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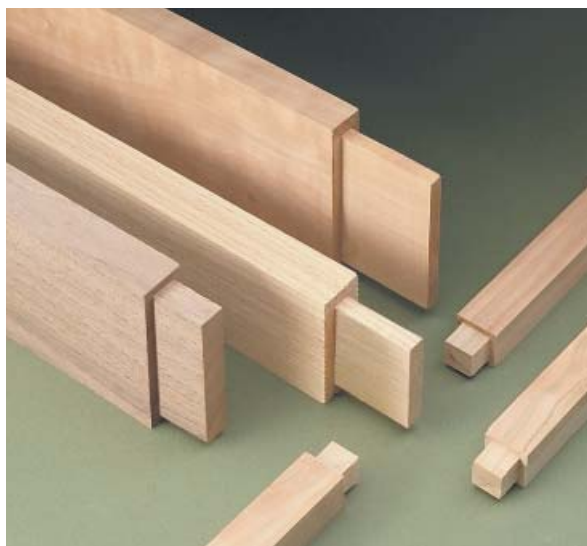
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CUTTING TENONS ON THE TABLE SAW



What's the best way to cut a tenon? I ask myself this question just about every time I build a project with mortise and tenon joints. But I'm not really sure there's an answer. Or maybe I should say there's not just one answer. There are several tools you can use to make a tenon, and which method I use depends on the type of project I'm building. But for 90 percent of the tenons I make, I use a table saw. And there are some good reasons for this.

A table saw cuts tenons quickly and cleanly. And with an accurate rip fence and miter gauge, it's easy to fine tune the tenon for a perfect fit.

Regardless of the method you choose, the goal is the same. You want to end up with a tenon that fits into its mortise like a hand in a glove. And this usually means you'll have to do a little bit of hand fitting.

There's just one other thing before getting started. When I make mortise and tenon joints, I prefer to make the mortise first, and then cut the tenon to fit. I find it a lot easier to shave a little bit off the thickness of a tenon than to widen the opening of a mortise. Having the mortised workpiece on hand makes it easy to check the fit as you're making test cuts and setting up your equipment.

Table Saw Method

I like to use a stack dado blade to remove waste wood from around the tenon. First I cut away from both sides or "cheeks" of the tenon in a series of passes. I like to use the rip fence as a stop to establish the shoulder of the tenon first, just like you see being done in the photo and in Figs. 1 and 1a. Then you can make as many additional passes as necessary to remove the remaining waste. When you finish with the first cheek, flip the workpiece over and cut the second cheek. A backer board attached to the miter gauge helps prevent tearout.

SNEAK ATTACK. Here's a trick I like to use when cutting the cheeks. I set the blade just a hair lower than I think it needs to be. This way, the tenon



starts off a little thick, or "fat." Then I "sneak up" on the final thickness of the tenon by raising the blade a tiny bit and removing a little more waste

from each side until the tenon fits nicely in the mortise.

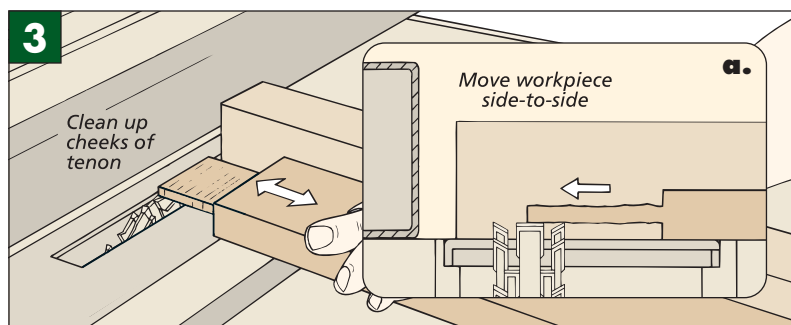
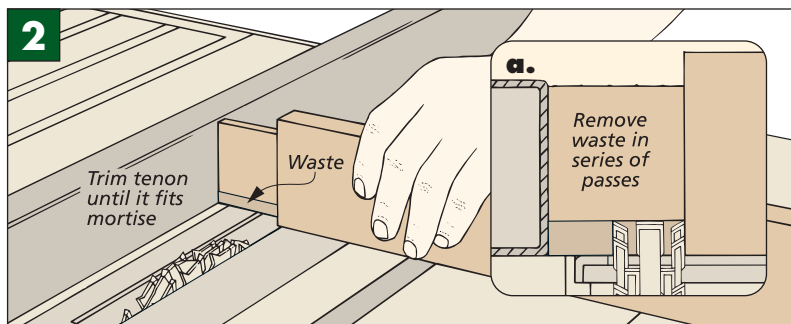
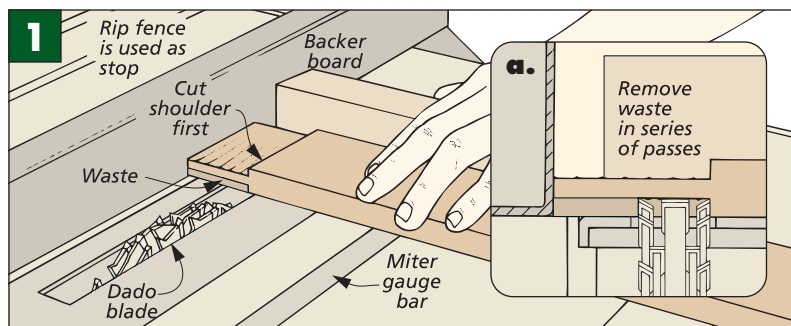
TENON SIDES. The next step is to cut the sides of the tenon. Some tenons

have identical shoulders on all four sides. If this is the case, then all you have to do is flip the workpiece on edge and remove the waste the same way you did with the cheeks. Fig. 2 shows this being done.

But if the shoulders on the sides are wider (or narrower) than the shoulders on the cheeks of the tenon, you'll have to raise or lower the blade accordingly. Then, without moving the rip fence, go ahead and remove the waste from the sides of the tenon.

CLEAN UP. A dado blade often leaves ridges on the cheeks of the tenon. These can make inserting the tenon in the mortise difficult. So I like to "clean up" the cheeks of the tenon by sliding the workpiece side-to-side and forward and backward over the blade, as shown in Figs. 3 and 3a.

TENON JIG. There's another way to cut tenons on a table saw, and that is to use a tenon jig. (You can buy one or make your own with our Tenoning Jig plan from PlansNOW.com). A tenon jig holds the workpiece upright so the cheek is cut in a single pass. And it works great — provided you're willing to take the time needed to adjust them.



STUB TENONS

Cutting tenons on a table saw using the method shown above is fine if the tenons are 1" long or longer. But for "stub" tenons (the kind that are often used when creating a frame that holds a plywood panel) you run into a bit of a problem. Because stub tenons are so short (usually only 1/4" long) you run the risk of the dado blade striking the rip fence if you try to use the fence as a stop for the shoulder of the tenon.

To get around this problem, I simply "bury" the dado blade in an auxiliary fence. This auxiliary fence is just a piece of scrap wood or 3/4" plywood that is attached to the standard rip fence on your saw, just like you see in Fig. 1. Before the fence can be used, however, you'll have to create an opening for the blade. To do this, lower the dado blade all the way and move the rip fence over so the auxiliary fence is partly over the blade. Now turn the saw on and slowly raise the dado blade so it cuts

into the fence, just like you see in Fig. 1a. You only need to raise the blade high enough to allow you to cut the tenon.

After you've created the opening in the auxiliary fence, the stub tenons can be cut the same way an ordinary tenon is cut (see above). The only difference is that it takes just one pass to cut each cheek. And usually, you won't have to remove any waste from the sides of the tenon.



▲ Stub tenons, like those shown above, are often used in the construction of frame and panel doors.

