

HAND TOOL SAFETY

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Tools are such a common part of our lives that it is difficult to remember that they may pose hazards. All tools are manufactured with safety in mind, but a serious accident often occurs before steps are taken to search out and avoid or eliminate tool-related hazards. Workers must learn to recognize the hazard associated with the different tools they use and the safety precautions necessary to prevent those hazards

The misuse of hand tools and power tools is a source of injury to workers. In many cases injury results because it is assumed that the worker knows how to use the tool or the worker does not pay attention to what he/ she is doing.

General Safety Rules

General safety rules apply to both stationary and portable power tools. The following safety rules apply to many of the tools which you use:

The Work Area

- Your work area shall be kept clean! Oily rags, dust, and paper are fire hazards and can damage your tools. Place scrap materials in appropriate containers.
- Keep your work area well lit. If you can't see your work, then you can't see a hazard.
- Keep your area dry. Wet floors and work surfaces can cause slips. Water serves as an excellent electric conductor between the ground, you, and your tool!
- Before working with tools that can produce sparks, make sure that the surrounding area is free from ignitable materials.
- Know the locations of fire extinguishers. They shall be the correct type (e.g., A, B, C, D) for the potential fires which could occur. Also, know where the fire alarm is located and the proper exit route(s) for your work area where applicable.

Personal Protective Equipment

- Use protective equipment when necessary. Safety glasses must always be worn. Other PPE includes gloves, hard hats, hearing protection, respiratory protection, special protective clothing, and welding masks where applicable.
- Discuss proper safety equipment with your supervisor..
- When operating the overhead crane, hardhats, gloves, and safety glasses must be worn.

- Noise produced by power tools can drown out other sounds... like a person shouting “STOP!” or “HELP!” Stay alert to your surroundings.
- When cutting certain materials like plastics or epoxies, fumes can be released. Dust is produced when using most every shop tool. To address these potential hazards, discuss the appropriate controls and respiratory protection with your supervisor.

Clothing

- Never wear loose clothing or jewelry that can entangle in power tools. Hand jewelry can serve as a conductor of electricity.
- Tie back long hair.
- Do not wear neckties while working around machinery.

Tools

- Always use the right tool for the job! Forcing a small tool to do a big job causes the tool to strain. A strained tool can kickback or break, causing injury.
- Never use a tool that you are unfamiliar with. Get proper training from your supervisor, or the tool manufacturer. Read the tool manual for proper use procedures and safety precautions.
- Before each use, inspect your tools. Check the alignment of moving parts, breakage of parts, and cracks.
- When you're tired, your attention span is reduced. Attention to your work is very important when working. Make sure you're fit to do the job!
- Disconnect the power source when performing maintenance, cleaning, or changing blades and bits.
- Be wary of dropping tools. Don't rest a tool on the edge of the workstation. Secure tools when working at heights.
- When using both portable and stationary tools, grip the tool or material being worked-on firmly. Hold tools only by insulated grasping surfaces. The material being worked-on should be well secured.
- Make sure that you are well balanced when operating a tool. Sometimes, a “kickback” from a tool can throw the operator off balance, causing injury.
- Don't work in an awkward position. You may not have complete control of the tool or the material you are working on.

- Never lock a tool in the ON position if you are working under conditions that require you to stop the tool quickly.
- Guarding is one of the best ways to minimize a hazard. Make sure that machine guards are in place on large and small equipment.
- When cutting materials, try to cut along the grain. This will reduce the chance of kickback or shattering of the material.

Maintaining and Repairing Tools

- Install or repair equipment only if you are qualified. A faulty job could cause serious injuries from mechanical failure, fire, or shock.
- Maintain tools in proper working condition. Regularly inspect tools, cords and accessories. Repair or replace problem equipment immediately. Keep tools sharp, well oiled and stored in a dry place.
- Never alter a tool in a manner that reduces its effectiveness or safety.

Hand Tools

Hand tools are non-powered. They include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance. The employer is responsible for the safe condition of tools and equipment used by employees, but employees have the responsibility for properly using and maintaining tools.

When you are using hand tools, such as hammers, chisels, wrenches, etc., there are individual practices that apply to particular tools. References on hand tools and manufacturer publications give particular practices. Below are some general user and safety practices you should be aware of:

- Select the right tool for the job. Every hand tool has a purpose and proper selection will prevent misuse.
- Do not wear jewelry.
- Know the hazards of the tool. For example, the tip of a screwdriver is hardened, and when it is used for chiseling or prying, it can fragment easily, whereas the struck end of a chisel is intentionally soft so that it will not fragment easily.
- Use tools correctly. Always wear eye protection when using any manual or powered tool. Leather work gloves may also be appropriate.
- Maintain tools. Inspect tools regularly to be sure that they are in good condition and repair or discard broken, worn or damaged tools. Broken handles on hammers may cause the head to fly off and hit someone.

Injuries from hand tools are often caused by misuse. Workers often assume that they know how to use a common hand tool. Like all tools, hand tools must be maintained properly for effective use and safety. This section describes general safety guidelines for the three major categories of hand tools: cutting tools, torsion tools, and impact tools.

Cutting Tools

The main hazard associated with cutting tools is tool slippage. A dull tool or poor tool technique can cause a slip, which can redirect the cutting part of the tool toward the body. In addition, a sudden release or change in the force applied to a tool can throw the user off balance, possibly falling into another object which may cause injury. To prevent slippage, tools shall be kept sharp and handled in such a way that, if a slip occurs, the direction of force will be away from the body. In addition, cutting along the grain of a material can help prevent changes in the pressure applied to the tool, thereby preventing slippage.

Torsion Tools

Torsion tools are used to grip, fasten, and turn. These include wrenches, pliers, screwdrivers, vises, and clamps. There are a variety of each type of these tools. Selection is very important.

Some general user and safety practices you should be aware of: (continued)

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· **Wrenches** should always be pulled and not pushed. Pushing a wrench can cause a loss of control if there is a sudden release of pressure. A short, steady pull should be used rather than quick, jerky motions. Where available, use a socket wrench instead of an adjustable or open-ended wrench. Socket wrenches are generally easier to control, are more convenient, and are less likely to damage a bolt or nut. When using an adjustable wrench, the pressure should be applied to the fixed jaw.

· **Pipe wrenches** can easily slip on pipes or fittings, causing injury. To prevent slipping, make sure that the pipe or fitting is clean and the wrench jaws are sharp and kept clean of oil and debris.

- **Pliers** should never be substituted for a wrench. They do not have the same gripping power and can easily slip on a tight object. When using cutting pliers, the object being cut can fly off and cause injury. Wear safety glasses when cutting with pliers.

- **Screwdrivers** are often misused. They should not be used for prying, as punches, or wedges. These misuses can damage the head of the screwdriver. A dull tip can cause the screwdriver to slip. The tip must be flat at the tip and tapered for a snug fit on the screw.

- When using **vises**, make sure that the vise is bolted solidly to the base. When cutting material in a vise, try to cut as close to the vise as possible. This minimizes vibration. Oil vises regularly.

Impact Tools (Hammers)

Impact tools include various types of hammers like riveting hammers, carpenter's claw hammers, and sledge hammers. The main hazard associated with all these tools is damage to the hands and arms. The following safety procedures should be employed when using hammers:

- The handle shall be securely fitted and suited for the type of job and type of hammer head. The striking face of the hammer shall be kept well dressed according to the application.

- The handle shall be smooth and free of oil to prevent slippage.

- Safety goggles shall be worn at all times when hammering to protect from flying nails, wood chips, and metal or plastic fragments.

- To properly drive a nail, hold the hammer near the end of the handle and start off with a light blow. Increase power after the nail is set.

- To avoid chipping or spalling of the hammer head, use the lightest swing possible, hammer straight and not on an angle. Inspect the head of the hammer for potential chipping and spalling.

General Hand Tool Safety

Always keep your tools clean. Oil can cause the tool to slip off an object or out of your hands. Dirt and grime can impair the movement of the tool, requiring more pressure. This can lead to injury. In addition, wherever possible clamp the object you are working on rather than holding it in your hand. Many worker's hands have been injured from slippage of tools like screwdrivers.