

# Hand and Power Tools

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## Purpose

This section establishes safety practices, means, methods, and operation for hand and power tools of all types.

## Definitions

1. Hand Tool - A tool that requires only the operator's energy input to function.
2. Power Tool - A tool or device that requires an external source of energy to function.

## References

29 CFR 1910.242	Hand and Portable Powered Tools
29 CFR 1910.243	Guarding of Portable Powered Tools
ANSI 01.1	Woodworking Machinery – Safety Requirements

## Procedures

General Requirements:

1. Inspect all tools on a regular basis and at the beginning of each workday before use.
2. Remove from service and tag "Do Not Use" any tool with defects. Notify Maintenance Supervisor of needed repairs.
3. Wear the proper personal protective equipment at all times when using tools. See the section on Personal Protection Equipment (PPE) for more information.
4. It is the responsibility of the employee to maintain tools in proper condition.
5. Use the proper tool for the job and use it correctly. When in doubt, ask your supervisor.

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6. All moving parts of equipment, such as belts, gears, pulleys, chains, etc., shall be equipped with an approved manufacturer's guard and all guards shall be properly affixed to operating machinery.
7. Keep the work area clear of clutter.
8. Keep work area well lit.
9. Maintain and keep tools sharpened, oiled, and stored in a safe, dry, place.
10. Do not wear neckties, rings, bracelets, or other jewelry or loose clothing that may get caught in moving parts when operating equipment.
11. Carry a sharp tool pointed downward or place it in a tool belt or toolbox.
12. Store tools in drawers or chests with cutting edge down.
13. All handheld power-driven tools must be equipped with a constant pressure switch, in order that power will automatically be cut off upon release of the control by the operator.
14. Tools of a non-sparking material must be used if fire or explosion hazards exist.

## Hand Tools:

1. Wrenches, including adjustable, pipe, end, and socket, cannot be used when jaws are sprung to the point that slippage occurs.
2. Keep impact tools, such as drift pins, wedges, and chisels, free of mushroomed heads.
3. Keep wooden handles of tools tight in the tool, and free of splinters or cracks.
4. Replace all tools that show excessive wear.
5. Use tools only for their intended purposes (i.e., wrenches should not be used as hammers or screwdrivers as pry bars, etc.).
6. Do not hold an object in the palm of one hand and press a screwdriver into it; place the object on a bench or table.
7. Use insulated tools when performing electrical work.

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8. Have an unobstructed swing when using a hammer and watch for overhead interference.
9. To avoid sudden slips, stand in a balanced position and always pull on the wrench instead of pushing against the fixed jaw.
10. Drive a wood chisel outward and away from your body.
11. Always cut away from the body when using knives and box cutters.
12. Keep hands and body clear of the knife stroke.

## Grinding and Chipping:

1. When grinding operations take place outside of an approved maintenance shop area, and are expected to produce sparks, a Hot Work Permit from the Office of Environmental Safety and Health must be issued in advance of work.
2. Always wear personal protective equipment (PPE) while grinding and chipping.
3. Do not use grinding wheels that are excessively worn.
4. At no time shall wheel speeds exceed the manufacturer's rating.
5. All grinding equipment shall have safety guards as required.
6. The safety guard must cover the spindle end, nut, and flange projections. The guard must be mounted to maintain proper alignment with the wheel. The strength of the fastenings must exceed the strength of the guard.
7. Floor and bench-mounted grinders must be provided with work rests that are rigidly supported and adjustable to within one-eighth inch from the surface of the wheel.
8. Portable abrasive wheels, used for internal grinding, must be equipped and used with safety flanges in place.
9. When safety flanges are required, use them only with wheels designed to fit the flanges. Only use safety flanges designed and properly assembled to ensure that the pieces of the wheel will be retained in case of accidental breakage.
10. Closely inspect and ring-test all abrasive wheels before mounting to ensure they are free from cracks and defects.

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11. Fit grinding wheels freely on the spindle and do not force them on. Tighten the spindle nut only enough to hold the wheel in place; follow the manufacturer's instructions.
12. All handheld portable grinders must be equipped with a constant pressure switch, in order that power will automatically be cut off upon release of the control by the operator.
13. Equip grinders with wheels greater than 2 inches in diameter, disc sanders, and belt sanders with a momentary contact "on-off" control; they may have a lock-on control provided that turn-off can be accomplished by a single motion of the same finger or fingers that turn it on.

## Air Operated Tools:

1. Connect pneumatic power tools, such as breakers, drills, bush hammers, impact drills, etc., to the hose by a positive means that will prevent the tool from becoming accidentally disconnected.
2. Do not hoist or lower the tool by using the hose; instead, use a rope line.
3. When using compressed air for cleaning purposes, the operating pressure shall be less than 30psi, and the proper personal protective equipment (PPE) shall be furnished.
4. Never use compressed air for personal cleaning of areas such as, but not limited to, clothing, hair, skin surface, etc.
5. Do not use air-powered tools in confined spaces without the use of exhaust fans, as it is possible for carbon monoxide gas from the compressor to be carried through the air lines.
6. Properly service all tools and air lines and maintain them in a good state of repair.
7. Secure all couplings as intended by manufacturer.
8. All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100psi at the tool, shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
9. Do not exceed the manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings.

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## Gasoline Operated Tools:

1. Be sure to turn off any gasoline powered tools and equipment before refueling.
2. Be sure the right fuel is put into the right equipment (i.e., some equipment requires that oil be added to the fuel to provide lubrication).
3. Gasoline powered engines should be level while in operation.
4. Engines shall be stopped by an approved grounding device and not by removing the spark plug wire.
5. Service all equipment prior to operation, paying attention to oil level, air filters, and fuel leaks.
6. When fuel-operated tools must be used in enclosed spaces, all required precautions should be observed and personal protective equipment (PPE) worn.
7. All fuel-operated tools shall be stopped and allowed to cool prior to being refueled, serviced or maintained.
8. Never use gasoline-powered equipment or tools indoors.

## Electric Hand Tools:

1. Electric power tools shall be of the approved double-insulated type or properly grounded.
2. Do not hoist or lower tools by the flexible cord.
3. All users shall be cautioned in the potential hazards in using electric tools. See the section on Electrical for more information.
4. Never unplug a power tool by pulling the cord. Grasp the plug end instead.

## Woodworking Tools:

1. All fixed, power driven woodworking tools must be provided with a disconnect switch that can be locked and tagged in the “off” position.
2. All portable, power driven circular saws shall be equipped with guards.

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3. All personal protective equipment (PPE) must meet the requirements set forth in the Personal Protective Equipment (PPE) section of this manual.
4. All woodworking tools and machinery must meet other applicable requirements of ANSI 01.1.
5. Keep all hands and body parts well away from saw blades and other cutting tools. Use a feather board or push stick to hold or guide the work when working close to a cutting tool.

Sandblasting:

1. Sandblasting is only permitted by qualified, third party contractors.

## Training

Carroll Community College will train employees in the use and inspection of hand and power tools applicable to their job duties. This training shall be completed before an employee performs related tasks and shall be conducted by a person competent in the subject matter. The training will be refreshed at intervals stipulated by the current and applicable OSHA standard.

All third-party contractors are responsible to ensure their employees are trained, certified, and/or licensed as required by the industry standards and all applicable OSHA standards related to the scope of work.

## Record Keeping and Certification

1. Safety Training records for Carroll Community College employees shall include the following:
  - a. Names of training attendees.
  - b. The dates of the training sessions.
  - c. The contents or a summary of the training sessions.
  - d. The name(s) and title(s) of person(s) conducting the training sessions.
2. Safety Training records shall be maintained for a length of time in accordance with industry and OSHA standards.
3. All third-party contractors are responsible to maintain safety training records for their employees in accordance with industry and OSHA standards.