

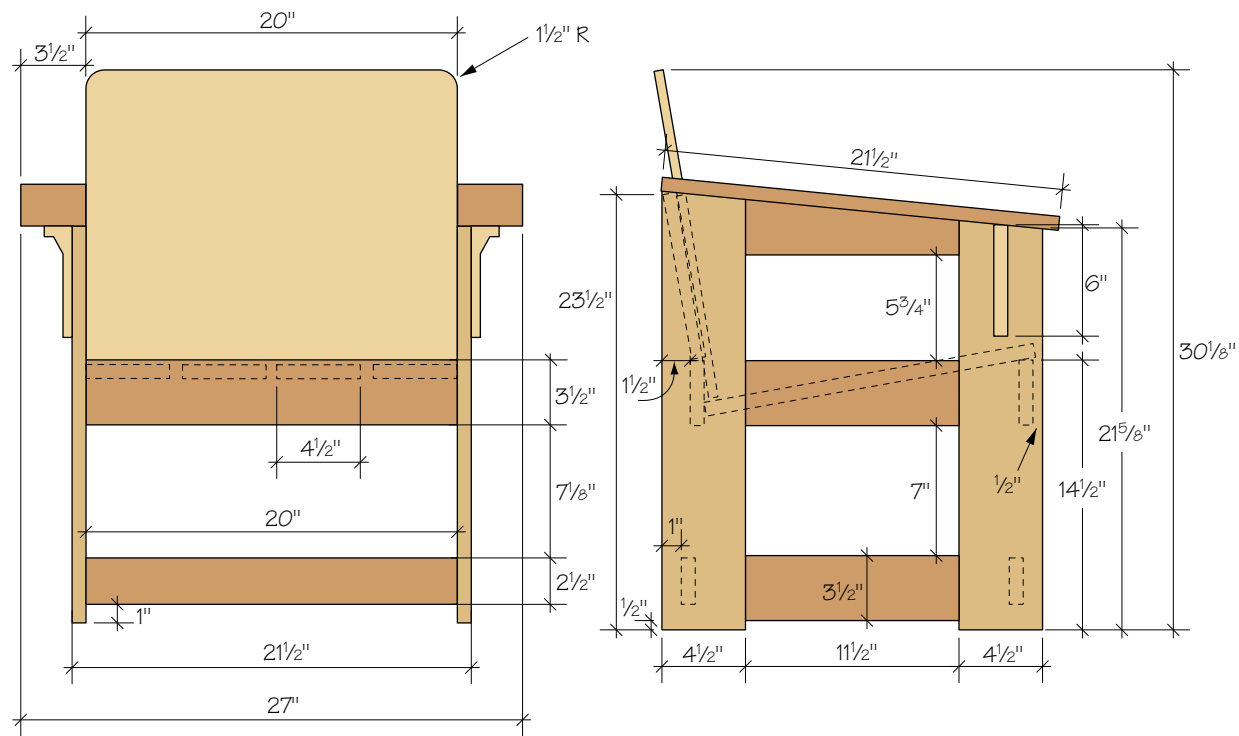


LIMBERT CHAIR

9

I love the outdoors. And I'm impressed with whatever forces in the universe have made it possible for me to purchase a collapsible canvas-and-metal camp chair for under \$20. But when you're looking for furniture for a more permanent outdoor setting, then you need something special. This chair design caught my eye in a book called *Arts & Crafts Furniture*, by Kevin Rodel and Jonathan Binzen.

Actually there were two chairs similar in design. A nearly-black painted version by Scottish designer Charles Rennie Mackintosh that, it appears, influenced American designer Charles Limbert who created a wood-finished cafe chair. I liked the look of both chairs, and quickly recognized that they would easily adapt to our "minimal" approach to construction. My version here is an amalgam of the two, but because of my use of corbels under the arms, I'm going to give Charles Limbert the stronger claim.



LIMBERT CHAIR • INCHES (MILLIMETERS)

REFERENCE	QUANTITY	PART	STOCK	THICKNESS	(mm)	WIDTH	(mm)	LENGTH	(mm)
A	2	front legs*	poplar	3/4	19	4 1/2	115	22	559
B	2	back legs*	poplar	3/4	19	4 1/2	115	24	610
C	6	side stretchers	poplar	3/4	19	3 1/2	89	11 1/2	292
D	2	f&b stretchers	poplar	3/4	19	3 1/2	89	20	508
E	2	f&b stretchers	poplar	3/4	19	2 1/2	64	20	508
F	2	arms	poplar	3/4	19	3 1/2	89	21 1/2	546
G	4	seat slats	poplar	3/4	19	4 1/2	115	18	457
H	2	corbels	poplar	3/4	19	1 1/2	38	6	152
J	1	back	plywd	5/8	16	20	508	18	457
K	4	cleats**	poplar	3/4	19	3/4	19	9	229

* Allows length for miter cut on one end.

** Cut to fit.



1 The two sides are simple frames, though I did go the extra effort to make the vertical pieces thinner (4 1/2"-wide) to provide more appealing proportions. Lay out the sides pieces to mark for pocket screws, making sure that you have both a left and right side.



2 My pocket screw jig makes quick work of the holes drilled in only the horizontal parts.

As my version was destined for use outside, I changed a lower shelf on the Limbert chair, to two stretchers at the front and back. This along with a seat made of slats, an angled seat and spacing for drainage all make this a more outdoor-friendly chair. I borrowed Mackintosh's painted finish, however, to help in weatherproofing the chair.

PLY AND POPLAR

My materials consisted of 1x3, 1x4 and 1x6 poplar boards, and a small piece of 5/8"-thick birch plywood. In drawing up the chair, I tried to use 5 1/2"-wide boards for the legs and was disappointed with the final look. After some mental debate, I opted to rip the 1x6 boards for the legs to 4 1/2" for a better look. If you're without a table saw, a jigsaw and a plane to clean up the edges will do in a pinch, but it definitely makes the project more time-intensive. You can also adapt the drawings here to accommodate the uncut 1x6 boards.

Start by cutting the side stretchers and legs to length (and width). Place the pieces on your work surface, and place them together spaced as shown in the diagram. Mark the height of the back leg at 23 1/2" and the mark the height of the front leg at 21 1/2". Then connect the points to define the angle at the top of the side leg assembly. We're marking this angle before the sides are assembled, because we need to make sure the pocket screws used to assemble the sides

are located to provide the most strength. Be sure you make a left side and a right side. Otherwise you end up with pocket screws showing on the outside!

With the sides marked, I used my Kreg jig to drill pocket holes in the stretchers (two per end on the middle and lower stretchers, and on the top stretchers, two in the back and one in the front). Then I used a clamp to hold the side pieces tight and drove the screws into the legs. Again make sure you've got one left and one right side.

THE RIGHT SLANT

I used a jigsaw to cut the top angle on each side. While this edge will be somewhat hidden by the arms, it's still best to make the cut slow and even for the best edge possible. You may want to touch up the edge with your bench plane.

Even though this was destined to be an outdoor project for me, I still opted to countersink the screw holes and add plugs. I knew it would give the chairs a more "finished" look. I located all the positions of the front and rear stretchers on the sides. Follow the diagrams to mark these locations, then drill the countersink holes for each stretcher in the sides.



3 I used a parallel jaw clamp to hold each side frame tightly together as I inserted the screws.



4 With both sides assembled, I double-checked my top lines for the arm slope.



5 I used my jigsaw to cut each slope, staying slightly proud of the line, and then cleaned up the edge with my bench plane.



6 The four stretchers are screwed in place through the sides. I used my countersinking pilot bit to make the clearance holes, anticipating plugging the holes afterward.



7 Holding the two sides together with the stretchers as you drive the screws home can be a bit of a juggle. A clamp or two, and using the other stretchers as spacers makes things more manageable.



8 I slipped the plywood back in place to test the fit, allowing the back to touch the top point of the side, and extend 7" above the sides.

A clamp or two help hold things in place as you screw the stretchers between the two sides. It helps to use the other stretchers as spacers as you screw.

With your chair looking more cube-like, it's time to cut the plywood back to size using your circular saw. Then position the back between the sides with the height 7" above the seat back, and with the back resting against the back stretcher. Mark the location of the back on the sides, from the inside surfaces. Then remove the back and drill two clearance holes through the sides, stopping before the bit countersinks. Then work from the outside of the side assemblies and drill back through those holes, to countersink from the outside surface.

To finish the back, I marked 1½" radii at the top two corners. I then trimmed the corners to shape with my jigsaw.

LET'S TRY THIS AGAIN

Here's where my planning failed. After screwing the back in place, I was using my daughter to test-sit the chair, and found that a reasonable amount of pressure against the back could force the plywood to split at the screw locations. I could have moved up to a ¾"-thick plywood back, but I liked the look and feel of the thinner ply, so I opted to add ¾" × ¾" bracing cleats behind the back, on both sides. I cut a long taper on each cleat to match the angle at the back. Then I counter-drilled the holes and screwed the cleats in place. More test-sit-



9 The lower part of the back is braced against the back stretcher for more support. I then marked the location of the back on the inside surface of the sides.



10 With the back removed, I drilled two holes through each side, stopping with just the bit poking through the outside surface.



11 I then came from the outside surface of the sides, drilling deeper to countersink the holes for plugs.



13 Next, I screwed the back in place and discovered a problem. The back wasn't thick enough to support the screw without the concern (as shown) of forcing the ply's apart when someone sits in the chair.



12 With the back removed, I took the opportunity to mark each top corner with a 1¼"-radius and then used my jigsaw to make the cuts, rounding the corners.



14 To add two braces behind the back I used a scrap piece of pine. I cut an angle on the braces so they wouldn't protrude beyond the sides. I used a Japanese dozuki saw to start the cut slowly.



15 After a moment or two, my scrap piece was cut in two.



16 I then marked both pieces for length, and made the cuts.



18 I then cut the seat slats to length and used my router to round over two long and one short edge on the top of the slats.



17 Some glue, a spring clamp and a couple of screws (in countersunk holes) added the braces and made the back much stronger.



19 The slats were then screwed in place through the back stretcher of the chair. I used another scrap piece to hold the side slats $\frac{3}{4}$ " off the side frame, then evenly spaced the other two slats between them. I used an 18-gauge pneumatic pin nailer to attach the front of the slats to the front stretcher. You could also use countersunk screws, or brad nails for this step.

ting proved that the fix was good, and not too ugly.

I moved on to the seat slats next. These too I ended up ripping to 4½"-wide, though you could also use five 1×4s and adjust the spacing between the boards. As this is the place where the hide meets the pine, I added ¼" radius roundovers to the top edges of the seat slats. The slats were then attached using screws through the back stretcher at the back end, and finishing nails through the front edge and down into the front stretcher. Screws at the front of the slats are prone to scratching legs.

ARMING THE CHAIR

For the chair arms, I again added a roundover to the top edges, and then counter-drilled in four spots to attach the arm to the top of each side assembly.

Using the template on page 85, lay out the corbels and cut to shape with a jigsaw. If you have a band saw available, these pieces are an easier cut with the larger machine. I counter-drilled one hole from the inside to mount the corbels (a little glue here is a good idea), then added another screw to the corbel through the top of each arm.

FINISHING TOUCHES

There are 50 holes in the chair, and I wanted them to disappear once the paint was on, so that meant 50, $\frac{3}{8}$ " wood plugs are glued in place, and then sanded flush (which took a little bit of time).

After the plugs are sanded flush, the whole chair needs a good sanding. Wherever two flat surfaces mate (such as the area shown in photo 20 at the right) this should be sanded as flush as possible. Assuming that you're using a solid color paint as I did, each of these mating edges will show up more dramatically than you might expect.

You should also spend a little time to take break all the edges of the chair to make it more comfortable to the touch. This is one of those steps that makes a huge difference. Sharp edges aren't worth rushing to the end of the project.

The last step is the paint. As you may have noticed in the opening photo, I built two of these chairs, and the first one was painted with a can of spray paint in a brown color. The spray paint didn't cover the surfaces as well as I preferred, and to be honest I wasn't too crazy about the color. So back to the store and I chose a quart of the red shown. It was worth the extra work.



20 I next used my router to round over the top edges of the arms. I then pre-drilled and countersunk holes in the arms, and screwed them in place to the top of the sides. (Yes, that's Pete Townsend watching over my work.)



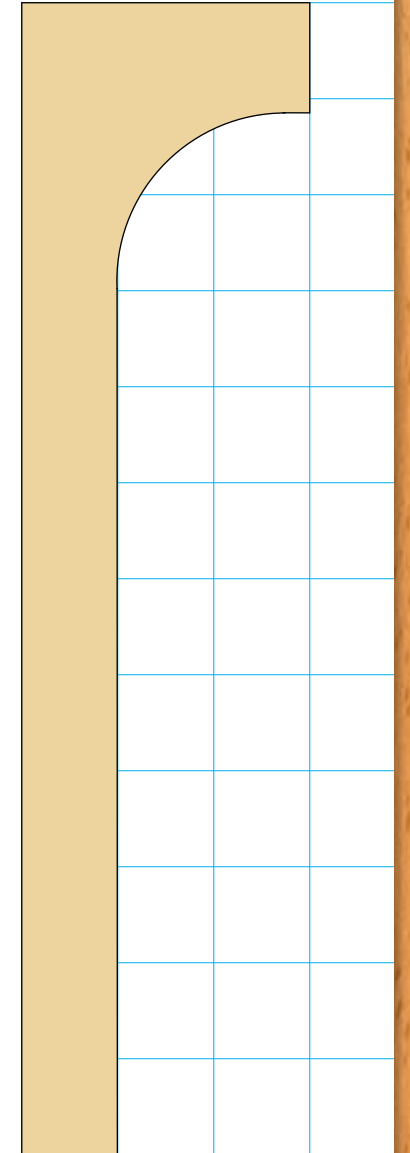
21 Use the template to mark and cut out the arm support corbels. A jigsaw works, but if you've got a band saw handy, it's easier. Sand the corbels, and then add some glue and screw them in place through the inside surface of the side frames. I held my corbels about $\frac{1}{4}$ " back from the front edge.



22 Now screw down through the arm and into the top of the corbel.



23 One of the longer steps is plugging all the screw holes and then sanding them flush. It's worth it to give the piece a finished look.



Each square = $\frac{1}{2}$ "