

Mill Lumber Safely

A bandsaw and a jigsaw make the process less intimidating

BY MICHAEL C. FORTUNE

The switch from using surfaced lumber to milling your own boards from rough stock is a watershed for most woodworkers. It saves you money, unchains you from the standard thicknesses available in surfaced lumber, and gives you greater control over the accuracy of your work and the look of your boards.

But this business of taming roughsawn stock can be a challenge. The wood is rarely flat to start with, and it often releases inner stresses when cut that can pinch or bind a sawblade, resulting in a violent kickback.

I eliminate these dangers by using a bandsaw instead of a tablesaw for initial ripping and by using a jigsaw instead of

a chopsaw for crosscutting rough stock to length. Both of these saws employ narrow blades that make them less susceptible to binding.

Besides being safer, the process I follow is simple and straightforward. Make sure your machines are set up properly and check the stock with an accurate square as you progress through these steps. Your

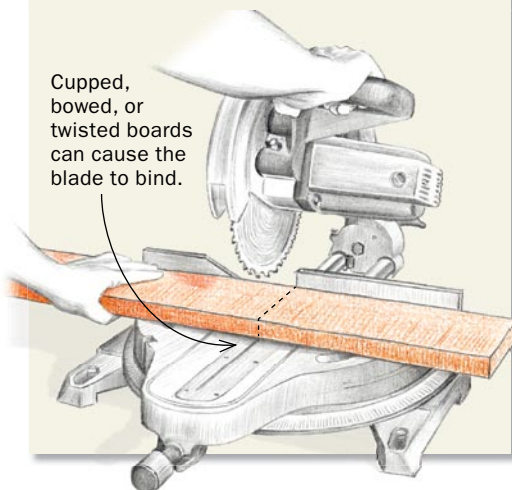
1. Cut to rough length with a jigsaw

Crosscut to rough length. Position the sawhorses so that stock on both sides of each cut is fully supported.

CHOPSAWS CAN BIND

Because roughsawn stock isn't flat, it won't always sit still under the circular cutting action of a chopsaw. It may fall into and bind the blade during the cut.

With a jigsaw, the vertical cutting action doesn't push the stock around. The narrower blade is also much less likely to be pinched.



goal, of course, is boards that are completely flat, straight, and square.

Start with the jigsaw and the bandsaw

Rough lumber that is twisted or cupped won't sit flat on a chopsaw. As the cut is made, the stock can drop into the blade, pinching and binding. For this reason, I use a jigsaw with the stock set across three or (better still) four sawhorses. A jigsaw with an oscillating cutting action and a very coarse blade will cut through the hardest wood up to 2 in. thick.

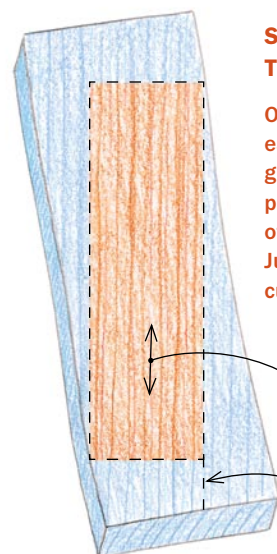
Always cut off the rough ends of the boards, which may be checked (cracked) and embedded with grit, staples, and other debris that could nick your jointer and planer knives. Now use the jigsaw to cut the rough stock into pieces that are 1 in. or 2 in. over the finished length.

The next step—cutting pieces to rough width—is the point at which many woodworkers use the tablesaw. Here's why I head for the bandsaw instead: Wood can release inner tension when sawn down its length, springing apart after being cut. On the tablesaw, the wood may bow away from the fence and into the blade, or the kerf can close up on the blade, with either one potentially resulting in a violent kickback. On a bandsaw, the short fence is less



2. Layout: Snap a line or add a guide

A straight rip follows a straight line. A carpenter's chalk line produces a bright, straight line on stock that's too long for marking with a straight-edge (left). A surer path to a straight rip is to attach a piece of edge-jointed stock, nailing into the waste area of the rough board (below left). The jig's jointed edge rides the bandsaw fence and guides the stock in a straight path through the blade.



STRAIGHTENING THE GRAIN

On the bandsaw, it's easy to "correct" grain that runs out of parallel to the edge of roughsawn stock. Just make your first cut follow the grain.

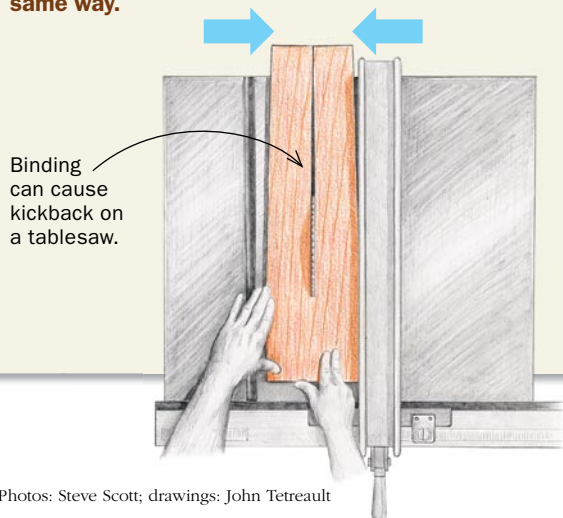
Lay out to follow grain.

Cut line

3. Cut a straight edge on the bandsaw

TABLESAWS CAN KICK BACK

On the tablesaw, tensions in the wood may cause a long rip to close up again behind the blade, pinching it and creating a kickback hazard. Because the bandsaw's blade is much narrower from front to back, it is much less likely to be pinched in the same way.



Rip without resistance. Fortune sets up his bandsaw with a coarse, 3-tpi, skip-tooth blade, tracked on the centerline of the upper wheel. This makes it easy to cut thick stock. Boards without a straight reference edge can be ripped freehand (left). Or use a straight-line jig (right) to guide the stock through the blade.

4. Rip to rough width

Stay at the bandsaw. With one relatively straight edge established, you can rip your stock to rough width, about $\frac{1}{8}$ in. over final width to accommodate any unevenness in your straight edge and for the release of any tension in the wood. Let the stock rest overnight before milling to final dimension. To provide adequate support to long or heavy stock, Fortune mounts an outfeed roller on an adjustable stand modified to mount directly to the saw's housing (below). This provides a sturdy outfeed that stays level and doesn't tip.



likely to push bowed stock into the blade, and the blade's downward cutting action isn't aimed at the operator.

Use the bandsaw to cut the pieces to rough width, about $\frac{1}{8}$ in. oversize. Run one straight edge of the stock along the bandsaw's fence to get a straight cut. Depending on the straightness of each piece, you may need to pass an edge over the jointer first to get this straight reference edge.

Sometimes, if I can't joint the edge because it is too wavy, still has bark on it, or has a big knot, I'll mark a pencil or chalk line and trim the entire edge freehand on the bandsaw. Most importantly, this technique allows you to lay out the first edge so the board will have straight grain.

A surer way of cutting a straight line is to attach a straightedge (a piece of plywood or long stock with a jointed edge) with a couple of finishing nails in the overlength portion of the stock. The jointed edge will ride the fence and guide the stock through a straight cut. Don't sink the nails flush; you'll pull them out when you are done.

At the jointer, flatten a face and square an edge

After the stock has been ripped to rough length and width, and after it has rested overnight, the next step is to joint one face flat. A thickness planer cannot do this job—it can only mill one side of a board parallel with the other. Inspect the stock

for grain orientation and pass it over the jointer (cup side down) in the appropriate direction.

Sometimes the grain direction won't be obvious, so use several light passes rather than one heavy cut. If particularly bad tearout occurs in one area, then you still have the option to flip it end for end to reorient the grain and try again. Bear in mind that you will be removing material from the other face later with the planer. Try to balance out how much wood is removed from each face. This will help prevent an unbalanced release of tension, which would cause twist or cup.

Next, if I haven't done so already, I'll joint one edge, using the freshly jointed face as

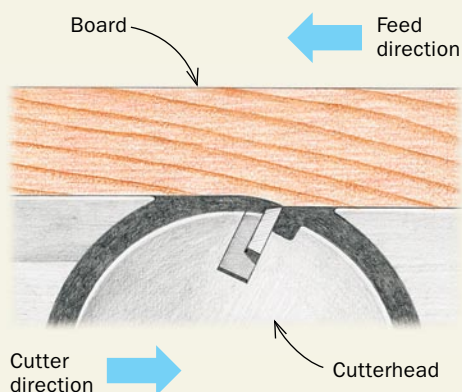
5. Joint a face and square an edge

Joint a face. Joint with the cupped side down. Take light passes until the face is flat.

A CONVENIENT REMINDER



Grain matters. To reduce tearout, consider the rotation of the cutterhead and the direction of the grain when deciding which way to feed a board. Fortune marks his jointer near the cutterhead for easy reference. The diagonal lines represent proper grain orientation.



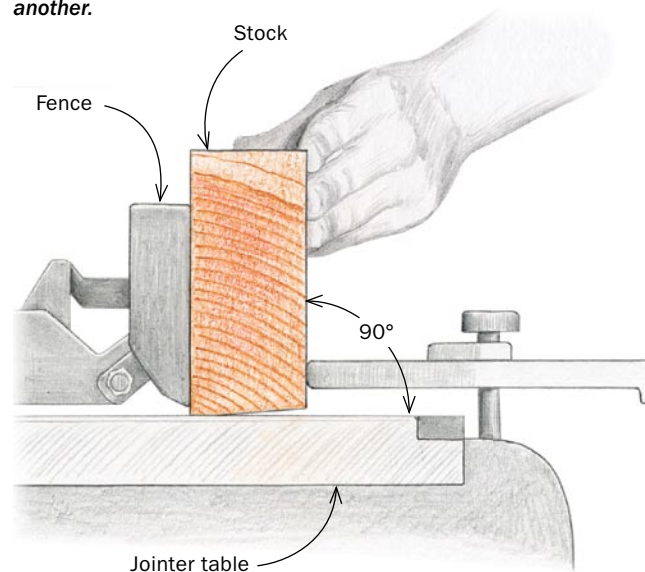
a reference surface against the fence of my jointer. Then it's back to the bandsaw.

Bring the stock to finished width and thickness

Because I usually bring the piece to finished width on a benchtop planer, I find it helpful to rip again on the bandsaw—this time to about $\frac{1}{16}$ in. over finished width. This lets me take the lightest possible passes, saving wear and tear on the planer knives and ensuring the best performance. Sometimes there is so little waste material left after jointing that this step isn't necessary. But most often I'll return to the bandsaw, even if it means the blade is not fully embedded in the cut. With a properly



Joint an edge. Register the freshly jointed face against the fence (left) and again take light passes until the edge is flat. If the fence is set at 90° to the jointer table, the two jointed surfaces should now be square to one another.



6. Saw and plane to thickness

Bandsaw first?

If you still have a fair amount of material to remove, a thin bandsaw cut lets you approach final thickness quickly and avoid repeated passes in the planer.



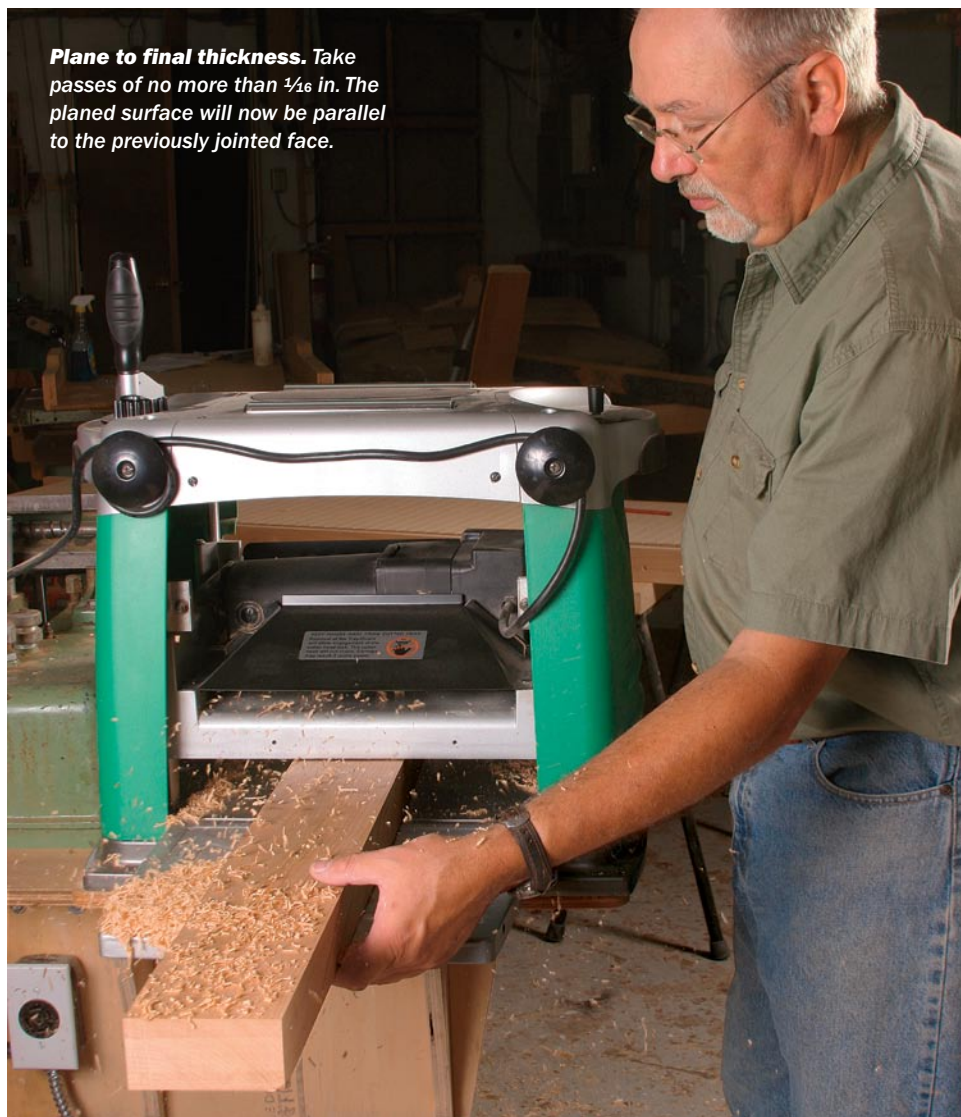
REJOINT IF YOU RESAW



Taking a heavy resaw cut. It's also possible to resaw to yield two or more boards from one piece of stock.



Plane to final thickness. Take passes of no more than $\frac{1}{16}$ in. The planed surface will now be parallel to the previously jointed face.



set up saw and an unhurried feed rate, the blade does not wander.

Next, if the stock is much thicker than the finished thickness, I'll "resaw" it (bandsaw the stock on edge) a little over thickness, about a heavy $\frac{1}{16}$ in. If you resaw away a large amount, or to yield two or more boards from thick stock, be sure to let the pieces sit for a day or so and then re-mill as needed to alleviate any twist or cup.

Once the piece is close to final thickness, mill the unjointed face in the planer to make it parallel with the opposite surface and to bring the piece to final thickness. Again, light passes are best. Roughsawn lumber can vary in thickness; you don't want your planer to bog down if the wood increases in thickness down the length (if you've resawn the stock, this shouldn't be an issue). Also, a heavy cut will yield a rough surface and promote snipe at the ends.

Next, clean up the bandsawn edge and bring the piece to final width by standing the piece on its jointed edge and passing



7. Trim to final width

Plane narrower stock on edge. This is a safe method of trimming to width as long as the stock is no more than five times as wide as its thickness (left). Trim wider stock on the tablesaw (below).



it through the planer. I use the 1-to-5 rule here. If the stock is 1 in. thick, I can plane a board up to 5 in. wide. If it is 1/2 in. thick, then the maximum width is 2 1/2 in., and so on. Always use the center portion of the planer for this. Because the infeed rollers are mounted on either end and held in place with springs, they will tilt the wood slightly if it is put too close to either end.

If the dimensions exceed the 1-to-5 rule, then I trim to final width on the tablesaw. Because so little waste material is left, this cut is often exposed on the waste side, cutting away just 1/16 in. or so. I actually prefer this because it avoids creating narrow strips of waste that can fall into the throat plate and cause problems.

The last step is to cut the ends. If the pieces are too long to handle with a tablesaw's crosscut sled, cut them on the chopsaw. □

Michael Fortune is a furniture maker in Lakefield, Ont., Canada, and teaches classes throughout North America.

8. Cut to final length



Cut one end square, then cut the other to length. Fortune makes his final crosscuts on the chopsaw (left). If the stock is too wide (above), he uses a crosscut sled on his tablesaw.