

Ergonomics For General Construction



Musculoskeletal Risks in the General Construction Industry

HAND TOOLS

Laborers use many kinds of hand tools in their work. Tool use contributes to hand and wrist injuries such as carpal tunnel syndrome.

Things to consider when buying and using hand tools are:

- Use tools with handles that allow you to get your hand around them to form a good comfortable “power grip.”
- Use tools with handles that are the proper length.
- Do not use tools that require you to open your hand wide to squeeze.
- Use tools that have an angled or adjustable handle that allows your wrist to remain straight.
- Use tools that are light weight but strong enough to do the work.
- Rotate and share the work with tools that can be used with either or both hands.

The following hand tools are commonly used by Mason Tenders:

- Hammers
- Shovels
- Brooms

- Knives
- Scrapers
- Crowbars
- Pliers
- Chisels
- Sledgehammers
- Screwdrivers
- Snips
- Bolt cutters
- Hand saws

HAMMERS: Hammers produce hand and arm vibration as well as forcing the wrist to bend while working. Hammers are available that are longer and have shock-absorbing handles that reduce the vibration levels. Use the right sized hammer for the job. Hammers are available with bent handles, which may be useful for certain jobs.

SHOVELS: Shoveling is extremely hard on the back because of the forced bending. A bent or long handled shovel may be helpful for some jobs. A D-handle may be added to the shaft to reduce bending. Have the right shovel for the job.

BROOMS: Brooms with aluminum or graphite handles are easiest to use. Rotating the broom head regularly will extend the life of the bristles which, in turn, make it

easier to use. Choosing the right broom (fine or rough bristles) depends on the surface of the area to be swept. The length and width of the handle are also important. Long handles are generally better and the handle should fit your hand comfortably. A bent handle, similar to a vacuum cleaner, reduces bending the wrist.

KNIVES: Laborers commonly use utility knives. A bent handle is helpful in many situations. The knife should have a comfortable grip and securely lock in place or be fixed with a shield. A sharp blade reduces the force needed for cutting.

SCRAPERS: Scrapers are used to remove material from floors (excess fireproofing, glue, etc.), among other tasks. Scrapers used while standing should have long handles and good grips. Short scrapers should have bent handles and comfortable grips. Heavy-duty scrapers designed for use with two hands are useful.

CROWBARS: Crowbars may be the ultimate ergonomic tool. They allow additional leverage to pry nails or demolish a wall. The ease of use for a crowbar depends on its weight and size. You should use the

appropriate weight and size for the job.

PLIERS: Laborers use pliers for many purposes on a job site. Pliers should have good teeth, a comfortable grip, and a locking mechanism similar to channel locks.

CHISELS: Chisels are often used to remove excess mortar or concrete from surfaces. A large flared chisel head makes it easier to hit.

SLEDGEHAMMERS: Sledgehammers are one of the most common tools used in demolition and come in all sizes and weights. A lip at the end of the handle will prevent your hand from slipping off. A fiberglass handle is lighter weight and easier to swing. Some workers duct-tape the grip to make it more comfortable to hold. Once the tape is worn, the surface is sticky, which helps increase the grip. Keep your top hand near the head on the upswing (to support the weight of the head) and slide it down to the bottom as you swing.

SCREWDRIVERS: Use the right screwdriver for the right job. A ratcheting screwdriver is useful because you do not need to remove it from the screw head. Magnetic screwdrivers make it easier to keep on the tip. Changeable heads are also helpful. The size and length of the screwdriver handle should fit your hand. More comfortable grips are now available. A T-shaped handle is good for some uses.

SNIPS: Snips cut metal. New designs for snips reduce the force needed to cut and new bent handles make it easier to cut.

BOLT CUTTERS: A bolt cutters with a long handle gives you more power. Do not use bolt cutters for cutting locks because it ruins them.

HAND SAWS: Use the right saw for the job. Most saws are designed for pushing and do not cut on the pull stroke. Use a saw with a pistol grip and keep the saw blade sharp for easier cutting. Some saws have a Teflon coating so they do not bind on the wood. Other new saw blades have smaller teeth in front to start the cut so the saw will not slip.