



## DOUBLE V RAIL GATE – BUILD INSTRUCTIONS TAPERED OR STRAIGHT TOP RAIL

### Double V Gate Top Rail:

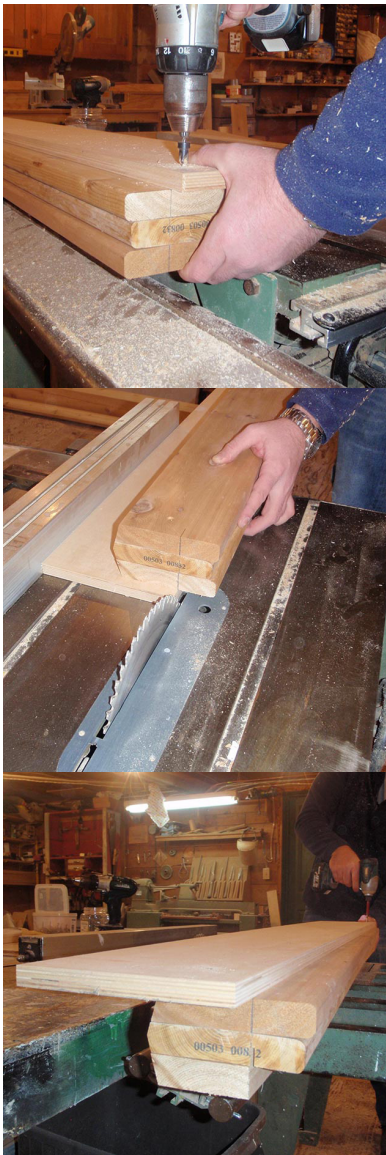
In the United Kingdom, this style of gate is typically produced with a tapered top rail, both for the appearance and function of the gate. We show a tapered top rail in the plans for this gate, but if a straight top rail is what you want, the plan can be easily modified to accommodate. The tapered top rail is a nice detail, but it is a fair bit more effort and will require a bit more time and thought to produce.

A true English "Double V" gate would be constructed with the stiles and top rail made of 3" thick dimensional lumber commonly available in that part of the world. It would use mortise and tenon joinery to attach all the parts together as well as a similar fastening system to what you see in these plans. We have modified the original construction using common materials in North America as well as a more simple way of joining it all together. We specify common 1" dimensional lumber (or decking lumber) or you could use any other lumber that is dressed to 1" thick. This simple joinery and commonly available materials will make the gate easier to build and still produce a beautiful, strong gate that will endure for years.



### Prior to starting your project:

1. Carefully read to better understand your gate build package which includes these written instructions, the two page gate layout and component sheets as well as the required materials list with rough cut dimensions.
2. Ensure all purchased lumber is a maximum of 3" thick when all 3 layers are stacked together. If your materials measure more than 3" thick, pass all boards from the middle layer through a thickness planer to achieve your desired 3" thickness. This is the ideal thickness to fit the recommended hardware later.
3. If an excellent, clean finished product is part of your plans, take the time now to remove any pre-rounded corners from the lumber you have purchased. By removing the rounded edges it will allow for a tighter, cleaner fit later during assembly. We accomplished this by running all boards through the table saw and again through the jointer.



### Tapered Top Rail Detail:

1. Fasten all three boards to be used for the top rail together, being careful to ensure you will be clear of all screws when passing it through the table saw. Try to hide all fasteners in the finished product by fastening the first and second layers together and hiding those screws with the top (outside) layer using only 2 or 3 screws placed centered and evenly spaced. You will later remove these screws and drill for carriage bolts and glue on final assembly.
2. Once the boards are secured together, set your table saw bevel to 15 degrees and the height of the blade to 1.5". Set your fence so the 15 degree cut only makes it to the centre of the middle rail and that you are taking off as little material as possible. Cut along the top side of the rail. After the first pass flip the rail end for end to make a second and opposing cut. This will produce a roof like detail that will shed rain from the top rail.
3. Next, you will be cutting the taper to the underside of the top rail as pictured here. The top rail tapers from 5" to 3.5", regardless of the overall width of your gate. To accomplish this detail, secure the top rail to a straight sled that will allow you to push your work straight through the table saw while offsetting the top rail on the sled. Measure down 5" from the top of the rail on one end and 3.5" on the other end. Fasten your top rail, waste overhanging to the sled on these marks and when you push the straight sled through the saw against the fence the bottom taper will be cut. If your table saw blade isn't tall enough when fully raised to cut all the way through, you may need to make two passes and flip the rail end for end to cut half way through with each pass. Clean up all cuts on a jointer if you have one and unscrew the three layers so they are separated for the next steps.
4. Now that the top rail is cut to the width you will turn your attention to cutting the two outer layers to length. The middle layer will remain the full length to allow for proper assembly of our layered gate design. You will have to remove 2.5" from the narrow taper end and 5" from the fatter tapered end. This is important because if you simply remove 7.5" from one end, the middle board will no longer line up with the outer boards.

**NOTE: WHEN CUTTING TO REMOVE FROM BOTH ENDS, KEEP THE TOP OF EACH RAIL (WHICH IS STRAIGHT/SQUARE) AGAINST YOUR MITRE SAW FENCE AND CUT AT 90 DEGREES. IF YOU ARE NOT CAREFUL AND CUT WITH THE TAPERED SIDE AGAINST THE FENCE YOU WILL BE CUTTING AN ANGLE. THIS WILL BE PROBLEMATIC WHEN TRYING TO DO FINAL ASSEMBLY.**

### Straight Top Rail Detail - Alternate: (no photos available)

1. Fasten the three boards to be used for the top rail together being careful to ensure you will be clear of all screws when passing it through the table saw. We recommend a 3.5" wide top rail if you are choosing to make it straight. Try to hide all fasteners in the finished product by screwing the first two layers together and hiding those screws with the third layer using only 2 or 3 screws placed centered and evenly spaced. You will later remove the screws and drill for carriage bolts on final assembly.
2. Once the boards are secured together, set your table saw bevel to 15 degrees and the height of the blade to 1.5". Set your fence so the 15 degree cut only makes it to the centre of the middle rail and that you are taking off as little material as possible. Cut along the top side of the rail. After the first pass flip the rail end for end to make a second and opposing cut. This will produce a roof like detail that will shed rain from the top rail.
3. Once the top is bevelled, you can flip it over, set your fence to 3.5" and return the blade bevel to 90 degrees. Pass the top rail through the saw to make the 3.5" height. If your table saw blade isn't tall enough when fully raised to cut all the way through, you may need to make two passes and flip the top rail end for end to cut half way through with each pass.
4. Clean up all cuts on a jointer if you have one, and unscrew the three layers so they are separated for the next steps.
5. Now that the top rail is cut to width, you will turn your attention to cutting the outer two layers to length. The middle layer will remain full length to allow for proper assembly of our layered design. Cut 7.5" off both the outer layers. This will allow for placement of the 5" stile on the hinge side and the 2.5" stile on the latch side.

## Remainder of the Cuts:

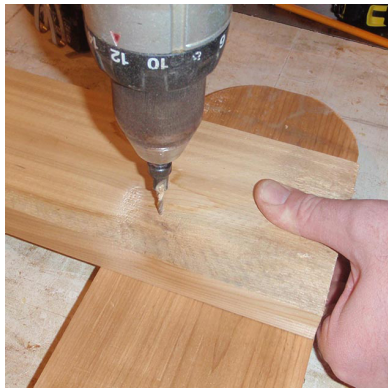
1. Cut the other 4 rails to 2.5" x the length of the gate.
2. Cut the 2 hinge side stiles to 5" x 48" - cut the radius in each stile
3. Cut the 2 latch side stiles to 2.5" x 48" - cut the radius in each stile
4. Cut the 4 diagonal brace pieces to 2.5" x the rough cut dimension in the plan. While we give dimensions and angles to finish cut these pieces we recommend you lay them out as you assemble and mark and cut to ensure the best fit. This will allow you to compensate for any bows or warping in the lumber you are using.

**Note: if you are adding the radius detail to the tops of your stiles as we have in the plans, you may wish to rough cut them a bit longer to allow your bandsaw or jigsaw to more easily make the cut without having to restart the cut at the top of the radius again.**



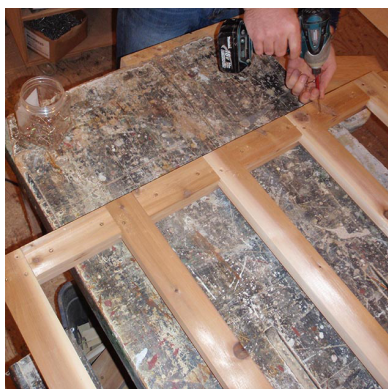
## Assembly Details:

1. Lay the first layer stiles out on a large flat surface spread apart to the finished width of your gate.
2. Lay the 4 x 2.5" middle layer rails as well as the tapered or straight middle layer top rail perpendicular across the stiles placing them roughly where they are to go.
3. Fasten the bottom rail to the stiles measuring up from the bottom 3" as detailed in the plan.



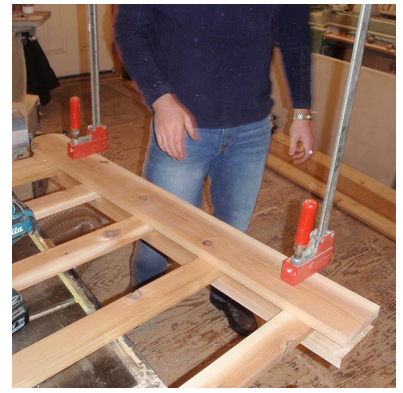
**Note: The initial fastening of all intersecting rails/stiles will be done with the 1.75" wood screws placed in the outer corners of the intersection. By placing them in the outer corners it will leave the center of intersection clear for the 3/8" carriage bolt which will be used to hold all the joints together during final assembly.**

4. Cut 2 spacer blocks to 6-5/8" long for use to space the remainder rails, fasten the rails to the stiles as before.
5. When you get to top rail it is important to note that if you are using the tapered top rail your 6-5/8" space is measured to the narrow latch side. The fatter hinge side will have a lesser space between.
6. Now that all of your rails are fastened you will check the gate for square. First, measure both ends top to bottom – the measurements should be equal. Second, measure the top and bottom side to side – the measurements should be equal. Last, measure to equal points diagonally across the gate corner to corner – when the gate is square these measurements will also be equal.
7. Once you have successfully squared the gate install a second screw in the opposite corner of each intersection to help keep it from coming out of square.
8. At this point if you would like to fill in all of the spaces between the rails to create a solid stile on either the hinge or latch side you can cut scraps to fit these spaces and glue and screw them into place as well. This is not detailed in the plan because it is not necessary but this addition does make it a bit nicer.





9. Lay the **third layer** stiles on top of your rails so they are in line with the first layer ones. Clamp them in place so they can't move and drill a 3/8" hole through the center of each intersection. Fasten each with a 3.5" carriage bolt. While drilling, place a scrap piece of lumber on the back side to reduce tear out as the bit comes through.



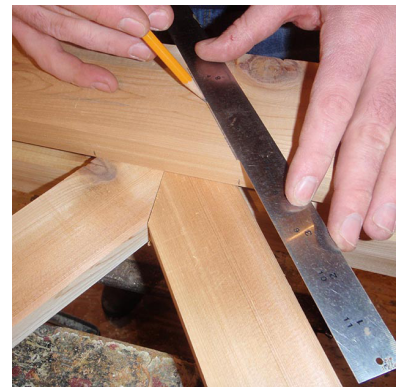
10. Mark center between the two stiles on the top and bottom rails. Clamp a straight edge on to these marks to give you a solid reference while marking the diagonal pieces of the "V". (**Intersect the top rail 1" below the top and extend the bottom of the "V" 1" below the bottom rail. See the plan pictures for details**) Use a straight edge to mark the angles of your bracing cuts. Once they are cut and you are happy with how they fit, fasten them in place with 2.5" carriage bolts through the 2nd and 4th rails by drilling through the center of where they intersect. Also, put a "toe" screw through a predrilled hole and where it won't be seen later where the "V's" meet the top rail. This will secure them.



11. Mark the relief cuts in the **third layer** top rail by placing it in line over top of the **center layer** top rail. Then using a straight edge as you did above lay it in line with the intersecting brace to mark the cut. Once the cuts are made in both ends, check to ensure you are happy with the fit and fasten it to the middle layer rail with screws. Be certain to screw from the **middle layer** out as you can hide these screws later. You should not see any screws on the outside.



12. Flip the assembly over and construct the **first layer** opposing "V" in a similar fashion to the other and paying attention to the details of the plan as you place them. (**The bottom of these diagonal "V" braces will dip 1" below the bottom rail and the top of the "V" will sit 1" below the top of the top rail**)



13. Once the second "V" has been installed you can place the top rail across it as pictured here to allow you to mark the relief cut in it. Align the first layer top rail with the others and clamp it down using spacer blocks. Once in place use a straight edge in line with the "V" to mark the relief cuts in the top rail section. Transfer to your saw and cut on the marks you made being careful not to cut past the the point of your marks. Finish the cuts with a jig or hand saw and test fit it as shown here.





14. Once you are happy with the fit of the top rail we suggest that you glue it in place. This will cover up the screw holes from placing the last one and secure this layer in place. Add the glue and clamp. Leave the clamps on until the glue has set. Then remove and sand as necessary.



15. Cut the filler blocks to go between the stiles at the top where you previously cut the radius. Cut the bottom off square and then run it through the saw with the blade set to bevel 15 degrees and cut 1/2" or half way through the height. Cut the piece in two passes to shape the bottom to match the contour of the top rail. Glue and clamp in place when you are happy with the fit. When the glue has set you can trim the fillers to match the the other radius and sand smooth as necessary.



To order the hardware required to complete this gate, please contact:  
Hoover Fence Company  
[www.hooverfence.com](http://www.hooverfence.com)

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