



## Making Perfect Beveled Miters

Cutting a miter on the end of a workpiece can be frustrating, but with a few tips and the right setup, you can do it with ease.

**B**eveling the ends of two pieces of stock to create a miter joint appears simple enough. Just cut matching 45° bevels at the end of each workpiece and then put them together.

But it isn't always that easy. If you fail to make exact 45° cuts or the cut isn't square to the edge, the joint won't fit tight during assembly.

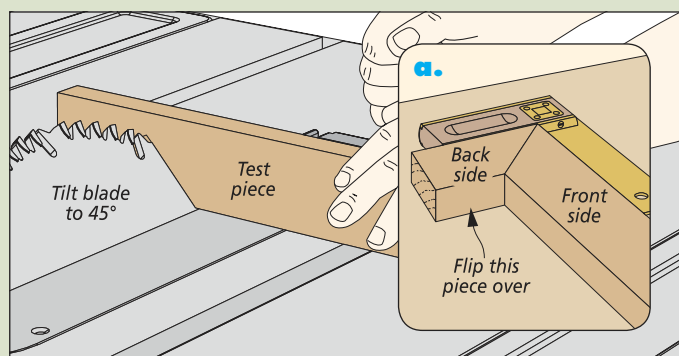
The task is even more challenging when you join a number of pieces together (which is usually the case). Then you must be sure you cut all the pieces to exact length as well. Fortunately, there are a few things you can do to assure success. The first is to make certain everything is set up correctly before making any cuts.

**SHARP BLADE.** One thing that's often overlooked is the saw blade. To make accurate cuts and avoid ragged joint lines you'll need to begin with a sharp crosscut blade. Then you'll want to be sure the blade is lined up properly.

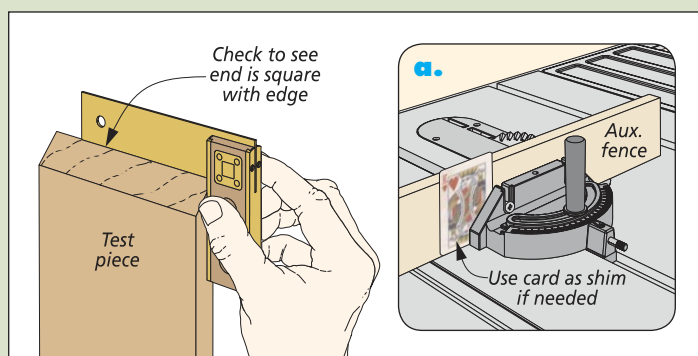
**CROSSCUT SETUP.** I like to begin by setting up my table saw just like I would when I make a standard crosscut. This means setting your saw blade 90° to the table. You'll also need to make sure the blade is parallel to the miter slot. After this setup is done, you're ready to tilt the blade to cut the bevel.

**BLADE ANGLE.** For the miter joint to fit correctly, the bevels must be cut at exactly 45°. The problem is when you set the blade tilt with the gauge, the cut

### How-To: Saw Setup Details



Right Bevel Angle. *With the table saw set up for a crosscut, tilt the blade to 45° and make a test cut. Then flip one side over and lay the mitered ends together (detail 'a'). Check the angle with a square. If the corner isn't 90° you'll need to adjust the blade angle.*



Square the Auxiliary Fence. *After tilting the blade to 45°, make a beveled test cut. Then use your square to see that the cut forms a right angle with the edge. If it doesn't, you'll want to shim the fence and repeat the test cut until the end cut is 90° to the edge.*

isn't always accurate. So you'll need to check the angle.

To do this, first tilt your blade to 45° and make a test cut on a piece of scrap wood as shown in the drawing on the opposite page. After making the cut, turn one piece over and place the beveled ends together and check the fit with a square. If the blade is cutting at exactly 45°, the ends will form a right angle when the two workpieces are joined together. If they don't join at a 90° angle, you'll need to "tweak" the angle of the blade and make test cuts until the angle is correct.

With the angle setup complete, you'll want to be sure the cut you make is straight and accurate. To do this, you'll want to take a close look at your miter gauge.

**AUXILIARY FENCE.** Attaching an auxiliary fence to your miter gauge will improve the accuracy of the bevel cut. The fence provides support along the edge of the workpiece and makes it easier to hold the workpiece securely as you make the cut. It also reduces chipout by backing up the edge of the workpiece as the blade exits the cut.

**ALIGN THE FENCE.** Once the fence is attached to the miter gauge, you'll

need to make sure the blade cuts straight across the workpiece.

To verify this, make a quick test cut. Then check the end of the workpiece with a square, like you see in the second drawing on the previous page. If the cut isn't square, add paper shims or playing cards to the miter gauge and retest the cut until a 90° angle is reached.

The setup is now done. And you're ready to cut the bevels.

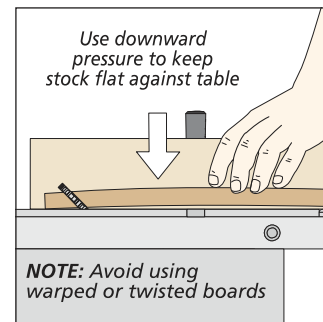
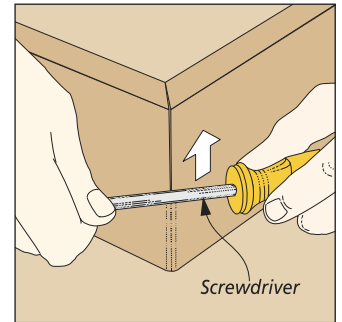
**MAKING THE CUT.** I like to begin with a workpiece that's an inch or two longer than the finished length. This way, you won't run the risk of trimming the piece too short.

I start by making the bevel cuts at one end of all the pieces. Then make the cuts at the opposite end of each piece. As I mentioned before, you'll want to make sure each piece is cut accurately to length. Even if you cut the bevel angles correctly, the corners won't fit tight if the pieces are too long or too short.

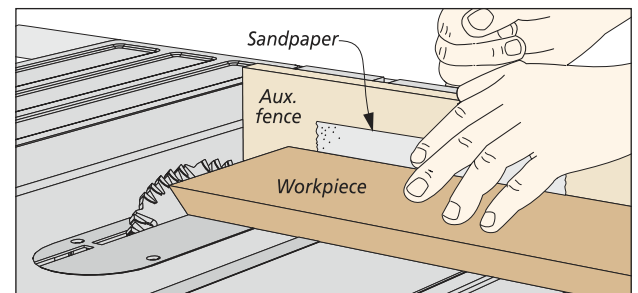
**CORRECT LENGTH.** A stop block is helpful for cutting multiple pieces to length. But you can also use the auxiliary fence to line up the cut. The box below shows you how. **W**

## Shop Tips for Success

Close the Gap. A small gap in the miter joint can be quickly closed. Use a screwdriver to burnish the gap. A few passes is all it takes to make the joint nearly invisible.



Straight Stock. Choose your stock carefully. A bow in the workpiece can cause you to cut the piece a little shorter than you want it to be.



Add Sandpaper to the Auxiliary Fence. Attaching a strip of sandpaper to the auxiliary fence prevents the workpiece from slipping as you hold it securely in place.

## Cutting to Length

Making a beveled crosscut to the right length can be a challenge. But you can make it easier if you use the kerf in your auxiliary fence as a reference for lining up your blade.

First, to measure the length, use your ruler to mark a line on the workpiece, as shown in Figure 1. Next, line up the kerf in the auxiliary fence with the line on your workpiece, like you see in Figure 2 and 2a. Once the kerf is lined up with the mark, hold the workpiece firmly against the auxiliary fence and move it steadily through the blade.

