

Stackable Wine Racks

Create handsome storage for your vintage favorites.

By Bob Dickey



Overall dimensions (two-tiered rack):
28⁵/₈"w × 9³/₄"d × 10"h

Every woodworker looks for that one project that he or she can make in a day or mass-produce for welcomed gifts. If that describes you, you're in luck. This pleasing design consists of just four different interlocking parts that assemble like Lincoln Logs. While I'll work through the construction for a two-rack system for holding up to 12 bottles, keep in mind that you can build and stack several identical racks. Five racks, the

maximum, let you store as many as 30 bottles (inset at right). For this floor model, I cut and placed two top rails on the uppermost end pieces and added a top, as shown in **Figure 1**.

Note: From one 1 × 6 × 60" board and one 1¹/₄ × 8 × 36" board you can make one two-tiered wine rack like the one shown above.



Overall dimensions:
30"w × 12"d × 34"h

Cut and shape the rails

1 Prepare two blanks that measure $\frac{3}{4} \times 4\frac{5}{8} \times 28\frac{5}{8}$ " for the rails shown in **Figure 1**. (To minimize waste, I've found it best to cut one front rail [A]

and one back rail [B] from each rail blank. If building several stackable racks, prepare more blanks as needed.)

2 Referring to **Figure 2** (page 68), construct the **Front Rail Hole Drilling Jig** from MDF, laying out the locations for the $\frac{1}{4}$ " holes where shown. They are off center by $\frac{1}{8}$ ". Drill the holes.

3 Fit the hole-drilling jig over a rail blank, flushing the edges. Now, insert a $\frac{1}{4}$ "-diameter self-centering bit in the jig's holes, and drill the starter holes in the rail blank. Repeat for the remaining rail blank(s) as shown in **Photo A**.

4 Chuck a $1\frac{5}{8}$ " Forstner or multi-spur bit in your drill press, and bore through the rail blanks, guiding on the starter holes. Back the workpieces with scrap to prevent tear-out.

5 Cut a $\frac{3}{4}$ "-thick piece of MDF to $3\frac{3}{16} \times 29\frac{5}{8}$ ". Lay out the arcs on the piece where shown in the **Back Rail Template** in **Figure 2**.

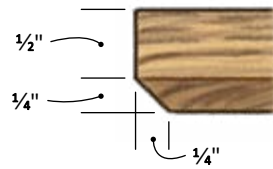
6 Noting the location of the offset holes in **Photo B**, place the back rail (B) edges against the saw fence, and rip the rail blanks down their centers as shown, creating two pieces that measure $2\frac{1}{4}$ " wide. Label the front rails (A) and the back rails (B). With the same saw setup, rip the MDF back rail template to final width.

7 Rough-cut the arcs just outside the line on the **Back Rail Template** with a jigsaw or bandsaw. Then carefully sand to the lines with a drill-press sanding drum or spindle sander.

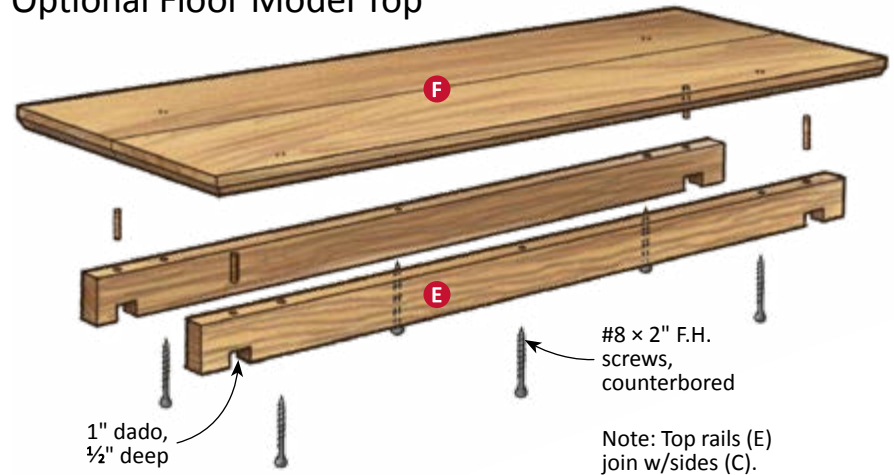
8 Center the **Back Rail Template** on the back rails (B), aligning the edges. Mark the 2"-radius arcs on the rear rails. Remove the template and rough-cut the arcs. Now, center and adhere the back

Figure 1: Wine Rack Exploded View

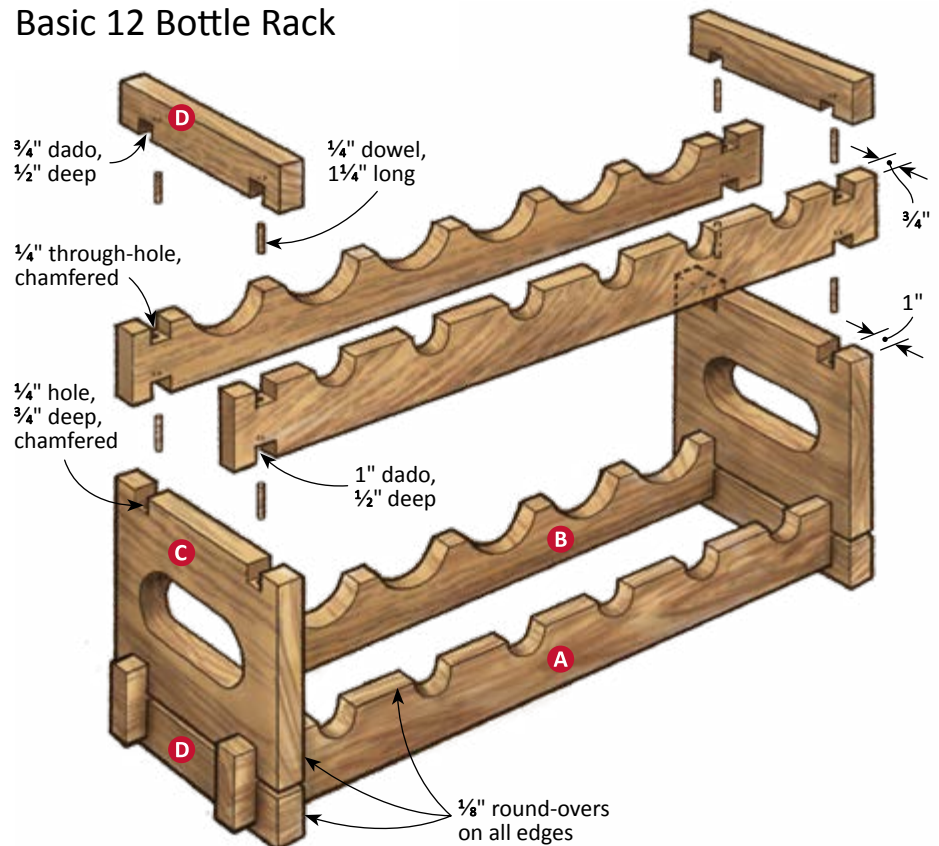
Chamfer Detail



Optional Floor Model Top



Basic 12 Bottle Rack

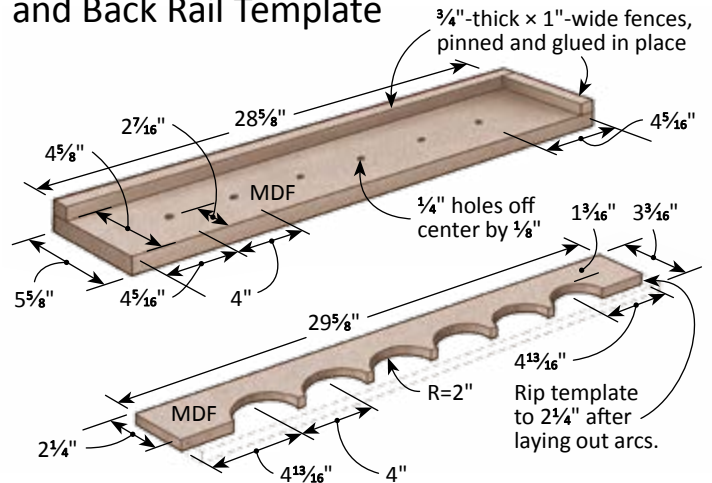




A

Holding the workpiece snugly in the jig, drill starter holes in the rail blank with a handheld drill and self-centering bit.

Figure 2: Front Rail Drilling Jig and Back Rail Template



rail template to one of the back rails with double-faced tape, flushing the straight edges.

9 Chuck a double-bearing flush-trim bit in a table-mounted router. With the template on top of a back rail (B), adjust the bit's bottom bearing to ride on the template as shown in **Photo C**. Now, *routing with the grain*, flush-trim each back rail arc, *stopping the cut midway along the arc's edge*. Flip the workpiece and raise the bit so the top bearing rides on the template, which is now below the rail. Finish flush-trimming the arcs. This approach lets you always cut with the grain and avoid tear-out. Flush-trim the arcs on the remaining back rail(s).

Make the ends and caps

1 Plane stock for the ends (C) and top and bottom caps (D) to 1" thick. Now rip and crosscut the end blanks to the dimensions in the **Cut List**.

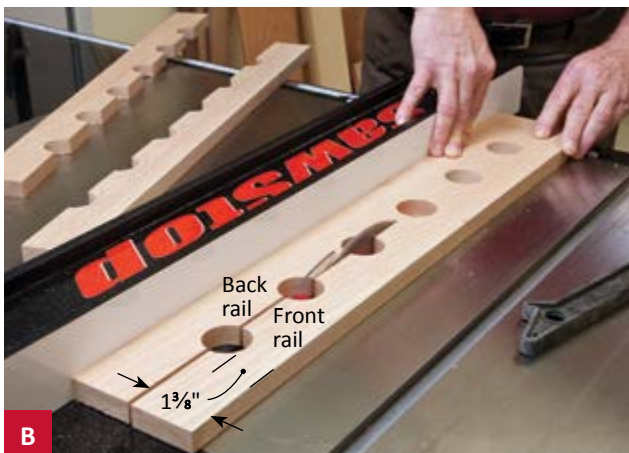
Using the same setups, cut two 3/4" pieces of MDF to the same size. Set the cap stock aside.

2 Referring to the **End Drilling Jig** in **Figure 3**, lay out and drill the 1/4" holes where shown in one of the MDF pieces. Place the jig over an end blank (C), flushing the edges. Now transfer the hole locations to the blank with the self-centering bit used earlier. Do the same for the remaining end blank(s) and the MDF piece for the **End Routing Template**.

3 With a 2 1/4" Forstner or multi-spur bit in your drill press, bore through-holes where marked on the blanks for ends (C) and the other MDF piece. Back the pieces to avoid tear-out.

4 Strike lines between the holes on each piece, and jigsaw out the waste between the holes, cutting just inside the lines, as shown in **Photo D**. Carefully sand to the cutlines on the MDF piece, creating the **End Routing Template** shown in **Figure 3**.

5 Adhere the **End Routing Template** to an end blank (C), flushing the edges. With the flush-trim bit used earlier, flush-trim the rough-cut opening in the blank, guiding off the



B

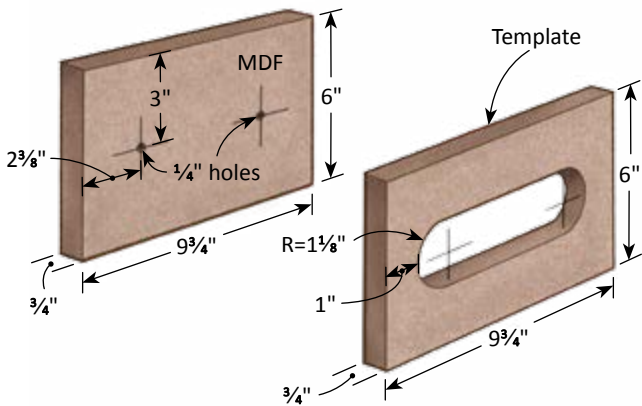
With a 1/8" blade, rip the rail blanks into two pieces, relying on a pushstick to safely complete the cut.



C

Rout the arcs cutting downhill to the grain; at midway, stop, flip the workpiece, raise the bit to work off the top bearing, and complete the cut.

Figure 3: End Drilling Jig and Routing Template



D Jigsaw rough openings in the end blanks and MDF piece, using a stand that has a fence and blade-clearance opening in its top.

template. Similarly, flush-trim the remaining end blanks.

6 Retrieve the 1"-thick stock for caps (D), and cut the needed number to the sizes in the **Cut List**. (To build one two-tiered rack, you'll need four caps: two top and two bottom. If adding the top rails (E) and top (F) on a five-tiered rack, eliminate the uppermost top caps.)

Cut the dadoes and drill the dowel holes

1 Referencing **Figure 1**, lay out the dadoes on the parts. Install a 5/8" dado set to cut the half-lap dado joints for the rack assembly. (I use this width to saw the dadoes in two passes.

This approach allows for fine-tuning the setup to match the actual thicknesses of the rails [A, B], and then the ends [C] and caps [D].) Adjust the fence and miter gauge stop, and cut the wider dadoes in the rails as shown in **Photo E** and **Inset**. Adjust the setup and then cut the narrower dadoes in the ends and caps. Test-fit the parts.

2 Referring to **Figure 4**, make a pair of drilling jigs—one for the rails (A, B) and one for the ends (C) and caps (D). Drill a 1/4" hole in the center of the dado of each jig.

3 Fitting the jigs in the appropriate dadoes, drill 1/4" holes in each part. Note that while the front rails (A), back

rails (B), and top rails (E) receive through-holes, the ends (C) and caps (D) receive 3/4"-deep holes. Chamfer the holes slightly with a countersink to better receive the dowels.

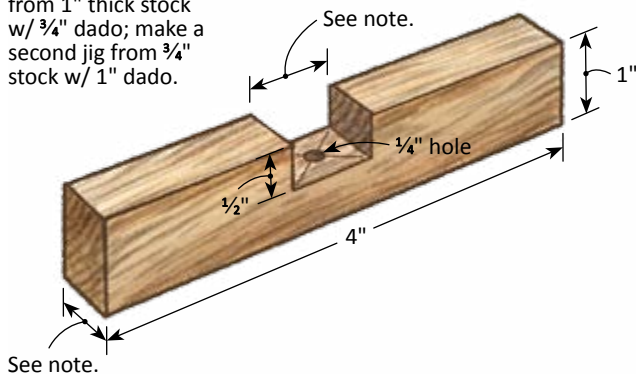
4 With a 1/8" radius round-over bit in a table-mounted router, ease the edges of all parts (A, B, C, and D), including the edges of the side openings. Don't round over the dadoes.

Finish and assemble the rack

1 Sand the parts through 220 grit and apply stain and clear topcoat. (I used an oil-based stain and spray lacquer.)

Figure 4: Notch-Drilling Jigs

Note: Make one jig from 1" thick stock w/ 3/4" dado; make a second jig from 3/4" stock w/ 1" dado.



E Working between the miter gauge stop and saw fence, make the dado cuts in two passes.

2 Install leg levelers or felt pads on the bottom edges of caps (D) of the two-tiered wine rack. For the floor model, go with leg levelers.

3 Cut 1/4" dowels to 1 1/4" long and chamfer their ends with a pencil sharpener. Apply glue and tap the dowels into the holes in each bottom cap (D). Apply glue to the extended dowel portions, and tap on the front and back rails (A, B). Add the ends (C), more rails, and the top end caps as shown in **Photo F**.

Add the optional top

1 If building the five-tiered rack, cut a pair of top rails (E) and edge-glue and cut a top (F) to the sizes in the **Cut List**. Dado the top rails to fit in the uppermost ends (C). Drill dowel holes in the dados. Also drill countersunk clearance holes for #8 x 1 1/4" screws. Sand, stain, and finish these parts.

2 Fit the top rails (E) in the mating dados of the uppermost ends (C) and insert dowel centers in the starter holes along the top edges of the rails. Center the



Add glue, insert the dowels, and build the rack assembly by joining the dadoed parts, tapping them snugly together.

top (F) on the stacked wine rack from side to side. Allow for a 1 1/8" overhang beyond the front and back to accommodate protruding wine bottles. Now, tap the corners

to indent the wood to mark it for the 1/4"-diameter holes. Drill the holes 1/2" deep and add glue and dowels. Drill screw pilot holes in the top and secure it in place. n

Stackable Wine Racks Cut List

	Part	Thickness	Width	Length	Qty.	Mat'l
A	Front rails	3/4"	2 1/4"	28 5/8"	2	RO
B	Back rails	3/4"	2 1/4"	28 5/8"	2	RO
C	Ends	1"	6"	9 3/4"	2	RO
D	Top and bottom caps	1"	1 3/4"	9 3/4"	4	RO
E	Top rails	3/4"	1 3/4"	28 5/8"	2	RO
F	Top	3/4"	12"	30"	1	RO

*Indicates parts are for floor model. See instructions.

Material: RO=Red Oak

Hardware: (6) #8 x 1 1/4" screws

Convenience-PLUS BUYING GUIDE

<input type="checkbox"/> 1.	Whiteside Over-Under Flush-Trim Router Bit, 7/8" D, 1 1/2" CL (1/2" SH)	#149528	\$34.99
<input type="checkbox"/> 2.	Snappy Self-Centering Hinge Bit 7/64", #6 Screws	#830810	\$11.50
<input type="checkbox"/> 3.	Forstner Bit, 1 5/8" D (3/8" SH)	#125940	\$10.99
<input type="checkbox"/> 4.	Forstner Bit, 2 1/4" D (1/2" SH)	#125945	\$16.99
<input type="checkbox"/> 5.	Dowel Centers, 1/4", 10/pkg.	#123717	\$6.50
<input type="checkbox"/> 6.	Dowel Pins, 1/4" Dia., 1 1/2" Long, 100/pkg.	#50M11	\$4.50
<input type="checkbox"/> 7.	General Finishes Stain, Pecan, 1 pt.	#812138	\$10.99
<input type="checkbox"/> 8.	Deft Clear Wood Finish, Satin, 12 oz.	#143198	\$8.99
<input type="checkbox"/> 9.	Self-Adhesive Felt, 3/4" D, 24/pkg.	#124614	\$3.50

Above items are available at Woodcraft stores, woodcraft.com or by calling (800) 225-1153. Prices subject to change without notice.

About Our Author

Bob Dickey's background in design and engineering prepared him well for professional-level woodworking. In Mukwonago, Wisconsin, where he lives,

he operates a gallery, selling jewelry boxes, wall cabinets, and wine racks (see it at woodnonline.com). He also teaches at the Milwaukee area Woodcraft store.

