

# Panel-cutting Sled

This jig carries its share of work while increasing the usefulness of your table saw.

I've never been a fan of any jig that requires a degree from the Massachusetts Institute of Technology to build or use. So the Jig Journal column is a perfect fit for my shop jigs. This month's offering is a jig that has carried many of my furniture parts over the past 15 years – a panel-cutting sled.

## Three Parts to Square Panels

This jig is made up of three parts, all of which can likely be found in your scrap bin. The major player is the panel ( $\frac{3}{4}$ " x 18" x 24") that carries the workpiece. Attached to that panel is a straightedge fence ( $\frac{7}{8}$ " x  $\frac{7}{8}$ " x 36") running perpendicular to the blade and a guide ( $\frac{3}{8}$ " x  $\frac{3}{4}$ " x 27") that runs in the miter-gauge slot of the table saw. It's best to use quartersawn hardwood for the fence and guide. Small pieces of plywood tend to delaminate – or if you hit a void it's trouble.

However, plywood is the best choice for the panel. There's greater stability in plywood over a hardwood panel, because there is no seasonal movement. And plywood is better than MDF because it's tougher to ding as you move it around the shop and it's more resistant to moisture.

To locate the guide bar, measure the distance from the right edge of the left-hand miter-gauge slot to the saw blade, then add  $\frac{1}{4}$ " – this jig rides to the left of the blade. Once the guide bar is attached, the additional  $\frac{1}{4}$ " allows you to trim a straight edge that's aligned with the table-saw blade.

Transfer that distance to the underside of the panel. Hold one end of the guide bar flush with the leading edge of the panel as shown in the center picture atop the next page, and attach the  $\frac{3}{8}$ "-thick hardwood, snugly fit to the saw's slot, with four #6 x  $\frac{1}{2}$ " flathead wood screws. The guide bar attaches at the line, away from the blade.



**Repeatable, perfect 90° cuts.** Cutting panels with a standard issue miter gauge is "iffy" at best. While the degree of difficulty to build and use this panel-cutting sled is near zero, the results are a 10.

By allowing the guide to extend beyond the back edge of the panel (the edge nearest the operator), you gain additional panel-cutting width. But don't go overboard. You need to have the majority of the panel resting on your saw's top after the cut is complete. Push too far and the sled tumbles off the saw.

Place the guide bar into the saw slot so it's well behind the saw blade. Start the saw and push the sled into the blade. The edge of the sled's panel is now parallel to the guide and the saw blade.

## Squaring the Important Piece

Aligning the sled's fence is the most important step in building the jig. To accurately set the fence, use geometry. The calculation is a 3-4-5 triangle. Using multiples of three and four for

## Online EXTRAS

For a video on using this jig to square panels and how to use the stop, go to:

[popularwoodworking.com/oct07](http://popularwoodworking.com/oct07)

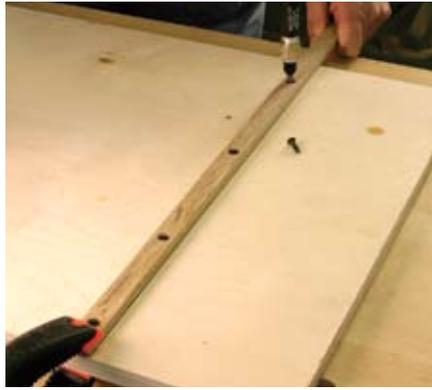
the two legs sets any right triangle. Then, the hypotenuse is a multiple of five.

Measure down the cut edge marking at 1" from the front edge of the panel (this gives you a place to connect the fence) and again at 16". The 15" difference is a multiple of three – 3 x 5". Set a ruler across the panel holding the zero mark at the 1" line. Set a second ruler with the zero point at the 16" line while angling up toward the first rule. Where the 20" mark on the first rule and the 25" mark on the second overlap, is the second point of the straight line to which the fence is to fit (see the photo at the bottom of the next page).

Attach the fence to the panel with #8 x  $\frac{1}{4}$ " wood screws directly along that layout line allowing the end to extend slightly past the edge closest to the saw blade. Make a second



**Follow the guide.** The guide is a key component of the sled. The accuracy of the fit to the table slot is paramount in attaining a square cut. A sloppy fit equals a sloppy cut.



**Guiding the sled.** Countersink the screws for the guide. The quartersawn-hardwood guide should show no sign of sloppiness. Paste wax allows the pieces to slide easily.



**Getting the accurate edge.** Sawing the edge of the jig after the guide is attached to the panel ensures the edge is parallel to the blade as well as the guide.

cut with the guide in the miter slot to cut the fence exactly at the blade. Now the fence shows you the exact cut of the blade and is great for a reference point while aligning your cuts.

### Properly Cut Panels

Using the sled is a simple and effective process. The design allows you to cut the end of a wide panel square to the edge that's placed against the fence.

Begin with a panel that is surfaced on three sides at a minimum. Position the panel flat on the sled, with the milled edge against the straightedge fence and the end hanging beyond the edge of the sled. Trim the end of the panel by sliding the jig and panel through the blade. That end is now square to the edge pushed against the fence.

Next, flip the panel end for end without changing the edge that is against the fence. This ensures that the two ends will be square to that one edge. If you switch the edge that's against the fence and the board's edges are not truly parallel, the end cuts won't be parallel to each other.

Mark the measurement, the exact cut line, on your panel along the fence edge then set that layout mark even with the end of the straightedge fence closest to the saw blade. Because the end of the fence is the exact cut line of the jig, it will also be the exact cut line of the panel.

It's possible to nick the fence with a turning saw blade as you position the jig, so be careful. If that happens you'll be unable to use the fence to set your cut into position. If that occurs, you can relocate the guide and create a new edge or match the exact cut line with the blade each time you use the sled.

This jig works with different sized panels, both wide and narrow. I've used it to square cut the ends of drawer dividers and pieces as small as 1" in width.

### Other Operations

Need a few pieces cut to the same length? Another woodworking operation at which the sled excels is making multiple pieces using a stop block. I used this setup for years before bringing a miter saw into my shop.

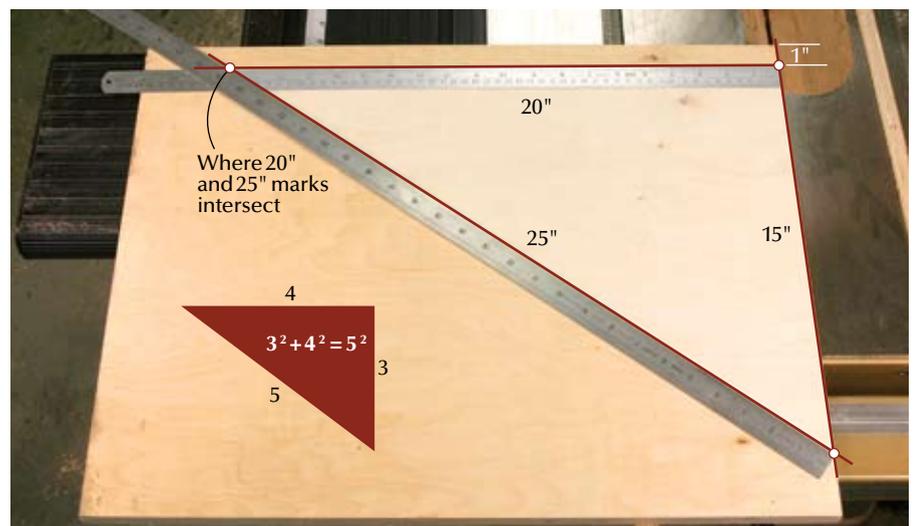
Find your length by nudging your rule tight to the saw blade and mark the location on the jig. Clamp a secondary piece, the stop block, to the fence at that location. Remember to slide the table saw's fence out of the way before making any cuts.

Place a squared end of stock against the

stop block allowing extra material to hang past the sled's edge nearest the blade. Make the cut. The second end is now square and the piece is cut to the correct length. Slide the leftover material, which also has a freshly cut, squared end, toward the stop block to make another piece that matches the previous one. Repeat the operation until the desired number of pieces is reached or the stock runs out.

The panel-cutting jig is one of a handful of jigs that get a tremendous amount of work in my shop. The sled extends the total amount of work that you're able to complete with the table saw. It's a real woodworking timesaver. **PW**

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**Caution — geometry ahead.** Come down 1" from the edge of the plywood to leave room for the fence. Using the 3-4-5 triangle formula guarantees the jig's fence is perpendicular to the blade and that the resulting cut will be square. Use 15", 20" and 25" to set the fence line.