TONGUE & DADO JOINT

Skill Builder

On our front porch, we used tongue and dado joints to join the cladding that surrounds the 4x4 posts. As you can see in the *Photo* below, there's a tongue on one piece that's formed by cutting a rabbet in the edge. This tongue fits into a dado cut in a mating piece. These interlocking parts form a strong mechanical joint. Plus, the large glue surface of the joint provides additional strength.

Tongue & Dado Basics — The main goal when creating this joint is to have the tongue fit into the dado with a friction fit — not too tight, but not so loose that the mating pieces can move around. Also, the pieces that are joined together should fit flush with each other on the outside.

Dado Setup — To accomplish these two things, I start by cutting the dado. (For the porch project on page 38, it's a 3/8"-wide dado, 3/8" deep.) For that size of dado, it's easy enough to mount the proper size of dado blade in the table saw.

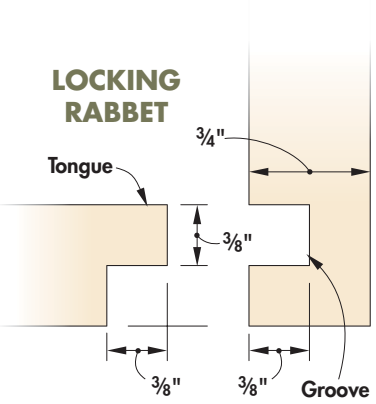
The critical thing, however, is positioning the rip fence to cut this dado. That's because the fence determines the location of the *inside* shoulder of the groove. To get a flush-fitting joint, this shoulder has to be set in from the edge of the workpiece a distance that matches the thickness of the stock. The easiest way to do this is to use a scrap piece of the cladding material as a thickness gauge for setting the rip fence *(see Fig. 1 below)*.

Get in the Groove — With the fence set, cutting the dado is as easy as setting the workpiece face down on the table, butting it against the rip fence, and making a pass over the blade *(Fig. 2)*. To ensure that the dado is a consistent depth, I mounted a featherboard to my rip fence to hold the workpiece down on the table. Cut the dado in all four pieces before turning your attention to the rabbets.

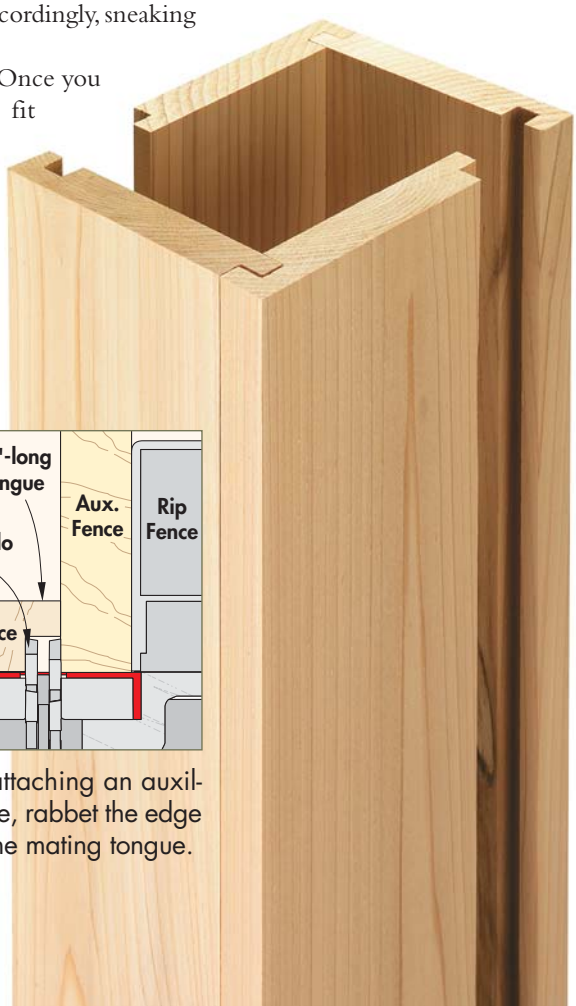
Rabbet Setup— Once the grooves are completed, the next step is to cut a rabbet in the opposite edge of each piece to form the tongue. You can use the same width dado blade as for the groove to make the rabbet. Only this time, attach an auxiliary fence to the table saw's rip fence, and set the dado blade so it just grazes the side of this fence *(Fig. 3)*. Here, the position of the fence in relation to the blade determines the *length* of the tongue, which should match the *depth* of the mating dado (in our case, 3/8").

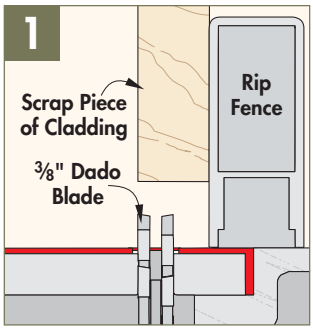
The other critical dimension here is the *depth* of cut, as it determines the *thickness* of the tongue. To get a good fit, run a test piece through the blade. Then test the fit of this tongue in one of the dadoes you've already cut. Adjust the depth of cut accordingly, sneaking up on a perfect fit.

Make the Rabbet — Once you have achieved a nice fit between the tongue and the dado, proceed with cutting the rabbets in all four pieces *(Fig. 3)*. Again, use a featherboard to hold the workpiece down on the table saw during the cut.

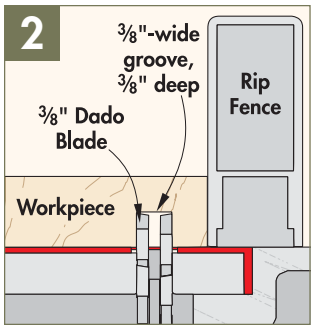


▼ The interlocking parts of the tongue and dado form a sound mechanical joint and have a large glue surface for strength.





▲ Use a scrap piece of cladding as a thickness gauge to set the rip fence.



▲ Holding the workpiece firmly against the fence, cut the dado in a single pass.

▲ After attaching an auxiliary fence, rabbet the edge to form the mating tongue.