HAND TOOLS

GENERAL SAFE HAND TOOL OPERATION

DO

WEAR safety glasses or goggles.

ENSURE that workers are properly trained in the safe use of hand tools.

USE good quality tools.

SELECT the right tool for the job. Substitutes increase the chance of having an accident.

AVOID using hand tools with your wrist bent—use tools designed to allow your wrist to stay straight.

PULL on a wrench or pliers. Never push unless you hold the tool with your palm open.

MAINTAIN tools carefully. Keep them clean and dry, and store them properly after each use.

INSPECT tools for defects before use.

KEEP cutting tools sharp.

KEEP tools in good condition at all times. Replace or repair defective tools.

REPLACE cracked and broken handles on files, hammers, screwdrivers, or sledges.

REPLACE worn jaws on wrenches, pipe tools and pliers.

REDRESS burred or mushroomed heads of striking tools.

ESTABLISH a procedure for the control of tools. Tools should be checked in and out of the tool crib and inspected by crib personnel for wear and defects before use.

CARRY tools in a sturdy tool box to and from the worksite.

KEEP the work environment clean and tidy to avoid clutter which may cause accidents.

USE a heavy belt or apron and hang tools at your sides, not behind your back.

DO NOT

DO NOT USE tools for jobs they are not intended to do.

DO NOT APPLY excessive force or pressure on tools.

DO NOT CUT towards yourself when using cutting tools.

DO NOT HOLD the stock in the palm of your hand when using a cutting tool or a screwdriver.

DO NOT WEAR bulky gloves to operate hand tools.

DO NOT THROW tools. Hand them directly to workers.

DO NOT CARRY tools in a way that interferes with using both hands on a ladder, while climbing on a structure, or when doing any hazardous work.

DO NOT CARRY a sharp tool in your pocket.
HAND TOOLS

SCREWDRIVERS

Screwdrivers are made in various shapes and sizes and for many uses. Use the correct screwdriver for the job.

DO

WEAR safety glasses or a faceshield.

CHOOSE contoured handles that fit the shank tightly, with a flange to keep the hand from slipping off the tool.

KEEP the screwdriver handle clean. A greasy handle could cause an accident.

USE screwdrivers with insulated handles for electrical work.

USE a screw-holding screwdriver to get screws started in awkward, hard-to-reach areas.

USE an offset screwdriver in close quarters where a conventional screwdriver cannot be used.

DO NOT LEAN or push on a screwdriver with any more force than necessary to keep contact with the screw. A screw properly piloted and fitted will draw itself into the proper position when turned. Keep the shank directly over the screw being driven.

DO NOT HOLD the stock in one hand while using the screwdriver with the other. If the screwdriver slips out of the slot you may cut your hand.

DO NOT HAMMER screws which cannot be turned.

DO NOT GRIND the tip to fit all sizes of screw heads.

DO NOT USE a defective screwdriver (rounded edges or tips, split or broken handle).

DO NOT USE a screwdriver for prying, punching, chiseling, scoring, scraping or stirring paint.

DO NOT USE pliers on the handle of a screwdriver for extra turning power. A wrench should only be used on the square screwdriver shank designed for that purpose.

DO NOT EXPOSE a screwdriver blade to excessive heat.

DO NOT USE a screwdriver to check if an electrical circuit is live.

DO NOT CARRY screwdrivers in your pockets.

FILE a rounded tip square making sure the edges are straight.

STORE screwdrivers in a rack, or partitioned pouch so that the proper screwdriver can be selected quickly.

USE a screwdriver that incorporates the following features when continuous work is needed:

- a pistol grip to provide for a straighter wrist and better leverage

- a "yankee drill" mechanism which rotates the bit when the tool is pushed forward

- a ratchet device to drive hard-to-move screws efficiently (alternatively use a powered screwdriver)

EXERCISE extreme care when using a screwdriver near live electrical circuits.

Refer to Safety Infogram G01 for General Safe Hand Tool Operation.
HAND TOOLS

WRENCHES

Wrenches are made in various shapes and sizes and for many uses. Use the correct wrench for the job.

DO

WEAR safety glasses or a faceshield.

GRIP the wrench so that you will not endanger yourself in case it slips.

USE the correct jaw to avoid slippage.

FACE an adjustable wrench forward. Turn wrench so pressure is against the permanent jaw.

PULL on a wrench; do not push.

Permanent jaw
Knurl
Movable jaw
Direction of pull

ADJUST your stance and pull when applying excess force.

STAND aside when work is done with wrenches overhead.

MAINTAIN all leverage tools and keep at the correct adjustment during use.

CLEAN and place tools and wrenches in a tool box, rack or tool belt after use.

DO NOT

DO NOT USE pipe wrenches on nuts or bolts.

DO NOT USE a wrench on moving machinery.

DO NOT INTERCHANGE tools. Never use pliers instead of a wrench, or a wrench as a hammer.

DO NOT USE a make-shift wrench.

DO NOT USE worn adjustable wrenches. Inspect the knurl, jaw and pin for wear.

DO NOT INSERT a shim in a wrench for better fit.

DO NOT STRIKE a wrench with a hammer, or similar object, to gain more force.

DO NOT INCREASE the leverage by adding sleeved additions to increase tool length.

Refer to Safety Infogram G01 for General Safe Hand Tool Operation.
HAND TOOLS
HAND SAWS

Saws are made in various shapes and sizes and for many uses. Use the correct saw for the job.

WEAR safety glasses or a faceshield.

SELECT a saw of proper shape and size for stock being used.

CHOOSE a saw handle that keeps your wrist in a natural position in the horizontal plane.

CHOOSE a saw with a handle opening of at least 12 cm (5 in.) long and 6 cm (2.5 in.) wide and slanted at a 15° angle.

CHECK the stock being cut for nails, knots, and other objects that may damage or buckle saw.

START cut by placing your hand beside the cut mark with your thumb upright and pressing against blade. Start cut carefully and slowly to prevent blade from jumping. Pull upward until blade bites. Start with partial cut, then set saw at proper angle.

APPLY pressure on the downstroke only.

CUT harder materials more slowly than soft materials.

CLAMP thin, flat pieces requiring edge cutting.

KEEP saw blades clean and lightly oiled.

Refer to Safety Infogram G01 for General Safe Hand Tool Operation.

KEEP teeth and blades properly set.

PROTECT teeth of saw when not in use.

KEEP saw blades clean.

HACKSAWS

SELECT correct blade for material being cut.

SECURE blade with the teeth pointing forward.

KEEP blade rigid, and frame properly aligned.

USE strong, steady strokes, directed away from yourself.

USE entire length of blade in each cutting stroke.

USE light machine oil on the blade to keep if from overheating and breaking.
HAND TOOLS
HAMMERS

Hammers and other striking tools are widely used and often abused. Hammers are made for specific purposes in various types and sizes, with striking surfaces of varying hardness.

DO

WEAR safety glasses or a faceshield.

SELECT hammers according to their intended use. Misuse can cause the striking face to chip, possibly causing a serious injury.

CHOOSE a hammer with a striking face diameter approximately 2.54 cm (1 in.) larger than the face of the tool being struck.

STRIKE a hammer blow squarely with the striking face parallel to the surface being struck. Always avoid glancing blows and over and under strikes.

HOLD the hammer with your wrist straight and your hand tightly wrapped around the handle.

DO NOT

DO NOT USE a hammer with a loose or damaged handle.

DO NOT USE rough handles that are cracked, broken, splintered, sharp-edged or loosely attached to head.

DO NOT USE any hammer head with dents, cracks, chips, mushrooming or excessive wear.

DO NOT REDRESS, grind, weld or reheat-treat a hammer head.

DO NOT STRIKE with the side or cheek of the hammer.

DO NOT USE one hammer to strike another hammer.

Refer to Safety Infogram G01 for General Safe Hand Tool Operation.
HAND TOOLS
PLIERS

Pliers are made in various shapes and sizes and for many uses. Use the correct pliers for the job.

DO

WEAR safety glasses or a faceshield.

CUT at right angles. Never rock from side to side or bend wire back and forth against the cutting edges.

CHOOSE pliers that have a grip span of 6 - 9 cm (2 1/2 - 3 1/2 in.).

CHOOSE tools with sufficient space between the handles to prevent your palm or fingers from being pinched.

PULL on the pliers; do not push.

OIL pliers regularly. A drop of oil on the hinge will make the pliers easier to use.

DO NOT

DO NOT CUT hardened wire unless pliers are specifically manufactured for this purpose.

DO NOT EXPOSE pliers to excessive heat.

DO NOT BEND stiff wire with light pliers. Needle nose pliers can be damaged by using the tips to bend large wire. Use a sturdier tool.

DO NOT USE pliers as a hammer.

DO NOT HAMMER on pliers to cut wire or bolts.

DO NOT EXTEND the length of handles to gain greater leverage. Use a larger pair of pliers or a bolt cutter.

DO NOT USE cushion grip handles for jobs requiring insulated handles. Cushion grips are primarily for comfort and do not protect against electric shock.

DO NOT USE pliers on nuts and bolts; use a wrench.

See Safety Infogram G04 Wrenches.

Refer to Safety Infogram G01 for General Safe Hand Tool Operation and Safety Infogram G02 for Ergonomics of Tool Design.
SAFETY INFOGRAM

Woodworking tools can be dangerous if not used properly. Read the owner’s manual carefully. Make sure you understand instructions before using any tool or machine.

CHECKLIST

DO:

- USE the appropriate safety equipment for the job. Wear safety glasses or goggles; everyday. Eye glasses only have impact resistance lenses; they are not safety glasses. Wear dust masks when required.

- WEAR hearing protection when required. If you have trouble hearing someone speak from three feet away, the noise level from the machine is too high. Damage to hearing may occur.

- ENSURE the guard is in position, is in good working condition, and guards adequately before operating any equipment or machine.

- ENSURE equipment is properly grounded.

- CHECK that keys and adjusting wrenches are removed from the machine before turning on the power.

- INSPECT stock for nails or other materials before cutting.

- ENSURE all machines have start and stop buttons within easy and convenient reach of operator.

- ENSURE all cutting tools and blades are clean and sharp so that they will cut freely without being forced.

- CHECK and adjust all safety devices.

- SWITCH OFF power before changing, cleaning, adjusting or repairing blade or machine.

- USE push stick to push material into the cutting area. Keep hands out of the line of the cutting head.

- AVOID awkward operations and hand positions where a sudden slip could cause your hand to move into the cutting tool or blade.

- KEEP work area clean, well swept, and well lighted. The area around equipment must be adequate for each job. Floor areas should be level and non-slip.

DO NOT:

- DO NOT REMOVE sawdust or cuttings from the cutting head by hand while machine is running. Use a stick or brush.

- DO NOT LEAVE tools running unattended. Turn power off.

- DO NOT ATTEMPT to free a stalled blade without first turning off the power.

- DO NOT DISTRACT an operator’s attention from his work. Horseplay can lead to injuries and therefore should be strictly prohibited.

- DO NOT WEAR loose clothing, work gloves, neckties, rings, bracelets or other jewelry that can become entangled with moving parts.
Table saws can be dangerous if not used properly. Read the owner’s manual carefully. Learn the applications and limitations use. Refer to SAFETY INFOGRAM E01 for general safeguards.

CHECKLIST

**DO:**

- WEAR safety glasses or a faceshield.
- PAY particular attention to the manufacturer’s instructions on reducing the risk of kickback.
- USE a guard high enough to cover the part of the blade rising above the stock and wide enough to cover a tilted blade.
- CHOOSE proper blades for the type of work being performed.
- KEEP blades clean, sharp, and properly set so that they will cut freely without being forced.
- KEEP guards in place and in working order.
- KEEP area clean. Only operate machines in a non-congested, well lighted area.
- FEED stock into the blade against the direction of its rotation.
- KEEP hands out of the line of a saw blade.
- USE guard with a spreader and anti kickback fingers for all ripping or cross cutting operations.
- KEEP the body and face to one side of the saw blade out of the line of a possible kickback.
- USE a push stick when ripping narrow stock. Refer to ripping applications in the instruction manual. See SAFETY INFOGRAM E09.
- MOVE the rip fence out of the way when cross cutting. Never use it as a cut-off gauge.
- PROVIDE adequate support to the rear and sides of a saw table for wide or long stock.
- EXERCISE extreme care when waxing or cleaning the table. Shut off or lock out saw before waxing the table.
- USE good saw dust exhaust systems as required by operation.

**DO NOT:**

- DO NOT PERFORM free-hand sawing operations. Hold stock firmly against the mitre gauge or rip fence to position and guide the cut.
- DO NOT REACH around or over moving blades.
- DO NOT LEAVE leave saw running unattended.
SAFETY INFOGRAM

Band saw machines can be dangerous if not used properly. Read the owner's manual carefully. Make sure you understand instructions before use. Refer to SAFETY INFOGRAM E01 for general safeguards.

CHECKLIST

DO:

- WEAR safety glasses or a face shield.
- ENSURE all safeguards are in place.
- ENSURE the blade runs freely in and against the upper and lower guide rollers.
- ENSURE the machine has been properly oiled.
- ENSURE the blade is under proper tension.
- ENSURE the band saw is securely anchored to the floor to reduce vibration.
- ENSURE all band wheels are enclosed.
- ENSURE that the band saw is equipped with automatic tension control.
- KEEP the floor around a band saw free of obstructions.
- ADJUST guard height with 1/8 inch clearance of material.
- FEED with body to side of stock.
- USE band saw blades which are sharp, properly set and otherwise suitable for the job.
- HOLD stock firmly and flat on the table. This prevents the stock from turning and drawing your fingers against the blade.
- RELEASE cuts before long curves when doing intricate scroll-type work.
- PROVIDE adequate lighting at the machine table. A light fixture with a flexible connection can provide essential lighting.

DO NOT:

- DO NOT ATTEMPT to back the stock away from the blade while the saw is in motion if work binds or pinches on the blade.
- DO NOT STOP the band saw by thrusting stock against the cutting edge or side of blade immediately after the power has been shut off.
- DO NOT REMOVE saw dust or cuttings from the table by hand. Use a stick or brush.
- DO NOT LEAVE the saw running, unattended. Turn off the power and make sure the machine has stopped running.
Radial arm saws can be dangerous if not used properly. Read the owner’s manual carefully. Make sure you understand instructions before use. Refer to SAFETY INFOGRAM E01 for general safeguards.

CHECKLIST

**DO:**

- WEAR safety glasses or a faceshield.

- FEED stock against the direction of the blade.

- USE only saw blades rated at or above the speed of the saw arbour.

- USE only accessories designed for the specific saw and application.

- ENSURE guard consists of two parts:
  1. Upper hood type that covers arbour
  2. Lower guard which rides on the stock, adjusting automatically to the thickness being cut.

- STAND on the handle side when cross cutting, pull the cutting head with the hand nearest the handle, and manoeuvre the stock with the other hand.

- RETURN cutting head completely back of the saw table behind the fence after each cut.

- ENSURE when ripping that the overall length of the saw table (both infeed and outfeed) is twice the length of the longest pieces of lumber that will be sawed in normal operation.

- ENSURE when ripping that stock is fed against the revolving blade from the side where the saw blade rotates upward toward the operator. The blade should extend slightly into the table. The motor head must be locked at the correct height and angle.

- CLAMP stock to the table on one side of the saw blade when making mitre, bevel or compound mitre cuts. This overcomes the tendency of the stock to slide along the fence during the cut.

- TURN OFF saw when making any adjustments or changes in set up.

- MEASURE by placing the stock to be cut against the stop gauge. In instances where it is necessary to measure with a ruler, turn off the saw until measuring is complete.

**DO NOT:**

- DO NOT USE radial arm saws for ripping unless spreader and anti kickback devices are provided and properly adjusted.

- DO NOT REMOVE your hand from the operating handle, unless the cutting head is behind the fence.

- DO NOT REMOVE stock from saw table until the blade has been returned to its position at the rear of the table. Use a stick or brush to remove scrap from the saw table.

- DO NOT CUT “free hand”. The stock should lie solidly on the table against the back guide.

- DO NOT USE cracked or dull blades.
SAFETY INFOGRAM

Sanders can be dangerous if not used properly. Read the owner’s manual carefully. Make sure that you understand instructions before use. Refer to SAFETY INFOGRAM E01 for general safeguards.

CHECKLIST

DO:

- WEAR goggles when operating Sanders.
- KEEP hands away from the abrasive surface.
- INSPECT abrasive belts before using them. Replace those belts that are worn, frayed, or excessively worn in spots.
- SAND on the downward side of the disc.
- ENCLOSE all drum, disk or belt sanding machines with an exhaust dust hood which covers all portions of the machine except the portion designed for the work feed.
- ADJUST work rest on all manually fed Sanders to provide minimum clearance between the belt and the rest. It should be secured to support the work.
- HOLD small pieces of stock in a jig or holding device.

- INSTALL abrasive belts that are the same width as the pulley drum.
- ADJUST abrasive belt tension to keep the belt running the same speed as pulley-drum.
- GUARD feed rollers to allow boards to pass, but keep operator’s fingers/arms out.
- LOCATE guards on a belt sanding machine at all:
  - in-running nip point;
  - power transmission and feed roll parts; and
  - the unused portion of the abrasion belt on the operator’s side of the machine to prevent human contact.

DO NOT:

- DO NOT OPERATE sander without exhaust system operating.
- DO NOT OPERATE sander unless adequately guarded.
- DO NOT OPERATE sander unless work rest is properly adjusted.
Mitre saws can be dangerous if not used properly. Read the owner’s manual carefully. Make sure you understand the instructions before use. Refer to SAFETY INFOGRAM E01 for general safeguards and SAFETY INFOGRAM F06 for information on circular saws.

DOs

- WEAR safety glasses or a faceshield. If work is dusty, use a respirator or dust mask.
- MOUNT saw firmly on a workbench or other rigid frame and operate saw at waist height. The saw can also be taken to remote locations by mounting it on a piece of plywood 13 mm (1/2 inch) or thicker. This must be clamped to a waist high work surface on the job site with large “C” clamps.
- KEEP one hand on the trigger switch and handle and use the other hand to hold the stock against the fence.
- KEEP hands out of the path of the blade.
- KEEP guards in place and in working order.
- REMOVE adjusting keys and wrenches.
- USE a crosscut or combination blade.
- ENSURE that the blade rotates in the correct direction.
- ENSURE that the blade and arbor collars are secure and clean. Recessed sides of collars should be against blade.
- KEEP blade tight, clean, sharp and properly set so that it cuts freely and easily.
- ALLOW motor to reach full speed before cutting.
- FOLLOW instructions for lubricating and changing accessories.
- KEEP work area clean. Cluttered areas and benches invite accidents.
- KEEP work area well lit.
- REDUCE the risk of unintentional starting. Make sure saw switch is in OFF position before plugging in.
- UNPLUG tools before servicing and when not in use.
- CHECK for damage. Repair or replace damaged parts.

- KEEP motor air slots clean and free of chips.
- USE only accessories designed for the specific saw and job.

DO NOTs

- DO NOT OPERATE saw on ground.
- DO NOT CUT stock of pieces smaller than 20 cm (8 inches) in length.
- DO NOT CUT “free hand”. The stock should lie solidly on the table against the fence.
- DO NOT REACH around or behind saw blade.
- DO NOT REMOVE your hand from the trigger switch and handle until the blade is fully covered by the lower blade guard.
- DO NOT OVERREACH. Keep proper footing and balance at all times.
- DO NOT FORCE saw. The saw cuts better and safer at the rate for which it was designed.
- DO NOT LEAVE saw unless it is completely stopped. Turn power off and unplug.
- DO NOT USE electric tools in damp or wet locations.
- DO NOT OPERATE electric tools near flammable liquids or in gaseous or explosive atmospheres. Sparks may ignite fumes.
SAFETY INFOGRAM

- INSPECT tools, power cords, and electrical fittings for damage prior to each use. Repair or replace damaged equipment.
- DO NOT WEAR gloves, loose clothing or jewelry while using revolving power tools.

TOOLS
- SWITCH tools OFF before connecting them to a power supply.
- DISCONNECT power supply before making adjustments.
- ENSURE tools are properly grounded or double-insulated. The grounded tool must have an approved 3-wire cord with a 3-prong plug. This plug should be plugged in a properly grounded 3-pole outlet.
- TEST all tools for effective grounding with a continuity tester or a GFCI before use.
- DO NOT BYPASS the switch and operate the tools by connecting and disconnecting the power cord.
- DO NOT USE electric tools in wet conditions or damp locations unless tool is connected to a ground fault circuit interrupter (GFCI).
- DO NOT CLEAN tools with flammable or toxic solvents.
- DO NOT OPERATE tools in an area containing explosive vapours or gases.

POWER CORDS
- KEEP power cords clear of tools during use.
- SUSPEND power cords over aisles or work areas to eliminate stumbling or tripping hazards.
- REPLACE open front plugs with dead front plugs. Dead front plugs are sealed and present less danger of shock or short circuit.
- DO NOT USE light duty power cords.
- DO NOT CARRY electrical tools by the power cord.
- DO NOT TIE power cords in knots. Knots can cause short circuits and shocks. Loop the cords or use a twist lock plug.

CHECKLIST
- INSPECT CORDS & PLUGS
  - Check power cords and plugs daily. Discard if worn or damaged. Have any cord that feels more than comfortably warm checked by an electrician.
- ELIMINATE OCTOPUS CONNECTIONS
  - DO NOT PLUG several power cords into one outlet.
- PULL THE PLUG, NOT THE CORD
  - DO NOT DISCONNECT power supply by pulling or jerking cord from the outlet. Pulling the cord causes wear and may cause a shock.
- NEVER BREAK OFF THE THIRD PRONG ON A PLUG
  - Replace broken three-prong plugs and make sure the third prong is properly grounded.
- NEVER USE EXTENSION CORDS AS PERMANENT WIRING
  - Use extension cords only to temporarily supply power to an area that does not have a power outlet.
  - Keep power cords away from heat, water and oil. They can damage the insulation and cause a shock.
  - DO NOT ALLOW vehicles to pass over unprotected power cords. Cords should be put in conduit or protected by placing planks alongside them.
SAFETY INFOGRAM

CHECKLIST

DO:

- WEAR safety glasses or a face shield.

- KEEP drill vents clear to maintain adequate ventilation.

- KEEP drill bits sharp at all times.

- KEEP all cords clear of the cutting area during use.

- DISCONNECT power supply before changing or adjusting bit or attachments.

- TIGHTEN the chuck securely. Remove chuck key before starting drill.

- SECURE workpiece being drilled to prevent movement.

- SLOW the rate of feed just before breaking through the surface.

- DRILL a small pilot hole before drilling of large holes.

DO NOT:

- DO NOT OVERREACH. Keep proper footing and balance at all times.

WORKING WITH SMALL PIECES

- CLAMP stock so work will not twist or spin.

- DO NOT drill with one hand while holding the material with the other.

CHOOSING THE PROPER BIT OR ATTACHMENT

- SELECT the bit or attachment suitable to the size of the drill and the work being done.

- USE only bits and attachments that turn true.

- ENSURE that the bit or attachments are properly seated and tightened in the chuck.

- FOLLOW manufacturer’s instructions when selecting and using a bit or attachment, especially with unfamiliar drills or work.

- USE auxiliary (second) handle for larger work or continuous operation.

Refer to SAFETY INFOGRAM F01 for basic electrical safety.
SAFETY INFOGRAM

CHECKLIST

DO:

- WEAR safety glasses or a face shield.
- WEAR a dust respirator for dusty operations.
- DISCONNECT power supply before changing sanding belt, making adjustments, or emptying dust collector.
- INSTALL sanding belts that are the same width as the pulley drum.
- ADJUST sanding belt tension to keep the belt running true and at same speed as pulley drum.
- SECURE the sanding belt in the direction indicated on the belt and the machine.
- INSPECT sanding belts before using them. Replace those belts that are worn or frayed.
- KEEP hands away from sanding belt.
- USE two hands to operate sanders; one on trigger switch, the other on front knob handle.
- KEEP all cords clear of sanding area during use.
- CLEAN dust from motor and vents at regular intervals.

DO NOT:

- DO NOT EXERT excessive pressure upon the moving sander.
- DO NOT USE sander without exhaust system or dust collector. Empty the collector when 1/4 full.
- DO NOT WORK on unfixed stock, unless it is heavy enough to stay in place. Secure the stock or use a "stop block" to prevent movement.
- DO NOT OVERREACH. Keep proper footing and balance at all times.
- DO NOT COVER the air vents.

Refer to SAFETY INFOGRAM F01 for basic electrical safety.
SAFETY INFOGRAM

- WEAR safety glasses or a face shield.

- DISCONNECT power supply before changing or adjusting blades.

- USE lubricants when cutting metals.

- KEEP all cords clear of cutting area.

- POSITION the saw before cutting, and avoid re-entry with a moving blade.

- DO NOT insert a blade into, or withdraw a blade from a cut or lead hole while the blade is moving.

- DO NOT put down a saw until the motor has stopped.

CUTTING

- REMEMBER sabre saws cut on the upstroke.

- SECURE and support stock as close as possible to the cutting line to avoid vibration.

- KEEP the base or shoe of the saw in firm contact with the stock being cut.

- SELECT the correct blade for stock being cut and allow it to cut steadily, do not force it.

- USE blades designed for various materials as recommended by manufacturer. Blades are available ranging from 2-12 teeth/cm (7-32/in.). For rough cutting of softwood and composition board, use a blade with 2 teeth/cm (7/in.). For all-round work with most types of wood, a blade with 4 teeth/cm (10/in.) is satisfactory.

- DO NOT START cutting until the saw reaches its full power.

- DO NOT FORCE saw along or around a curve. Allow the machine to turn with ease.

- DO NOT REACH under or around the stock being cut.

STARTING AN EXTERNAL CUT

- Place the front of the shoe on the stock.

- Make sure that the blade is not in contact with the stock or the saw will stall when the motor starts.

- Hold the saw firmly down against stock and switch it on.

- Feed the blade slowly into the stock maintaining an even forward pressure.

STARTING AN INSIDE CUT

- DRILL a lead hole slightly larger than the saw blade. With the saw switched off, insert the blade in the hole until the shoe rests firmly on the stock.

- DO NOT LET the blade touch the stock until the saw has been switched on.

Refer to SAFETY INFOGRAM F01 for basic electrical safety.
**SAFETY INFOGRAM**

Circular saws are designed for right-hand operation; left-handed operation will demand more care to operate safely.

**CHECKLIST**

**DO:**

- WEAR safety glasses or a faceshield.
- WEAR approved respirators when exposed to harmful or nuisance dusts.
- USE a sharp blade that is designed for your work.
- CHECK the retracting lower blade guard frequently to make certain it works freely. It should enclose the teeth as completely as possible, and cover the unused portion of the blade when cutting.
- ALLOW the saw to attain full power before cutting.

**DO NOT:**

- SELECT the correct blade for stock being cut and allow it to cut steadily, do not force it.
- CHECK saw for proper blade rotation.
- SECURE work being cut to avoid movement.

- DO NOT HOLD or fix the retracting lower guard in the open position.
- DO NOT PLACE hand under the shoe or guard of the saw.
- DO NOT OVERTIGHTEN the blade locking nut.
- DO NOT TWIST the saw to change, cut or check alignment.
- DO NOT USE a saw that vibrates or appears unsafe in any way.
- DO NOT FORCE the saw at any time during cutting.
- DO NOT CUT materials without first checking for obstructions or foreign objects, such as nails and screws.
- DO NOT CARRY saw with finger on the trigger switch.

- ENSURE the retracting lower blade guard is fully returned before laying the saw down.
- DISCONNECT power supply before adjusting or changing the blade.
- KEEP all cords clear of cutting area.
- USE two hands to operate saw; one on trigger switch, other on front knob handle.
- KEEP upper and retracting lower blade guard clean and free of sawdust.
- KEEP motor free from accumulation of dust and chips.

Refer to SAFETY INFOGRAM F01 for basic electrical safety.

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SAFETY INFOGRAM

DO:

- PERMIT only experienced and trained persons to operate pneumatic nailing and stapling tools.
- WEAR safety glasses or face shield and, where necessary, hearing protection.
- INSPECT the tool before connecting to air supply:
  - Check tool safety mechanism if applicable
  - Ensure all screws and cylinder caps are securely tightened
- CHECK correct air supply and pressure before connecting tool.
- CHECK that the tool is correctly connected to air supply and is in working order, with safety mechanism operative, before using.
- HANDLE the tool as if it contains fasteners.
- FIT tools with a work contacting element that limits the contact area to one that is as small as practical.
- ENSURE mechanical linkage between work contacting element and trigger is enclosed.

- DISCONNECT the tool from the air supply when:
  - unattended
  - during cleaning or adjustment. Before clearing a blockage, ensure that all air is exhausted from the tool by actuating the trigger.
- USE only fasteners recommended by the manufacturer.
- PERMIT only properly trained people to carry out tool maintenance.

DO NOT:

- DO NOT POINT tool towards yourself or anyone else whether it contains fasteners or not.
- DO NOT OPERATE at pressure above manufacturer's rating.
- DO NOT DEPRESS the trigger unless the nose piece of the tool is directed onto a safe work surface.
- DO NOT TRANSPORT the tool with the trigger depressed.
- DO NOT LOAD the tool with fasteners with trigger depressed.
- DO NOT OVERREACH. Keep proper footing and balance at all times.

- DO NOT USE compressed air to blow debris or to clean dirt from your clothes, or those of others.

Refer to SAFETY INFOGRAM F11 for Air Powered Safety.

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**METALWORKING MACHINES**

**DRILL PRESSES**

Drill presses can be dangerous if used improperly. Read the owner's manual carefully. Make sure you understand the instructions and are properly trained before operating a drill press. Refer to SAFETY INFOGRAM M01 for general safeguards.

**DOs**

- WEAR safety glasses.
- CONFINE long hair to prevent it from getting caught in revolving parts.
- ENSURE that drill press has a start/stop button within easy reach.
- USE a brush or rake to remove cuttings.
- REMOVE burrs from a drilled hole.
- USE a clamp or drill vise to prevent work from spinning.
- LUBRICATE drill bit when drilling metal.

REDUCE drilling pressure as drill breaks through the workpiece. This prevents drill from pulling into the work and breaking.

KEEP drill bits clean and sharp.

KEEP floor around the drill press free of oil and grease.

KEEP the working surface clean of scraps, tools and materials.

**DO NOTs**

- DO NOT WEAR any loose clothing or ties. Roll sleeves above the elbow to prevent them from being caught in revolving parts.
- DO NOT WEAR rings, watches, bracelets or gloves while working with a drill press. Confine long hair.
- DO NOT SET speeds, or adjust or measure work, until machine is completely stopped.
- DO NOT LEAVE chuck key in drill chuck at any time.
- DO NOT HOLD work by hand when drilling holes larger than 12 mm (1/2 in.) in diameter.
- DO NOT PLACE hands under stock being drilled.
- DO NOT STOP rotation of chuck and spindle by hand.
- DO NOT REMOVE a broken drill with a centre punch and hammer.
- DO NOT LEAVE drill press running unattended.

Refer to SAFETY INFOGRAM F03 for information on portable hand drills.

Refer to SAFETY INFOGRAM M07 for information on cutting speeds.