



HEALTH & SAFETY GUIDELINES

Ensuring that the art and craft of woodturning
in all its traditions
are promoted and preserved

November 2019

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Introduction

Every time woodturners pick up a tool or turn on a piece of machinery they expose themselves to risk. Safety, particularly safety in the workshop, has to be a major concern. Turning is an enjoyable and rewarding activity but accidents can happen with blinding speed. In most situations, a moment's inattention or the blink of an eye, is all that is required to risk the loss of a limb or cause a major injury. Woodturners must also be aware that there are other risks such as respiratory problems that develop over a long time frame but which need to be integrated with other dimensions of safe work practice.

The Woodturners Association of Western Australian (WAWA) holds firmly to the view that maintenance of safety in the workshop is the responsibility of all of its members. It recognises, however, that it has the primary responsibility for establishing safety guidelines and for the setting and monitoring of standards through the position adopted for the duty of care its members. WAWA's Duty of Care statement is the central reference for its Health and Safety Guidelines. This is complemented by a set of guidelines for the use of the equipment found in most wood turning workshops.

HEALTH AND SAFETY POLICY

Duty of Care

WAWA's policy in relation to duty of care applies whenever or where ever WAWA members meet to transact WAWA business. This typically, but not exclusively, refers to WAWA workshops where members conduct hands-on activities, demonstrations, and other activities consistent with the practice of wood turning, but it also includes demonstrations and other activities in public forums sponsored by the Association.

The policy will ensure that:

- Association workshops are maintained in a safe condition
- Equipment used in an Association workshop is well maintained and used in a manner consistent with the manufacturer's instructions
- Association members are provided with adequate information to allow them to use tools and machinery in a safe manner at Association and other approved workplaces
- Association requirements and recommendations are contained within the Association's Health and Safety Policy Guidelines (this document), a copy of which is made available to all members.

- When persons are operating equipment where other people are present, Association members will ensure that they take adequate precautions to ensure that all parties are not put at any risk of injury.
- A minimum of two members are present when any equipment is being used in an Association workplace.
- Persons using Group tools and equipment are not affected by tiredness, drugs or alcohol.
- Group Members using Association workplaces and equipment are themselves aware of their own duty of care, to protect themselves and others from physical injury and to prevent other persons using Association equipment, if it is considered that the personal duty of care is being disregarded.
- Tools and equipment shall only be used by Association Members, and those persons wishing to operate powered machinery authorised to do so (see section Authorised Operators below).
- Powered machinery shall be turned off when not attended, by the authorised person operating the machine at the time.
- Tools and machinery are maintained in a safe condition at all times.
- Members and invited demonstrators using equipment in an *Association workplace* are authorised to do so in a manner prescribed in these Health and Safety Guidelines ('the Guidelines').
- Any person conducting a demonstration in an Association workplace must comply with the Health and Safety Guidelines.
- The safety policy will provide guidance for conducting group wood turning demonstrations to the public.
- All persons wear suitable footwear – clothing - safety wear – (eye-nose- ear protection).

NOTES

For the purpose of this policy, the following definitions will apply:

- *Workplace*: anyplace where power equipment is used for or associated with wood turning
- *Association workplace*: a workplace approved by a Group or by the Association's Committee of Management, and includes any building hired for the purpose of holding Association functions, or a public place for the time being approved by the Committee of Management for public demonstrations and/or exhibitions
- *Group*: an authorised Group of the Woodturners Association of Western Australia

- *Association:* the Woodturners Association of Western Australia (Inc.) and/or the Association's Committee of Management
- *Committee of Management:* the properly constituted Committee of Management of the Woodturners Association of Western Australia (Inc)
- *Association Member or Member:* current paid-up member of the Association
- *Guidelines:* the Association's Health and Safety Guidelines

Authorised Operators

All persons wishing to use powered machinery owned or managed by the Association must be authorised by a Member of the Group or by the Association's Committee of Management to do so. In general, authorised persons will be Members but, exceptionally, visitors from other woodturning associations or wood turners invited to provide demonstrations may be granted authority on a temporary basis.

Authority to operate machinery will be given to any Association Member upon request unless there is a valid reason not to do so. Reasons for refusal to grant authority may include the following:

- ❖ The person is known to practice unsafe working procedures.
- ❖ The person has had authority revoked previously.
- ❖ The person is not yet competent to operate the equipment
- ❖ The person has an impairment which may prevent safe operation.

The Group or Association Management Committee or a designated Safety Officer may revoke the authority to operate powered machinery at any time if it is felt that:

- ❖ The Member is not competent to operate machinery safely and is in immediate risk of injury or is putting others at risk.
- ❖ The Member is not adhering to group requirements and has previously had warnings regarding safe working procedures.
- ❖ The Member is, or appears to be affected by drugs or alcohol when operating powered machinery.

Upon being advised that the authority to operate powered machinery has been revoked the Member must immediately cease using powered machinery.

An entry will be made in the minutes of the next Group or Association Management Committee meeting to record that the authority was revoked and the matter was discussed at that meeting. The Member may appeal against the revocation and may put forward any reasons for believing that removal of the authority was unwarranted. The Committee will at its discretion:

- ❖ Ratify the removal of the Member's authority
- ❖ Provide reinstatement of the Member's authority - perhaps under defined conditions.

The Group or Association Management Committee will keep a separate record of these decisions.

Where a Group Management Committee has taken action to remove a Member's authority the Group's Committee will notify the Member and the Association of the decision, and the reasons for removal of the member's authority.

Where the Association has taken this action it will notify the member.

Safety Officer

It should be understood that all Members of a Group Committee, or the Association's Committee of Management, are authorised by the Group or Association to carry out Safety Officer duties to ensure that:

1. The premises are maintained in a safe condition.
2. Tools and machinery are maintained in a safe condition.
3. Tools and machinery that are deemed to be unsafe shall be clearly marked and removed from the workplace.
4. Persons using tools and machinery do not present a danger to themselves or others
5. Persons using powered machinery are authorised to do so.
6. Persons using tools and equipment are not affected by drugs or alcohol.

In addition to these provisions, the following should be noted:

1. The Group or Association Management Committees may from time to time nominate Safety Officers. Where the Group Management Committee appoints a Safety Officer, that appointment must be ratified by the Association's Committee of Management.
2. A Safety Officer may recommend the removal or reinstatement of a Member's authority to operate powered machinery to the management committee of the Group or to the Association's Committee of Management.

3. The Safety Officer may, at any time, request that a Member or Members modify their behavior when on Association occupied premises if he/she thinks that their conduct is providing a hazard to themselves or to other persons in the premises.
4. A Safety Officer may immediately revoke a Member's authority to operate powered equipment at any time if he/she considers the Member's conduct is placing Members' safety at risk.

Provision of Information

The Association will provide safety related information to Members as far as is reasonably possible.

The information provided will contain two parts:

- (1) a copy of the Association's policy on health and safety, and
- (2) a copy of the Association's recommended safe working procedures in relation to work environment and equipment.

These two components form the core of the Association' Health and Safety Guidelines.

Both sets of information will be issued to members on their joining the Association.

Copies will be kept at all Association workplaces, and will be available on the Association's website.

Both sets of information will be under constant review and will be modified or augmented as appropriate. Members will be advised of all changes and the relevant section of the Association's website will be updated.

Safety of Others

Public demonstrations of wood turning contain inherent risks. They must be conducted in such a manner that risks to both the demonstrator and observers are minimised.

Public demonstrations include

- (1) demonstrations to Association Members during meetings.
- (2) demonstrations at organised functions and other events where members of the public are invited to observe woodturning activities.

During these activities, operators of machinery must observe the following requirements:

- Appropriate personal protective equipment should be worn.
- All machinery must be provided with guard screens in front of the machine to prevent shavings, chippings, bark or the work piece being ejected from the machine and striking an observer.

- Work undertaken during a demonstration must be well within the capabilities of the operator.
- Machinery or sharp tools should not be left unattended at any time during a public demonstration.
- If it is necessary to leave an area unsupervised, all tools must be safely stored and the power supply to the machine removed.
- At no time during a public demonstration must a member of the public be invited behind the screen.
- If members of the public do move away from the protection of the screens, the machine must be stopped and a request made to move back in front of the screens. Only when all persons are adequately protected may the demonstration continue.

NOTE: After a demonstration, it is not unusual for members of the public/audience to approach the demonstrator to discuss aspects of the demonstration or to request a close up inspection of the equipment and/or tools.

During such times, the power supply to machines must be removed and the visitors closely supervised around sharp tools. Should the visitors wish to see an aspect of woodturning, they must be requested to move to the front of the guard screens before machinery can be operated.

SAFE WORKING PROCEDURES

The following safe working procedures are recommended to members when undertaking woodturning activities in either Association premises or doing public demonstrations.

All persons are required to exhibit a duty of care when engaged in any activity which may present a hazard to themselves or to other persons. The Group under its own duty of care obligations, will provide as far as possible, a safe working environment in premises which it occupies and safe working conditions for all tools, equipment and machinery. It is also the responsibility of the individual to ensure that adequate personal protective equipment is used and is maintained in good condition and that activities undertaken do not provide a risk of injury to themselves or to others.

Members should be aware that woodturning performed on a commercial basis is strictly regulated by government bodies and recommendations provided in this document are not intended to provide guidance for commercial operations in any way.

Workplace Safety

Most accidents are caused by carelessness or by not adhering to safety rules. If you are diligent and follow instructions with care, machinery operations can be safe and enjoyable. Safe work practices should become a force of habit. Study all safety recommendations and advice carefully and constantly apply them. When in doubt about any task, stop the task and get help.

Safety for the workplace

1. Keep floor areas level and in good repair.
2. Keep the workplace clean.
3. Check that floors, especially where operators stand, have not become slippery.
4. Off cuts should be placed in the scrap bin. Never allow them to remain on the bench or floor.
5. Shavings should be swept regularly.
6. Put waste into bins and empty them when full.
7. Inhaling fumes or dust can cause serious respiratory ailments. If dust extraction is fitted to the equipment ensure it is working. Remove all spalted wood and shavings immediately.
8. Keep chip and sawdust extraction systems working effectively.

9. When trailing cables are in use, make sure that they are not a trip hazard.

Personal Protective Equipment

1. Dress properly. Avoid wearing loose fitting clothing. Long sleeves should be buttoned at wrist or tight cuffs fitted. Rings and other jewellery should be removed.
2. Wear appropriate safety gear. Safety glass and noisy areas must be demarcated with mandatory signs, and the correct protection must be worn in these areas. Over glasses or rated face shields must be worn over non safety rated prescription spectacles.
3. Disposable plastic gloves (not to be worn when machinery is operating) will protect your hands when handling oils, solvents, varnishes, and stains. Read and understand *material safety data sheets* for chemicals being used. Material Safety Data sheets for chemicals kept on WAWA club sites should be available as required.
4. Always protect your eyes. Eyesight that has been damaged or destroyed cannot be replaced. It is good practice to have your own personal safety glasses. Take no chances; wear eye protection whenever you are in the workplace.
5. Exercise caution if wearing contact lenses where smoke, dust or chemical fumes exist
6. Foot protection, steel cap safety shoes or boots, should be worn where there is a chance of dropping heavy objects. Strong boots or shoes are the minimum standard in a workplace. Sandals, flip flops or any type of open toed shoe should not be worn in the area of machinery.
7. Wear a dust mask when dust is generated and not being removed by dust extraction.

Personal Behaviour

1. The workplace is a place to work, not play. It is not a place for "horse play". A "joker" in a workplace is a hazard to every one. Daydreaming and lack of concentration also increases your chances of injury
2. Always secure help when moving heavy machine's accessories or large pieces of stock. Back injuries are usually long term injuries.
3. Know your job. It is foolish, and often disastrous to operate machines without first receiving proper instructions. Get additional help if you are not sure what must be done or how a task should be performed.
4. Exercise extreme care when working with unfamiliar materials.

General machine safety

1. Avoid operating a machine until all guards are in place.

2. Stop your machine to make adjustments or measurements. Resist the urge to touch a working surface while the machine is still running as severe lacerations can result.
3. Disconnect electrical power when changing blades, cutters drill bits, etc., or anytime an injury could occur if the machine is accidentally turned on. Generally you should unplug the machine.
4. Keep the floor around the machine clear of waste materials.
5. It is not good practice to talk to anyone while you are operating a machine, as you might become distracted and injure yourself. Machine operators conducting a demonstration should exercise additional caution when providing explanations to the audience.
6. Do not distract an operator while he is concentrating as it may cause an injury.
7. Never attempt to remove waste material while the machine is running
8. Do not lean across a machine that is still running.

In case of fire.

Keep a fire extinguisher in a convenient location and know how to operate it. Know what to do in case of fire. Be familiar with the location of exits, and be aware of alternative escape routes.

Three steps to minimising risks in the workplace.

Remember the three simple steps to minimise injuries in the workplace.

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| Step one: | spot the hazard |
| Step two: | assess the risk |
| Step three: | make the changes quickly |

Step one: spot the hazard.

In looking for hazards in the workplace follow the basic strategy for spotting hazards;

1. Look for the hazards associated with the task. Ask yourself 'What if?'
2. Don't ignore anything that may seem even slightly dangerous. Whenever you do any task, ask your self, "is there a safer way?"
3. Could anything cause a cut, burn, scald, slip, trip, fall, electric shock, illness, poisoning, drowning, stress, or trauma?
4. Are you or others behaving in a way that could lead to an injury?

Step two: assess the risk.

Whenever you spot a hazard, stop and think. Ask yourself:

1. Can I get rid of the hazard? Or use something safer?
2. Can I make it safe by repairing, modifying or isolating it?
3. Can I make sure other people are aware of the problem, and are given clear rules on how to avoid being hurt?
4. Can I direct visitors to ensure there is no risk of injury?
5. Can I store tools more safely?
6. Can I ensure visitors are not too close when power tools are being used?

Step three make the changes quickly

1. Once you have spotted the hazard and decided the best way to deal with it, don't delay.
2. Make the changes as soon as possible before someone does get hurt.
3. If you cannot fix the hazard, stop work and get help.

Strategies for increasing safety

- ❖ Power tools should be checked and tagged by a licensed electrician for electrical safety regularly (at least once a year).
- ❖ Rubber non-slip matting beside your workbench will provide some safeguard against electric shock as well as being more comfortable to stand on
- ❖ Electric leads, plugs and sockets should be kept in good condition and in good repair - throw away those with cuts or frays.
- ❖ Have sufficient power points for your tools so you don't need to 'piggyback' with double adapters.
- ❖ Never operate machinery without the proper guarding in place.
- ❖ Keep flammable fluids, steel wool and contaminated rags away from grinders and naked flames.
- ❖ Be careful when disposing of contaminated rags; they can be a fire hazard.
- ❖ Ensure good overhead lighting for all tasks.
- ❖ Keep walkways and floors clear to avoid trip or fire hazards. Ensure good ventilation
- ❖ Store hazardous substances, fuels, tools and equipment away from the working area.
- ❖ Keep young children or animals out of the workplace.
- ❖ Keep the workplace locked up when not in attendance.

Lathe Safety

1. Dress properly. Avoid wearing loose fitting clothing. Long sleeves should be buttoned at wrist or tight cuffs fitted. Rings and other jewellery should be removed. Wear an apron or a properly fitted shop/dust coat. Safety glasses or face shields are a must.
2. Stay alert, concentrate, watch what you are doing. Use safe practices. Don't operate tool when you are tired, or under the influence of drugs or alcohol.
3. If you have to use brute force to make the wood do what you want it to do, your methods and your tools are wrong. If you grasp the tools with an iron grip, you will quickly fatigue yourself. In the long run it's also dangerous.
4. Avoid talking to anyone while running a lathe. Demonstrators should exercise extra caution when speaking to the audience. Do not permit anyone to fool around the machine while you are operating it. You are the only one who should turn the machine on or off, or make adjustments to the machine.
5. Don't over reach, keep a proper footing and balance at all times.
6. Avoid prolonged lower back strain; take a rest when you feel tension growing in your back muscles. Adjust machine height so suit your posture.
7. Take note that experienced turners are capable of techniques and procedures which can be dangerous for inexperienced turners.
8. Protect your skin from toxic materials and possible allergies to some woods.
9. No attempt should be made to operate a lathe until you know the proper procedures.
10. Be sure all guards are in place before attempting to operate a machine.
11. Use stock free of defects if possible, exercise caution when using stock with cracks, splits, checks, bark, knots, irregular shapes or protuberances.
12. Ensure that glued materials are set before running them in the lathe.
13. It is recommended that you rough out your work piece before mounting it on the lathe to minimize unbalanced operation.
14. When installing and removing chucks, face plates, and centres, always be sure all mating surfaces are clean and free from burrs. Do not use power when installing or removing chucks or face plates on threaded spindle noses.
15. If you need to extend the jaws of the chuck beyond the body of the chuck exercise additional caution as this will provide sharp areas in the work area increasing the risk of injury especially to hands. Be aware that extending the jaws past the manufacturer's limits may damage the jaws or allow them to come off the holding scroll.
16. Always remove the chuck key from the chuck. Make a habit of never letting go of the key until it is out of the chuck and clear of the work area.
17. Secure all work solidly. Use the correct size tool and work device for the job. Get help when handling large sections of stock.

18. When using a face plate ensure the work piece is securely mounted. When turning between centres, be certain the work piece is secure, use tailstock live centre for support. When turning face plate work, take care to avoid hitting the screws.
19. Always check the speed setting before starting the lathe.
20. Select a speed that is appropriate for the job. Operate the lathe at slow 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, the diameter of stock, nature of work being done, the type of tool being used and balance of the work piece.
21. Adjust tool rests so that they are parallel and as close as possible to the stock; they should also be set at the correct height. Only adjust the tool rest when the lathe is turned off and has stopped moving.
22. Ensure tool handles are securely fitted.
23. Do not permit small diameter work to project too far from chuck without support from tail stock.
24. Turn the work by hand to be sure there is no binding or danger of the work striking any part of the lathe before turning the lathe on.
25. Keep tools sharp and clean for better and safer performance. Don't force a dull tool. Don't use a tool for a purpose not intended.
26. It is also dangerous practice to stop a lathe by reversing the direction of rotation. The chuck could spin off and cause serious injury to you. There is also danger of damaging the machine.
27. When running a lathe in reverse, it is possible for a chuck or face plate to unscrew unless it is securely tightened on the lathe spindle or a locking screw is fitted.
28. Check work frequently when it is being turned between centres. And adjust tail stock as necessary.
29. Be careful not to run the cutting tool into the chuck.
30. The work piece should be reasonably balanced and the lathe running at lowest speed until balanced and vibration free.
31. Stop the machine immediately if some unusual noise or vibration develops during operation. Under no condition should the machine be operated until the trouble has been corrected.
32. Stop the machine before attempting to wipe down a machine surface.
33. Keep lathe in good repair. Check for damaged parts, alignment, binding of moving parts, and other conditions that may affect operation.
34. Keep the machine clear of tools.
35. Stop the machine before making measurements and adjustments.
36. Stop the lathe to remove build up of shavings.
37. Use care when cleaning the lathe, chips can stick in recesses; remove them with a brush or short stick.
38. Tools must not be placed on the lathe bed.

39. Beware of sharp edges on a work piece before removing it from the lathe.
 40. Remove the tool rest when sanding or polishing.
 41. Hold the abrasive in your fingers and press lightly against a small area at the bottom front quadrant of the rotating piece when hand sanding; this method will keep the sand paper from catching and pulling your hand around the stock.
 42. Use a paper towel to apply sanding sealer or polish. DO NOT use cloth!
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Bench Grinder Safety

Bench grinders are one of the most commonly used tools in the workplace. **Generally they are safe** and reliable if care is taken with the grinding wheels. Bench grinder wheels can shatter into dangerous projectiles through lack of regular inspection and maintenance or improper use.

Follow these safety guidelines when working with grinders;

1. Ensure that no combustible or inflammable materials are nearby that could be ignited by sparks from the grinder wheel.
2. Ensure that a guard covers at least 270 degrees of the grinding wheel on the bench mounted machines. Grinders with CBN wheels are often run without guards because the risk of wheel shatter is eliminated; however it is good practise to fit guarding to minimise the risk of body contact.
3. Eye and ear protection should be worn on all grinding jobs, including dressing wheels.
4. Place the grinder tool rest approximately 1 - 3mm from the wheel and slightly above the centre line. Rotate by hand to ensure the wheel moves freely past the tool rest.
5. Standing to one side of the wheel, allow the grinder to reach full speed before stepping into the grinding position. Faulty wheels usually break at the start of an operation.
6. Unless otherwise designed, grind on the face of the wheel. Never on the side.
7. Use vice-grips or a clamp to hold small pieces.
8. Slowly move work piece across the face of wheel in a uniform manner. This will keep the wheel sound and level.
9. Periodically check grinder wheels for soundness. Suspend wheel on a string and tap it with a small tool. If the wheel rings it is probably suitable for use.
10. Never remove guards from a bench grinder, they offer protection in the event of wheel failure, and protect hands and fingers from injury.
11. The work rest on a bench grinder should be securely fixed and close enough to the grinding wheel to prevent the job slipping between rest and wheel. It should be adjusted as the stone becomes smaller through wear and dressing.
12. Abrasive wheels should be discarded;

- i. When the wheel diameter approaches that of the driving flanges,
 - ii. When the work rest can no longer be correctly adjusted to the wheel diameter.
 - iii. When the wheel no longer cuts efficiently because of reduced peripheral speed.
 - iv. When the wheel is obviously defective eg. badly worn or cracked.
 - v. Wheels should never run in excess of the maximum speed recommended by the manufacturer.
13. Keep the wheel sharp. Unless the wheel is dressed when the pores become blocked or it loses its cutting surface, the operator will have to press harder to achieve the same effect, exerting forces that may cause the wheel to shatter.
 14. Pressing hard on a dulled wheel surface can produce excessive heat which will cause the bonding material to glaze.
 15. Avoid using grinding wheels designed for steel, on materials that will clog the pores between the abrasive particles - for example aluminum plastic or wood.
 16. Do not grind non ferrous materials.
 17. Never use a wheel that has been dropped or received a heavy blow, even if there is no apparent damage.
 18. Always check that a grinding wheels RPM rating is consistent with the speed of the grinding machine.
 19. Before mounting a grinding wheel on a machine, make sure the power is turned off at the power point and the plug removed.
 20. Occasionally a new wheel is cracked or flawed, and is likely to shatter as soon as used. New wheels should always be visually checked and given a resonance test before being fixed to the spindle. Tap the side of the wheel with a small tool; it should have a clear ring sound. A dull noise indicates a flaw.
 21. Ensure the hole in the grinding wheel fits closely on the spindle.
 22. When a wheel has been newly fitted between appropriate washers and flanges check the balance before switching on the power to use the machine.
 23. Unless flanges and washers are evenly seated on either side of the wheel before the locking nut is tightened, the wheel can crack and shatter. Always ensure that the wheel has a soft washer or "blotter" on either side to distribute clamping pressure when the nut is tightened.
 24. Avoid over tightening the locknut, as this can exert hazardous forces on the wheel.
 25. Before using a new wheel let it run for a few seconds at full speed to make sure it is not likely to shatter, then dress to balance.
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Band Saw Safety

1. Only persons experienced in the safe operation of a band saw should use the saw.

2. The operator must wear safety glasses or a face shield; hearing protection may be required depending on the noise rating.
3. If the material being cut chips easily, a full face shield should be worn.
4. Be aware of the location of the “off” switch.
5. Ensure that the table is clear of materials, tools and debris.
6. All portions of the saw blade must be enclosed or guarded except the portion between the bottom of the guide rolls and the table.
7. The blade guard should be kept adjusted as close as possible to the table without interfering with the movement of stock.
8. The down travel guard from the upper wheel to the guide rolls shall be adjusted so that the blade will travel within the angle or channel. This guard should be lowered to the face of the table when the saw is not being used.
10. The wheels of the band saw (upper and lower) must be fully enclosed.
11. Ensure that the blade tension is correct for the blade and material.
12. Band saws are not to be run at speeds in excess of the manufacturers recommended speed.
13. When changing the blade or servicing the saw, the power switch must be locked in the “off” position. For saws with a cord and plug, the saw must be unplugged. The saw must be tested after disconnecting the power and before beginning service work.
14. Do not attempt to force material into the blade, allow the blade to work at its own cutting speed.
15. Ensure that the work piece is securely held and is not allowed to rotate and jam the blade or rotate the operator’s fingers into the blade path.
16. Ensure both hands are on either side of the blade guard, clear of any part of the blade.
17. Do not cut material that is of a size unsuitable for the saw, use another saw to reduce its size first.
18. Plan sawing procedures to minimize backing out of the saw kerf.
19. Check materials to be cut for the presence of foreign matter, such as grit, nails, or screws.
20. Ensure that the blade size is appropriate to the size of the work being cut.
21. Use a ‘push stick’ on very small stock.
22. Avoid twisting or binding the blade when cutting curves. Use a jig where appropriate.

23. Should a pinch occur, stop the machine and inspect the blade for damage, do not attempt to back the work away from the blade as this may pull the blade off the wheels.
24. Never leave the vicinity of the machine while it is running.

Some causes of blade breakage in band saws are:

1. Shock loading, caused by:
 - ◆ Starting the saw with the teeth in contact with the wood being cut.
 - ◆ Jamming the blade in a cut.
 - ◆ Stopping the machine while the machine is under load.
 - ◆ Erratic feed rate.
 - ◆ Attempting to cut a curve whose radius is too small for the blade width or too small for the set of the teeth on the blade.
 2. Incorrect blade tension.
 - ◆ Tension too tight or too loose.
 - ◆ Failure to release tension on completion of job. A blade tensioned while warm may break or crack when contracting overnight if tension has not been released.
 3. Damage to teeth and blade.
 - ◆ Broken teeth which result in shock loading on subsequent teeth.
 - ◆ Joints not properly aligned or not soundly brazed.
 - ◆ Backing the blade out of the kerf which may cause the blade to pull off the wheel into contact with metal parts.
 - ◆ Guides and guards incorrectly set allowing too much blade movement.
 - ◆ Excessive wear in guides allowing the blade to twist.
 - ◆ Wheels out of alignment causing the blade to run off.
 - ◆ Wheel bands damaged causing the blade to run and grab.
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Drilling Machine Safety.

1. Wear safety glasses at all times.
2. Prepare the work piece for drilling.
3. Determine the safest way to hold the job, small articles may be held in a hand vice, provided a small diameter drill is to be used. Larger articles or articles to have a large diameter hole drilled must be held in a machine vice or clamped down.
4. When using a machine vice, securely clamp it to the table. Bolts should have square or T-heads to suit the table slots, the vice must be in good condition.

5. When using clamps ensure that they are suitable for the job.
 6. Ensure the clamping arrangements are adequate and do not cause obstructions.
 7. Set up the article so that once the drill has passed through into a sacrificial piece of wood or through the hole in the table.
 8. Check the drill bit for sharpness.
 9. Fit the drill bit into the chuck, ensure that it runs parallel, tighten with chuck key, and ensure chuck key is removed before starting the machine.
 10. Adjust the table to the correct height and position and lock securely.
 11. Select the correct speed to suit the diameter of the drill bit and the material being drilled. Remove electric plug or isolate machine before changing position of vee belts, ensure fingers are not trapped between belt and pulley.
 12. Ensure all guards are refitted.
 13. Ensure the work area is clear of all obstructions and the chuck key has been removed.
 14. Keep hands clear of the drill bit and swarf.
 15. Do not force the drill bit, allow it to work at an even rate.
 16. Back out the drill bit and allow dust to escape hole and do not allow drill to over heat.
 17. Remove metal swarf only after the drill bit has stopped, use a brush or pliers to break swarf caught in drill bit flutes, never handle swarf with your bare hands.
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Electrical Safety

General electrical safety

The danger of injury through electrical shock is possible whenever electrical power is present. When a person's body completes a circuit and connects a power source with the ground, an electrical burn or shock injury will result. The standard 240 volt mains supply is potentially fatal.

Electrical earthing

Proper electrical earthing can help prevent electrical injury. Most electrical equipment is grounded with the earth connection in a three pin plug. Some equipment is double insulated and does not need an earth. Be aware that an earthing system may be defective without your knowledge. Outlet testers are available cheaply which test for correct

active/neutral connection and a connected earth. **Do not carry out repairs. yourself.**
Obtain the services of a qualified electrician.

Electrical safety guidelines

Follow these guidelines for general electrical safety:

If in doubt obtain the services of a qualified electrician.

1. All electrical equipment used on WAWA sites or on WAWA sponsored activities must be inspected and tagged annually by a qualified electrician.
2. Be familiar with the electrical hazards associated with your workplace.
3. Unplug electrical equipment before inspecting, repairing or servicing it.
4. If a prong breaks off inside an outlet, do not attempt to remove it yourself.
5. Ensure that outlets are firmly mounted.
6. Attend to all electrical problems, including tripped breakers, broken switches, and flickering lights.
7. Do not use an appliance that sparks, smokes, or becomes excessively hot, unless the appliance is specifically designed to exhibit these characteristics.
8. Keep electrical equipment away from water unless the appliance is specifically designed for use around water.
9. Use safety switches (residual current devices) when ever possible and test them regularly.
10. Safety switches will prevent the majority of electrocutions where electrical current has been earthed through the human body, but even with the use of safety switches, electrocution can still occur if contact is made between active and neutral wires. Even if electrocution does not occur, the shock received before the safety switch cut off operates may be severe enough to cause injury - for example, from the power tool coming into contact with the body, or in a fall.
11. Do not be led into a false sense of security by relying too much on a safety switch. Still observe normal electrical safety.
12. Do not remove the prongs of an electrical plug. If plug prongs are missing, loose, or bent, have the entire plug replaced.
13. Do not use an adapter or extension cord to defeat a standard earthing device. (e.g. Do not use 2 core extension leads, sometimes supplied with double insulated garden equipment as a general purpose extension lead.
14. Use extension cords only when necessary and only on a temporary basis. Do not use extension cords in place of permanent wiring.

15. Use extension cords that are the correct size and rating for the equipment in use. Extension cords should be rated at 10 amps or more.
15. Do not run electrical extension cords above ceiling tiles or through walls.
16. Do not use extension cords coiled; roll them out to allow heat to disperse
17. Keep electrical cords away from areas where they may be damaged and areas where they may pose a tripping or fire hazard (e.g. Doorways, walkways, under carpets, etc).
18. Avoid plugging more than one appliance in each outlet, if multiple appliances are necessary, use a power switch board with a surge protector and circuit breaker. Do not overload the circuit breaker.
19. Discard damaged cords, cords that become hot, or cords with exposed wiring, remove male-female plugs before discarding.
20. Never unplug an appliance by pulling on the cord; pull on the plug.
21. Avoid using extension cords outside especially when it is raining and do not allow electric tools to get wet.

Chainsaw Safety

A chainsaw in untrained hands is a lethal weapon. Most injuries are deep gashes to the hands, knees, feet and head. In logging operations, chainsaw injuries are as common to the head, shoulders and upper arms as to the hands, legs and feet.

The major injury risk is from kick-back, the violent reaction triggered when the upper quadrant of the chain bar tip meets resistance. Even modern safety features, such as the chain brake and inertia brake, cannot be guaranteed to prevent kickback injury, which can happen faster than human reflexes. The safest way is to avoid kickback situations.

More than 50 people are injured by chainsaws at work in WA each year.

The first line of defence against injury is instruction and training, under the supervision of a trained and experienced person.

Authorised operators

All persons using a chainsaw on a WAWA site or in a WAWA-sponsored activity must have recognised formal training in its use to the equivalent of Australian Qualification Framework Unit of Competency HCMOM213 Operate and Maintain Chainsaws and FWPCOT2239 Trim and Cut Felled Trees.

SAFETY CHECKLISTS

Safety Checklist (1) – the Wood Lathe

Pre-Operational Safety Checks

- ❖ Check the piece of timber to ensure that it is free of knots, nails, cracks all all all and other defects.
- ❖ Fit centres, having cleaned both male and female tapers.
- ❖ Locate and mark centres on the timber, mount the timber onto the lathe, and securely lock the tailstock.
- ❖ Check for end play (left and right movement) by rotating stock.
- ❖ Set the tool rest as close as required, without actually touching any part of the wood to be turned.
- ❖ After centring the rough stock on the lathe, turn it a few times by hand to ensure that all parts clear the tool rest.
- ❖ Prepare and place the required tools and equipment on a bench nearby not on the bed of the lathe.
- ❖ Always use sharp tools – – dull tools are dangerous!
- ❖ Check the speed of the lathe – always start with a lower speed until the timber is nearly round, then select the speed to suit the diameter of the workpiece.

Operational Safety Checks

- ❖ Apply safety glasses, adjust clothing, and develop a balanced state.
- ❖ Keep the tool rest in the locked position.
- ❖ Adjust the tool rest only when the lathe has stopped turning.
- ❖ When sanding, remove the tool rest to avoid the possibility of jamming fingers.
- ❖ Always switch off the power before leaving the machine or making adjustments.
- ❖ Leave the lathe in a safe and tidy state with the speed turned right down.

Comments

- ❖ Stand to one side when turning the machine on
- ❖ Lathes with electronic speed controls which bring the spindle to a stop, need to be switched off at the stop button before handling the work piece or chuck/faceplate.

Safety Checklist (2) – the Band Saw

Pre-Operational Safety Checks

- ❖ Check that all blade guides are functioning correctly and that the blade tension is correct.
- ❖ Check that all doors/covers are securely closed and locked.
- ❖ Ensure that the blade guard is attached and adjusted correctly.
- ❖ Ensure that the emergency stop button is functioning correctly.
- ❖ Ensure that the saw table is clear and clean.
- ❖ Ensure that you have an experienced 'offsider' supervising your cutting.

Operational Safety Checks

- ❖ Apply safety glasses, adjust loose clothing.
- ❖ Adjust the blade guides in accordance with the height of the material to be cut.
- ❖ Switch on the machine.
- ❖ Cut the material using a push stick correctly, keeping fingers at least 50 mm from the moving blade.
- ❖ Switch off the machine.
- ❖ Remove the cut material and debris only when the blade has completely ceased movement.
- ❖ Leave the machine in a safe and tidy state

Comments

- ❖ The 'offsider' is for your own safety as well as for those around you.
- ❖ **Never attempt to cut a round piece of material** without some form of support.

Safety Checklist (3) – the Pedestal Drilling Machine

Pre-Operational Safety Checks

- ❖ Check the material for nails or other defects.
- ❖ Check the speed settings and adjust if required.
- ❖ Inspect all equipment before use.
- ❖ Ensure all guards and shields are in position.
- ❖ Locate and ensure your familiarity with the ON/OFF switch.
- ❖ Select and fit the drill bit required for the task; **remove the chuck key.**
- ❖ Correctly clamp material to the base and ensure that it is secure.

Operational Safety Checks

- ❖ Apply safety glasses, adjust clothing, remove jewelry and start the machine.
- ❖ Operate the machine in a safe manner by moving the drill up and down to ensure effective removal of debris.
- ❖ Turn off the machine before removing material from the clamp.
- ❖ Remove work from the machine.
- ❖ Remove the drill bit and chuck key and leave the machine in a safe and tidy state

Comments

- ❖ Never leave the chuck key in the chuck.

Safety Checklist (4) – the Bench Grinder

Pre-Operational Safety Checks

- ❖ Check workspace and walkways to ensure no slip/trip hazards are present.
- ❖ Ensure that all guards and safety shields are in position.
- ❖ Check that wheels are running true and are not glazed or loaded. Seek help if the wheel requires attention.
- ❖ Ensure that wheels do not touch the work rest and that a gap between the wheel and rest is not greater than 1.5 mm. Adjust the angle of the tool rest for the job in hand.
- ❖ Locate and ensure your familiarity with the ON/OFF switch.

Operational Safety Checks

- ❖ Apply safety glasses, adjust clothing.
- ❖ Start the machine when standing to the side of the machine.
- ❖ Let the wheels gain maximum speed before starting to grind.
- ❖ Grind only on the face of the wheel. **Never grind on the edge of the wheel, unless the wheel is designed for this purpose!**
- ❖ Slowly move the workpiece across the face of the wheel in a uniform manner.
- ❖ Switch off the machine, and leave it in a safe and tidy state.

Comments

- ❖ Do not leave the machine until the wheel has stopped.

Safety Checklist (5) – the Sanding Machine

Pre-Operational Safety Checks

- ❖ Check the workspace and walkways to ensure that no slip/trip hazards are present.
- ❖ Ensure that the guard and belt tension (if appropriate) is secure and that the belt runs true.
- ❖ Check the piece of timber to ensure that it is free of nails or other metal pieces.
- ❖ Locate and ensure your familiarity with the ON/OFF SWITCH.

Operational Safety Checks

- ❖ Apply safety glasses, and adjust clothing.
- ❖ Clean the belt or disc with the cleaning stick if required.
- ❖ Keep the piece firmly against the stop guard and move work evenly across the moving sanding belt.
- ❖ Hold the workpiece firmly on the sanding belt, keeping fingers away from the belt.
- ❖ Switch off the machine and leave it in a safe, clean, and tidy state.

Comments

Safety Checklist (6) – the Chainsaw

Pre-Operational Safety Checks

- ❖ Check the chainsaw thoroughly before every use.
- ❖ Make sure the bar, chain and sprocket are in top condition.
- ❖ Check that bar oil is flowing and the chain brake is working.
- ❖ Sharpen the chainsaw and top up with bar oil each time the chainsaw is stopped to re-fill with fuel.
- ❖ Wear suitable protective clothing.
- ❖ Never use the saw to cut anything above shoulder height (between knee and waist-high is safest.)
- ❖ Never operate the saw beyond your ability.
- ❖ Carry a chainsaw with the motor off and the saw blade pointing to the rear.
- ❖ Always have a properly equipped first aid box present.

Operational Safety Checks

- ❖ Keep other people and animals away from the working area.
- ❖ Make sure there is a second person within calling distance.
- ❖ Use the saw to cut only wood.
- ❖ If tired, stop the saw and rest a little.
- ❖ Avoid using a chainsaw in wet or windy conditions or in poor light.
- ❖ Wait a few minutes for the motor to cool before refuelling.

Comments

APPENDICES

Accident report form

Dust in the workshop

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