Wood Shop Manual

For Instructors at the Maryland Institute College of Art
About this Document

This manual has been prepared to help ensure safety in the Wood Shop at the Maryland Institute College of Art. No document can replace actual instruction, and this manual should be seen only as a supplement to thorough supervised training. It is the responsibility of the user to utilize their training, experience, and good judgment to work safely.

Though many of the tool safety procedures described in this document may apply broadly to tools of the given type, this manual has been written specifically for the MICA Wood Shop and the tools contained therein.

This manual is a living document and will be updated to reflect changes and additions to the MICA Wood Shop. An up-to-date version can always be found in the shop.

This document has been created by Professor Kenneth Martin and Wood Shop Manager Ryan Hoover. Questions and comments may be directed to rhoover@mica.edu.
Wood Shop Manual
Maryland Institute College of Art

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WOOD SHOP
EMERGENCY PROCEDURE

CALL 9-911
(9 to get an outside line then 911 for local fire, police, and ambulance)

1. GIVE THE EXACT LOCATION OF YOUR EMERGENCY:
   1300 W MT ROYAL AVE
   MICA CAMPUS
   FOX BUILDING (large, red brick building next to the glass building)
   WOOD SHOP- ROOM 012 – IN THE BASEMENT

2. GIVE THE PHONE NUMBER FROM WHERE YOU ARE CALLING:
   410-225-2537

3. GIVE YOUR NAME


4. STAY NEAR THE PHONE, IF POSSIBLE, TO RECEIVE ADDITIONAL INSTRUCTIONS.

THEN CALL 3333
FOR CAMPUS SAFETY
(Call 410-423-3333 from a non-campus phone)

Campus Safety should be notified of all injuries. They can provide assistance with First-Aid, injury assessment, and reporting.

Minor injuries not requiring attention from a medical professional can be treated using the First Aid kits mounted in the Wood Shop.
Lock Out Tag Out

The Lock Out Tag Out (LOTO) procedure is an important aspect of shop safety. The LOTO system takes malfunctioning tools/machines off line, preventing possible injuries. Once a tool/machine is identified as malfunctioning, damaged, or otherwise needing to be taken off line, follow the LOTO procedure listed below.

There is a LOTO signboard in the Tool Room. On this board, there are multiple lock out boxes hanging, locks with keys, lockout hasps, and LOTO tags.

Do not attempt to make repairs to tools/machines that are beyond your training and expertise. Follow this LOTO procedure and allow the shop manager to make the needed repairs.

1. Turn off the power switch on the tool/machine.

2. If the machine is on its own dedicated circuit breaker in the main breaker boxes, turn that breaker off.

3. Unplug the tool/machine from the power source.

4. Get a LOTO box, lock, and key from the LOTO signboard. Note that some boxes have expanded notches for oversixed power cords.

5. Open the doors of the lock out box and place the box around the plug of the malfunctioning tool/machine. Close the doors of the box around the cord, place the lock through the rings on the doors, and lock the lock.

6. If the machine is hard-wired, turn off the local shut-off breaker, place the LOTO hasp through the hole in the breaker handle, and lock the hasp closed.

7. Fill out a tag from the LOTO signboard and attach it to the lock.

8. Notify the Wood Shop manager verbally, by email (rhoover@mica.edu), or with a written note. Include detailed information about the tool/machine malfunction.

9. Keep the key to the lock. Do not give the key to anyone other than the Wood Shop Manager. The Wood Shop Manager has a copy of all LOTO keys. As the individual who locked out the tool/machine, only you and the Wood Shop manager can allow that machine to be brought back on line.

10. After the necessary repairs have been made to the tool/machine, the lock out box may be removed and returned, with the lock and key, to the LOTO signboard.
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At the end of your shift please go through this checklist to make certain that you have done all of the following:

1. Make sure that all tools have been put away in their proper place, and that all tool lockers are locked.

2. Make sure that all clamps have been put back on the clamp racks in their appropriate location.

3. Clean up all saw dust and scraps on and around the tables and tools.

4. Sweep the floors in the Work Room and the Tool Room.

5. Remove full trash bags to the hallway and place new bags in the cans.

6. Turn off the dust collector.

7. Shut down the appropriate circuit breakers and lock the boxes.

8. Make sure that all students are out of the Tool Room.

9. Close and lock all doors including:
   - The double doors to the Tool Room (including the top pin in the Tool Rom)
   - The back door to the Tool Room
   - All tool cabinets
   - Both doors to the Office
   - The door to the Cave
   - The door to the Tool Room cabinet under the chop saw table
   - The door to the Storage Room
   - The Instructor’s cabinets
   - Both breaker boxes
   - The front door to the Work Room (the handle does not need to be locked)

If another Monitor is there to work the following shift, obviously some of the lock down steps should be omitted. However, be sure to sweep and tidy the shop so that you are not leaving a mess for the next person to clean up. Also, pass on any relevant information to the next Monitor regarding the people already working in the shop or any other issues from your shift.
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1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting clothes or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Both wheel guard plates must be on and closed before turning on the machine.

5. Make sure all guards and blade guides are in place and properly adjusted.

6. Adjust the upper assembly so that it is approximately 1/4" above the work.

7. Stock must be held flat on the table, or otherwise jigged securely.

8. Maintain a two-inch margin of safety. Keep your hands on either side of the blade, not in line with the blade.

9. Use a push stick to feed small pieces through the saw and to remove scraps from around the blade.

10. If a piece of wood falls into the slot in the table, shut the power off, wait for the blade to stop, and then remove the piece.

11. Be aware of the possibility of binding the blade by trying to cut a curve of too small a radius. Make radial relief cuts before cutting a tight curve.

12. Plan your cuts to avoid backing out of a long or complicated cut. If backing out cannot be avoided, move the material slowly and in line with the blade to avoid pulling the blade away from the upper assembly. It may be necessary to turn off the power to the saw, and back out the work piece after the blade has stopped moving.

13. If a blade breaks, turn off the machine and move away until all motion stops. If you hear a rhythmic clicking noise, this may indicate a crack in the blade.

14. Do not leave any saw running unattended. When finished, turn off the saw and bring the blade to a stop using the brake.
1. Wear proper personal protection equipment: Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel: No loose fitting clothes or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Make sure the machine is stopped before adjusting the machine.

5. Use only bits designed for use in a powered drill. Bits with feed screws, tang ends, or of excessive length should not be used.

6. Lock the drill bit into the chuck tightly, using the chuck key and each of the holes in the chuck. The chuck key must be removed before turning on the power.

7. The table must be set to the proper height for your operation and locked into place.

8. Clamp all work to the table. Do not hold stock by hand. Maintain a six inch margin of safety.

9. Withdraw the bit from the stock frequently to clear the shavings and cool the bit. Clear chips and shavings with a brush or stick when the machine is running.

10. Always drill into a backing board when drilling through stock.

11. Make sure the rotating speed of the bit is set properly for your operation. Ask your instructor or the tech for help.

12. When using a mortising attachment, fly cutter, or other special set-up, have your instructor or the tech check it before turning on the power.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting clothes or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Use the blade guard at all times.

5. Make sure that long work is supported by the table or an outboard tool rest.

6. Do not allow anyone to stand behind the saw.

7. Secure the work. Do not free-hand any cutting operation. The stock should lie solidly on the table and tight against the fence.

8. Keep hands 6 inches or more from the blade.

9. Do not cut small pieces without clamping. Be sure all clamp handles are tight before starting any operation.

10. Do not move either hand from the saw or work piece until saw is stopped.

11. Do not cross your arms in order to operate the saw and hold material; switch hands.


13. Do not reach around, behind, or underneath the saw blade unless the saw is stopped.

14. Allow the motor to reach full speed before engaging the blade with the wood.

15. Do not force the tool; allow the blade to move easily through the material.

16. Small pieces of wood can be thrown by the saw blade at dangerous speeds. With small cut-offs, allow the blade to stop completely before raising it out of the material.

17. With the blade stopped, remove any small scraps of wood that fall into the slot in the cutting table.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Make sure that the dust collection port is open.

5. Keep the machine free of dust and debris to avoid a fire hazard.

6. Ask your instructor or the tech to examine belts or sanding discs that appear to be excessively worn or frayed.

7. Make sure that the work table is set to the desired angle and properly secured.

8. Do not sand pieces that are small enough to be pulled between the sanding surface and the work table.

9. Keep hands away from abrasive surfaces. Use a jig or holding device to hold small or thin pieces of wood to prevent injuries to the fingers or hands.

10. Use only light pressure – just enough to hold the work against the abrasive.

11. Stationary Sanders are finishing tools – not carving or shaping tools. Use them accordingly.

12. When using the disc sanders, always sand on the down-side of the disc so that the stock is driven into the table by the machine’s rotation.

13. Use the entire surface of the abrasive. Avoid uneven wear patterns.

14. Sand only dry wood that has not been already used or painted.

15. When sanding angles, do not hold the material up off the table. Lay the material flat on the table and simply rotate it, or set the table to the desired angle.
1. Wear proper personal protection equipment: safety glasses or face shield are required. Wear hearing protection when operating the jointer. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel: No loose fitting clothes or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Open the blast gate on the dust collection port.

5. Make sure that the fence is anchored in the proper position.

6. Make sure the swing guard pushes beside the stock as it passes over the cutting head, and easily swings back against the fence once the stock is removed. Use the swing guard at all times.

7. Check the stock carefully before surfacing to make sure it is free of knots or defects. Never surface plywood, wood by-products, or wood that has been painted or used.

8. Clean rough lumber with a wire brush to remove dirt and reveal any embedded metal.

9. Do not surface any stock under 12” in length or under 1/2” thick.

10. The maximum depth of cut should be 1/16”.

11. Use a push block when jointing a thin piece of lumber or when face planing.

12. Hold the board firmly against the fence and table. Never make free hand cuts.

13. Plane with the grain. Never plane the end grain of stock.

14. Keep your fingers away from the revolving cutter head. Any bodily contact with the moving blade will cause severe injury.

15. Do not stand directly behind the wood. Kick backs can occur.

16. Turn the jointer off immediately if it does not sound right or if slivers of wood catch between the blades and the table.

17. Never let go of the stock during a cut.
1. Wear proper personal protection equipment: safety glasses or face shield are required. Wear hearing protection when operating the jointer. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel: No loose fitting clothes or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Open the blast gate on the dust collection port.

5. Familiarize yourself with the stop switch, elevating hand wheel, and break so that you can stop the machine easily.

6. Check stock for defects, such as knots, that might cause the board to split under pressure.

7. Never surface painted or varnished stock. Used lumber of any kind may not be surfaced.

8. Make sure that the bottom of the board being surfaced is true.

9. The shortest board that may be surfaced should be at least two inches longer than the distance between the in-feed and the out-feed roller.

10. Always stand to one side of the table, never directly in line with the stock being dressed. Sudden kickback can occur.

11. Never stoop down to watch the board being surfaced.

12. Determine the grain direction and feed the lumber into the machine so that cutting will be done with the grain.

13. As the feed rollers take hold of the stock, allow the machine to pull the lumber into itself. Do not push the material though machine once the rollers have engaged. Once you no longer need to support the weight of the lumber, take your hands away from the board.

14. Do not attempt to remove too much material in one pass. Raise the table by no more than a half turn per pass.
15. Keep the lower table rollers in their lowest position when the underside of the stock is smooth and finished. When the surface is rough, raise the rollers to allow the stock to pass through the machine more easily.

16. Set even with or barely above the surface of the table. They feed the stock into the machine at different points along the width of the blade. This helps to prevent uneven wear.

17. Should only be raised when the bottom surface of the stock is still rough.

18. If the stock is long, get someone to receive the stock as it leaves the machine.

19. Be especially careful of your fingers when surfacing a short board. Sometimes the in-feed roller will tip the board up and then down quickly so that fingers get pinched between the table top and the stock.

20. Surfacing thin stock requires the use of an auxiliary support table to prevent the stock from being forced down into the machine. Consult your instructor or the shop monitor to set this up.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Check the wood to make sure it has no defects that would cause it to break when turning. Remove all moldy wood immediately.

5. Check all glue joints before mounting the stock. A weak joint may come apart when revolving at high speeds. Make sure all glued-up stock is completely dry before turning.

6. Fasten stock securely between centers. Make sure the tailstock is locked before turning on the power.

7. Adjust the tool rest as close to the stock as possible. Then revolve the stock by hand to make sure it clears the rest.

8. Always stop the lathe before making any adjustments such as changing the position of the tool rest.

9. Run all stock at the slowest speed until it is rounded.

10. For stock over 6” in diameter, maintain slower speed; from 3” to 6”, medium speed; under 3”, use faster speeds.

11. Hold turning tools firmly in both hands.

12. Keep the tool rest as close to the work as possible. At intervals, stop the lathe and readjust.

13. Make sure the stock is firmly fastened to the faceplate before turning.

14. Remove the tool rest when sanding or polishing. If you don’t, your fingers may get caught between the tool rest and the stock.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Only approved faculty, staff, and shop monitors are permitted to use the table saw.

5. Never use the rip fence as a guide if the distance between the blade and the fence is greater than the length of stock against the fence. Use the cross-cut saw instead.


7. Before cutting, make sure the fence is locked and all fixtures are secure.

8. Use saw guard as much as possible. Some operations cannot be done with the guard in place, however. If standard guards cannot be used, use other safety devices such as a push stick, feather board, holding jigs and fixtures.

9. Use the anti-kickback splitter whenever as possible. Some operations, such as dado cuts, rabbits, and angles, cannot be done with the splitter in place, however. If the splitter cannot be used, use other safety devices such as a push stick, feather board, holding jigs and fixtures.

10. Make sure the blade is sharp and is properly mounted. Dull blades are dangerous. They are more likely to cause kickback. Dull blades also require more pushing. This increases the chances of your hand slipping.

11. Make adjustments with the saw at a dead stop. Adjust the saw so that the blade clears the top of the stock by 1/8” to 1/4”.

12. Thoroughly check all stock before cutting. Stock must lie flat on the table. Never cut warped or twisted stock on the table saw. Edges placed against the rip fence or against the sliding cross-cut fixture must be straight. Make sure that there are no irregularities in the stock that could prevent the material from being fed through the saw smoothly. Check for any foreign materials in the stock. Also check for knots that could become dislodged and thrown by the saw blade.
13. Pay close attention to the positioning of your body. A comfortable, well-balanced stance, with both feet firmly planted is essential to safe operation. Avoid standing in line with the spinning saw blade. Standing to one side of the blade reduces your chance of injury in the event of a kickback.

14. Make sure that no one is standing behind you where they could be harmed in the event of a kickback.

15. Allow the saw to come to full speed before engaging the blade.

16. Maintain firm control of the material as it is fed through the saw. Never remove both hands from the material during a cut.

17. Keep your fingers away from the line of the cut.

18. Use a push stick whenever ripping down stock to less than 5”.

19. Keep the material tight against the fence during a rip cut. Apply sideways pressure to the stock on the in-feed side, never against the side of the blade or on the out-feed.

20. Never reach over the saw to pick up a piece of stock. Walk around. Never clear scraps away with your fingers while the blade is still spinning.

21. If the saw resists in feed of the material, do not force the stock into the machine. This can cause a kickback. Carefully turn the machine off while firmly holding the material in place until the blade comes to a complete stop. Examine the operation and the stock to determine the cause. Is the material tight against the fence? Is the material warping as it is cut and pushing or pinching the blade or splitter? Is there a knot that was missed during material inspection? Is the blade dull?

22. Use all of your senses when operating the table saw. If you see that the material has moved away from the fence, feel resistance against in feed, hear any unusual noise or the motor lower in pitch, or smell burning wood, then halt your operation to avoid a potential kickback.

23. When ripping large stock, have someone assist you to support the material where it is not held by the table. Never allow the assistant to pull or tilt the board as it is being ripped. The operator must always be in full charge.

24. When cutting is complete, turn off the power and stand to one side until the machine comes to a complete stop. Remove all special setups and any waste stock. Set blade to square. Lower blade so that teeth are below the table surface.
Safety Rules Specific to the Cross-Cut Table Saw

25. Make sure that the fence is set at the proper distance from the blade so that the measurements on the fence are accurate. Tighten both levers to lock the fence and prevent it from sliding.

26. Check that the cross-cut fence is set square to the blade or at the desired angle. Tighten the knob on top of the fence to lock it in position and prevent it from pivoting.

27. Set the stop at the desired length. Lock it in position. Then flip it down. For long material, use the extension stop and lock it at the desired length.

28. Always keep the majority of the stock on the fence side of the blade. This may require that you measure and mark your material, align it with the blade, slide the stop to your material, and lock it in place.

29. When cutting material less than 28” wide (in the dimension parallel to the blade), the fence should be mounted on the near side of the sliding table. During the cut, use one hand to hold the material down to the table and to pull it tight to the fence. Use the other hand to steadily push the sliding table forward.

30. For material larger than 28” wide, the fence must be reversed and mounted on the far side of the table. During the cut, use one hand to hold the material down and to push it tight to the fence. Use the other hand to pull the sliding table toward you. Balance this push and pull to steadily feed the material forward into the blade. When cutting pieces wider than the table, use the extension handle to pull the table.

31. Setting the saw for a bevel cut angles the blade toward the fence. You must move the fence away from the blade to avoid cutting into it. Before making any cut, always make sure that the table slides freely and that the fence will not contact the blade.

32. When cutting long pieces, it may be necessary to have another person support the far end of the material so that it does not drop below the extension stop.

33. After making a cut, turn off the saw. Then, flip the stop up and pull the material away from the blade before sliding the table to the front of the saw.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Most drills have a locking pin that holds the trigger “on” until disengaged. Make sure that the trigger is in the “off” position before plugging in the drill to the power supply.

5. Disconnect power supply before changing or adjusting bit or attachments.

6. Select the bit or attachment suitable for the size of the drill and the work being done. The most common sizes are those that take shanks up to 3/8” or 1/2” diameters.

7. Ensure that the bit or attachment is properly seated and tightened in the chuck. Remove chuck key before starting drill.

8. Use only bits and attachments that turn true. Do not use a bent drill bit.

9. Use the auxiliary handle for larger work or for continuous operation.

10. Keep all cords clear of cutting area. Inspect cords for frays or damage before use.

11. Secure work piece being drilled to prevent movement. Do not drill with one hand while simply holding the material with the other.

12. Withdraw the bit from the stock frequently to clear the shavings and cool the bit.

13. Do not use excessive force to drill into hard material. Reduce drill speed.

1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Disconnect power supply before adjusting or changing the blade.

5. Check the saw blade for proper installation.

6. 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.

7. After making a cut, check that the retracting lower blade guard has returned to its starting position before putting down the saw.

8. Do not hold or force the retracting lower guard into the open position.

9. Set the depth of the blade while the saw is unplugged. Lock the depth of cut so that the lowest tooth does not extend more than $1/4$" beneath the wood being cut. Keep all cords clear of cutting area.

10. Before cutting, check the material for obstructions or other objects such as nails or screws.

11. Secure stock being cut to avoid movement.

12. Make sure the stock is supported in a manner that will not cause the material to pinch the blade as or after it is cut.

13. Make sure that the blade is not in contact with the material when starting the power.

14. Allow the saw blade to reach full speed before starting to cut.
15. Do not force the saw during cutting.

16. Use two hands to operate the saw. Keep one hand on the trigger switch and the other on the front knob handle.

17. Do not overreach. Always keep proper footing and balance.

18. Never move the saw backwards while the blade is in motion.

19. Do not attempt to make curved cuts with the circular saw.

20. Avoid unintentional starting; do not carry the saw with a finger on the trigger switch.

21. Because most circular saws are designed for right-hand operation, left-handed operations will demand more care to operate safely.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting clothes or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Avoid an unintentional start. Make sure the switch is in the off position before the plate joiner is plugged in.

5. Keep the power cord positioned away from the work to be performed to avoid cutting the chord.

6. Make sure the plate joiner is unplugged while adjustments are being made.

7. Secure the material to be joined with clamps or a vice before attempting to make a cut.

8. Have a firm grip on the plate joiner with both hands before turning the switch on. Make sure the blade slides smoothly before operating the machine.

9. Guard against kickback. Kickback occurs when the blade stalls rapidly and the plate joiner is driven in the direction opposite the blade rotation. Release switch immediately if the blade binds or if the joiner stalls.

10. Do not lay the plate joiner down until the blade has come to a complete stop.

11. Disconnect the electrical cord on the plate joiner before leaving the work area.

12. Empty the dust bag before it becomes half full.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Wear hearing protection that is appropriate for the level and duration of the noise in the tool room. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Most belt sanders have a locking pin that holds the trigger "on" until disengaged. Make sure that the trigger is in the "off" position before plugging in the sander.

5. Disconnect the power supply before changing the sanding belt.

6. Inspect sanding belts before using them. Replace worn or frayed belts.

7. Install a sanding belt that is the same width as the sanding drum.

8. Install the sanding belt in the direction shown on the belt and on the machine.

9. Adjust sanding belt tension to eliminate slippage and to keep the belt properly aligned.

10. Keep hands away from moving belt. Use two hands to operate the sander – one on the handle with the trigger switch and the other on the front handle knob.

11. Do not exert excessive pressure on the moving sander. The weight of the sander provides adequate pressure for the job.

12. 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.


14. Keep all chords clear of sanding area during use.

15. When finished, do not set the sander down until the belt has stopped moving.

16. Clean dust from the motor and vents at regular intervals. Empty the dust collector when it becomes half full.
1. Wear proper personal protection equipment. Safety glasses or face shield are required. Hearing protection should always be used when operating the router. A dust mask is recommended. Do not wear gloves.

2. Wear proper apparel. No loose fitting cloths or neckties. No loose jewelry. Long hair must be covered or tied back. Non-slip footwear is recommended.

3. Keep the work area clean. Cluttered areas and benches invite accidents.

4. Choose the right router for the job. Use a plunge router when it is not possible to approach the material from the edge. Use a large router for bits with a large diameter or length.

5. Disconnect the plug from the power circuit when changing bits.

6. When installing a bit, drop it all the way into the router’s collet. Then back it out about 1/16” or 1/8” to avoid transferring the heat generated by the bit directly to your router’s motor armature.

7. Set the depth of the bit by adjusting the base.

8. Ensure that the bit is securely mounted in the chuck and that the base is tight.

9. Make sure that the bit can rotate freely before switching on the motor.

10. Secure the stock. Never rely on yourself or a second person to support or hold the material. Sudden torque or kickback from the router can cause damage or injury.

11. Never turn on the power until you are in working position.

12. Hold the tool firmly but lightly in both hands.


14. Feed the router bit into the material at a firm, controlled speed. The router bit revolves clockwise. When cutting straight edges, move the router from left to right. When making circular cuts, move the router in a counter-clockwise direction.

15. Test the router on scrap lumber similar to the work material.
16. When working with types of wood that are very dense or using a large bit, make multiple passes to prevent the router from burning out or kicking back.

17. The sound of the motor can indicate improper cutting speeds. When the router is pushed too hard, the motor makes a low growling noise. When the router is fed into the material too slowly, the motor makes a high-pitched whine.

18. A chattering noise and vibration can indicate that you are trying to remove too much material in one pass. This chatter is unsafe and will create a poor cut. Change the bit depth or jig setup to remove less material with each pass.

19. Routing against the grain of the stock can produce chatter and tear-out. Where possible, plan your work so that the grain of the wood moves from left to right.