

Salisbury Building Arts Program

10.6.25

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Robie House, Chicago, 1908, F.L. Wright



Robie House Front Elevations & Interior



Workshop Guidelines:

- Eye protection must be worn. In certain cases, a full face shield is required; such as when using a lathe or an angle grinder.
- Wear hearing protection as needed.
- Long hair must be tied back. If it touches one's shoulders, it must be tied back.
- Proper footwear should be worn; no open-toed shoes or flip-flops. Many tools are heavy and sharp which poses a greater hazard when dropped on an unprotected foot.
- Proper clothing should be worn. Loose or baggy clothing can become caught in a machine which can pull the operator into the machine. It must be tucked in or rectified.
- Sleeves must be pulled up. Jackets should not be worn.
- Jewelry must be removed (leave it at home).
- One cannot wear scarves, ties or anything dangling from one's neck when operating machinery.
- In a woodworking shop, gloves should not be worn. (This is different from working in a metal shop where one is dealing with sharp and possibly hot metal.) Around woodworking machinery a glove can get caught and pull one into the machine.
- One is not allowed to use a machine unless one has been properly trained and signed off on that machine. Just watching someone use the machine does not constitute proper training.

- The dust collector must be turned on when the machines are in use. After using the machines, the dust collector should be allowed to run for a minute or two before turning it off so that the dust exits the system and doesn't settle out in the tubing.
- Do not start a machine with your wood in contact with its moving parts. Turn on the machine, let it come up to speed, then put your wood into the machine.
- Do not leave a machine running and walk away from it. Anytime one leaves the operator safety zone, the machine must be turned off and stopped completely. Especially with saws, don't assume the next person up to the machine will see that the blade is still turning. With noise and distractions in the shop, it is easy to be unaware that a machine might still be on or be coasting to a stop.
- Do not use a piece of wood to stop the machine. On the sanders, it clogs the sandpaper and on the saws it can cause the blades to break. If the machine is equipped with a brake, it should be used moderately to stop the machine. If there is no brake, let the machine coast to a stop before leaving the machine.
- If a blade breaks or something else goes wrong with the machine, step away from the machine and shut it off. If it is dangerous to shut off the machine, push the emergency power shut-off to kill power to the shop. Stay away from the affected machine until everything stops moving.

- Do not force your wood into a machine. The harder you push; the more dangerous it is. If your wood doesn't want to go through a machine, don't push harder. Stop, find out why not and correct the situation. If the blade on a saw becomes dull, it needs to be changed.
- If something doesn't seem right; if the machine is making strange noises, vibrating excessively, smells like it's burning or is sparking; stop the machine and notify the person on duty.
- In a wood shop, we don't want sparks. They can set the dust collector on fire or potentially even cause an explosion.
- Only certain materials can be used in the woodshop. Basically, we want new clean wood. For the most part, we don't want painted wood on the machines. Especially, older wood might contain lead paint which would be hazardous for anyone breathing the dust. Painted wood should never be used on the planer/jointer. Many paints are minerals or metallic oxides which will immediately dull the knives of the planer/jointer.
- Treated lumber should not be used in the shop. It can contain hazardous materials.

- No plaster or other materials such as synthetic composites (fiberglass, epoxies etc.) can be used on the machines. No plastics. Plastics will ruin the tires on the bandsaws, ruin the sandpaper on the the sanding machines, and potentially pose a fire hazard. Exceptions to the no plastics rule are the table saw, where we do cut plexiglass with the plastics blade mounted on the saw, the drill press, and potentially, the scroll saw.
- No metal. The blades on the saws are not made for cutting metal. If one puts metal on the sanding machines, it will spark which will cause a fire in the dust collection system.
- Wood should be inspected to make sure it contains no rocks, screws or nails.
- If you are in doubt whether a material can be used in the shop, ask the person on duty.
- Only students who are enrolled in classes and have received proper training are allowed to use the shop.
- Students are allowed to use the shop only during posted hours when an instructor or monitor is on duty. Even during posted hours, if one enters the woodshop and no one is in the room, one isn't allowed to work until the person on duty returns. In other words, just because the door might be open, that doesn't mean that the shop is open.
- In general, when using dangerous tools or machines, it is important that one is not alone. In the event of an accident, there is someone there to help out. But as stated above, one is not allowed to work in the woodshop when no one is on duty and it is not during open hours.

- As various classes work on specific wood projects, they have priority use of the shop during their class time. During those times, if one is not in that class, one may be asked to leave and to use the shop at a different time. Otherwise, we will try to accommodate all students during open hours.
- All safety devices and guards must be used on the machinery when appropriate. This includes push sticks, clamps and blade guards.
- Plan out your order of work to make succeeding steps safer or even possible. Anticipate problems one might have (such as cut first then sand, not the reverse). For saws one needs flat stable surfaces. Don't round something first and then try to put it in a saw.
- Small pieces of wood are potentially dangerous. On some machines, there is a minimum size which can be put into the machine safely. If one gets below a certain size, one is asking to get hurt. Much of this danger can be mitigated by planning the order of one's cuts or machining, anticipating potential problems, and taking steps to perform those tasks safely. Cut small pieces off the end of a large enough piece to give you a safety margin. One must also be willing to waste some wood in the interest of safety. Don't try to squeeze every last bit out of a piece of wood. It is generally worth only fractions of a penny. It is never worth what you are putting at risk.
- We are not in a race or motivated by profit in this shop. Using machines calls for steady deliberate motions.
- If one needs to speak with someone, turn off the machine then talk. Don't stand there talking with the machine running and your hands near it.

- Your greatest safeguard is in your head. Be aware of potential dangers. Think about what you are doing and how to go about it. Think about things such where your hands are and which direction you are pushing. If you slip will your hands go into the machine?
- On saws, only push as hard as the saw comfortably wants to cut the material. At the end of the cut slow down, release pressure, and come out of the cut slowly so that one doesn't lurch forward into the blade.
- Don't assume you can stop before hitting your hand when you come out of the end of a cut. Your hand should not be in line with the blade.
- Cut or machine only one piece of wood at a time. To work on multiple pieces together, they must be clamped or securely fastened together. Your hand is not a clamp or an adhesive.
- Clean up when finished. This means don't leave chunks of wood all over the machine or floor which compromises other people's safety or ability to work.
- If you see another student about to do something dangerous, or if part of their clothing or hair is about to get caught in a machine, please warn them and if necessary, inform the person who is on duty.
- If you don't understand something or need help, please ask the person on duty.

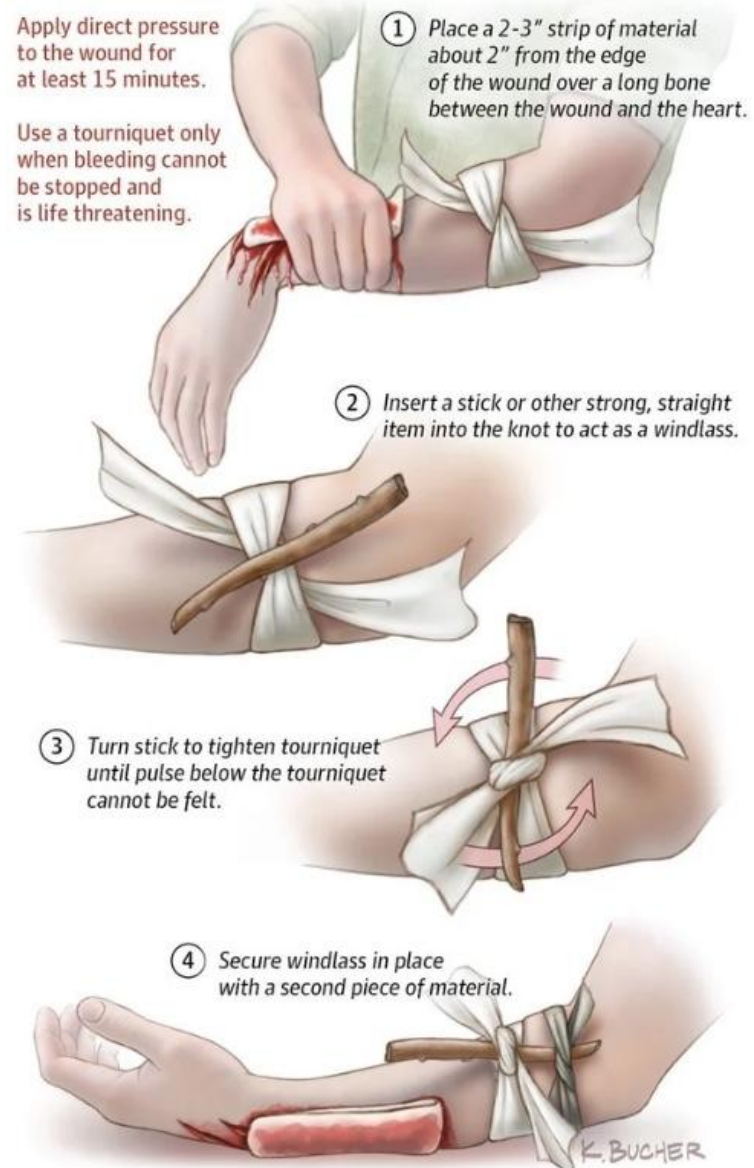
Tourniquets:



Applying a tourniquet with a windlass device

Apply direct pressure to the wound for at least 15 minutes.

Use a tourniquet only when bleeding cannot be stopped and is life threatening.



Keep tourniquet visible and monitor wound for bleeding. Note time and watch for swelling below tourniquet.

The Box: Design & Cut List

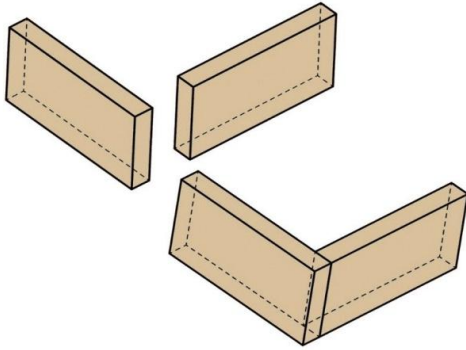


Measuring & Marking Lines

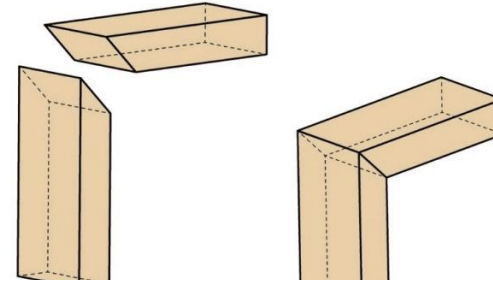


Box Making Joints

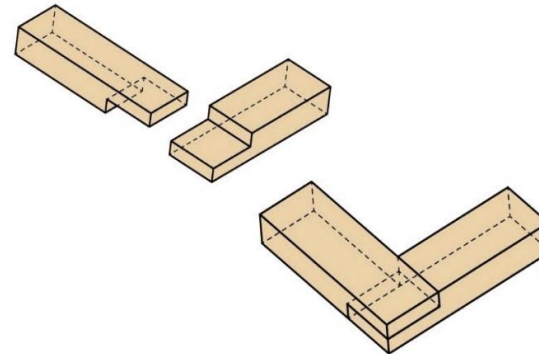
1. Basic Butt Joint



2. Mitered Butt Joint



3. Half-Lap Joint



Bench Hook: a jig for crosscutting by hand





Cutting Narrow Pieces on a Table Saw



Resawing Lumber on a Tablesaw



Workshop Improvement Sequence

ALL THINGS CONSIDERED

Philip Houck spent a year designing a shop that is easy to heat, with plenty of light and an open floor plan. Beefed-up framing, extra insulation, and an under-floor dust collection system helped him achieve that goal.

High windows on the north side make room for the wall-mounted lumber rack. Underneath, an array of upright boxes holds cutoffs of varying lengths.

16-in.-wide plywood I-beams used as ceiling joists support the upper floor with no need for posts underneath.

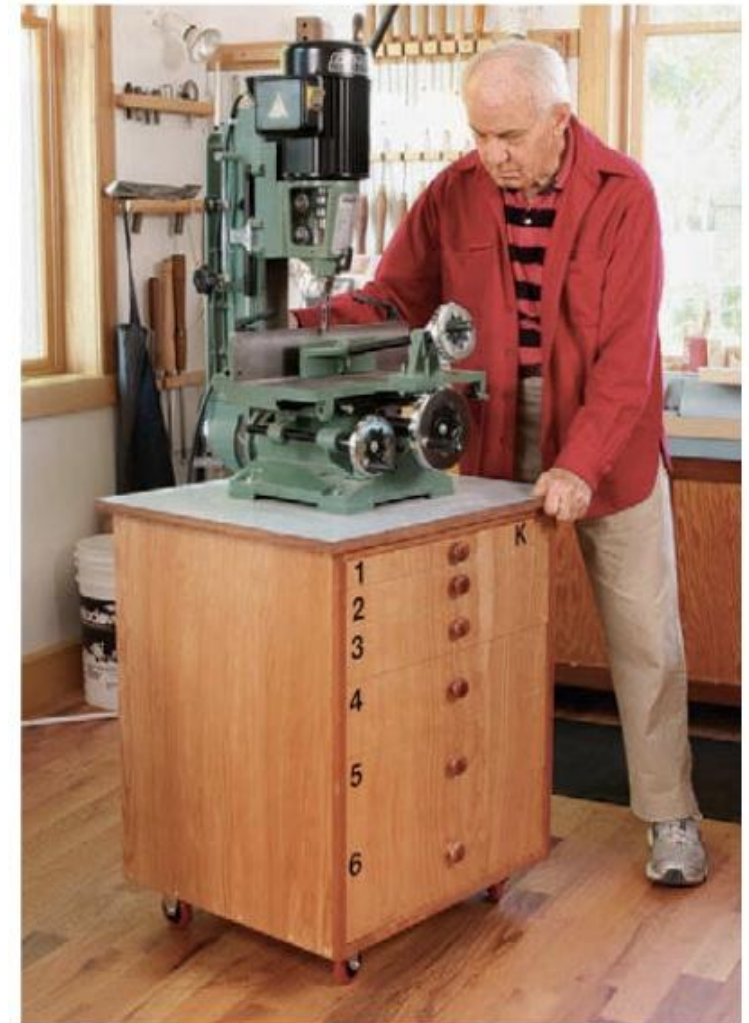
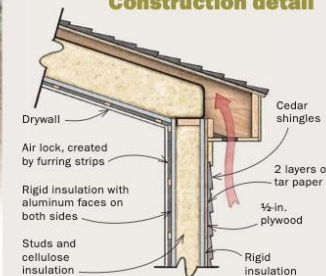
The upper floor houses a small office and storage for jigs, projects, and parts.

Houck's benches and hand tools are located at one end of the shop, near the sink for easy access to water during sharpening. The carving bench is stationed by the window to take full advantage of natural light.

The shop's dust collection is provided by a cyclone fed by rigid ductwork. Running the ductwork under the floor was "a miserable job," Houck says.

Houck made the shop energy efficient by following the construction and insulation advice offered in *Builder's Guide to Cold Climates* (2006, eebsa.org).

Construction detail



Cabinets on wheels. The mortiser and drill press sit atop rolling cabinets with plenty of drawer storage for bits, accessories, and other tools.

Lumber Storage: Wall racks & low boxes



Lumber storage. Houck's wall-mounted lumber rack uses space efficiently because the angle-iron requires no bracing. A graduated set of boxes underneath keeps scrap

