General Safety Tips

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[**What should you do before using woodworking machines?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html#_1_1)[**What safety procedures should you follow when using woodworking machines?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html#_1_2)[**What should you avoid when working with woodworking machines?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html#_1_3)**What should you do before using woodworking machines?** Woodworking tools can be dangerous if not used properly. * Only use woodworking machines that you have been trained to use properly and safely.
* Read the owner's manual carefully.
* Make sure you understand instructions before attempting to use any tool or machine. Ask questions if you have any doubts about doing the work safely.

**What safety procedures should you follow when using woodworking machines?** * Always wear safety glasses or goggles
* Wear dust masks when required.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area. 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.
* Use gloves to protect hands from splinters when handling wood but do not wear them near rotating blades and other machinery parts where the gloves can catch.
* Make sure the guard is in position, is in good working condition, and guards the machine adequately before operating any equipment or machine. Check and adjust all other safety devices.
* Make sure the equipment is properly grounded before use.
* 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, planing, routing or carrying out similar activities.
* Make sure that all machines have start and stop buttons within easy and convenient reach of an operator. Start buttons should be protected so that accidental contact will not start the machine. A collar around the button 1/8 to 1/4 inch (3 to 6 mm) above the button is recommended.
* Ensure that all cutting tools and blades are clean, sharp, and in good working order so that they will cut freely, not forced.
* Turn the power off and unplug the power cord (or lock out the power source) before inspecting, changing, cleaning, adjusting or repairing a blade or a machine. Also turn the power off when discussing the work.
* Use a "push stick" to push material into the cutting area. Jigs are also useful in keeping hands safe during cutting procedures. Keep hands out of the line of the cutting blade.
* Clamp down and secure all work pieces when drilling or milling.
* Use good lighting so that the work piece, cutting blades, and machine controls can be seen clearly. Position or shade lighting sources so they do not shine in the operator's eyes or cause any glare and reflections.
* Ensure that the floor space around the equipment is sufficient to enable you to machine the size of work piece being processed safely without bumping into other workers or equipment.
* Woodworking machines should be fitted with efficient and well-maintained local exhaust ventilation systems to remove sawdust or chips that are produced.
* Electric power cords should be above head level or in the floor in such a way that they are not tripping hazards.
* Keep work area free of clutter, clean, well swept, and well lit. Spills should be cleaned up immediately. Floor areas should be level and non-slip. Good housekeeping practices and workplace design will reduce the number of injuries and accidents from slips, trips, and falls.

**What should you avoid when working with woodworking machines?** * Do not wear loose clothing, work gloves, neckties, rings, bracelets or other jewelry that can become entangled with moving parts.
* Avoid awkward operations and hand positions where a sudden slip could cause your hand to move into the cutting tool or blade.
* Do not remove sawdust or cuttings from the cutting head by hand while a machine is running. Use a stick or brush when the machine has stopped moving.
* Do not use compressed air to remove sawdust, turnings, etc. from machines or clothing.
* Do not leave machines running unattended (unless they are designed and intended to be operated while unattended). Do not leave a machine until the power off is turned off and the machine comes to a complete stop.
* Do not try to free a stalled blade before turning the power off.
* Do not distract or startle an operator while he or she is using woodworking equipment.
* Horse play should be prohibited. It can lead to injuries.
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Radial Arm Saws

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[**What should you do before using a radial arm saw?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/rad_saw.html#_1_1)[**What safety procedures should you follow when using a radial arm saw?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/rad_saw.html#_1_2)[**What should you avoid when working with a radial arm saw?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/rad_saw.html#_1_3)**What should you do before using a radial arm saw?** A radial arm saw can be dangerous if not used properly. * Read the owner's manual carefully.
* Make sure you understand instructions before attempting to use any tool or machine.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safety precautions.

**What safety procedures should you follow when using a radial arm saw?** * Wear safety glasses or a face shield.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Feed stock against the direction of the blade (the blade should move downward when viewed by the operator).
* Only use saw blades rated at or above the speed of the saw arbour. (An arbour is the attachment from motor to blade)
* Use only the accessories designed for that specific saw and application.
* Ensure the guard consists of two parts:

1. Upper hood type that covers arbour 2. Lower guard that 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 maneuver the stock with the other hand.
* Make sure the hand holding the stock is never in line with the blade.
* Return the cutting head completely to the back of the saw table after each cut. The saw should be designed so that the blade will not move forward under its own weight or if the machine is vibrating.
* When ripping, make sure that the overall length of the saw table (both infeed and outfeed) is twice the length of the longest pieces of lumber.
* When ripping, make sure that the stock is fed against the direction of the 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. Clamping prevents the wood from sliding along the fence during the cut.
* Turn off the saw when making any adjustments or changes in the set up.
* Make measurements by placing the wood to be cut against the stop gauge. When measuring with a tape measure or ruler is necessary, turn off the saw until the measuring is complete.

Radial Arm Saw**What should you avoid when working with a radial arm saw?** * Do not use radial arm saws for ripping unless the spreader (riving knife) and anti-kickback devices are provided and properly adjusted.
* Do not take your hand away from the operating handle unless the cutting head is behind the fence.
* Do not remove the stock from a saw table until the blade has been returned to its "resting" position at the back of the saw table. Use a stick or brush to remove scrap from the saw table.
* Do not cut "free hand". Use the back guide or fence, or other device to keep the workpiece from moving.
* Do not use cracked or dull blades.
* Do not leave a running saw unattended - leave only after the saw has been turned off and it has come to a complete stop.
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Jointers and Planers

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[**What should you do before using jointers and planers?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/planer.html#_1_1)[**What should you check before starting your machine?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/planer.html#_1_2)[**What safety procedures should you follow when using jointers and planers?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/planer.html#_1_3)[**What should you avoid when using a jointer or planer?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/planer.html#_1_4)**What should you do before using jointers and planers?** Jointers and planers can be dangerous if not used properly. * Read the owner's manual carefully.
* Make sure you understand instructions before attempting to use any tool or machine.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safety precautions.

**What should you check before starting your machine?** * Are the knives set for the proper clearance and depth of cut? Are they sharp, balanced, and fastened securely?
* Is the fence anchored in the proper position?
* Can the guard (swing or overhead) move freely and return over the cutting head?
* Is the equipment properly lubricated?
* Are the parts or accessories in proper working condition?

**What safety procedures should you follow when using jointers and planers?** * Wear safety glasses or goggles. Wear hearing protection when necessary.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Allow only experienced and trained personnel to operate jointers and planers.
* Use only sharp, balanced and joined knives.
* Replace old square cutting heads with round heads as they are much safer.
* Ensure start and stop buttons are within easy and convenient reach of the operator.
* Make sure the swing guard pushes beside the stock as it passes over the cutting heads and returns against the fence after the stock is removed.
* Remove all wrenches and tools used in the set up from the table.
* Provide a minimum clearance of at least 3 feet greater than the length of the longest stock being worked.
* Construct hold-down push blocks to do bevelling and surface operations. See [Woodworking Machines](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/push_stk.html) - Push Blocks for more information.
* Use hold-down (double-handed) push blocks. These keep hands well away from the cutting head.
* Maintain an adequate amount of downward and forward force with push blocks as the knife blades on a revolving cutting head can take the stock from an operator's hands.

Jointer/Planer**What should you avoid when using a jointer or planer?** * Do not leave the machine running unattended. Shut off the power and make sure that the cutting head has stopped revolving.
* Do not make cuts deeper than .3 cm (1/16") in one pass.
* Do not join (edge) stock of pieces less than 30 cm (12") long, 2 cm (3/4") wide and less than .6 cm (1/4") thick.
* Do not surface stock less than 30 cm (12") long, 2 cm (3/4") wide or more than 15 cm (6") wide or less than 1.5 cm (5/8") thick.
* Do not pass hands over the cutters.
* Do not remove dust or particles of wood from a table by hand or with compressed air. Use a stick or brush.
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Table Saws

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* Make sure you understand instructions before attempting to use any tool or machine.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safety precautions.

**What safety procedures should you follow when using a table saw?** * Wear safety glasses or a face shield.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Pay particular attention to the manufacturer's instructions on reducing the risk of kickback (when the wood can be violently thrown back toward the operator).
* Choose proper blades for the type of work being done.
* Keep blades clean, sharp, and properly set so that they will cut freely without having to force the work piece against the blade.
* Use the guards provided with the saw or ones designed for use with the saw that you are using. Keep them in place and in good working condition.
* Use a guard high enough to cover the part of the blade rising above the stock and wide enough to cover the blade when it is tilted. The blade height should be set so it does not extend more than about 3 mm (1/8 in) above the height of the piece being cut.
* Ensure that the fence is locked in position after the desired width has been set.
* Hold the work piece firmly down on the table and against the fence when pushing the wood through.
* Ensure that there is adequate support to hold a work piece; use extension tables or roller supports at the side or back for larger pieces. If an assistant is at the back (outfeed) end of the saw, an extension table should be in place so the back edge is about 1.2 m (4 ft) from the saw blade. The assistant should wait for the work piece to reach the edge of the extension table and should not reach toward the saw blade.
* Feed stock into the blade against the direction of its rotation.

Blade Set-up* Move the rip fence out of the way when cross cutting. Never use it as a cut off gauge.
* Use a push stick when ripping narrow or short stock (e.g., when the fence is set less than about 15 cm (6 in) from the blade; when the piece is less than 30 cm (12 in) long or when the last 30 cm (12 in) of a longer piece is being cut). Refer to ripping applications in the manufacturer's instruction manual. See [Woodworking Machines - Push Sticks](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/push_stk.html) for more information on push stick design.
* Keep hands out of the line of a saw blade.
* Use guard with a spreader (riving knife) 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.
* Provide adequate support to the rear and sides of a saw table for wide or long stock.
* Be careful when waxing, cleaning, or servicing the table. Shut off and unplug (or lock out) a saw before doing any work on the saw.
* Keep area clean and clutter-free. Operate machines in a non-congested, well-lit area.
* Use the proper sawdust exhaust systems as required by operation.

Table saw set-up**What should you avoid when working with a table saw?** Do not saw freehand. Always hold the stock firmly against the mitre gauge or a rip fence to position and guide the cut. * Do not reach around and over moving blades.
* Do not feed the work piece faster than the saw can accept.
* Do not leave a saw running unattended. Turn off the power and make sure the machine has stopped running before leaving the area.
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Mitre Saws

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* Make sure you know and understand the instructions before attempting to use any tool or machine.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for more information.

**What safety precautions should you follow when using a mitre saw?** * Wear safety glasses or a face shield. If work is dusty, use a respirator or dust mask.
* Wear appropriate hearing protection.
* Attach the 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 in.) 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 the work area clean. Cluttered areas and benches invite accidents.
* Keep the work area well lit.
* Reduce the risk of unintentional startup. 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 the accessories designed for the specific saw and job.

http://images.ccohs.ca/oshanswers/power049.gif**What should you avoid when using a mitre saw?** * Do not operate the saw on ground.
* Do not cut pieces smaller than 20 cm (8 in.) in length.
* Do not cut "free hand." The stock should lie solidly on the table against the fence.
* Do not reach around or behind the saw blade.
* Do not take your hand away 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 the saw. The saw cuts better and more safely at the rate for which it was designed.
* Do not leave the saw until it has stopped completely. Turn the power off and unplug the saw.
* 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.
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Band Saws

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[**What should you do before using a band saw?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/band_saw.html#_1_1)[**What safety procedures should you follow when using a band saw?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/band_saw.html#_1_2)[**What should you avoid when working with a band saw?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/band_saw.html#_1_3)**What should you do before using a band saw?** A band saw can be dangerous if not used properly. * Read the owner's manual carefully.
* Make sure you understand the instructions before attempting to use any tool or machine.
* Learn the applications and limitations before use.
* Securely anchor the band saw to the floor (or a workbench of appropriate height) to reduce vibration.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safety precautions.

**What safety procedures should you follow when using a band saw?** * Wear safety glasses or a face shield.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Make sure all guards are in place and properly adjusted. Ensure all band wheels are enclosed.
* Adjust blade guard height to about 3 mm or 1/8 inch above the top of the material being cut.
* Ensure the blade is tracking correctly and runs freely in and against the upper and lower guide rollers.
* Ensure the blade is under proper tension. A band saw equipped with automatic tension control is desirable.
* Use band saw blades that are sharp, properly set and otherwise suitable for the job (e.g., the right tooth pitch; tooth form; blade width).
* Hold stock firmly and flat on the table to prevent the stock from turning and drawing your fingers against the blade. Keep hands braced against the table.
* Use a push stick when you remove cut pieces from between the fence and saw blade or when your hands are close to the blade. Keep your hands on either side of the blade - not in line with the cutting line and the blade. See [Woodworking Machines - Push Sticks](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/push_stk.html) for more information on push stick design.
* Make release (relief) cuts before tight curves when doing intricate scroll-type work.
* Keep the floor around a band saw clean and free of obstructions or clutter.
* Keep the machine properly oiled and serviced.
* Provide adequate lighting at the machine table. A light fixture with a flexible connection can provide essential lighting.

Band saw**What should you avoid when working with a band saw?** * Do not use excessive force when pushing the wood past the blade.
* Do not back the stock away from the blade while the saw is in motion if the work piece binds or pinches on the blade.
* Do not stop a band saw by thrusting stock against the cutting edge or the side of a blade immediately after the power has been shut off.
* Do not remove sawdust or cuttings from the table by hand or with compressed air. Use a stick or brush.
* Do not leave a saw running unattended. Turn off the power and make sure the machine has stopped running before leaving the area.
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Sanders

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[**What should you do before using sanders?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/sander_b.html#_1_1)[**What safety procedures should you follow when using sanders?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/sander_b.html#_1_2)[**What should you avoid when using sanders?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/sander_b.html#_1_3)**What should you do before using sanders?** Sanders can be dangerous if not used properly. * Read the owner's manual carefully.
* Make sure you understand instructions before attempting to use any tool or machine.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safeguards.

**What safety procedures should you follow when using sanders?** * Wear goggles when operating sanders.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Use sanders with the local exhaust ventilation (LEV) turned on. The LEV should be designed for the sander and well maintained to work effectively.
* Wear respiratory protection (e.g., dust masks) where required, during sanding operations and clean up.
* Keep hands away from the abrasive surface.
* Hold small or thin pieces of stock in a jig or holding device to prevent injuries to the fingers or hands.
* Inspect abrasive belts before using them. Replace belts worn, frayed, or excessively worn in spots.
* Sand on the downward side of a disc sander so that the wood is driven onto the table by the machine's rotation.
* Enclose all drums, disk or belt sanding machines with an exhaust dust hood that covers all portions of the machine but the portion designed for the work feed.

Sander* Adjust work rests on all manually fed sanders to provide minimum clearance between the belt and the rest. The work rest should be secured properly.
* 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 when the wood is in contact with the belt.
* Guard feed rollers to allow boards to pass, but keep operators' fingers and arms out.
* Install guards to prevent contacts at:
	+ in-running nip points,
	+ power transmission,
	+ feed roll parts, and
	+ the unused portion of the abrasion belt on the operator's side of the machine.

Close Up of Sanding Belt**What should you avoid when using sanders?** * Do not sand small or thin hand-held work pieces.
* Do not wear loose clothing or jewelry while using revolving power tools. Tie back long hair or wear appropriate hair protection. These measures will prevent hair, clothing, or jewelry (like dangling neck chains) from being caught and pulled by sander belts and pulleys that are in motion.
* Do not operate sanders without the exhaust system operating.
* Do not operate sanders unless adequately guarded.
* Do not operate sanders unless the work rest is properly adjusted.
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Shapers

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[**What should you do before using shapers?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/shaper.html#_1_1)[**What safety procedures should you follow when using shapers?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/shaper.html#_1_2)[**What should you avoid when using shapers?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/shaper.html#_1_3)**What should you do before using shapers?** Shapers can be dangerous if not used properly. * Read the owner's manual carefully.
* Make sure you understand instructions before attempting to use any tool or machine. Only trained, experienced personnel should be allowed to operate wood shapers.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safeguards.

**What safety procedures should you follow when using shapers?** * Wear safety glasses or faceshield.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Use the cutter (and spindle speed / RPM) suited for the job. Use sharp cutters only and keep them clean.
* Remove all wrenches and tools used in the set up from the table.
* Check moving parts of the shaper periodically such as belts and pulleys for signs of wear; also check the spindle for burrs or for excessive runout.
* Make sure all guards are in proper position.
* Before operating, check that the spindle is square with the shaper table; that the spindle top and knives are correctly adjusted and securely fastened; and that the spindle is free before turning on the power.
* Use jig fixtures, holders, and hold-down push blocks. Fasten the work securely in a jig. When a table guide pin is used, make sure it is adjusted and will not slip.
* Cut with the grain rather than against it.
* Remove all other blades when one blade is removed from the shaper spindle. This will prevent the other blades from being hurled from the spindle if the machine is started.

Shaper* Turn off power, lock out a machine when doing set-ups or any other operation on or about the spindle.
* Shape only one piece of stock at a time.
* Use extra care in machining stock that contains cross grains or knots. These may pull the operator's hands into the knives or may cause kickbacks.
* Shape stock only if longer than 25 cm (10 in).
* Support long pieces of wood with extension tables or roller supports.

**What should you avoid when using shapers?** * Do not leave a shaper machine running. Make sure that the power is shut off and that the cutter head has stopped revolving before leaving the area.
* Do not rest your hands near the edge of the stock being cut.
* Do not tamper with the guards or make them inoperative in any way.
* Do not back up the stock (check to see that the direction of rotation is as expected). Always feed against rotation of the cutter.
* Do not make deep cuts or feed the stock too rapidly.
* Do not distract or startle an operator during a shaping operation.
* Do not remove saw dust or cuttings around knives by hand or with compressed air. Use a stick or brush.
* Do not clear the table while the cutter is rotating.
* Do not accumulate stock or finished work on the table.
* Do not stand in line with the stock being fed.
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Wood Turning Lathes

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[**What should you do before using a wood turning lathe?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/lathe_w.html#_1_1)[**What safety procedures should you follow when using a wood turning lathe?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/lathe_w.html#_1_2)[**What should you avoid when working with a wood turning lathe?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/lathe_w.html#_1_3)**What should you do before using a wood turning lathe?** A wood turning lathe can be dangerous if not used properly. * Read the owner's manual carefully.
* Make sure you understand instructions before attempting to use any tool or machine. Only experienced and trained lathe operators should be allowed to operate lathes.
* Learn the applications and limitations before use.
* Refer to [Woodworking Machines - General Safety Tips](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/gen_safe.html) for general safety precautions.

**What safety procedures should you follow when using a wood turning lathe?** * Wear safety goggles or face shield to protect yourself from flying chips.
* Wear hearing protection that is suitable for the level and frequency of the noise you are exposed to in the woodworking area.
* Wear a dusk mask when dust is generated (e.g., during sanding operations).
* Work in well-lighted area.
* Before the lathe is turned on, ensure that all clamps and fittings are secure and that the work piece is free to turn.
* Use stock free of defects.
* Hold tools firmly with both hands and against the tool rest.
* Hold the stock securely on the faceplate or between the centres.
* Use only furnished or approved tools.
* Use sharp, well-maintained chisels and gouges.
* Select a speed that is appropriate for the job. Operate the lathe at a low speed and use a moderate cut depth to prevent splinters from flying out during roughing operations. The actual speed of the lathe depends on type of wood, a diameter of stock, nature of work being done and type of tool used.
* Adjust tool rests so that they are parallel and as close as possible to the stock. They should also be set high enough so that tools will cut into the wood slightly above the centre of the work being turned.
* Remove the tool rest when sanding or polishing.
* Use appropriate tools to hold the sand paper or emery paper whenever possible. Examples include a 'nut cracker' or the paper fixed to a piece of flat wood. If you must use your hands always hold the paper in a way that will allow the paper to catch, pull or entangle around the stock.
* To make a faceplate turning, the one hand steadies the tip of the chisel, which holds the edge against the tool rest while the other hand guides the tool. Keep the tip of the chisel held higher than the handle.

Wood Turning Lathe**What should you avoid when working with a wood turning lathe?** * Do not wear gloves, loose clothing, rings or jewelry around the neck that can hang outside one's clothing. Clothing should be comfortable but not so loose that it can catch on the machine or get entangled with any rotating parts or the wood being turned; shirts should be tucked in and long hair tied back.
* Do not leave a running lathe unattended - leave only after the lathe has been turned off and it has come to a complete stop.
* Do not use makeshift tools.
* Do not use stock containing checks, splits, cracks, or knots.
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Push Sticks

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[**When should you use push sticks?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/push_stk.html#_1_1)[**What are some features of a push block?**](http://www.ccohs.ca/oshanswers/safety_haz/woodwork/push_stk.html#_1_2)**When should you use push sticks?** Push sticks or push blocks should be used when operating standard woodworking machinery, including table saws, band saws, radial arm saws, jointer/planers and shapers. These sticks protect the hand while allowing good hand control of the stock as it is pushed through the cutting head or blade. Push blocks for Jointer/Planers should be constructed for two-handed positioning. **What are some features of a push block?** Hold-down push blocks should: * be rigid
* enable the operator to protect both hands
* allow the operator to exert a firm and steady pressure on the work piece.

The following are samples of push blocks. * Simple push sticks are useful on a table saw when distance between the blade and fence is narrow.

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| Simple Push Stick**Simple push stick** useful on table saw when distance between the blade and fence is narrow. | Double-handled Push Block**Double-handled hold-down push block** |

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| Use of Two Push BlocksUse of two push blocks on single application | Frontal Push Block**Frontal Push Block** |
| Side Push Block**Side Push Block** |

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Pneumatic Nailing and Stapling Tools

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[**What general safety principles should you follow when using pneumatic nailing and stapling tools?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/nailing.html#_1_1)[**What should you avoid when using pneumatic nailing and stapling tools?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/nailing.html#_1_2)**What general safety principles should you follow when using pneumatic nailing and stapling tools?** * Permit only experienced and trained people to operate pneumatic nailing and stapling tools.
* Wear safety glasses or goggles, or face a shield and, where necessary, use hearing protection.
* Inspect each tool before connecting it to the air supply:

- Check tool safety mechanisms if applicable.- Tighten all screws and cylinder caps securely.* Check for correct air supply and pressure before connecting a tool.
* Check that the tool is correctly and securely connected to the air supply hose, in good working order, and has a fully operating safety mechanism before using.
* Always handle a tool as if it is loaded with fasteners (nails, staples, etc.)
* Equip tools with a work-contacting element that limits the contact area to one that is as small as practical.
* Make sure that the mechanical linkage between work-contacting element and trigger is enclosed.

Pneumatic Stapler* Disconnect tool from air supply when not in use and during cleaning or adjustment. Before clearing a blockage, be sure to depress the trigger to exhaust all air from the tool.
* Use only fasteners recommended by the manufacturer.
* Permit only properly trained people to carry out tool maintenance.

**What should you avoid when using pneumatic nailing and stapling tools?** * Do not point the tool toward yourself or anyone else whether it contains fasteners or not.
* Do not operate at a pressure above the manufacturers' rating.
* Do not depress the trigger unless the nose piece of tool is directed onto a safe work surface.
* Do not carry a tool with the trigger depressed.
* Do not load a tool with fasteners while the trigger is depressed.
* Do not overreach. Keep proper footing and balance.
* Do not use compressed air to blow debris or to clean dirt from clothes.

Do Not Clean With Compressed AirRefer to [Powered Hand Tools - Basic Safety for Pneumatic Tools](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/pneumat.html) for general safety tips for using tools powered by compressed air.  |

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Drills

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[**How do you select the proper bit or attachment?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/drills.html#_1_1)[**What should you do when working with powered hand drills?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/drills.html#_1_2)[**What should you do when working with small pieces?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/drills.html#_1_3)[**What should you avoid when working with powered hand drills?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/drills.html#_1_4)**How do you select the proper bit or attachment?** * Follow manufacturers' instructions when selecting and using a bit or attachment, especially with unfamiliar drills or work.
* Select the bit or attachment suitable for the size of the drill and the work being done.
* Ensure that the bit or attachments are properly seated and tightened in the chuck.
* Use only bits and attachments that turn true.
* Use the auxiliary (second) handle for larger work or continuous operation.

Tighten the Chuck Securely**What should you do when working with powered hand drills?** * Wear safety glasses or a face shield.
* Keep drill air vents clear to maintain adequate ventilation.
* Keep drill bits sharp always.
* Keep all cords clear of the cutting area during use. Inspect for frays or damage before each 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.

Drill Bit* Slow the rate of feed just before breaking through the surface.
* Drill a small "pilot" hole before drilling large holes.

**What should you do when 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.

**What should you avoid when working with powered hand drills?** * Do not use a bent drill bit.
* Do not exceed the manufacturer's recommended maximum drilling capacities.
* Do not use a hole saw cutter without the pilot drill.
* Do not use high speed steel (HSS) bits without cooling or using lubrication.
* Do not attempt to free a jammed bit by starting and stopping the drill. Unplug the drill and then remove the bit from the workpiece.
* Do not reach under or around stock being drilled.
* Do not overreach. Always keep proper footing and balance.
* Do not raise or lower the drill by its power cord.
* Do not use in wet or muddy locations. Use a nonpowered drill instead.
* Do not use excessive force to drill into hard material. Reduce drill speed if possible.

Refer to [Powered Hand Tools - Basic Safety for Electric Tools](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saf_elec.html) for general safety tips.  |

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Saws - Sabre, Jig and Reciprocating

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[**What should you do before start cutting with powered hand saws?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_bld.html#_1_1)[**What should you do to work with powered hand saws safely?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_bld.html#_1_2)[**How should you start an external cut?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_bld.html#_1_3)[**How should you start an inside cut?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_bld.html#_1_4)**What should you do before start cutting with powered hand saws?** * Wear safety glasses or goggles, 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 beside the material before cutting and avoid entering the cut with a moving blade.
* Make sure guards, if present, are installed and are working properly.

**What should you do to work with powered hand saws safely?** * Hold reciprocating saw with both hands.
* Remember sabre saws cut on the up stroke.
* 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 the material being cut and allow it to cut steadily. Do not force it. Clean and sharp blades operate best.
* Set the blade to go no further than 0.32 to 0.64 cm (1/8 to 1/4 inch) deeper than the material being cut.
* Do not start cutting until the saw reaches its full power.
* Do not force a saw along or around a curve. Allow the machine to turn with ease.
* 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.
* Do not reach under or around the stock being cut.
* Maintain control of the saw always. Avoid cutting above shoulder height.

**How should you start an external cut?** * Place the front of the shoe on the stock.
* Make sure that the blade is not in contact with the material or the saw will stall when the motor starts.
* Hold the saw firmly down against the material and switch the saw on.
* Feed the blade slowly into the stock maintaining an even forward pressure.

Starting an External Cut**How should you start 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.

Starting an Inside Cut-Refer to P[owered Hand Tools - Basic Safety for Electric Tools](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saf_elec.html) for general safety tips.  |

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Belt Sanders

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[**What should you do to work safely with belt sanders?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/sander.html#_1_1)[**What should you avoid while working with belt senders?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/sander.html#_1_2)**What should you do to work safely with belt sanders?** * Wear safety glasses or goggles, or a face shield.
* Wear a dust respirator for dusty operations.
* Make sure the sander is switched "OFF" before connecting the power supply.
* Disconnect power supply before changing a sanding belt, making adjustments, or emptying dust collector.
* Inspect sanding belts before using them. Replace those belts worn or frayed.
* Install sanding belts that are the same widths as the pulley drum.
* Adjust sanding belt tension to keep the belt running true and at the same speed as pulley drum.
* Secure the sanding belt in the direction shown on the belt and the machine.
* Keep hands away from a sanding belt.
* Use two hands to operate sanders - one on a trigger switch and the other on a front handle knob.
* Keep all cords clear of sanding area during use.
* Clean dust from the motor and vents at regular intervals.

**What should you avoid while working with belt senders?** * Do not use a sander without an exhaust system or a dust collector present that is in good working order. Empty the collector when 1/4 full. The dust created when sanding can be a fire and explosion hazard. Proper ventilation is essential.
* Do not exert excessive pressure on a moving sander. The weight of the sander supplies adequate pressure for the job.
* Do not work on unsecured stock unless it is heavy enough to stay in place. Clamp the stock into place or use a "stop block" to prevent movement.
* Do not overreach. Always keep proper footing and balance.
* Do not cover the air vents of the sander.

Belt SanderRefer to [Powered Hand Tools - Basic Safety for Electric Tools](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saf_elec.html) for general safety tips.

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Saws - Circular

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| http://www.ccohs.ca/images/blank.gifhttp://images.ccohs.ca/oshanswers/feedback.gif[Feedback](http://www.ccohs.ca/oshanswers/feedback/feedback.html) |
| http://www.ccohs.ca/images/blank.gifhttp://images.ccohs.ca/oshanswers/printer_friendly.gif[Printer-friendly](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_circ.html?print) |

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[**What should you do before start cutting with a circular saw?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_circ.html#_1_1)[**What should you do to work safely with a circular saw?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_circ.html#_1_2)[**What should you avoid when cutting with a circular saw?**](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saw_circ.html#_1_3)**What should you do before start cutting with a circular saw?** * Wear safety glasses or goggles, or a face shield.
* Wear an approved respirator or dust mask when exposed to harmful or nuisance dusts.
* Use appropriate hearing protection equipment in noisy areas.
* Check the retracting lower blade guard to make certain it works freely.
* Ensure that the blade that you have selected is sharp enough to do the job. Sharp blades work better and are safer.
* Check the saw for proper blade rotation.
* Set the depth of the blade, while the saw is unplugged, and lock it at a depth so that the lowest tooth does not extend more than about 0.3 cm or 1/8" beneath the wood.
* Keep all cords clear of cutting area.
* Circular saws are designed for right-hand operation; left-handed operation will demand more care to operate safely.

**What should you do to work safely with a circular saw?** * 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.

Circular Saw* Check that the retracting lower blade guard has returned to its starting position before laying down the saw.
* Keep upper and retracting lower blade guard clean and free of sawdust.
* Disconnect power supply before adjusting or changing the blade.
* Allow the saw to reach full power before starting to cut
* Use two hands to operate saws - one on a trigger switch and the other on a front knob handle.
* Keep motor free from accumulation of dust and chips.
* Select the correct blade for stock being cut and allow it to cut steadily. Do not force it.
* Secure stock being cut to avoid movement.

**What should you avoid when cutting with a circular saw?** * Do not hold or force the retracting lower guard in the open position.
* Do not place hand under the shoe or guard of the saw.
* Do not over tighten 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 during cutting.
* Do not cut materials without first checking for obstructions or other objects such as nails and screws.
* Do not carry the saw with a finger on the trigger switch.
* Do not overreach. Keep proper footing and balance.
* Do not rip stock without using a wedge or guide clamped or nailed to the stock.

Do Not Over-ReachRefer to [Powered Hand Tools - Basic Safety for Electric Tools](http://www.ccohs.ca/oshanswers/safety_haz/power_tools/saf_elec.html) for general safety tips.  |

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