HAND AND POWER TOOLS

1. INTRODUCTION

Recognizing the hazards or potential hazards associated with tools and machinery in the workplace is fundamental to safety and health. There are various distinct "motions" or "actions" associated with machinery and each one presents a different hazard.

Rotating - an action that results in motion either clockwise or counterclockwise on its axis. Examples include vehicle engine fans, shop fans, the wheel of a vehicle, and a grinding wheel.

Reciprocating - an action which results in an alternating backward and forward motion. Examples include certain saws, articulating pistons, piston-type chucks, etc.

Transverse Motion - an action resulting in a side-to-side motion. Examples ϕ Include convex polishing machines, windshield wipers, etc.

The hazards associated with rotating, reciprocating and transverse motions are found (1) at the point of operation where work is actually being performed, or (2) at the points where power and motion are transmitted or transferred from one part of a mechanical linkage to another.

Cutting - an action which results in the division of an object into parts or segments.

The hazards associated with cutting include exposure to the actual cutting device or mechanism. Selection of proper personal protective clothing and equipment will help protect you from contact with the shavings, chips, and dusts that are a byproduct of cutting.

Bending - an action which results in the introduction of a curve or bow to an object.

Shearing - an action that results in the crossing of cutting edges to separate an object.

Punching - an action for perforating, indenting or for driving out or in an object inserted in a hole, as a bolt or pin.

The hazards associated with bending, shearing and punching result when power is applied to a ram to form or trim metal. The greatest hazard exposure is at the point of operation where the dies make contact with the metal. All employees must avoid the area where closure of the dies and die punch points occur.

2. POLICY

Following are the general safety policies for the use of a variety of power and hand tools. It is the responsibility of every employee to adhere to these policies whenever operating a power or hand tool, and to ensure they have received all required training prior to using a tool for the first time. Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such way that will comprise its integrity or compromise the protection in which intended. Guarding shall meet the requirements set forth in ANSI B15.1.

Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with particular PPE necessary to protect them from the hazard. Any tool which is not in compliance shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

The Safety Officer will facilitate the implementation of this program.

2.1. **Power and Hand Tools**

All power and hand tools shall be maintained in a safe condition whether furnished by the employer or the employee.

A. Use the right tool for the job - short cuts and improvising may turn a simple task into a long recovery period. Try to anticipate the tools that will be used for a job and have them at hand.
B. Cracked handles, mushrooming ends, torn metal all contribute to an unsafe and defective tool. Replace handles on hammers and screwdrivers when they are cracked, or arrange to have them replaced. File mushrooming ends on chisels and file or replace tools with bent or jagged pieces that are exposed.

C. Use each tool in an appropriate and approved way. Applying pressure in the wrong way or using a tool without proper grounds can lead to serious injury.

D. Store and carry tools in a safe manner. Sharp tools can cause injury if stored without guarding or when carried in a pocket.

E. Every employee using tools shall, in the course of regular inspections, check for defective or damaged tools and advise replacement or repair.
F. Using tools safely can help to avoid unnecessary repair or breakage and ultimate injury.

2.2. **HACKSAWS**

Pressure should only be applied on the forward stroke. Applying too much pressure may result in the blade breaking and injury to the employee. When adjusting the hacksaw, be sure to do so when it is in its frame to prevent breaking or buckling. Do not tighten to the point where pins break off and be sure to install the blades with the teeth forward.

2.3. **FILES**

Never use a file in place of a hammer or pry bar. Grasp file firmly in one had using the thumb and forefinger of the other hand as a guide. Always inspect files for cracks in the handle to avoid puncturing the hand while in use.

2.4. **TIN SNIPS**

Choose a tool heavy enough to cut material easily with one hand while holding the material being cut with the other hand. Always check to ensure the jaws of the snip are adequately lubricated. Glove protection is required.

2.5. **SAWS**

Always select the proper saw for the job at hand. A coarse saw with 4 - 5 points per inch should be selected for fast crosscut work on green wood. Select a finer saw for smoother more accurate cutting of dry wood. Store in rack when not in use.

2.6**. HAMMERS**

Check handles to ensure they are free from splinters. Heads must be solid. Use a soft-head, plastic-head, wood-head or rawhide-head hammer when working on hardened steel surfaces.

The face of the hammer should always be proportionately larger than head of the tool it is striking (chisel, punch, wedge, etc.). Strike
the hammer squarely and always wear eye protection. When using a sledge hammer, choose the proper weight for the job at hand as too light a hammer can bounce off the work creating a hazard and too heavy a hammer can cause physical strain. When prying a nail from wood using a claw hammer, place a block of wood under the hammer head to create additional leverage.

2.7. **SCREWDRIVERS**

Always choose the screwdriver to fit the screw. Choosing a sharp edge bit requires less pressure than a dull, rounded edged bit and also will not slip as readily. Never hold the part of the screwdriver doing the work in your hand.

2.8. **PLIERS**

Electrician's pliers must be insulated and anyone performing work with electrician's pliers must wear special work gloves when working on energized lines. Be careful when using side cutting pliers which can cause injuries when short ends of wires are cut, and never use pliers in place of a wrench.

2.9. **WRENCHES**

Always select wrenches that fit the nut properly. Do not use a pipe wrench over single head wrenches as this may lead to injury. Routinely inspect wrenches to ensure that the jaws fit as doing so will prevent damage to the head of the nut and is less likely to slip and cause injury.

2.10. **KNIVES**

Always maintain a cutting stroke away from the body. Never leave a knife open or laying on tables when not in use. When work is completed, place knife in a sheath or close knife and store properly.

2.11. **HAND GRINDERS**

All grinders with stones or discs in excess of 2 inches in diameter must be guarded and be equipped with automatic shut offs. Proper operation and care of grinders includes monitoring where the sparks are thrown (away from others) and care must be taken to not drop or abuse grinders which may cause the stone or disc to become damaged. Ensure that the grinder has been properly lubricated.

2.12. **ELECTRIC DRILLS**

All drills must be double insulated or properly grounded as electric shock is a very real danger when operating a drill. When operating a drill, care should be taken to clamp the material down so that it does not rotate and strike anyone. Always disconnect the drill prior to changing the drill bit and never place hands between the drill and the materials being drilled.

2.13. **ELECTRIC SAWS**

Routinely check the saw guard to ensure it is in proper placement. Care should be taken to keep the power cord away from the stroke of the saw so it is not severed. Grounding prongs are never to be removed from the electrical cord as they are there to ensure safe operation.

2.14. **AIR HOSES**

Although air hoses are not typically considered hand tools, they are a major cause of shop injuries. Whenever possible, suspend air hoses over work area. Protect air hoses located on the ground from vehicle damage. Prior to working on an air hose, always shut off the power. Safety

check valves are to be installed on all air hoses for automatic shut off so they do not whip about when they accidentally become disconnected.

2.15. **AIR GUNS**

Air pressure for cleaning purposes must not exceed 30 psi. Air guns have been known to cause death when used improperly. Therefore, extreme caution must be taken when operating an air gun.

A. Operation of machinery and equipment shall conform to the standard operating procedures established by the company who manufactures the machinery or equipment. Operation of machinery and equipment that deviates from this is prohibited.
B. Operation of power tools shall also conform to standard operating procedures. Operating power tools in a manner that deviates from Standard Operating Procedures is prohibited.
C. The safe operation of power tools, machinery and equipment is mandatory at all times. Any use of these power tools, machinery, or equipment for work they are not in intended is strictly prohibited and subject to disciplinary action.

2.16. **HYDROSTATIC TESTING PROCEDURE**

Hydrostatic testing shall be performed as required or requested by client/owner. The applicable code for the item being pressure tested shall be adhered to in regards to pressure testing. At no time during the pressure test shall any part of the piping system be subjected to a stress greater than that permitted by the applicable code. Suitable precautions shall be taken in the event of piping system rupture to eliminate hazards to personnel in the proximity of lines being tested. Equipment that is not to be subjected to the pressure test shall be either disconnected or isolated by a blank or similar means. Valves may be used for this purpose provided that valve closure is suitable for the proposed test pressure. The Owner shall be aware of the limitations of pressure and temperature for each valve subject to test conditions. Isolated equipment and piping shall be vented. The pressure test equipment shall be inspected prior to use. If any parts of the testing equipment are found to be inoperative or in need of repair then that item shall be tagged or marked inoperative and not be used. Hoses or pipe on the pressure side of the test equipment shall be tethered to prevent flailing of lines. The test equipment shall be examined before pressure is applied to ensure that it is tightly connected. Personnel shall inspect and approve the pressure test equipment and the item being pressure tested prior to pressure being applied.