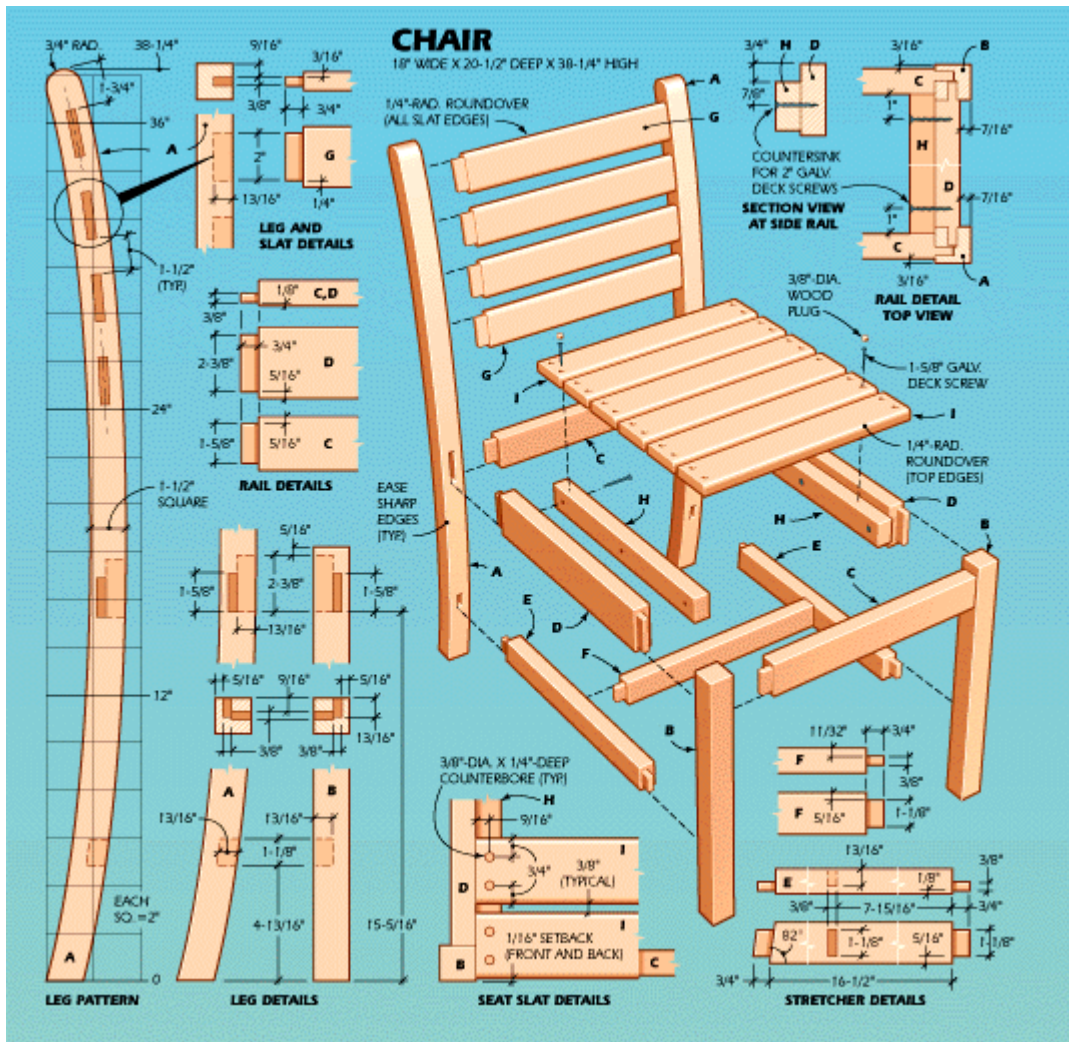


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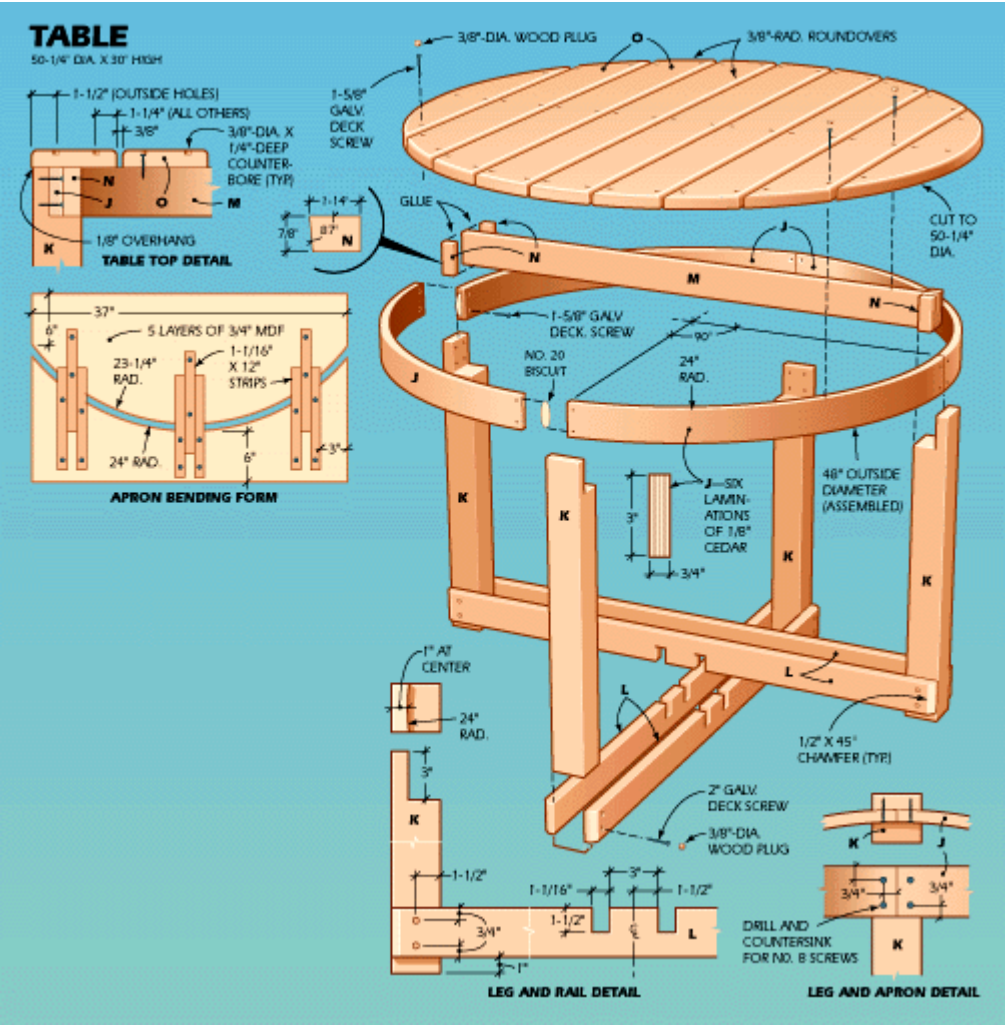
OUTDOOR CEDAR TABLE AND CHAIRS





MATERIALS LIST—TABLE AND CHAIRS		
Key	No.	Size and description (use)
A	2	1 1/2 x 3 1/2 x 38 1/4 in. cedar (leg)
B	2	1 1/2 x 1 1/2 x 18 in. cedar (leg)
C	2	1 1/16 x 2 1/4 x 16 1/2 in. cedar (rail)
D	2	1 1/16 x 3 x 17 in. cedar (rail)
E	2	1 1/16 x 1 3/4 x 18 in. cedar (stretcher)
F	1	1 1/16 x 1 3/4 x 16 1/2 in. cedar (stretcher)
G	4	3/4 x 2 1/2 x 16 1/2 in. cedar (slats)
H	2	1 1/16 x 1 3/4 x 16 in. cedar (cleats)
I	6	3/4 x 2 1/2 x 15 in. cedar (slats)
J	4	3/4 x 3 x 37 1 1/16 in. cedar (apron)
K	4	3 x 3 x 28 15/16 in. cedar (leg)
L	4	1 1/16 x 3 x 50 in. cedar (rail)
M	1	1 1/16 x 3 x 46 1/2 in. cedar (rail)
N	4	7/8 x 1 1/4 x 3 in. cedar (block)
O	9	1 1/16 x 5 1/4 x 50 1/4 in. cedar (slat)

Misc: 1 5/8 in. and 2 in. galvanized deck screws, 3/8-in.-dia. wood plugs, No. 20 biscuits, Titebond II glue, two sheets 3/4-in. x 4 ft. x 8 ft. MDF, Cabot Clear Decking Stain No. 1400.



Building the Table

We used air-dried, clear red cedar for our project. While normally we use kiln-dried stock for woodworking, we couldn't locate kiln-dried material in the sizes we needed. Besides, using kiln-dried lumber is not that important for outdoor furniture because these pieces are subjected to wide variations in humidity. To stabilize the air-dried stock, we brought it into the shop and stacked it neatly in a dry space out of direct sunlight, with evenly spaced strips of wood between each board. This is known as sticking.

Start by making the laminating form. We chose MDF (medium-density fiberboard) for the form because it is inexpensive.

First, make the trammel base for the router. Install a 3/4-in.-dia. straight bit in the router, and bore a 3/8-in.-dia. hole through the trammel so that the hole's center is 24 in. from the outside of the router bit. Use a short length of 3/8-in. dowel to pin the trammel to a large piece of MDF. Now, make three passes with the router to cut an arc through the stock (**Photo 1**). Temporarily leave a section of the panel connected at each end of the arc. Make a set of alignment marks across the arc, and use the router to cut the panel into two sections. Use the two sections as templates. Cut slightly oversize blanks from the remaining panel stock. Screw a template to each blank, and use the router with a flush-trimming bit to cut the blanks to finished radius (**Photo 2**). Each routed piece becomes the pattern. To prevent glue from sticking to the form, apply a coat of varnish to it. Then wax it after the varnish dries.



1 Make the bending form template with a plunge router on a trammel arm. Cut an arc in a sheet of MDF.



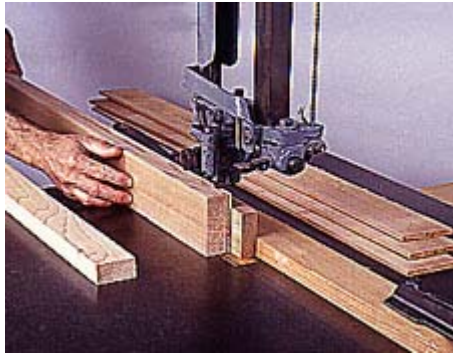
2 The remaining pieces of the form are trimmed to size using the template, router and flush-trimming bit.

Next, place 3/4-in.-thick blocks between the bending forms, and temporarily clamp the forms together. Fasten alignment strips to the surfaces of the forms (**Photo 3**).

Set up the band saw with a tall rip fence and a 1/2-in.-wide, four-tooth-per-inch blade. Rip 1/8-in.-thick, 48-in.-long cedar strips (**Photo 4**).



3 Use 3/4-in.-thick spacers between the bending form pieces. Clamp the form pieces together and fasten alignment strips.

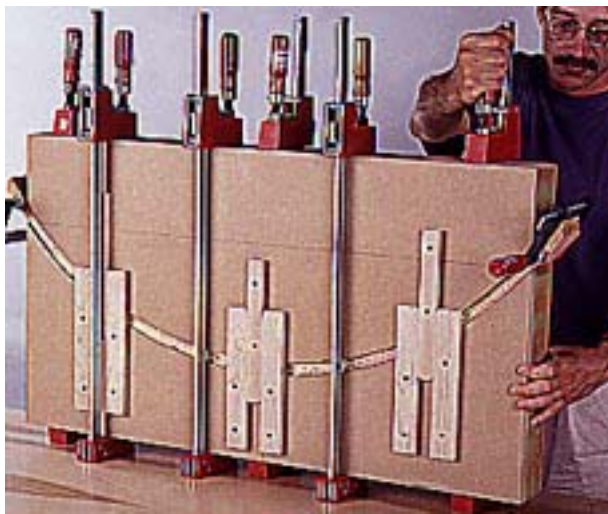


4 Resaw the 1/8-in.-thick apron laminate strips on the band saw. Use a pushstick at the end of the cut.

Spread glue on the strips, and place the six strips stacked in the form. Clamp the form together (**Photo 5**).

When all the apron blanks have been glued up, plane a square, straight edge on each blank, then rip the apron blanks to finished dimension.

Next, make a plywood cradle with a radius that matches the apron's finished outside length. Clamp the cradle to a long auxiliary fence attached to the table saw's miter gauge. The first cut removes one rough end from the apron (**Photo 6**). Turn the apron around, and crosscut the apron to finished length.



5 Clamp the laminate strips at either end to keep them from shifting. Apply pressure with equally spaced clamps.



6 Make a cradle. Then crosscut the apron blank to finished length. The apron length and cradle arc length are equal.

Use the cradle again to hold the apron as you cut the biscuit slot in each end (**Photo 7**). Assemble the apron. Then apply glue to the apron ends, the biscuit slots and the biscuits. Use a band clamp to apply clamping pressure (**Photo 8**). Check the apron diameter for distortion, and adjust it if necessary. Rip, joint and crosscut the leg stock to finished dimension. To cut the curved notch in the leg, first make a 90-degree cut and then use a sharp chisel to pare the curve.



7 Transfer the cradle to a bench, and use it to hold the apron section in place while cutting the biscuit slots.



8 Glue and clamp the apron sections together using a strap clamp. Check its diameter at several points.

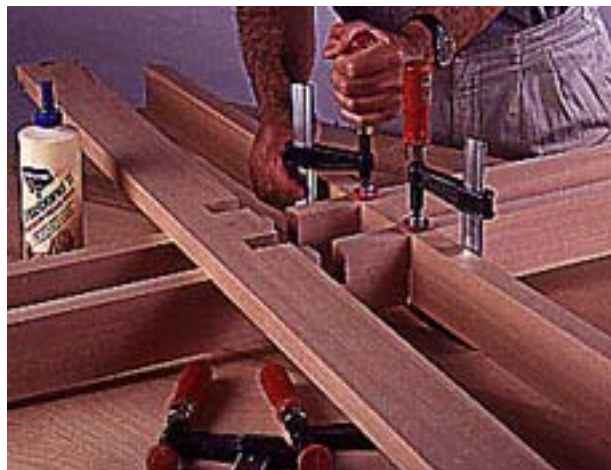
Rip, crosscut and notch the table rails and chamfer the edges. Spread glue on the notches, and clamp the pieces together (**Photo 9**).

Position a table leg between a pair of rails, and counterbore the screw holes. Fasten the legs and rails with galvanized deck screws.

Center a leg over each apron joint. Countersink the screw holes, and drive screws into each leg (**Photo 10**).

Now cut the crossrail to size. Place the crossrail into the leg assembly, and cut the glue blocks to fit at its ends. Glue the blocks in place.

Rip and crosscut the top slats to size. Use a rounding-over bit in the router to ease the slat edges. Clamp the center slat in position, bore its pilot holes and fasten it to the apron. Fasten the remaining slats to the center rail spaced 3/8 in.



9 Glue and clamp together the half-lapped rail assembly. Check that the parts are square to one another.

from each other. Mark out the top's diameter (**Photo 11**) and cut it to shape with a sabre saw. Sand the slat ends smooth, then use the router and rounding-over bit to ease their edges.

Use a plug cutter in your drill press to make the plugs to cover the screwholes. Glue the plugs over the screwheads, and use a chisel to pare the plugs smooth. Sand the table smooth with 120-grit sandpaper.



10 Position the apron so each of its joints is centered on a leg. Use four screws at each joint to attach the apron to the legs.



11 Space the boards equally, and screw them to the crossrail. Draw the outline of the top on the boards.

Chair Construction

The first step in chair construction is to make a thin plywood template for the rear leg. Rip and crosscut the rear leg blanks, then trace around the pattern onto the leg (**Photo 12**). Cut the outside of the leg to shape, and smooth its outline with a block plane (**Photo 13**). Cut its inside surface to shape, and smooth it with a spokeshave.

The other chair components are ripped, crosscut and planed to final dimension. Lay out the mortises and tenons on these pieces. The mortises are most easily cut with a router and a spiral up-cutting bit (**Photo 14**). This will require that you cut the ends of the mortises square with a chisel. However, this process will not work on the inside surfaces of the rear leg because the router fence does not have a straight edge to bear against. Cut these mortises by



12 The first step in building each chair is to make a template for the rear leg, and trace it on the leg blanks.

laying the leg against a fence on a drill press table. Bore a series of overlapping holes (**Photo 15**). Then cut the mortises square with a chisel.



13 Cut the outside curve on the leg. Clamp it to the bench, and smooth the curve with a block plane.



14 Use a plunge router with its fence positioned on the leg's straight face. Cut the side rail and stretcher mortises.



15 Remove the bulk of the side rail mortises on the drill press. Chisel the mortise sides and ends square.

Cut the tenons on the back slats, rails and stretchers using a dado blade installed in the table saw (**Photo 16**). On the rails and stretchers, be careful to keep track of which face of the component you are working on because the tenon is not centrally positioned on these pieces. Adjust the height of the dado blade accordingly. Also, note that the tenon that joins the side stretcher to the rear leg has an angled shoulder. Cut this by hand using a dovetail saw or backsaw.



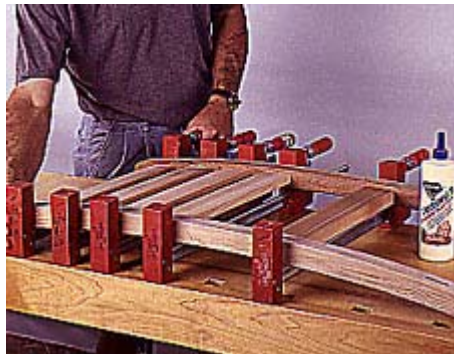
16 Clamp a stop to the miter gauge fence. Use a dado blade to cut the tenons on the rails, stretchers and back slats.

Begin the final assembly by gluing and clamping together the side stretchers and the cross stretcher (**Photo 17**). Measure diagonally from both corners of the assembly to check it for square. Next, glue and clamp together the rear legs, slats and rail (**Photo 18**). Glue and clamp the front legs and rail. Then, glue and clamp together all the subassemblies (**Photo 19**). Cut and install the cleats and the seat slats. Install wood plugs.



17 Glue and clamp together two side stretchers with a cross stretcher. Check the assembly for square.

The chairs and tables were finished with a clear coat of Cabot Decking Stain No. 1400.



18 Clamp together the rear legs, a rear rail and four back slats. Use one clamp at each joint location.



19 Glue and clamp together the rear leg subassembly, the front legs and the stretcher subassembly.