

A man in a black t-shirt and brown apron stands in a workshop with his arms crossed. The background is a wooden workbench cluttered with tools like glue, clamps, and a saw. Five circular callouts show different woodworking techniques: using a table saw, joining wood with a dowel, clamping a box, sanding a piece, and using a hand plane.

42 THINGS EVERY WOODWORKER Should Know


**Apply these truths
for better results
from the get-go.**

These tips put you on solid footing

1 Frame of mind matters

Don't go into the shop when you're tired, in a bad mood, or distracted. At best, your woodworking results will be mediocre; at worst, you'll injure yourself.

2 Eyes, ears, and lungs need protection

Always wear eye and hearing protection—anything with at least a 22-dB noise-reduction rating (NRR)—when using power tools. Of course, a common dust mask protects your lungs better than nothing, but a respirator with a rating of N95 works much better. For spray-finishing, use a respirator with a P95 or P99 rating. 



3 Seek help from others


Most woodworkers gladly share their expertise and tips. A few minutes spent with a peer or neighbor can turn a complex process into an enjoyable and simple one. Also turn to the multitude of woodworkers on the *WOOD* Online® forums at woodmagazine.com/forums.

4 Keep a well-stocked shop

Always maintain a good supply of these shop necessities: painter's tape, double-faced tape, orange-based hand cleaner, tweezers with a magnifying glass, first-aid kit, and fire extinguisher. 



5 You can't be too organized

Buy or make cabinets, shelves, or parts bins to suit your needs. Once things are in order, you'll work smarter, be happier, and spend less time searching for tools and supplies. 

6 Always make extras

Machine additional project parts when dimensioning stock, and use these test pieces instead of your project pieces to check and adjust tool setups. Use other leftovers to test stain colors and other finishes to get an accurate representation of how they will look on your project.



7 You don't have to pinch every penny

It's okay to be frugal, but know when to say when. Wood *does* grow on trees, so you can get more if you mess up a piece. Sandpaper wears out in 5–10 minutes. Glue has a shelf life (usually about a year or two). Finishes with a tough skin over them in the can should be tossed.



8 Life's too short for a crappy workbench

Whether you build or buy one, make sure your workbench is sturdy, flat, and has at least one beefy vise.



9 Don't expect perfection

Trying for a flawless project can be paralyzing: It's nearly impossible. So don't sweat the mistakes you'll inevitably make. Instead, learn how to repair them—and how to avoid them in the future.

10 Invest time in jig-building

It's worth the hour or two it takes to build a jig for a 5-second cut because jigs make operations safer, more precise, and repeatable.



Make this tapering jig in less than an hour; it's adjustable for different size workpieces. Find it and other jig plans at woodmagazine.com/jigs.

More Resources



Whenever you see this symbol, go to woodmagazine.com/42things for related information.

Proper milling and joinery give great results

11 It's OK to waste some wood for appearance sake

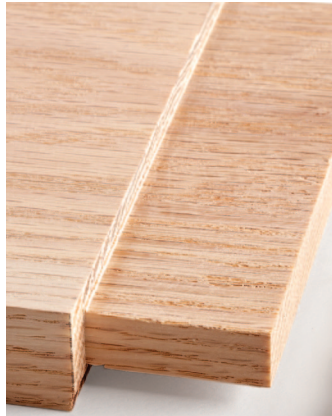
Use chalk to lay out project parts on boards and sheet goods to maximize the material, but know when to instead cut parts to avoid defects or take advantage of spectacular grain patterns or colors. When you buy lumber, plan to lose about 10–20 percent of it to waste.

12 Glue + smooth wood = maximum bond

Forget what some old-timer might have told you about glue needing “tooth.” Smooth wood surfaces bond better with glue compared with rough surfaces. So take the time to make your joint faces smooth and snug-fitting. Also, glue does not adhere well to burnt-wood surfaces, so avoid them.




This tenon, cut with a tablesaw dado blade, retains subtle ridges that will impede the joint's glue adhesion.



This tenon, also cut with a dado blade, will bond better because we removed the ridges with a shoulder plane.

13 Tame tear-out with two simple fixes

Grain tear-out can damage a workpiece beyond repair, so prevent it by backing up cuts with auxiliary supports. Buy or make zero-clearance inserts for your tablesaw, bandsaw, mitersaw, and drill press to stop face-grain tear-out. Add a wooden extension to your miter gauge to control blowout on the back edge. In a similar fashion, back up router cuts with scrap stock. 



Make custom zero-clearance inserts for different blade angles and setups, such as beveled cuts and dados.


14 Use the correct machining order for rough lumber

Here's how to mill rough lumber square and true:

1. Crosscut to rough length ($\frac{1}{4}$ " or so longer than final length), removing end checks.
2. Flatten one face on the jointer.
3. Plane the board parallel and to final thickness, removing equal amounts of material from each face.
4. Joint one edge square to the faces.
5. Rip to final width on the tablesaw.
6. Crosscut to final length.




15 There's no substitute for accurate layout

No amount of glue or wood filler will compensate for a sloppy joint. So buy, and learn how to use, quality layout tools: combination square, steel rule, marking knife, and marking gauge. 

16 If man made it, it doesn't go into the planer or jointer

Compared with solid wood, composite products, such as plywood, particleboard, and MDF, dull planer and jointer knives much quicker because of their high glue content.

17 Templates yield fast and accurate results

When you need to make multiple parts with curves or cutouts, save time and ensure a perfect match by stack-cutting the parts and flush-trimming them on a router table. 



Bind multiple workpieces together with the template using double-faced tape. A starting pin helps anchor the stack when beginning the cut.

Plan your work, work your plan

18 Assemble first, glue next

Always dry-clamp assemblies before applying glue. You don't want to discover misfit joints or unsquare assemblies after the glue goes on.

19 Presanding pays

Finish-sand as many parts as you can before assembly, especially inside faces and edges that will be more difficult to access once assembled.

20 Don't be a clamp snob

Most woodworkers need little more than inexpensive, time-tested pipe clamps. Outfit your shop with sets of four in 12", 24", 36", and 48" lengths. You can couple pipes together to make longer clamps, or simply keep longer lengths of pipe and swap the jaws as needed. Add a few one-hand ratcheting bar clamps (such as Quik-Grip) for general use in 6" and 12" lengths. Buy other clamps only when needed.

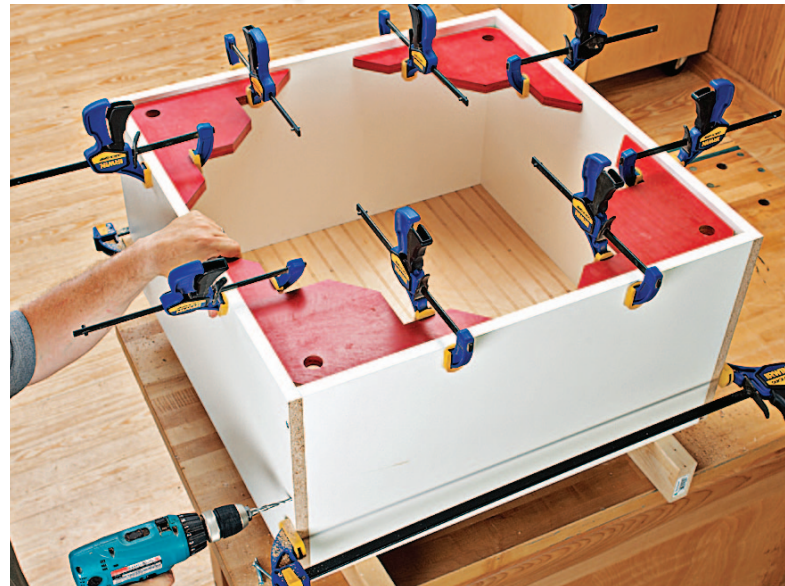


21 Hardware should be installed, removed, and then reinstalled

Before applying stain or clear finish, assemble your projects with the hardware intact to make sure everything works and fits as planned. Then remove all hardware, apply finish, and reinstall to ensure complete finish coverage on everything *but* the hardware.

22 "Square enough" isn't square

When assembling projects with 90° corners, it's critical to get all the corners perfectly square, especially when your project has doors and drawers that must fit inside openings. So buy or make 90° braces to clamp corners square. Without them, you'll be chasing mistakes throughout the rest of your project.

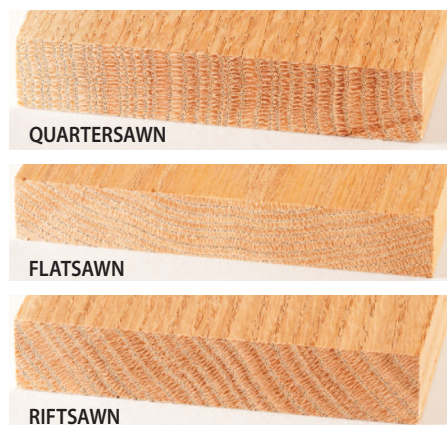


These plywood braces hold the carcass square while the glue dries or until you can solidify it with screws.

Know the wood you work

23 Know your wood and how it was cut

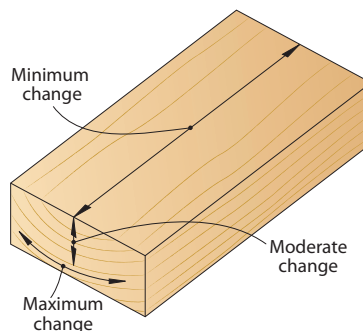
Familiarize yourself with common wood species—especially those native to your region—to tune your deal-spotting radar. Then stretch your dollars by shopping for rough lumber at local sawyers and lumber mills. Start by understanding these types of cuts: Quartersawn wood costs the most, and proves most resistant to warp and waste. Flatsawn costs the least, but could warp and leave more waste. Riftsawn wood falls in between.



24 Wood moves—deal with it!

Solid wood shrinks and swells with changes in seasonal humidity, mostly across the grain and only negligibly along its length. Allow for this when you build projects—otherwise, wood movement will cause parts to split, joints to come apart, and sliding parts to stick. Minimize the problem by letting the wood acclimate to your shop's humidity for a few days before working it.

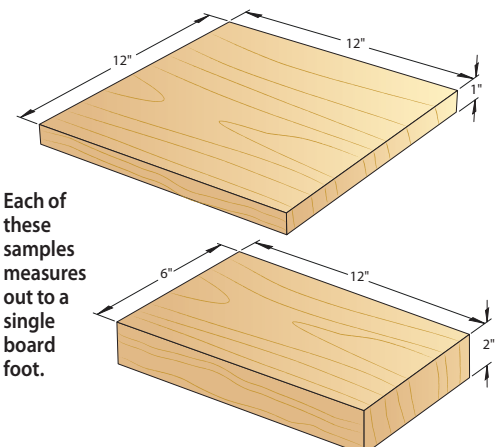
WOOD EXPANSION AND CONTRACTION




Even after wood has reached a moisture level where it's stable in the surrounding environment, it will still change with the seasons.

25 Know what a board foot really means

Outside of home centers, hardwood is sold by the board foot (the equivalent of a 12"×12" board 1" thick). Be aware that the board-foot calculations are made as though the board were still in its roughsawn (not planed) condition. Wood sold as 4/4 (four-quarter) measures 1" thick in its roughsawn condition. But many mills and dealers skip-plane the lumber—revealing just enough face grain to grade it—until it's $\frac{7}{8}$ "– $1\frac{1}{16}$ " thick. Many plane it on both faces to $\frac{3}{4}$ " thick.




Tools Work as Well as You Can Use Them

26 Sharp tools = safer tools Dull knives or chisels require greater effort to cut wood than sharp ones. That extra force increases the likelihood you'll slip or lose control of the tool, and potentially be injured. So hone your hand tools regularly. 



27 Know when to splurge, and when to scrimp, on tools Buy top-quality tools if you plan to use them for decades (router, tablesaw, planer). Opt for bargain-priced tools when you need them only on occasion (oscillating multi-tool, pneumatic nailer, belt sander).

28 Rust management preserves your tool investment Steel tools rust. Know how to remove and prevent it, especially if you live in a humid environment. Skip the home remedies and try one of these proven rust-busters: Empire Top Saver rust remover and protectant, 8 oz, item #148040, \$22.99; Boeshield Rust-Free rust remover, 8 oz, item #03Q57, \$12; Boeshield T-9 protectant, 12 oz, item #03Q56, \$17.99, Woodcraft Supply, 800-225-1153 or woodcraft.com. 

29 Planers won't make boards flat A planer will make two board faces parallel, but it can't remove cup or twist. You need to do that on one face of the board using a jointer first. So invest in both machines. They will pay for themselves in lumber savings by enabling you to work with lower-cost, roughsawn material.

30 Sometimes hand tools are faster than power tools Two quick examples: You can usually chamfer a board with a block plane in less time than it takes to install and adjust a chamfer bit in your router. And a sharp handsaw cuts a haunch on a tenon quicker than setting up your table-saw for the job.




Chamfering the top of a dining-chair leg proves a snap when you use a sharp block plane. Setting up a router table for this task takes too much time.

31 Upgraded dust-collection filters: Well worth the upcharge When purchasing a dust collector, remember that filtration is as important—if not more so—than airflow (CFM) or horsepower. The 30-micron filter bags that come standard on most collectors allow too much fine dust to return to the air you breathe. Instead, upgrade to a 5-micron or finer filter; go for 1 or 2 microns if you can get it.

32 Your best router value comes in a kit If you can afford only one router, make it a midsize (1¾- to 2¼-hp) kit with both plunge and fixed bases. Mount the fixed base in a router table and swap the motor to the plunge base for handheld work. 

33 Both cheap and premium router bits have a place Sure, there's value in those big kits that sell for \$1 or \$2 per bit *if* you rarely use them. But for the bits you use most often—for most of us, that's round-overs, flush-trimmers, cove bits, straight bits, spiral bits, chamfers, and rabbeting bits—premium brands cut cleaner, stay sharper, and stand up better to regular use.



34 Tools need TLC to remain accurate Virtually every new tool needs some adjustment for absolute accuracy. Confirm (and correct, when necessary) these adjustments from time to time with regular maintenance. For example, your tablesaw's miter slots and rip fence must be aligned parallel to the blade to make accurate—and safe—cuts. 



To align a tablesaw top to the blade, adjust it until a dial indicator (or combination square) reads the same at the front and back of the blade.

Finishing Makes Projects Pop or Flop

35 Oily materials can cause fires
Rags and brushes soaked with oil-based stains or finishes can combust if left wadded up or thrown away wet. Spread them out to dry before disposing of them.

36 Prefinish panels to avoid shrinkage woes
The solid-wood center of a frame-and-panel door or case side should be stained or finished prior to assembly. This way, when the panel inevitably shrinks, it won't reveal unfinished edges.

37 Go backless when spray-finishing
Spray a project with the back in place and the overspray will bounce back in your face—not fun. Instead, remove the back panel and spray it separately.

38 Hand-sand for best looks
Despite all of the power sanders available today, you should still do your last round of sanding by hand—with the grain—to eliminate cross-grain scratches.

39 Find a finishing sweet spot
You don't need to master every finish out there. Find one or two finishes that work for you—say an oil finish for rarely handled projects and polyurethane for pieces that need tough protection—and then master those.

40 Fix too-dark end grain with one extra sanding
Sand visible end grain one grit higher than faces and edges so the end grain soaks up less stain and matches surrounding surfaces.



This end grain, sanded to 220 grit like the rest of the workpiece, soaked up more finish and looks darker than the face and edge grain.



By sanding only the end grain to 320 grit—but stopping at 220 for the face and edges—the end grain's color better matches the overall tone.

41 Sand one more step for stained projects
For planed project parts, start sanding with 120-grit abrasive, and then follow up with 150 and 180 grit. If you're going to apply an oil or clear finish, stop sanding at 180. But if you'll use a stain or dye, sand to 220 to remove the fine scratches that show up under colorants.



This oak board, sanded to 180 grit and stained, reveals swirl marks.



Sanding this board to 220 grit eliminates unsightly scratches.

42 Detect tool marks before it's too late
Even though you might not be able to see them in natural-lighting conditions, tooling marks (blade scoring, planer scallops, snipe) could be lurking on your project's surfaces, waiting to expose themselves after you apply finish. Check your work with a low-angle raking light to expose these marks, and then sand, plane, or scrape them away. 🌲

Produced by **Bob Hunter**



A low-angle raking light reveals scallop marks left on this board's edge by a jointer's straight-knife cutterhead.