## Hand and Power Tools

1. **Purpose**

To establish guidelines for the safe use of hand and power tools. All hand and power tools, whether furnished by the employer or the employee, shall be maintained in a safe condition.

1. **Responsibility**

* Supervisor will periodically inspect hand tools in their work area.
* Employees are responsible for ensuring tools are maintained in a reliable and safe condition and properly stored and that proper PPE is used.

1. **General**

* Small tools shall be kept in an orderly fashion on the tool bench or in the tool chest.
* Crowbars, chain tongs, pipe cutters, and similar tools shall be placed in racks.
* All tools and equipment shall be inspected before use. Defective and unsafe tools or

equipment shall be set aside and promptly reported to the supervisor.

* Chisels, sledge hammers, and other impact tools shall be kept free of mushrooming by

filing/grinding.

* Hand or power tools shall be used only in the manner for the work for which they were designed.
* The handle of all sledges, hammers, mauls, axes, picks, and similar tools shall be securely wedged into the head.
* Files shall not be used without handles.
* Wooden handles shall not be painted. Cracked or split handles shall not be taped. Cracked or split handles shall be replaced.
* Use Proper PPE such as safety glasses, hearing protection, respiratory masks, gloves or other types of equipment necessary.
* Any tool which is not in compliance with any applicable requirement of this part is prohibited and shall be identified as unsafe by tagging or locking the controls to render them inoperable.
* Extensions, or "cheaters", shall not be used until efforts to break the connection with the largest wrench available have failed.
* If a cheater must be used, place it on the largest wrench available.
* Never use a cheater on a "crescent-type" wrench.
* Extension shall not be longer than 1 1/2 times the handle length.

1. **Power Tools**

* Guards must be in place at all times and they shall not be modified.
* Electric tools showing worn, deteriorated or inadequate insulation, etc. shall be tagged

"DO NOT USE" and remove from service.

* Persons using air-operated tools shall make certain the air supply pressure cannot exceed the working pressure of the tool.
* All electric tools shall be grounded by means of a third wire or be a U/L listed double

insulated tool.

* Electric tools shall not be used on tanks, lines, etc., unless the tanks or lines are gas free.
* Where there is danger of explosion or fire, only air-operated power tools shall be used.
* Safety washers shall be used on all abrasive wheels.
* Non-portable abrasive wheels shall have a protective shield and a tool rest adjusted to

maintain a clearance no greater than 1/8".

* When operating a non-portable grinder, the operator shall wear goggles or safety shield

and stand to one side of the plane of rotation.

* Grinding wheels shall not be mounted on a grinder whose spindle speed is greater than

the wheels rated speed (RPM).

* The connections shall be pinned or a lanyard used on air hoses with “Chicago” type

fittings.

* Compressed air shall not be used to blow dust off of clothing. When compressed air is to

be used for cleaning purposed, it must be less than 30psi and safety glasses and a face shield must be used.

1. **Pneumatic Tools**

* Review the manufacturer's instruction before using a tool.
* Wear safety glasses or goggles, or a face shield (with safety glasses or goggles), and, where necessary, safety shoes or boots and hearing protection.
* Post warning signs where pneumatic tools are used. Set up screens or shields in areas where nearby workers may be exposed to flying fragments, chips, dust, and excessive noise.
* Ensure that the compressed air supplied to the tool is clean and dry. Dust, moisture, and corrosive fumes can damage a tool. An in-line regulator filter and lubricator increases tool life.
* Keep tools clean and lubricated and maintain them according to the manufacturers' instructions.
* Use only the attachments that the manufacturer recommends for the tools you are using.
* Be careful to prevent hands, feet, or body from injury in case the machine slips or the tool breaks.
* Reduce physical fatigue by supporting heavy tools with a counter-balance wherever possible.
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* Wear safety glasses or goggles, or a face shield (with safety glasses or goggles), and, where necessary, safety shoes or boots and hearing protection.
* Post warning signs where pneumatic tools are used. Set up screens or shields in areas where nearby workers may be exposed to flying fragments, chips, dust, and excessive noise.
* Ensure that the compressed air supplied to the tool is clean and dry. Dust, moisture, and corrosive fumes can damage a tool. An in-line regulator filter and lubricator increases tool life.
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* Reduce physical fatigue by supporting heavy tools with a counter-balance wherever possible.

1. **Power-Actuated Tools**

* Allow only trained, competent and authorized persons who are familiar with the regulations governing the use of the tool to operate powder-actuated tools (also known as explosive actuated fastening tools).
* Powder-actuated tools operate like loaded guns. Handle powder-actuated tools with the same respect and safety precautions as guns.
* Use the manufacturer's information as a guide for safe operation and maintenance of the tool.
* Wear safety glasses or goggles, or a face shield (with safety glasses or goggles) and a hard hat.
* Wear hearing protection.
* Brace yourself at all times when working on ladders or scaffolds to maintain good balance.
* Keep tools pointed in a safe direction. Never point powder-actuated tools at anyone.
* Load powder-actuated tools just before use. Do not carry loaded tools from job to job.
* Do not leave loaded powder-actuated tools unattended.
* Do not allow bystanders near the work. Shields for protecting workers against a possible ricochet may be necessary in the working area.
* Use the tool at right angles to the work surface.
* Check the chamber to see that the barrel is clean and free from any obstruction, before using the tool.
* Do not use the tool where flammable or explosive vapours, dust or similar substances are present.
* Do not place your hand over the front (muzzle) end of a loaded tool.
* Clean and maintain tools according to the manufacturers' instructions.
* Check tools before use to ensure that they are in good working order.
* Tag defective tools "Out of service" and remove from service until properly repaired.
* Store tools and cartridges in a locked container when they are not in use. Ensure that the tool is unloaded before storing it.

1. **Ergonomics of Tool Use and Reducing Injuries**

Work-related musculoskeletal disorders are injuries of the muscles, tendons, joints and nerves that usually manifest over a period of time and can affect a variety of body parts. Using the wrong tool or using the correct tool incorrectly can cause work-related musculoskeletal disorders.

Risk factors associated with the use of hand and power tools can include:

* Incorrect wrist or hand posture or placement
* Static muscle load or tension
* Vibration
* Torque or mechanical stress
* Temperature
* Pinch points
* Contact stress
* Tool characteristics such as weight, dimension, shape, and material

To eliminate or reduce these risk factors, employees shall

* Select the proper tool for the job task.
* Bend the tool, not the wrist. Use tools with angled or "bent" handles, when appropriate.
* Avoid high contact forces and static loading.
* Reduce excessive gripping force or pressure.
* Avoid extreme and awkward joint positions.
* Avoid twisting hand and wrist motion by using power tools rather than hand tools.
* Use tools that do not require an extended grip.
* Avoid repetitive finger movements, or at least reduce their number.
* Take regular breaks and rotate job tasks when using a hand or power tool for an extended period of time.
* Avoid or limit vibration.
* Use tools with padded grips and handles or wear gloves to protect the skin from contact stress.
* Minimize the amount of force needed to activate trigger devices on power tools.

Musculoskeletal injuries caused by improper tool use must be investigated and documented following the Incident Investigation Procedures. Incorporation of investigation findings into work procedures must be accomplished to prevent future injuries. Injuries must be recorded and reported as required.

1. **Training**

Employees shall be trained in safe hand and power tool usage, proper tool selection, and selecting the proper PPE. Training shall include general principles of ergonomics, recognition and reporting of hazards and injuries. Additionally, tool specific training shall be given on safe use, work practices, hazards, and controls.