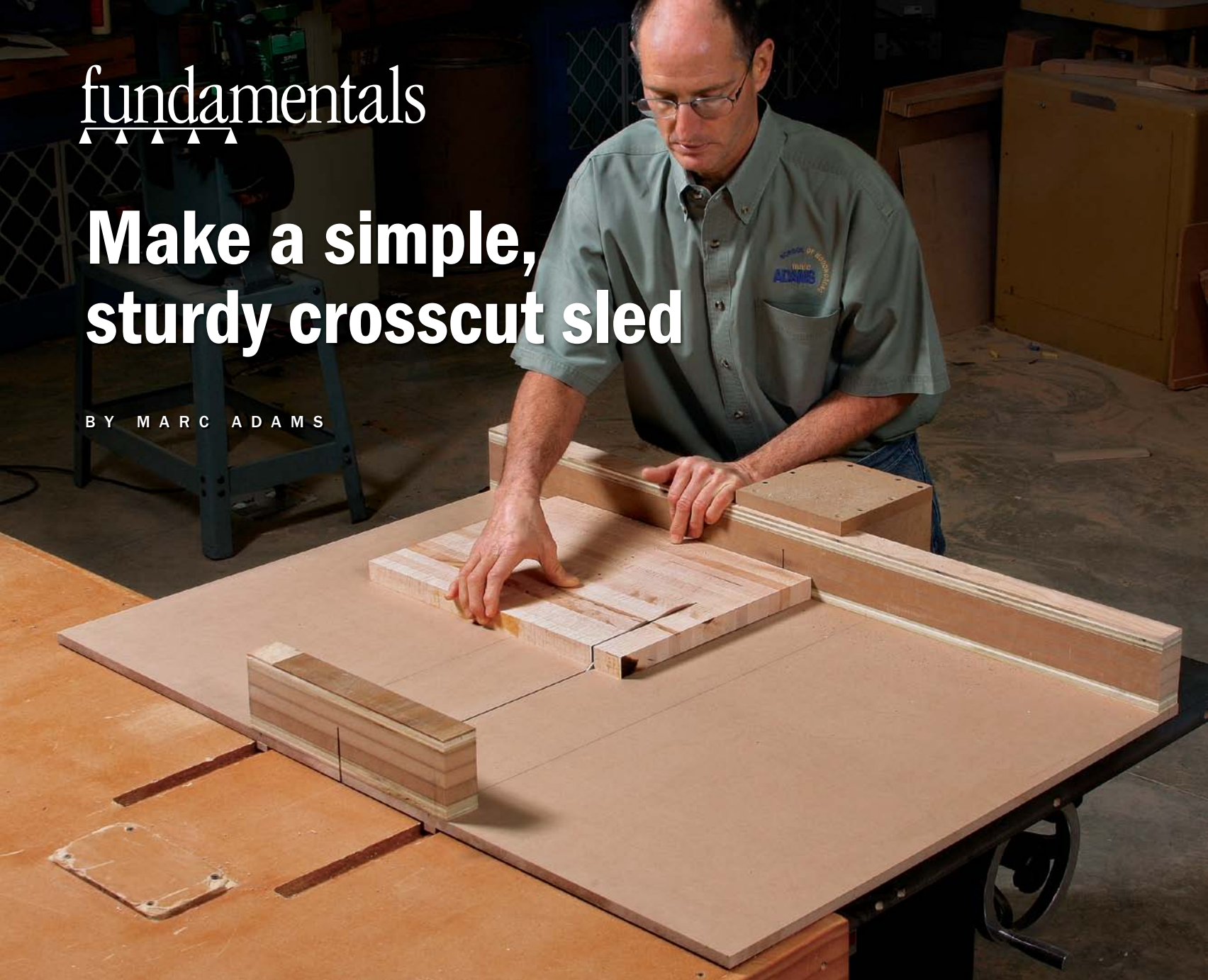


fundamentals

# Make a simple, sturdy crosscut sled

BY MARC ADAMS



While your tablesaw's miter gauge will work OK for cutting smaller workpieces to length, nothing controls large and small work better than a good crosscut sled. With it, you'll get furniture-quality crosscuts as well as clean, accurate dados, rabbets, bevels, and much more. To explore the possibilities of this essential jig, check out my article, "Cut Precise Joints on the Tablesaw," in *FWW* #235.

Crosscut sleds are safer than miter gauges because of the way the workpiece is carried and supported by

a long fence, which also offers a solid perch for stop blocks. The cutoff piece is also controlled, pulled back toward you in a straight path, instead of being left next to the blade to possibly climb onto the back of it and kick back at you.

A crosscut sled doesn't have to be complicated to be effective. Here I'll show you my simple approach to building one. I recommend making your sled as wide as the top of your tablesaw (not including the right-side extension table, if you have one). Front to back, it should be at least 20 in. deep to handle most cabinet parts, but I like to make it the full depth of the saw table. By the

way, you can make the base of the sled from  $\frac{3}{4}$ -in. MDF, like most of the other parts of the sled, but I recommend using  $\frac{1}{2}$ -in.-thick material if you have it. This will give you an extra  $\frac{1}{4}$  in. of cutting capacity above.

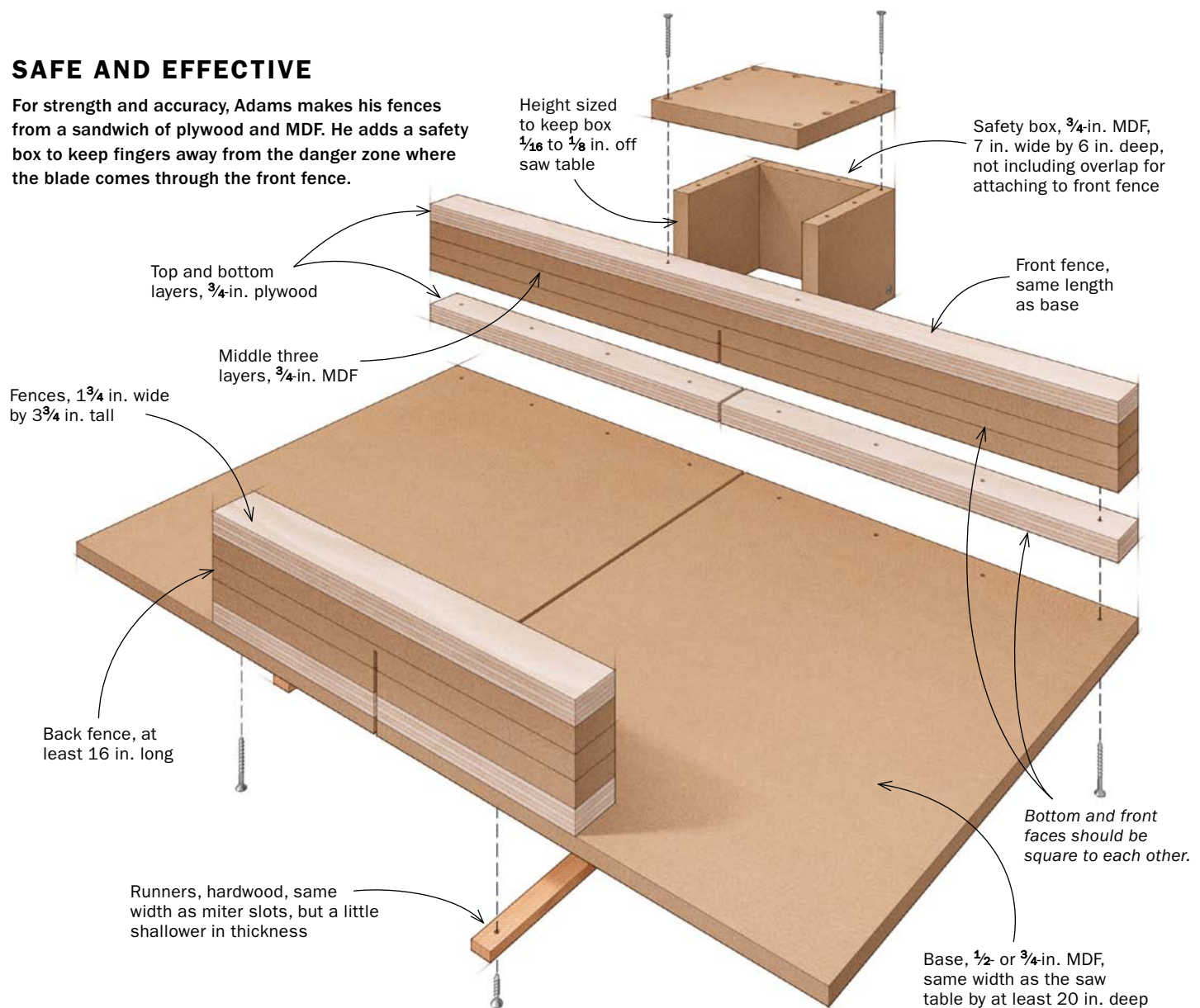
## Start with the runners

The two runners on the bottom of the sled must fit perfectly into the miter slots on the saw table, with smooth sliding action but no wiggle room. These runners can be made from any dense hardwood, which is what I do, or purchased from woodworking catalogs and websites in a variety of



## SAFE AND EFFECTIVE

For strength and accuracy, Adams makes his fences from a sandwich of plywood and MDF. He adds a safety box to keep fingers away from the danger zone where the blade comes through the front fence.



## FENCES ARE A SMART SANDWICH

The core of each fence is three layers of MDF for stability, while the top and bottom layers are plywood, which holds screws better.



**Glue up and clean up.** Rip the strips of plywood and MDF  $1\frac{3}{4}$  in. wide, and then glue and clamp them (above) to make tall blocks for the short and long fences. After the glue dries, scrape off the squeeze-out, and then clean up the edges on the jointer (right) and planer.



**Front fence needs extra care.** On the long front fence, lightly joint one of the plywood layers square with one edge of the sandwich, and keep track of those two good surfaces.

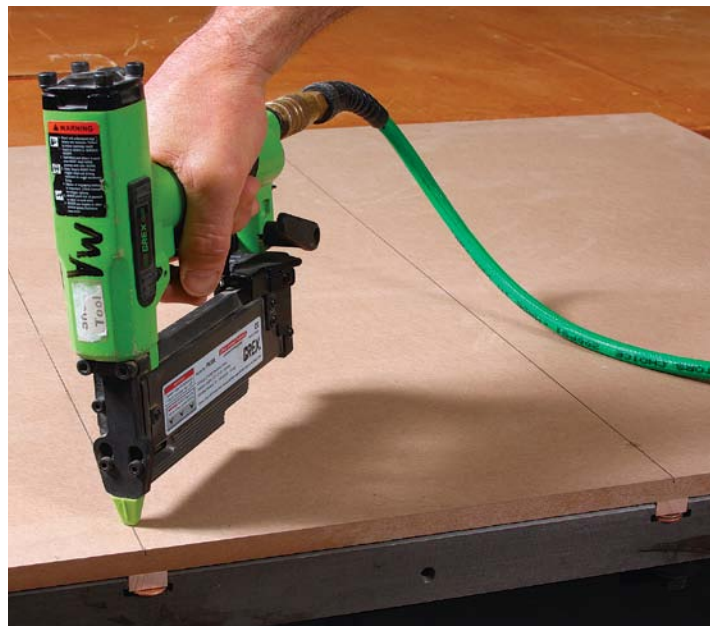


## ATTACH HARDWOOD RUNNERS

**Trick for perfect runners.** Mill a board until its edge slides smoothly in the miter slots with no wobble (right). Then lay the board on its face and rip off strips for the runners.



**Shim them up.** The runners are thinner than the slots are deep, and you'll need to shim them flush with the surface for the next step. Adams used pennies as shims (above). After aligning the front of the sled and the runners with the front edge of the saw table, mark lines on the base over the centerlines of the runners, and drive a few short brads into each of them (right).



**Flip and fasten.** Now flip over the sled and drill, countersink, and drive screws (above). The nails will hold the runners in alignment while you lock them down permanently. Next, add the back fence (right). Align it with the edge of the sled, and screw it into place. Just keep the screws away from where the blade will pass through.



materials. Whatever you choose, check the size of your miter slots first. Most are  $\frac{3}{4}$  in. wide by about  $\frac{3}{8}$  in. deep, but some vary, especially on small, portable saws. Also, the runners should be slightly thinner than the depth of the miter slots so they don't get hung up on debris.

If you make the runners yourself, cut them from the edge of a flatsawn board, so they are quartersawn across their width and therefore less likely to shrink and swell.

### Smart method for solid fences

You'll need two fences, front and back. The front fence, where workpieces rest, is the critical one. It must be flat, straight, and square to the table—and it must stay that way for years to come. The back fence is there simply to hold the sled together once it has a groove cut down its middle.

I make each fence from a sandwich of MDF and plywood, as opposed to the right-angle brackets or thick pieces of solid wood that most people use. The MDF is there because it is very smooth and stable. The top and bottom layers are plywood because it holds screws better than MDF. The fences I've made this way for my school have remained very flat, straight, and strong over the long haul.

### Careful assembly ensures accuracy

With the runners and fences in hand, you are ready to assemble the sled. I do that differently, too.

I place the base on top of the runners, mark the center of the runners on the top of the base, and then drive short pins or brads down through the base to lock those runners in place temporarily. I then flip the base over and attach the runners permanently with screws.

### Dial in the fence with test cuts

The key to an accurate front fence is attaching it temporarily, using test cuts to dial in its position, and then locking it down in that same spot. The only way to know that the fence is truly square to the path of the blade is to make cuts with





## SQUARE UP THE FRONT FENCE



**Build in some wiggle room.** Align the fence with the edge of the base and drive a single screw at one end, into a normal hole (left). Be sure the two square faces are positioned correctly. At the other end, drill two holes and chisel or file out the middle to create a short slot. Then align that end of the fence with the base, too, and drive a screw into the middle of the slot (right).



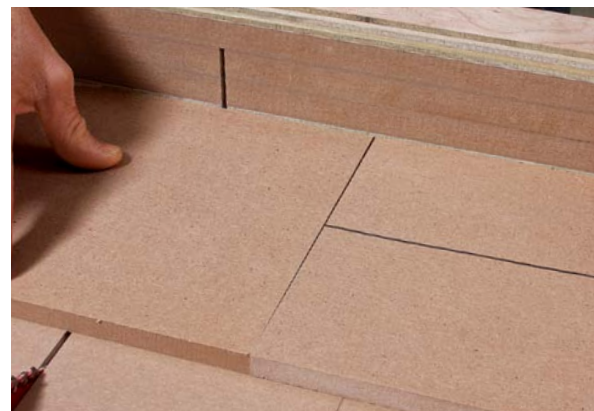
it. Don't feel alone if it takes a number of rounds of cuts and adjustments to get the fence perfectly square; this is often a slow and tedious step.

### Add the safety box and you're done

The most dangerous area on a crosscut sled is the exit side of the front fence, where people tend to put their hands and where the blade can pop out unexpectedly. I attach a very important safety feature there: a small box that covers the area and keeps fingers clear.

Finish up by sanding the sharp edges on your sled to make them easier on your hands, and start making clean, accurate crosscuts. □

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**Test cuts tell the truth.** Rip the edges of a strip of MDF parallel to each other, and mark a line along one side to keep track of which side is which. Then make a test cut (left). Flip one of the cutoff pieces, and bring the cut edges back together (above). A gap means the fence is not square.



**Make an adjustment.** Figure out which way the fence is skewed, and then loosen the screw in the slotted hole, give the fence a tap in the right direction, and retighten. Make as many test cuts and adjustments as you need.



**Lockdown.** When there are no gaps in your test pieces, flip the sled over and drive a row of screws into the fence to lock it in position.



**Don't forget safety.** Attach a box to the front fence to cover the spot where the blade emerges, and be careful not to push the sled too far forward in use.