

In our step-by-step example of panel door construction, we used the following:

- CMT Rail & Stile set (item #891.502.11)
- CMT Reverse Glue Joint (item #855.501.11)
- pre-cut to length stiles - 3/4" thick x 2-1/4" wide
- pre-cut to length rails - 3/4" thick x 2-1/4" wide
- panel - 5/8" thick
- scrap stock for test cuts

The CMT Rail & Stile set was designed primarily for the construction of panel doors with 3/4" thick rails and stiles, but stock up to 7/8" thick can be used. Remember to adjust your measurements and cutting depths according to the wood thickness you use.

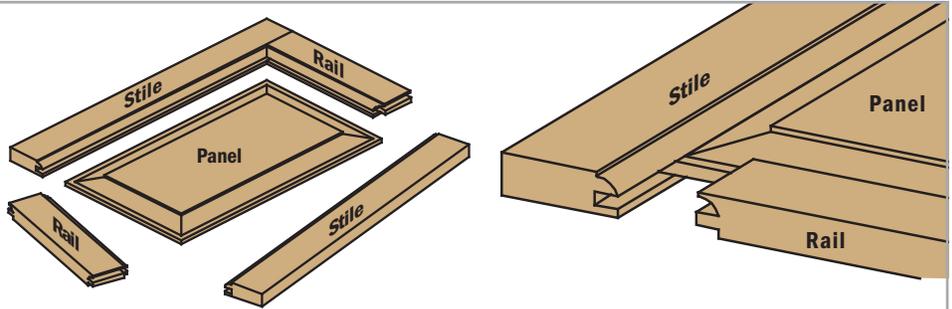


ILLUSTRATION A

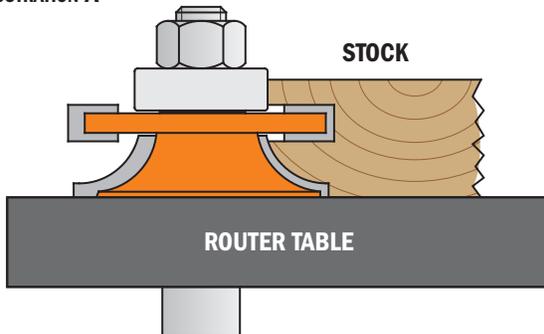
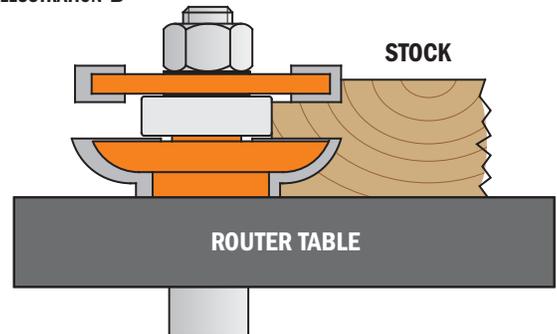


ILLUSTRATION B



MILLING THE RAILS AND STILES

First, make trial cuts of the cope profile (rail) and the stick profile (stile) in scrap stock and check the accuracy of the joint. This is extremely important, especially when working at the maximum thickness of 7/8". Make sure your stock is flat and cut straight with square edges. Using the CMT Stile Bit shown in illustration A, place the stock face down on the router table and mill the stick profile in the stile and rail pieces. To mill the rails, use the CMT Rail Bit shown in illustration A, position the rails face down on the router table and mill the cope profile in the ends. Before cutting the rails to length, be sure to allow enough length for the overlap of the cope and stick profiles. The stiles are the same length as the door. The rails must be calculated by the following equation (CMT standard tenon length is 7/16"):

(total door width - sum of stile widths) + sum of 2 tenons = total rail length
 therefore, using our example measurements listed above, for a 12" wide cabinet door:
 $12" - 4 \cdot 1\frac{1}{2}" + 7\frac{7}{8}" = 8\text{-}3\frac{3}{8}"$ rail length

GLUING UP PANELS

If the panel requires a width greater than the width of your stock, you will need to edge glue stock for the central floating panel. This is easily accomplished using the CMT Reverse Glue Joint bit. For a two panel glue joint, place the first panel face down on the router table and accurately centre the wood to the bit. Adjust the bit according to the thickness of the wood you are cutting by lining up the cut edge of the wood to the center point of the bit as illustrated in illustration B and mill the cut edge of the wood. Place the second panel face up and repeat the milling process. This assures you will have the best side of your stock as a front face. If a third panel is required, mill one cut edge of the piece as instructed above, turn the piece over and run the other edge. Assemble the reverse cut pairs together for beautiful, strong joints that match up perfectly.

MILLING THE FLOATING PANEL

To cut your panel to size be sure to make the proper calculations, taking into account the length of the tongue. The CMT Raised Panel Bit in our example has a standard tongue length of 5/16" (The New CMT Raised Panel Bit profile has a 3/8" tongue).

Use the following equation:
 (Total door length - Sum of Stile widths) + Sum of 2 Tongues = Overall Panel Length

Therefore, using our example measurements listed above for a 24" long cabinet door: $(24 - 4 \cdot 1\frac{1}{2}) + 5\frac{5}{8}" = 20\text{-}1\frac{1}{8}"$ panel length

And accordingly:

(Total door width - Sum of Stile widths) + Sum of 2 Tongues = Overall Panel Width.

Once the panel has been cut to proper dimensions, position the panel face side down on the router table as shown in illustration C and use the CMT Raised Panel Bit to mill the tongue. **ATTENTION:** this bit is capable of removing large amounts of stock. To safely and effectively produce the profile you want, we suggest making several shallow passes. It can be dangerous to try to mill the entire profile in a single cut.

ILLUSTRATION C

