

# Hand Tool Safety Rules



## INTRODUCTION.

Hand tools are safer than power tools, right? Hand tools are less likely to cause serious injuries such as amputations or death, but hand tools actually cause more injuries than power tools. And some of these injuries are very serious. These injuries are partially because of the general perception that hand tools are not dangerous and the resulting casual attitude toward safety that some people exhibit. Most injuries are the result of the cutting edge of the tool contacting the person resulting in cuts. The depth of the cut and the seriousness of the injury depend on many factors. Some people do not recognize that these tools rely on a sharp edge to cut the wood and that this sharp edge will cut flesh just as easily.

### Keep your tools sharp

The most dangerous hand tool in your workshop is a dull tool. A sharp tool cuts cleanly and easily. Dull tools require additional force to cut, may slip instead of cut and may place the worker in an awkward position. There have been some articles recently that discuss how to make tools scary sharp, implying that this is a high degree of sharpness. However, there are only sharp tools that cut cleanly and dull tools that don't.

**WARNING! Sharp edge cutting tools are dangerous and should be handled with care. Dull edge cutting tools are even more dangerous and should be sharpened.**

### Start with a Risk Assessment to ensure a safe work area:

1. Maintain a three foot perimeter around the work area that is kept clear of people, debris and sawdust that might impair traction or footing to avoid slips and falls.
2. Safety glasses with side shields or a face shield must be worn.
3. Remove loose fitting clothing, jewelry, and tie back long hair.
4. Give the work your undivided attention.
5. Do not wear loose fitting gloves or anything that would prevent you from maintaining a firm, controlled grip on the tool.

## **Operational Safety Rules:**

1. Approach your work in the Club Shop with a safe attitude!
2. Always clean the work area upon completion of the task. Do not use your hands or blow the shavings; use a bench brush or vacuum.
3. General.
  - a. If unsure how to use a tool, ask the Shop Leader for assistance.
  - b. Always select the correct tool for the job and use the tool as instructed.
  - c. Treat all tools and equipment with respect. Do not shorten their useful life through careless handling.
  - d. Never carry sharp tools in your pockets and when carrying them in your hands, keep the cutting edge or sharp point directed towards the floor.
  - e. Do not swing your arms excessively when carrying sharp tools.
  - f. Use only tools that are in good condition and sharp.
  - g. Pass tools handle first to the person that is to receive it.
  - h. Think through the job and how you are going to do it safely before you start the cut.

### 4. Chisels.

Bench chisels are an all-purpose tool used for a wide variety of cuts, from paring away slivers of wood from a tenon, to chopping out the corners of a drilled or routed mortise. Additionally, specialty chisels, such as mortising chisels, do one job very well.

For heavy chopping operations, the bench chisel is powered by a mallet. Other operations can be done strictly with hand pressure. Regardless of the task, however, all chisels must have a perfectly flat back and an extremely sharp edge to work properly. So it takes some initial tune-up and ongoing maintenance to keep them that way.

- a. Always clamp the workpiece securely in a vise or to the benchtop.
- b. Never hold the workpiece with one hand while chiseling/carving with the other hand.
- c. Always cut with the blade pointing away from your body and hands and keep your hands behind the cutting edge.
- d. The dominant hand should hold a chisel handle. Hold the blade of the chisel firmly in your free hand, stabilizing the chisel into the cut. If it is necessary to use a mallet, do not strike wood chisels with a metal hammer because the hammer may fracture the chisel handle and create flying particles

### 5. Hand planes.

Like the chisel, the hand plane is an ancient invention that has stood the test of time. It, too, is available in different sizes and shapes for different tasks. The block plane and smoothing plane (No. 4) are the two most commonly used types.

Essentially, a hand plane holds a sharp blade at a fixed angle, with its tip extending very slightly from the sole. When pushed along the surface of a board, the plane takes a very precise shaving and leaves behind a flat surface. This is indispensable for surfacing boards, shaping corners, and leveling one item to another. A favorite specialty plane is the shoulder plane, which can cut all the way into a square corner.

- a. Secure the workpiece before planing either with a vise, clamps, a bench stop or a bench hook.
- b. It is possible to hold a plane upside-down in a vise and pass the workpiece over it. This is sometimes done when the workpiece is too small to hold in a vise or be clamped to the benchtop. However, a push block must be used when doing this to prevent being cut by the plane blade.
- c. Plane at the right height for you. Most hand-tool users adjust the height of the work surface so that it is even with their fingertips when they are standing and letting their arms hang down.

## 6. Saws.

A saw is essentially a thin blade with a handle attached where the blade has been ground so that it contains a series of teeth, one right after the other. If the teeth are machined straight across, the teeth are like chisels and the saw has been designed for ripping (cutting parallel to the grain). If the teeth have been ground at an angle to the flat surface of the blade, the teeth are like knives and the saw has been designed for cross-cutting (cutting across the grain). These teeth are sharp and like a chisel or knife, can easily cut you. Since the teeth are lined up one right after the other, an injury by a saw is like being cut repeatedly with a chisel or knife.

- a. Back Saws. The blade on a back saw is very thin and has a stiffener attached to the top of the blade to keep it from buckling.
  - i. Secure the workpiece in a vise or clamp it to the benchtop.
  - ii. The first thing you'll need to know about your saw is how to hold it. This may seem obvious, but many people try to wrap all four fingers around the handle. The proper grip is to wrap the middle, ring, and little finger around the handle with the forefinger pointing along the brass back. You'll discover that in doing so, you will have much better control over how your saw tracks, and it will also feel very comfortable and natural.
  - iii. When starting a cut, hold the saw blade so it is flush with the top of the stock. It is not necessary to tilt your saw at an angle when cutting. Best performance is obtained by sawing slowly and evenly with very little downward pressure, using as much of the blade as possible. Your saw will track right to the line. Be aware, however, that due to the slight set, your saw will be hard to correct if it starts to cut away from the line. If that happens, it's because you didn't line it up properly when you started. Practice on some scrap wood to acquaint yourself with how your saw cuts.
  - iv. If your saw seems to "grab" the wood and jump around in the kerf, you're using too much downward pressure. Ease up a bit and take long slow strokes.

- b. Panel Saws (aka, Carpenter Saws, Handsaws. A back saw is limited in the depth it can cut by the stiffener at the top of the blade. Panel saws do not have a stiffener and are limited in depth of cut only by the length of the saw blade.
    - i. Secure the workpiece. If the workpiece is large, you may secure it to a saw bench with your knee and foot. If the workpiece is small, secure it with a vise or clamp it to the benchtop. Make sure the workpiece is well supported.
    - ii. Ensure that the blade is straight. A bent or kinked blade may bind in the cut and prevents making accurate cuts.
    - iii. When you make the first cut, use your thumb or the knuckle of your thumb on the hand holding the wood as a guide to ensure you cut along the cutline.
    - iv. If you're using a *crosscut saw*, start your cut with the teeth *nearest* the handle. This will give you the best control. Make a few back cuts until you get a nice kerf (opening in the wood).
    - v. If you're using a *ripsaw*, start your cut with the finer teeth *furthest* from the handle (near the point of the blade). Make a few short draw strokes to get a kerf going.
    - vi. After you get your kerf going, you need to angle your saw correctly to get the best cut. For crosscut saws, the proper angle is 45 degrees between the saw and wood. With ripsaws, it's 60 degrees.
    - vii. To counteract the natural tendency to angle the blade away from perpendicular, hold your elbows close to your body when sawing. This will also help prevent you from twisting and tilting the blade, thus ensuring a nice, clean cut.
7. Axes, Awls, Drawknives, Scrapers, Spoke Shaves and other tools with a cutting edge or sharp point.
- a. Follow the rules as stated above that can be applied, including:
    - i. Ensure that the workpiece is secured;
    - ii. Always cut away from you when practical. For some tools, such as drawknives, and spoke shaves, the safest way to use the tool is to cut towards you. In these cases, position yourself so that your forearm locks against your upper arm before the tool can reach your body. It is also a good idea to wear a leather apron.
    - iii. Ensure that the tool is sharp.

#### 8. Hammers and Mallets:

Hammers are used to drive nails and nudge items into position. Use only steel hammers to drive nails, brads, escutcheon pins, etc., or a nail set. Hammers with a rubber or rawhide face can be used to persuade components to move or change their position. Brass hammers are used only for positioning metal items when there is a concern about damaging the item.

- a. Hammers. Hammers consist of a handle and a head, with the head mounted at the end of the handle and perpendicular to it.
  - i. Steel hammers must never be hit face-to-face. The



hammer faces are hardened and may result in metal chips being broken off and flying towards you.

- ii. Likewise, a hammer should never be used with a nail set, metal chisel, center punch, etc. that has a mushroomed head. Pieces of the mushroom may break off and fly towards you. Remove any mushroom by grinding it off.
  - iii. Hammers with rubber or rawhide faces (soft-faced hammers) are not to be used to drive nails, or with metal chisels, nail sets, etc. They are also not to be used with woodworking chisels.
- b. A mallet is a special type of hammer. Mallets are used exclusively for positioning and driving other woodworking tools. Mallets generally have a wood face and are often a single piece of wood. However, some mallets have a brass or polyurethane face. Mallets are often cylindrical in shape with the handle and head on the same axis.



- i. Mallets may be used when driving woodworking chisels and carving tools. Cylindrical mallets do not have a front or back. The chisel can be struck with any portion of the head. This makes it possible to concentrate on the chisel cut and not have to watch where the mallet strikes the chisel.
- ii. Do not use a mallet to strike any metal object.