**HAND AND POWER TOOLS**

**Introduction**

The use of tools makes many tasks easier. The same tools that assist us, if improperly used or maintained, can create significant hazards in our work areas. Employees who use tools must be properly trained to use, adjust, store and maintain tools properly. This program covers hand, electrical, pneumatic, hydraulic and powder-actuated tools and tool safety.

**General Requirements for Tools**

• Always use the tools for their intended use.

• Never carry a tool by the cord or hose and never yank the cord or the hose to disconnect it from the receptacle.

• Keep cords and hoses away from heat, oil, and sharp edges.

• Secure work with clamps or a vise, freeing both hands to operate the tool.

• Always use the appropriate personal protective equipment, including but not limited to eye protection, face protection, hearing protection, gloves etc. The wearing of loose clothing, ties, or jewelry should be avoided as they can become caught in moving parts.

•Disconnect tools when not in use, before servicing and when changing accessories such as blades, bits and cutters.

• Tools must either have a three-wire cord with ground and be grounded or be double insulated.

• When using pneumatic tools, securely fasten the air hose to the tool using a short wire or safety clip.

• Use the manufacturer’s recommended psi for the tool.

• The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters and other fittings must not be exceeded when using hydraulic or pneumatic tools.

• Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.

• For rotating tools, such as grinders, cut off saws, all abrasive or cutting wheels much exceed the rpm of the tool. Never use a wheel that is not rated for the tool. It will explode!

**Powder-Actuated Tools**

Powder-actuated tools operate much like a loaded gun and should be treated with the same respect and precautions. These tools are so dangerous that they must only be operated by specially trained employees with a certification card for the tool.

General Precautions:

• These tools should not be used in an explosive or flammable atmosphere.

• Warning signs shall be posted and unauthorized employees shall be removed from areas where powder actuated tools are being used. Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely and that the barrel is free from obstructions.

• The tool should never be pointed at anybody.

• The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons.

• If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, then carefully remove the load. The bad cartridge should be put in water.

•The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.

• All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.

•If the tool develops a defect during use, it should be tagged and taken out of service immediately. All powder-actuated tools shall have routine maintenance every 6 months.

Fasteners:

When using Powder-actuated tools to apply fasteners, there are some precautions to consider:

• Fasteners must not be fired into material that would let them pass through to the other side.

• The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner.

• In steel, the fastener must not come any closer than one-half inch from a corner or edge.

• Fasteners must not be driven into very hard or brittle materials, which might chip or splatter, or make the fastener ricochet.

• An alignment guide must be used when shooting a fastener into an existing hole.

• A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

**Personal Protective Equipment**

Employees who use hand and power tools and who are exposed to the hazards of falling, flying, abrasive

and splashing objects, or exposed to harmful dusts, fumes, mists, vapors or gases must be provided with

the particular personal equipment necessary to protect them from the hazard.

Each operation that requires the use of hand or powered tools shall be evaluated to determine the possible hazards involved with the operation and PPE shall be selected accordingly.

**Guards**

Guards, as necessary, should be provided to protect the operator and others from the point of operation, in-running nip points, rotating parts, and flying chips and sparks.

For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains or other reciprocating, rotating or moving parts of equipment must be guarded.

Safety guards must never be removed when a tool is being used. For example, portable circular saws must be equipped with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.

**Inspections**

Each tool shall be inspected for damage before use and at regular intervals (every 6 months). Any tool that is damaged or is malfunctioning shall be immediately removed from service and tagged out. All tools must be repaired in accordance with the manufacturer’s specifications.