TerranearPMC Safety Share

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Hand tools are used routinely at work and in the home. And because they are part of everyday life, there is a tendency to forget that these hand-held devices can be hazardous. Screwdrivers, hammers, wrenches, saws, punches, planes, pliers and chisels are just a few of the tools commonly involved in accidents.

Improper maintenance and misuse are the typical reasons why people get hurt when working with hand tools. Selecting the right tool for the job and using it carefully is the responsibility of the user.

A hand tool is any tool that is powered by hand rather than a motor. Categories of hand tools include wrenches, pliers, cutters, files, striking tools, struck or hammered tools, screwdrivers, vises, clamps, snips, saws, drills and knives. And while power tools are typically used by manual application, they are not categorized as hand tools.

Hand tools have been used by humans since the Stone Age. This is the historical period in which stone was used to make implements with an edge, a point, or a percussion surface. The stone age lasted roughly 3.4 million years and ended between 8700 BC and 2000 BC with the advent of metalworking. This led to the Bronze age; the historical period where bronze was produced by smelting copper and alloying with tin, arsenic, or other metals. Bronze itself is harder and more durable than other metals available at the time, allowing civilizations that made bronze to have a technological advantage over adversaries. This period was followed by the Iron age which lasted from 1200 BC (the Bronze Age collapse) to approximately 550 BC. This period is characterized by the production of tools and weaponry by ferrous metallurgy (ironworking); more specifically, from carbon steel. This resulted in tools being even stronger and more durable than those made from bronze. The Romans developed tools during this period which are similar to those being produced today.

In the period since the industrial revolution, the manufacture of tools has transitioned from being craftsman made to being factory produced. Today, there is a variety of hand tools available on the market that allow us to perform more tasks more efficiently. However, if used improperly, serious injuries can occur. Therefore, a simple as we may think these tools may be, protective equipment as well and employing proper work practices are imperative when working with these instruments.

Unfortunately, it is not uncommon for skilled journeymen to use tools incorrectly or improvise as an immediate fix to a task. For instance, if a chisel is used as a screwdriver (or vice versa), the tip may break and fly off, hitting the user or other employees. It is also important that users inspect their tools and know when to remove a tool from service. Such would be the case if a wooden handle on a hammer or an axe, is loose, splintered, or cracked, as the head of the tool may fly off and strike the user or other persons. And if impact tools such as chisels, wedges, hammers or drift pins have mushroomed heads, the heads might shatter on impact, sending sharp fragments flying and acting as projectiles.

The type of personal protective equipment (PPE) you need when using hand tools depends on the tool being used and the hazard(s) created by use of the tool. At a minimum, eye protection in the

form of safety glasses or goggles must be worn at all times for eye protection. The simple act of snipping copper wire with side-cutting pliers, striking a nail with a hammer or sawing wood can propel small pieces of debris into the air. A full-face shield could also be used over the safety glasses or goggles to provide protection to the face if the potential hazard dictates the need. The OSHA regulation, 29 CFR 1910.133, "Eye and Face Protection," discusses appropriate types of protective face and eyewear that is designed for the specific hazards that may be encountered for anticipated work activities.

It is also important to protect your hands from cuts, abrasion and repeated impact. Cut-resistant gloves (having a numbering system of 1 – 5) can help protect against the effects of a sharp edge. Wearing standard cotton or leather gloves can help prevent wood splinters or skin abrasions from handling lumber. On jobs that require long periods of hammering, impact-resistant gloves with gel or rubber palms can reduce vibration.

Safety shoes/boots can help protect your feet from injury caused by a dropped tool. In addition, safety footwear can provide protection via metatarsal guards, puncture resistant soles and electrical insulation. Choose footwear that offers adequate traction for your work. If you need some help to determine what PPE would be the most appropriate, contact your S&H professional.

One of the most used tools in the world (if not the most used) are hammers: and there is quite an assortment. Nail, soft-face, ball-peen, chipping and sledge are just a few of the hammers used regularly in the workplace and at home. Therefore, there is a temptation to use whatever hammer-type is available to perform a task; even if the hammer that is readily available is NOT the correct one. As S&H professionals typically preach, "Always use the right tool for the job." Each kind of hammer has a head that is tailored for a particular application. Hammer handles are now made stronger and more ergonomically shaped which helps to transmit less shock to the user. Always use a hammer of the proper weight and size for the task and, of course, take a hammer out-of-service (attach a tag!) if you notice it is damaged; most notably for hammers, would be a loose or cracked handle or you notice the appearance of mushrooming or chips. Make sure the hammer face is 1/2" larger in diameter than the striking tool.

Screwdrivers are another commonly used hand tool: And similar to hammers, they come in many different shapes and sizes. The slotted and Phillips tips are the most common; however, torx, hex, square and various others are also used. Never use a screwdriver as a pry bar, chisel, punch, stirrer or scraper and never expose screwdrivers to temperatures that could reduce tip hardness.

Under the OSHA regulation, 29 CFR 1910.242(a) employers are required to keep all tools in good repair. The standard states, "Each employer shall be responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by employees." Any tool that is defective needs to be taken out-of-service and properly tagged. And while the employer has certain responsibilities, it is the user that has the ultimate responsibility to work safety as it is he or she that will suffer the consequence of an injury.

Passion is what gets you through the hardest times that might otherwise make strong men weak, or make you give up - Neil deGrasse Tyson