Union County Public Schools

Facilities Department

Hand and Powered Tools

Safe Work Practices

Tool SWP 10/22/2013
Revised 10/28/2014

Purpose

Hand held and power actuated tools are an integral part of the everyday work experience in the facilities department. Pursuant to OSHA standard 1910.241-244, the following rules and general safe work practices shall be adhered to by all employees to protect against the hazards of using such tools.

Power Tools

Guards

The exposed moving parts of power tools need to be safeguarded to prevent injuries from occurring. Belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating or moving parts of equipment must be guarded. Machine guards must be provided to protect the operator from the point of operations, nip points, rotating parts, or flying debris.

Guards must never be removed when a tool is in use or under power.

The following hand-held power tools must be equipped with a constant-pressure switch or control that shuts off the power when pressure is released: drills, tappers, drivers, grinders with wheels more than two inches in diameter, belt sanders, reciprocating saws, saber saws, scroll saws, jigsaws with blade shanks greater than ¼ inch and other similar tools.

The following hand-held power tools must be equipped with either a positive “on-off” control switch, a constant pressure switch, or a “lock-on” control: disc sanders with discs less than two inches in diameter, grinders with wheels less than two inches in diameter, platen sanders, routers, planers, laminate trimmers, nibblers, shears, and jigsaws, saber and scroll saws with blade shanks ¼ inch or less in diameter.

General Safe Work Practices

- Never carry a tool by the cord or hose.
- Never pull or yank the cord to disconnect the tool from receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not in use and before cleaning or performing maintenance.
- When possible, secure work with clamps or vises to free both hands to operate the tool.
- Operate and maintain tools as recommended by the manufacturer.

- Remove all damaged portable electric tools from use and tag them “Do Not Use.”
- Operate electric tools within their design limitations as recommended by the manufacturer.
- Use appropriate PPE for the tool and the work you are doing.
- Store electric powered tools in a dry place.
- Do not use tools in damp or wet locations unless they are approved for that purpose.
- Ensure that cords from electric tools do not present a tripping hazard or are in danger of coming in contact with running blades.
- Inspect the tool, cord, and/or air hose before use for any defects.

Electric Tools

Tools powered by electricity pose several hazards. Not only could a tool itself be dangerous, but there is also risk of electric shock and burns. Electric shock, which can lead to heart failure, are among the major hazards associated with electric powered tools. Electric shock could also cause a user to fall from a ladder or other elevated work surface.

To protect employees from shock and burns, electric tools must have a three-wire cord with a ground and be plugged into a grounded receptacle or be double insulated. The third ground prong must never be removed from the plug to accommodate a two plug receptacle.

Abrasive Wheel Tools

Portable abrasive grinding, cutting, polishing and wire buffing wheels create flying debris hazards. Abrasive wheel tools must be equipped with guards that cover the spindle end, nut and flange projections, maintain proper alignment with the wheel, and do not exceed the strength of the fastenings.

Employees are to inspect abrasive wheels for damage before they are mounted onto the tool. A wheel that is cracked or damaged could fly apart during use. Abrasive wheels must fit freely on the spindle to keep it from cracking. Employees are to allow the tool to reach full operating speed prior to using the tool in case the wheel disintegrates or explodes during start up. Employees should not stand in the plane of rotation of the wheel as it accelerates to full speed.

Pneumatic Tools

Pneumatic tools are powered by compressed air. There are several dangers associated with the use of pneumatic tools including being hit by one of the tool’s attachments.

Before using the tool, employees are to inspect the tool to ensure it is fastened securely to the air hose with a positive locking device attaching the air hose to the tool. Safety excess flow valves must be installed at the source of the air supply for air hoses more than ½ inch in diameter. A safety clip or retainer shall be used to prevent attachments from being ejected during use. Compressed air shall not be used for cleaning purposes except when reduced to less than 30 psi and only with effective chip guarding and PPE.

Pneumatic tools that shoot nails, rivets, staples or similar fasteners and that operate at more than 100 pounds per square inch must be equipped with a special device to keep fasteners from being ejected unless the muzzle is pressed against the work surface. Pneumatic tools shall not be pointed at a person.

Proper PPE shall be worn to protect employees from noise hazards posed by operating pneumatic tools.

Liquid Fuel Tools

The most serious hazards associated with fuel-powered tools are the vapors emitted that can burn or explode and exhaust fumes than may be dangerous to an employee's health.

Employees shall handle, transport, and store gasoline or other fuel only in approved flammable liquid containers according to proper procedures for flammable liquids. Before refilling the tank on a fuel-powered tool, ensure the engine is not running and allow it to cool to prevent accidental ignition of hazardous vapors. Fuel-powered tools shall be used only in well ventilated areas to avoid the build-up of carbon monoxide. Employees shall ensure a fire extinguisher is readily available when using a fuel-powered tool.

Hydraulic Power Tools

Employees shall follow the manufacturer's recommendations for safe operation of hydraulic power tools including operating pressure for hoses, valves, pipes, filters and fittings.

Fluid used in hydraulic power tools must be approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. Fluid used in insulated sections of aerial lifts is an exception to using fire-resistant fluid; instead insulating-type fluid should be used for these applications.

All jacks, including lever and ratchet jacks, screw jacks, and hydraulic jacks must have a stop indicator and the stop limit must not be exceeded. The manufacturer's load limit must be permanently marked in a prominent place on the jack. The manufacturer's recommended load limit shall not be exceeded. A jack should never be used to support

a lifted load. Once a load has been lifted, it must be blocked up to continue holding the load.

To use a jack, employees must use the following precautions:

- Ensure the base of the jack is on a firm, level surface. A block may be placed under the base of the jack when the foundation is not firm.
- Ensure the jack is correctly centered.
- Ensure the jack head bears against a level surface.
- Ensure the lift force is applied evenly.

Jacks must be properly maintained per manufacturer's recommendations. All jacks must be lubricated and inspected regularly.