot drinks.
- Remove constrictive articles such as gloves, rings and boots.
- Thaw face, hands and feet by warm covering or body heat.
- Do not rub affected parts.
- Do not apply snow, cold water or direct heat.
- Cover blisters with dry dressings.
- Provide steady general warmth.
- Get victim medical treatment.