Because hand and portable powered tools and equipment can cause serious injuries if not properly used and maintained, OSHA standards exist to ensure worker safety in this area. As with all applicable OSHA standards, the Department is required to assure compliance. This Safety Bulletin addresses hand tools; hand powered tools such as saws, portable abrasive wheels.

REGULATIONS

Hand and portable powered tools are addressed in OSHA 1910, Subpart P (General Industry) and 1926, Subpart I (Construction Industry).

Since a single tool or piece of equipment may be covered in more than one regulation, the following is organized by tool type or class to avoid redundancy and confusion.

TOOLS

The Department shall not issue or permit the use of unsafe tools. Unsafe tools shall be removed from service and shall be tagged or secured until repaired or disposed of. Wrenches, including pipe, open-end, box, adjustable, and socket wrenches, shall not be used when the jaws are sprung or worn to the point where slippage occurs. Impact tools, such as drift pins, wedges, and chisels, shall be free of mushroomed heads. Wooden handles shall be free of splinters or cracks and kept tight.

GENERAL PRACTICES

All electrical equipment used in wet areas shall be provided with ground fault circuit interrupter (GFCI).

All electrical equipment that could inadvertently start if the power was interrupted shall be provided with an electrical disconnect switch.
All hand held powered circular saws having a blade diameter greater than 2 inches, shall be equipped with a constant pressure switch or control that shuts off power when pressure is released.

All hand held powered drills; tappers; fastener drivers; horizontal, vertical and angle grinders with wheels greater than 2 inches in diameter; disc Sanders with discs greater than 2 inches in diameter; belt Sanders; reciprocating saws; saber, scroll, and jig saws with blade shanks greater than nominal one-fourth inch; and similar power tools shall be equipped with a constant pressure switch or control, and may have a lock-on control so that turn-off can be accomplished by a single motion of the same finger or fingers used to turn it on.

Portable belt sanding machines shall have guards for each nip point where the sanding belt runs onto the pulley to effectively prevent hands or fingers from coming into contact with nip points. The unused run (that portion not in contact with a surface) of the sanding belt shall be guarded to prevent accidental contact.

Tools shall not be hoisted or lowered by their power cords. Defective saws shall be removed from service.

Portable electric powered tools shall be double insulated or properly grounded, and shall not be used when the ground pin is damaged or missing.

PORTABLE ABRASIVE WHEELS

Right angle head or vertical portable grinders shall have a guard that covers at least 180 degrees of the wheel, located between the wheel and operator.

Other portable grinders shall have a guard that covers at least 180 degrees, and the top half of the wheel shall be enclosed at all times.

Before installation all abrasive wheels shall be inspected and sounded for damage.

Grinding wheels shall properly fit the bushing, spindle, and flange of the power tool. The hole in the grinding wheel shall be suitably oversized to assure safe clearance under operating heat and pressure. (Refer to various program safety manuals for more detailed information regarding abrasive wheel safety).

CIRCULAR SAWS

Saws having a blade diameter greater than 2 inches shall be equipped with guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for level cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow
proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically and instantly return to cover the blade.

WOODWORKING EQUIPMENT

Table saws shall have guards to protect the operator from accidental contact with the saw blade or from being struck by splinters or broken teeth.

Hand fed circular ripsaws shall have a non-kickback device.

Woodworking equipment shall have a positive means of rendering it inoperative during repairs and adjustments (Refer to Safety Bulletin on Lockout/Tagout).

Radial arm saws shall have a hood that completely covers the upper portion of the blade. The lower portion shall be guarded to the full diameter of the blade by a device that automatically adjusts to stock thickness. Radial arm saws used for ripping shall have a non-kickback device.

Adjustable stops shall be provided to prevent the saw from traveling beyond the distance needed to perform the cut.

Radial arm saws shall have the front slightly higher than the back, so the cutting head will return gently to the starting position when released.

Band saws shall keep the opening for the working part of the blade as small as practical for the material being cut.

PNEUMATIC POWERED TOOLS

A tool retainer shall be installed and used on equipment that may eject the tool. Air lines shall be designed for the pressure and service intended.

Compressed air shall not be used for the cleaning of debris off a person.

AIR RECEIVERS

This section applies to compressors used to power hand tools, not for compressors used on motor vehicles and heavy equipment as part of their operation (air brakes, for ex.).

A drain pipe and valve shall be installed at the lowest point of every air receiver to remove accumulations of oil and water. An automatic trap may also be installed in addition to the drain valve. Accumulated water and oil shall be frequently drained.

Air receivers shall have a pressure gauge which is readily visible.
Air receivers shall have one or more spring-loaded safety valves with a total relieving capacity sufficient to prevent the receiver from exceeding the maximum allowable working pressure by more than 10 percent.

Air receivers shall not be located underground or placed in an inaccessible location.

**NAILERS AND STAPLERS**

Pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. at the tool, shall have a safety device on the muzzle to prevent ejecting fasteners when the muzzle is not in contact with the work.

The muzzle of a pneumatic driver shall not be pointed at a person.

Before each use, pneumatic nailers or staplers shall be inspected for worn or broken parts and to assure the muzzle safety device is functioning properly.

**REFERENCES**

Listed below are the applicable standards:

- 1910.169 & 1926.306 Air receivers
- 1910.213 Woodworking machinery requirements
- 1910.219 & 1926.307 Mechanical power transmission apparatus
- 1910.242 Hand and portable powered tools and equipment, general
- 1910.243 Guarding of portable powered tools
- 1910.244 Other portable tools and equipment
- 1910.300 General equipment
- 1926.301 Hand tools
- 1926.302 Power-operated hand tools
- 1926.303 Abrasive wheels and tools
- 1926.304 Woodworking tools