

Hand and Power Tools

Scenario

It's easy to pick up and use a tool without stopping to think about its hazards. It is difficult to remember that tools pose hazards, and sometimes accidents occur before steps can be taken to avoid or eliminate those hazards.

It happened like this

Xavier, Philippe, Jack, and Nathan were replacing some worn parts on the milling machine. Xavier, the lead on the job, watched as Nathan attempted to use an open-ended wrench to loosen a stuck bolt. Because of the position Nathan was in, he could only apply force by pushing the wrench. It kept slipping off the bolt. Philippe was working nearby, and was using pliers to tighten some small bolts he had installed. Jack was using a small screwdriver to tighten screws that had worked loose.

Xavier knew he had an inexperienced crew, but he hadn't expected this.

What are the issues?

- Inexperienced employees.
- Misuse of tools.

What did Xavier do right?

- Noticed the crew's inexperience with hand tools.
- Noticed that the wrong tools were being used for the job which can cause injury.
- Noticed awkward positions.

What did Xavier do wrong?

- Allowed crew to continue working.
- Did not suggest the right tools.

What do you think should happen next?

- Xavier should inform workers that the wrong tools are being used.
- Additional training should be provided on types of injuries, tool quality and design, as well as hand tool tips.

Questions you could ask:

What are some of the things that Xavier saw his crew do incorrectly?

- Nathan should have used a box or socket wrench to loosen the bolt. Also, the proper method with any wrench is to pull it towards you, rather than push it away from you.
- Philippe should have used a wrench instead of pliers on the bolts.
- Jack needed a screwdriver with a larger diameter handle to exert the proper force to torque the screws down tight.

Ask the trainees if they have any interesting stories to share about misusing tools.



Training tips

Using the right tool for the job

Sometimes using the wrong tool for the job causes an injury. Sometimes using the right tool, but using it incorrectly is the problem. Not inspecting a tool before you use it can lead to an injury if the tool breaks. Damaged tools don't work very well. Here is an outline of some common tools and tips for using them correctly:

Hammers and mallets: Nail hammers are designed to drive nails. Ball peen hammers are for striking cold chisels and metal punches. Mallets have a striking head of plastic, rawhide, or wood and are for striking wood chisels, punches, or dies. Sledgehammers are for striking concrete or stone. You can damage a hammer by using it for the wrong purpose. You can damage other tools by trying to force them by hitting them with a hammer.

Pliers: Pliers are designed to grip material so you can bend or pull it. Don't substitute pliers for a wrench—they can easily slip off of a fastener.

Cutters: Use cutters or snips to remove banding wire or strapping. Trying to use a pry bar to snap open banding can cause injuries.

Wrenches: When using open-ended wrenches, position yourself so you will be pulling the wrench towards you, with the open end facing you—this lessens the chance of the wrench slipping off of the fastener when you apply force. Use open-ended wrenches for light-duty to medium-duty jobs. Box and socket wrenches should be used when a heavy pull is needed. Because they completely encircle the fastener, they apply even pressure with a minimal chance of slipping. Some box wrenches are designed for heavy-duty use, and they do have a striking surface. But, in general, don't try to increase the torque by hitting the wrench with a hammer or by adding a cheater bar to the wrench's handle—this can break or damage the wrench. If the fastener is too tight, use some penetrating oil to lubricate it.

Wood saws: Use a cross-cut saw to cut across the wood grain and a ripping saw to cut with the grain. Select a saw with coarse teeth for sawing green wood, thick lumber, or for making coarse cuts. Use fine-toothed saws for making fine cuts in dry wood.

Hack saws: Install the blade with the teeth facing forward, and apply pressure on the forward stroke. Use a light pressure to avoid twisting and breaking the blade.

Knives: A sharp blade needs less pressure to cut and has less of a chance of getting hung up and slipping. Always move the blade away from yourself as you cut.

Screwdrivers: Use the right type and size of tip. Screwdrivers with thicker handles apply more torque, with less effort on your part. Using screwdrivers as pries, can openers, punches, chisels, wedges, etc. can damage them.

