

Woodline USA

Easy Setup for Rail and Stile Doors

Rail and stile doors are easily produced and once you have mastered the techniques they are easy to setup and run. For the novice they can be intimidating due to the complex nature of the required fit. There are some easy steps that can help to make the project go easier. Here are some simple rules to follow:

The depth of cut is $3/8$ ". This is the amount also taken up by the cope joint in the end of the rail.

To determine rail length:

Desired door width (DW)

Stile material width (SW)

Stile Length = height of door + $1/6$ " sanding allowance

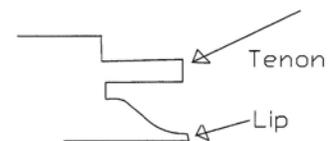
Rail length = $DW - (2 * SW) + 3/4$ "

Example: making a door 10" wide and 12" high with $1\ 1/2$ " wide rails and stiles

Stiles = $12\ 1/16$ " long $1\ 1/2$ " wide

Rails = $10 - (2 * 1.5) + 3/4$ " = $7\ 3/4$ " long $1\ 1/2$ " wide

1. Follow all safety rules for your router. Wear safety glasses and have a clean work area. 18,000 is recommended maximum RPM.
2. Material should be the same thickness for both rail and stiles.
3. Always cut the rail ends first. This is the horizontal part at the top and bottom of the doors. The end cuts are also called the "cope cuts"
4. Place the rail cutter in the router table and adjust so the setup block just fits into the bit. If you do not have a setup block you can adjust the height so the profile on the bottom edge is approximately $1/16$ " above the table surface.
5. Set the fence so the bearing aligns with the edge of the fence.
6. Use a push block when cutting the rail ends. It is essential for safety. The push block should have sufficient mass to support the rail end so it will not turn as it is fed through.
7. The rails are cut with the material face down. When cut properly the profile should produce a female cut in the end of the material with a profile and a tenon. There should be an approximately $3/64$ to $1/16$ " lip between the profile and the face of the material. Adjust as necessary to produce this lip.



8. Cut all rail ends at the same time. Cut an extra scrap piece this will become your future setup block to repeat the setup quickly.
9. Once a rail is cut, the actual part is used to set up and align the height of the stile cutter. The stile cutter is placed in the router. Place the recently cut rail end face down and align the slot cutter on the stile bit carefully with the tenon of the rail.
10. It is a good idea to cut a test piece of the stile and fit the rail to it. If the parts are not flush at the front of the joint adjust the stile cutter height to make the fit flush.
11. Cut your stiles and you are ready to assemble your doors.
12. Raised panels should be cut to fit your doors if desired.

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Easy Setup for Raised Panel Doors

Raised panels add a professional appearance to any cabinetry project. They are easy to make if you follow some simple steps. The following steps will help you to produce perfect panels every time. These instructions assume you are using a horizontal panel raiser bit.

1. Safety first! Raised panel bits are typically larger than most other bits. They must be run slower to prevent accident or damage. Accidents can happen very quickly with no warning so be sure and follow all standard router safety precautions. If you are new to the router read the directions that came with your system. Wear safety glasses at all times.
2. Dust control is important. Not just to keep from eating large amounts of shavings and the resulting potential for health problems but also because loose chips can become clogged between the bit and the fence and make feeding the material difficult with a poor finish as the result.
3. Prepare your stock. With the door frame dry fitted together, measure the desired door size and cut your material to size. Allow a small amount for material expansion. Typically 1/16" to 1/8" is necessary for wood movement.
4. If wider stock is necessary, you may need to join material together to produce the desired width. Either biscuits or glue joints are excellent for this use. Material should be thickness planed or sanded for uniform thickness after jointing
5. Mount the raised panel bits in the table and set the desired height. Raised panel cutters remove large amounts of material and should not be run in a single pass. Some raised panel cutters have an additional cutter called an under-cutter which cuts the material on the back side of the door so that the door will fit into the slot produced by the rail and stile cutters.
6. (under cutter bits only) One method of producing multiple cutting depth cuts without adjusting the fence is to use a plywood spacer secured to the table fence. By using a 3/4", 1/2" 1/4" and a 1/8" spacer and making multiple passes you can safely produce the profile.
7. (Non under cutter bits) One method of producing multiple cutting heights without adjusting the bit is to use a plywood spacer secured to the table top. By using a 1/4" and a 1/8" spacer and making multiple passes you can safely produce the profile. Be careful not to cut so much material that the resulting lip is too thin for your door slot. These slots are typically either 1/4" or 5.5mm
8. Always cut the end grain first. Proceed to cut your doors. Admire your work when complete.