

Section 11

Tool Safety

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Screwdrivers



- Keep tips clean and square-edged
- Reshape minor wear with a file
- The tip should fit snugly in the screw
- Dispose of any screwdriver with a broken or loose handle, bent blade or twisted tip
- Use ONLY insulated screwdrivers for electrical work
- Check insulation for cracks
- Always make a pilot hole for a screw.
- Carry screwdrivers in a toolbelt, not a pocket
- Never use as a punch, wedge, pinch or pry bar

Vises

- Fasten securely to a sturdy, immobile workbench or similar base
- When sawing material held in a vise, make the cut as close to the jaws as possible
- Support the free end of long pieces

Clamp



- Do not over tighten a clamp
- If there is a swivel it must turn freely
- Store clamps on a rack, not in a drawer

Impact Tools



Hammers

- Fit handles securely to the head
- Ensure handles are smooth, free of oil, and shaped to fit the hand
- Dress hammer heads whenever they start to mushroom
- Wear safety glasses when using a hammer
- Never hit two hammer heads together
- Do not use a claw hammer to strike another tool; use a ball peen hammer
- Do not use a sledge hammer with a split handle or chipped head
- While using axes, spades, etc. wear safety shoes and clothing

Side Cutting Pliers

- Use insulated pliers for electrical work
- Jaw serrations should be sharp enough to hold wires securely

Extension Cords

- Use only three-prong, grounding-type plugs and three pole receptacles that accept the tool's plug
- Do not use an undersized cord, it will overheat and can cause damage to the tool motor
- Consider the type of tool used and the length of extension needed.
- If you are unsure about the gauge of wire to use, contact your supervisor or EHS staff for assistance
- Use only UL approved extension cords
- Inspect and document all extension cords in accordance with WAC 296-45



Hand Tool Safety



For additional information contact:

Environmental Health and Safety

650-3064

Safety Building, Room 111

01-2003

Tool Use

The safest tool is the one made for the job, and used as designed

Tools are only to be used in ways intended by the manufacturer

Creative use or mis-use of tools often leads to injury or damaged tools. For example:

An adjustable wrench can tighten a nut, but it would be better to use a box-end wrench or a socket wrench of the proper size

Ergonomically designed tools provide the best fit

Employees are Responsible for:

- Selecting the proper tool for the job
- Checking to ensure the tool is in good working condition
- Using tools correctly
- Using specified personal protective equipment
- Cleaning and storing the tool properly

Supervisors are Responsible for:

- Orienting employees to their job and tools
- Providing adequate training for the use of any tools used by an employee
- Ensuring that the correct tool is available and used
- Ensuring the appropriate personal protective equipment is specified and available

Safe Work Practices

Cutting Tools

- When using cutting tools, the direction of force should be away from the body
- Use the tool as it is designed
- All cutting tools must have a handle or holding device
- Personal protective equipment such as safety glasses and hearing protection may be required for power cutting tools
- *Refer to the Hazard Assessment Certification in Section 5 of the WWU Safety Information Book*
- For hacksaws, correctly place blades in the frame and select the proper blade for the cutting job
- Adjust the tension of the blade and make sure the teeth are pointing forward

- Use guide blocks to guide material across the cutting surface
- Use cut-resistant gloves and safety glasses (see the hazard assessment certification in Section 5 of the Safety Information Book)
- Replace guards when they are damaged
- Use retractable-blade utility knives
- Open blade knives must have sheaves provided

Torsion Tools -Wrenches

- Use a short, steady pull and never push
- Check for secure footing and have plenty of finger clearance
- Never hammer or strike a wrench
- Do not use extensions on handles for additional leverage

Socket Wrenches

- Use in place of an adjustable wrench or open-ended wrench, as they are safer and protect the bolt head or nut

Adjustable Wrenches

- Use mainly for nuts and bolts that do not fit a standard wrench

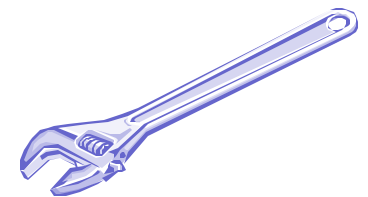
- Always apply pressure to the fixed-jaw side of the wrench and pull the wrench toward you

Pipe Wrenches

- Use only straight and chain-tong wrenches with sharp jaws
- Keep straight and chain-tong wrenches clean to prevent slipping
- Do not use a pipe wrench on nuts or bolts
- Do not hammer a pipe wrench unless it is specifically designed for such use

Torque Wrenches

- Have a documented annual calibration test performed or ask your supervisor to arrange
- Keep nut and bolt threads clean
- Never exceed the scale range to prevent damage



LADDER TYPES

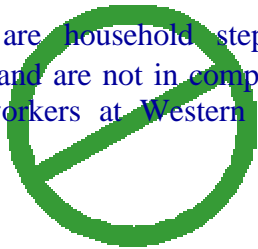
Whenever you use a ladder, make sure you select the right one for the job. Consider the height and weight restrictions before using it.

Type IA are for extra heavy duty industrial use.

Type I are industrial stepladders for heavy duty, such as utilities, contractors and industrial use.

Type II are commercial stepladders for medium duty, such as painters, offices and light industrial use.

Type III are household stepladders for light duty, and are not in compliance when used by workers at Western Washington University.



INSPECT LADDERS BEFORE EACH USE:

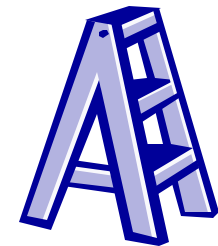
- ▶ Rungs must be intact and free from grease or oil.
- ▶ Make sure there are no splinters.
- ▶ On extension ladders, make sure the rope is not torn or frayed.
- ▶ On stepladders, make sure the hinge spreader is working properly.
- ▶ The ladder's feet should have nonstick pads that are free to adjust flat.
- ▶ Support braces, bolts, and/or screws should be tight and in place.
- ▶ Make sure the ladder is not dented or bent.
- ▶ Make sure the ladder locking device is positioned properly.
- ▶ Only use a ladder for its designed use.

WORK OVER 25 FEET

- ▶ Any ladder over 25 feet tall must be secured at both the top and bottom of the ladder.
- ▶ No type of work shall be performed on a ladder over 25 feet from the ground that requires use of both hands, unless a safety harness is worn and secured to the ladder.
- ▶ Any work requiring eye protection or respirators shall not be performed from a ladder more than 25 feet from the ground.

LADDER POSITIONING

- ▶ When positioning a straight or extension ladder, the distance from the bottom of the ladder to the wall (measured along the ground or floor) is 1/4 the distance from the bottom of the ladder to wherever the ladder is resting against the wall.
- ▶ Place your toes against the feet of the ladder, facing the ladder, and place your hands on the rung directly in front of you and the ladder will be at the proper angle.
- ▶ The ladder should be placed on an even surface that enables firm footing.
- ▶ Tilt the ladder at the proper angle.
- ▶ Step ladders should be positioned on a level surface with the locking device fully extended.
- ▶ Step ladders should not be used as a single ladder.



LADDER SAFETY GUIDELINES

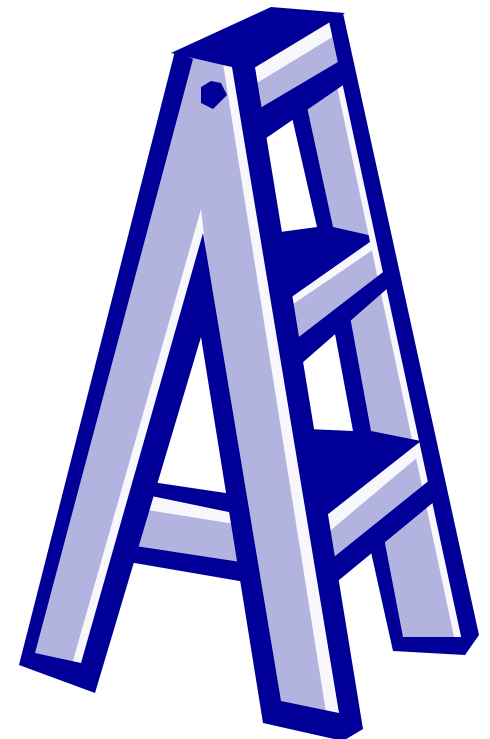
- ▶ Never climb higher than the fourth rung from the top of straight ladders and the second tread from the top of step ladders.
- ▶ Watch out for contact with electricity.
- ▶ Do not use a ladder for unintended purposes, such as in place of scaffold.
- ▶ Avoid excessive stretching or leaning.
- ▶ Use fiberglass or metal ladders with clean, rubber feet in good repair, when changing light bulbs.
- ▶ Tag & remove defective ladders. Notify your supervisor or EHS.
- ▶ Do not carry tools or materials when climbing a ladder, instead, use a toolbelt or handline.
- ▶ Make sure the soles of your shoes are clean and in good condition.
- ▶ Do not rest a ladder on any rung. Only the side rails are designed for this purpose.
- ▶ Use both hands and face the ladder when climbing or descending.

LADDER SAFETY GUIDELINES (CONTINUED)

- ▶ Make sure the top of the ladder rests against a solid surface, 3 feet above the landing, that can withstand the load.
- ▶ Guard or fence off the area around a ladder erected in an area where persons have access.
- ▶ Do not erect a ladder in a doorway unless it is blocked, locked and a standby is in place.
- ▶ Do not paint or coat any ladder with anything other than a clear wood preservative.
- ▶ Allow only one person on the ladder and avoid using a ladder in windy, rainy, or other inclement weather conditions.
- ▶ Put ladders away in their proper storage area when done. Avoid leaving them unattended in hallways or classrooms .

Contact:
Environmental Health and Safety,
x3064, Safety Building 111 for
additional information.
8/04

Ladder safety



Abrasive wheels, buffers, and scratch brushes

- Guard abrasive tools as completely as possible.
- When grinding, the maximum angular exposure of the periphery and sides should not exceed 180 degrees.
- Always enclose the top portion of the wheel when grinding
- Use adjustable guards to make the correct adjustment instead of removing the guard
- Always wear eye protection
- Keep an abrasive wheel away from water and oil, which might affect its balance
- Protect the wheel from blows by other tools, and avoid striking the sides of a wheel against other objects or dropping the wheel
- Hold and use the wheel correctly so that it does not touch the clothes or body
- Only trained employees should install wheels

- Guards for wheels must not be removed
- Wheels should be sound-tested (ring-tested) before being mounted
- Discard defective wheels immediately
- Ensure that maximum machine rotation (RPM) does not exceed the rating of the wheel

Air powered Tools

- Keep hands and clothing away from the working end
- Follow safety requirements applicable to the tool being used and the nature of the work
- Inspect and test the tool, air hose, and coupling before each use
- Use a short chain or hose safety pins to secure all air line couplings
- Never exceed the manufacturer's listed air pressure
- Use pin guards to prevent the pin from being thrown off during operation

Pneumatic Tools

- Handling heavy jackhammers causes fatigue and strain. Cover jackhammer handles with heavy rubber grips to reduce vibration and fatigue.
- Wear appropriate personal protective equipment, including shoe guards
- When two jackhammers are in use, work back-to-back to prevent injury from chips

Always use three safety devices:

1. An automatically closing valve that is actuated by a trigger inside the handle
2. A retaining spring, or ring that holds the tool in place and prevents it from being fired from the barrel
3. A rubber-retaining ring that prevents the pin holding the tool in place from being released during operation

For additional information contact:
Environmental Health and Safety
650-3064,
Safety Building, Room 111 , Mail Stop 9070

Portable Power Tool Safety



Portable Power Tools

A portable power tool presents hazards similar to a stationary machine of the same kind. The mobility of power-driven tools means they can easily come in contact with the operator's body

- Before making adjustments to power tools, such as changing a bit or blade, make sure the power is off or the unit is unplugged
- Avoid loose clothing, jewelry, ties, or any dangling objects
- Tie back long hair that may catch in rotating parts or accessories
- If it has an electrical cord, constantly stay away from the cord's location
- Ensure removable parts are in good condition and securely attached to the power tool before use
- Unplug tools left unattended

Electric Tools

Electric shock is the chief hazard from electrically powered tools

- Do not use electric tools in damp or wet locations, or in metal tanks
- Use only electric tools that are in good repair

- Use only double-insulated electric tools
- Use a Ground Fault Circuit Interrupter (GFCI) if a double-insulated tool is not available
- Use GFCIs in wet environments, confined spaces, and some construction activities

Circular Saws

- Use guards as the manufacturer intended
- Check the guard frequently to be sure that it:
 - Operates freely
 - Encloses the teeth completely when cutting.
 - Encloses the unused portion of the blade when it is cutting
- Inspect masonry cracks after every use
- Do not use a circular saw that is too heavy for a worker to easily control
- Be sure the switch turns the tool on and returns to the off position after release
- Use sharp blades
- Use the correct blade for the application, and observe rotation marks on the blade during installation
- Make sure the blade has the proper size and shape arbor hole

- Check for the speed marked on the blade and that it matches the no-load speed on the saw nameplate
- Secure work with a clamp
- Use both hands for maximum control

Belt or Disc Sanders

- Do not expose sander to liquids
- Do not use in damp or wet areas
- When adjusting the tracking of the belt on a portable unit, have the sander supported and positioned to avoid contact with yourself or an adjacent object
- The work area should be at least 3ft-4ft larger than the length of stock being sanded
- On stationary sanders, maintain a 1/16-inch maximum clearance between the work table and the sanding disc or belt on all working sides
- Always support your work piece with the table or backstop
- Use jigs, clamps, or fixtures to hold your work piece whenever possible

Disc Grinders

- Use portable straight grinders only with high-strength, bonded wheels
- Equip tuck point grinders (a variation of straight grinders) with re-inforced abrasive discs and the appropriate guard
- Maintain firm control and balance of the tool, and never over-reach
- Do not allow the grinding wheel to bend, pinch, or twist in the cut or kickback may result
- Use angle grinders primarily for the removal of metal or masonry
- Equip angle grinders with reinforced abrasive discs or wire cup brushes
- Check for wheel speed, and do not exceed it
- Always check for cracks
- Do not use damaged grinding wheels
- Fragments from grinding wheels can be fire hazards

