



Naval Safety Center

LESSONS LEARNED



18-07

Off-Duty Woodworking Mishaps

"Got your digits?"

by CAPT Paul B. Durand, MSC USN

When you were born, I guarantee you that your parents, doctor, nurses, and relatives counted all your fingers and toes. That's right, every digit including "this little piggy." How many of you can say that you still have all of them? Unfortunately, there are a number of Sailors and Marines who have had serious injuries as a result of using shop tools at home and required tendon surgery, wound closure, cauterization, and more due to amputation. Those service members who are, or are interested in becoming, a do-it yourselfer should know the inherent dangers of shop tools. Let's face it – sharp blades, moving parts, and electrical power are a dangerous combination. Throw in an inexpensive cost that invites people to try home improvement or wood working projects without training, and voila, we've got us an ER visit.

| | Laceration/Puncture | Amputation (1 or more digit) |
|--------------|---------------------|------------------------------|
| Table Saw | 32 / 3 | 12 |
| Miter Saw | 7 | 3 |
| Circular Saw | 7 | 2 |
| Drill | 1 / 2 | - |
| Total | 52 | 17 |

Table 1. 2008-2018 Wood working tool injuries

During 2008-2018, the Navy and Marine Corps had 17 finger (1-2 digit) amputation injuries and 52 serious lacerations to Sailors and Marines using their own shop tools, whether it was in their workshops or doing small projects around the house. The shop tools causing injuries included table, miter, and circular saws. Two Sailors injured their hands using a power drill and ended up drilling right through their own flesh! There are a number of other hazardous wood working tools (e.g., lathe, planer, biscuit cutter, jigsaw, jointer, router) that have injured Sailors and Marines, but these appear to be extremely rare occurrences (about one serious injury per 10 years per tool). Just because it's rare doesn't mean you shouldn't be cautious. Always wear your PPE, and remember the old proverb "measure twice and cut once."

“Got your digits?”

Perhaps the most dangerous tool in one's workshop is the table saw. This handy and powerful machine can do it all – rip, cross cut, miter, cut grooves, etc. If you have a jig, you can do even more. However, be warned, that 10-inch blade spins at roughly 3,500 rpm or about 110 mph at the blade's edge. That wheel of pain can get your fingers or hand in a micro-second – just ask the 47 Sailors and Marines who felt the sting of carbide teeth munching on meat and bone! Twelve of them now have nicknames like “Lucky,” “Guillotine,” “Yakuza,” “Stumpy,” “Slash,” and “Stubby.” One of the best ways to prevent hand injuries is always use a riving knife (splitter) and a push stick. Additionally, table saws are notorious for kickback when the material binds to the blade, or, when as a consequence of using a dull blade, the rotating blade catches the wet or sticky material and sends the material hurling back to the woodworker at almost 110 mph. Three Sailors caught the fast moving wood projectiles with their bodies, penetrating their abdomen and requiring surgery. Ouch!



Another versatile tool found in the workshop is a circular saw. This handy corded or battery operated tool can cut wood, metal, masonry, and more but they are also dangerous.



They kickback material with such ferocity that can cause serious damage or injury. Nine Sailors and Marines were injured by this handy portable tool and one inattentive Sailor was cutting wood near the floor and ended up cutting off his big toe as he was ripping wood. Be aware of your surroundings such as where your feet and hands are, the depth of the blade, and the path the saw will travel.

Unsafe Acts!

Based on the HFACS, *skill-based* and *decision errors* are a common thread associated with these mishaps!

Translation: “If you aren’t familiar with the tools and/or if you get complacent, you are at high risk of getting bit!”

“Got your digits?”



Another hazardous tool you might have in the shop is a miter or chop saw (pretty simple - one is able to chop and miter, while the others can't). The miter saw is a valuable wood cutting tool allowing one to make angled bevel, miter cuts or right angle cuts and is the most efficient tool for jointing. This tool seldom leads to serious injury, except for the ten unlucky Sailors and Marines, provided common sense safety rules are followed. Eye and hearing protection is always a must. This noisy machine has the potential for the spinning blade to generate wood particles, debris, or dust and send it into the operator's eyes. One Sailor had an eye injury and failed to wear eye protection. They generally don't kickback but can bind wood, causing a jerking of the motor and blade unit. The manual will tell you to always let the spinning blade come to a complete stop before lifting it past the stock (the cut will be cleaner as well). Lastly, sometimes the work may require holding the material and machine with opposite hands. This uncomfortable arrangement may tempt you to cross your hands to make the work easier...not a safe thing to do.

Here are few tips to keep your digits, eye balls, and more:

- 1. Don't use your free hand to hold the piece of wood. Use a clamp instead.**
- 2. Beware of ricocheting material and kickback. Don't stand directly behind the piece you are cutting and don't let go of the wood while it is in contact with the blade.**
- 3. Don't remove the safeties on your shop tools.**
- 4. Never wear gloves when using power tools. The material may be caught in the blade's spin and pull it in along with anything attached.**
- 5. Use a jig when possible. (A jig is a device that can help you cross cut, cut slots, patterns, and channels much more safely).**
- 6. Use the right blade. (Highly recommend a combo blade that can do most things for the hobbyist). If you aren't sure, ask a pro.**

And remember, "Let's be careful out there"

“Got your digits?”

Final Thoughts

The shop manuals for your power tools provide a wealth of material on operating the tool correctly and safely. In order to keep your ten digits and toes, your two eyes, and your hearing, always wear your PPE. Pay attention to the task at hand. Don't lose focus because anything could happen in a split second.

Based on the data, seven Sailors or Marines will get seriously injured or lose a digit or two by one of these tools this year. If you can keep your safety discipline at work, why not do the same at home? After reading through every mishap, I for one will approach my wood-shop with more care and attentiveness. Who wants to be known as “Stubby?”

Ten fingers ... Ten toes ... if you are not careful then, who knows?