Build a Prairie Settle

New take on a classic design—construction is as simple as ever

BY KEVIN RODEL

This settle is a perfect example of the low horizontal lines—reminiscent of the broad horizon of the Midwest—that characterize Prairie-style furniture. Even though the heyday of the Prairie School of architecture and furniture (largely credited to Frank Lloyd Wright) lasted only from about 1900 to 1915, the strong lines and characteristically unadorned style make it as popular today as it was back then.

The basic form is classic, but a few details make this settle uniquely mine. I added the scoop-out on the feet, the hip-roof shape on the arms and corbels, the pyramid-head pegs, and the slight extension of the back of the side arms beyond the long arm. But the most distinctive part of this settle is the square cutouts in the slats.

Although the overall size and the number of parts involved make this piece seem like a more advanced project, it's very straightforward. Most of the construction involves simple mortise-and-tenon joinery. The corbels are the most complex part, but I'll show you an easy way to make them quickly and consistently.

The dimensions of the piece are standard to the period and type of furniture but can easily be changed to accommodate different body types or room sizes. The height of the settle can be adjusted by changing the length of the leg posts and the placement of the horizontal pieces. The length is modified by changing the length of the long rails and the number of slats in the back and/or the spacing between them.

There are upholstery options to consider: attached, integral spring-form cushions, or loose cushions. I like the loose cushions

Photos: Anissa Kapsales; drawings: Bob La Pointe

because the upholstery method is easier for an amateur. If you use fabric covers, you'll need an upholsterer to sew the cushions. If you use leather, you can have an upholsterer sew them or lace them yourself, as I demonstrate on FineWoodworking.com.

While this settle is made of quartersawn fumed white oak and is upholstered with leather, don't feel limited by my choices. The form's strong lines and a wide choice of fabrics allow this piece to look great in almost any wood species and in a variety of settings.

First things first: the leg posts

It is difficult to find quartersawn 12/4 oak, but if the posts have a face with ray fleck, I put it on the sides of the piece, so the nicest faces can be seen in pairs. After dimensioning the posts, lay out the mortise locations and corbel grooves as well as the stub tenon shoulder line.

If you don't have a dedicated mortising machine, you can cut consistent mortises using a simple router-box jig (for more on this jig, see "Arts and Crafts Side Chair," *FWW* #190). Cut all mortises as sets to keep router-setting changes to a minimum.

The grooves for the corbels can be cut either with a dado blade on the tablesaw or with a router and edge guide. The router method is slower, noisier, and messier, but the dado blade leaves a larger area to clean up by chisel at the end of the groove.

The stub tenon on the post top is square and centered on the post and is easily cut on the tablesaw.

This is also a good time to cut the mortises that will house the raised ebony plugs. The small scoop-outs on the post bottoms are optional, but I do it as a signature detail on almost all of my work. Finally, I break all the edges, sand off any layout lines, and finish-sand to P220-grit. Because none of the joints are flush, sand all the parts before assembly so you don't have to sand into corners later. The completed settle will get just a final touch-up sanding.

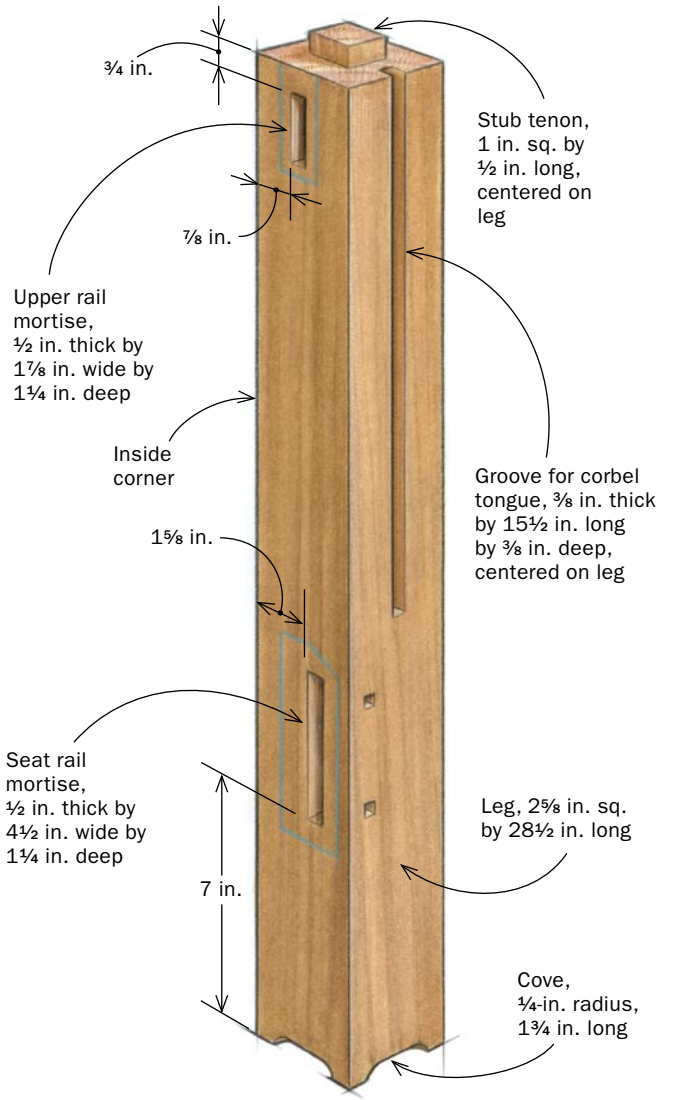
Tackle the rails next

With the posts complete, proceed to the horizontal elements that are tenoned into the posts: three long and four short rails. The length is determined by taking the between-post dimension and adding the tenon lengths. If you wish to make your settle longer or shorter, now is the time to do it.

How to cut tenons on long rails—I cut tenons on the tablesaw, using a method that works well on the front and back rails, and any other pieces that are too long and heavy for a tablesaw tenoning jig. I cut shoulders and cheeks with the pieces flat on the saw table with the rip fence as a stop for the tenon length. The upper and lower rails are different thicknesses, so their tenons are cut with different blade heights. But it is critical that all the shoulder locations are the same, so the rip-fence setting will not change.

Start with the bottom rails. Because these tenons are offset, you'll have three blade settings: a shallow ¼-in. shoulder and cheek cut on the front face, a deeper one on the back face, and another setting for

LEGS ARE THE FOUNDATION



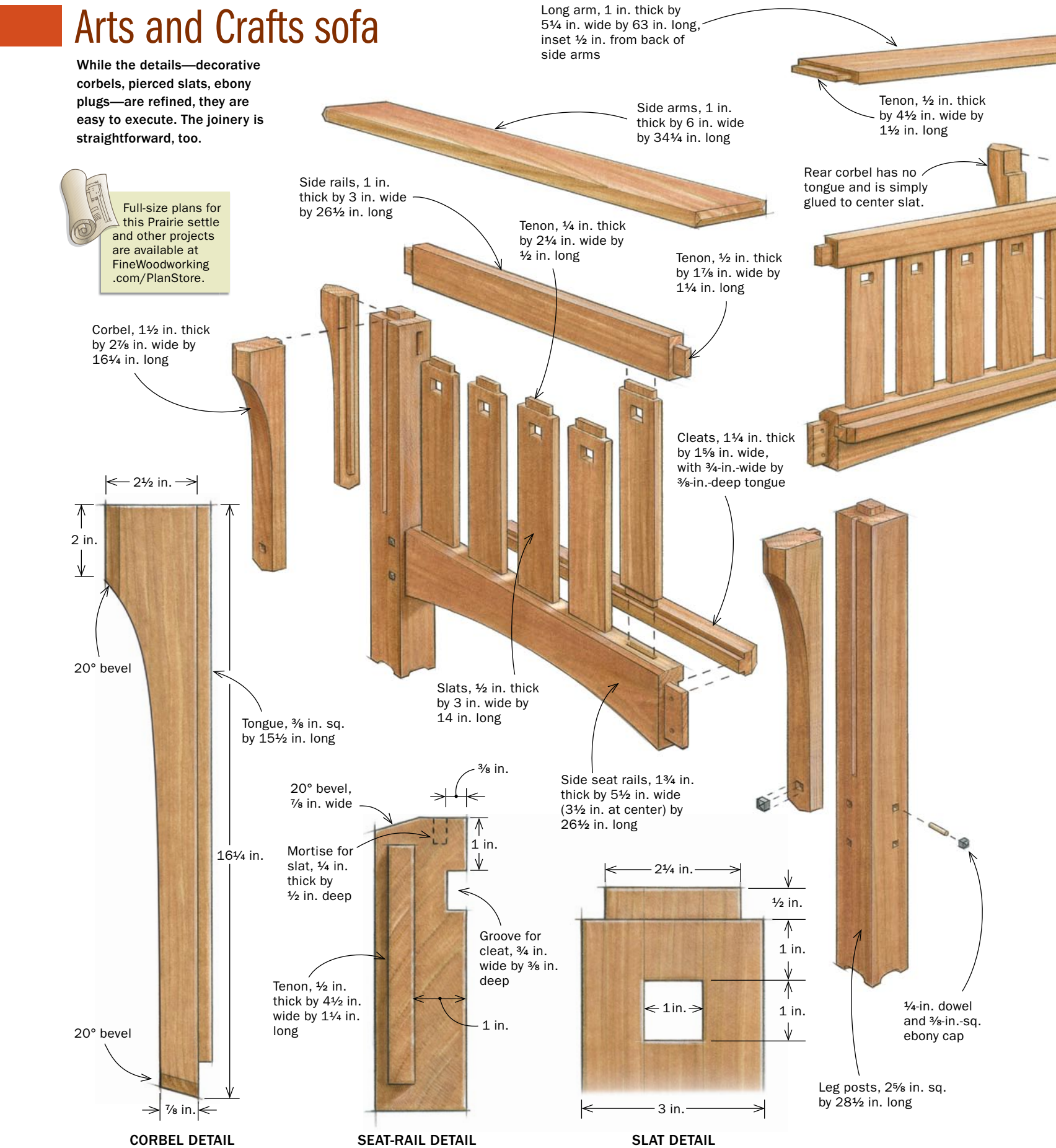
Stub tenons on the tablesaw. *The tenon at the top of each leg post is formed with a series of passes on the tablesaw, using the rip fence as a stop and rotating the post.*

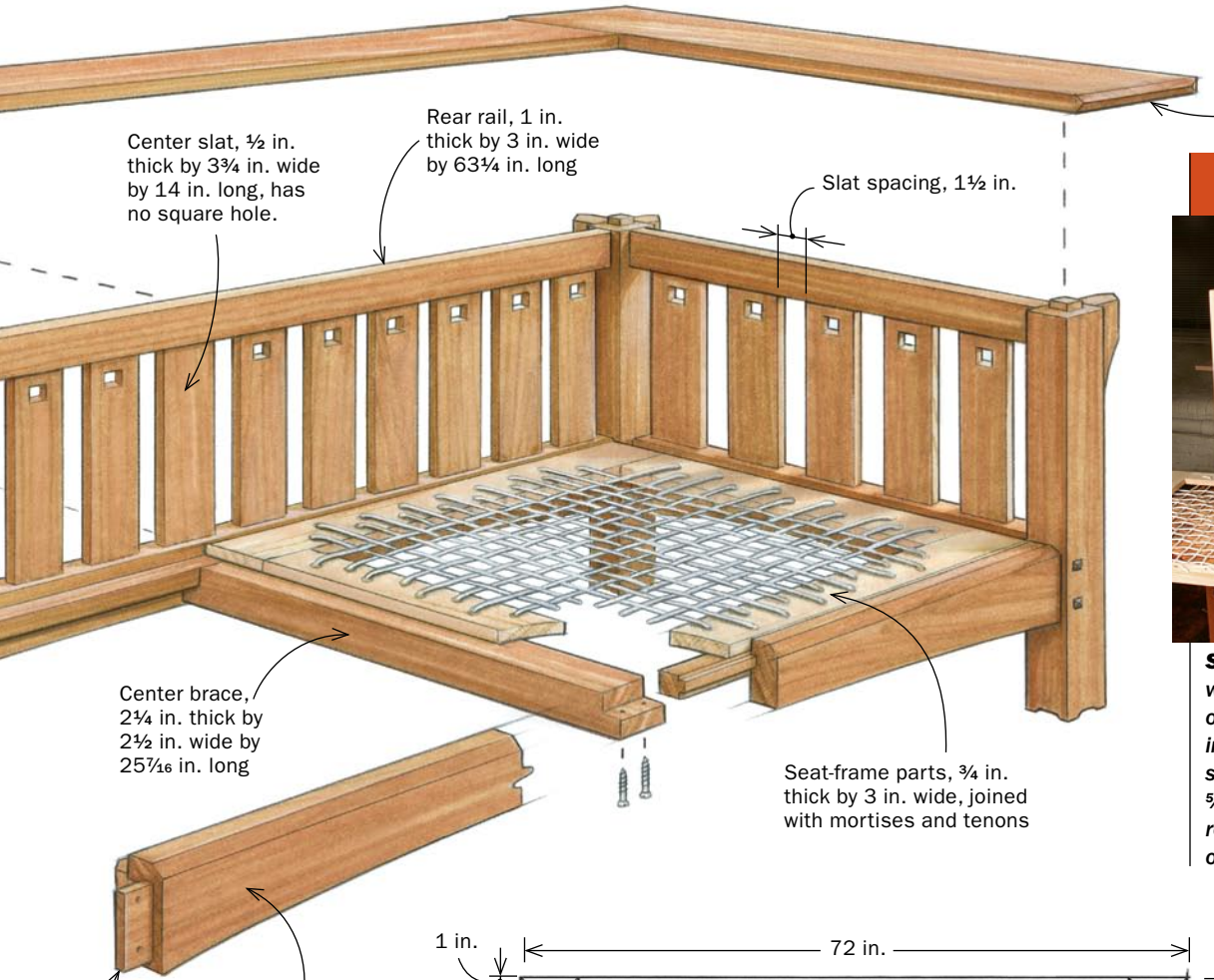
Coves lighten the feet. *With the leg post in a vise, using a handheld laminate trimmer (with a ¼-in. bearing-guided cove bit), move in at one pencil mark and out at the other.*

Arts and Crafts sofa

While the details—decorative corbels, pierced slats, ebony plugs—are refined, they are easy to execute. The joinery is straightforward, too.

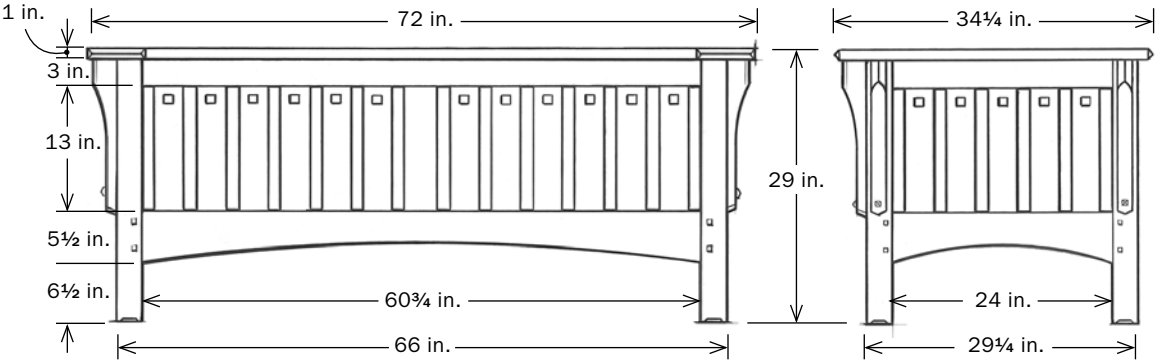
Full-size plans for this Prairie settle and other projects are available at FineWoodworking.com/PlanStore.





SEAT FRAMES

Simple weave. *The seat frames are woven with ¼-in. nylon rope, first in one direction and then in and out in the other direction. To maintain strength in the frame, stagger the ⁵⁄₁₆-in. holes about 1½ in. apart, one row ¾ in. from the inner edge and the outer row 1½ in. from the inner edge.*



CONSISTENT CORBELS

A simple jig. *Once the corbel stock is rough-cut close to the line with the bandsaw, screw it directly into a shaping jig (left). The holes will be concealed when the corbels are in place. Then use a top-bearing-guided router bit (Amana #45468) to match the corbel to the template (center).*

Tablesaw creates the tongue. *Make the side shoulder cuts, flip the corbel curve up, and rip perpendicular cuts to remove the rest of the material.*

RAILS GET TENONS AND ARCHES

Easy tenons on big pieces. *Keep the pieces lying flat on the tablesaw. Using the miter gauge for control and the rip fence as a stop, make all the shoulder cuts (1), adjusting the blade height as needed. Without moving the fence and making sure the blade height is set accurately, make a series of passes to waste away material (2). Last, slide the tenon horizontally across the blade to clean up the cheeks (3). The rip fence will keep you from going too far.*

the edge shoulder cuts. I cut the shoulders and cheeks in the same operation. After I make the first shoulder cut, I make a series of passes through the waste material of the cheek. Then I slide the rail back and forth over the blade to clean up the waste. Once the cheek is clean, I flip the board, adjust the blade height, and cut the other side.

If you have a good dado set that won't give a sloppy cut, you can use it here, but I don't bother. Now do the upper rails the same way, adjust the blade height, and move to the edge shoulder cuts.

Mortise for the slats—Now that the tenons have been cut on the horizontal pieces, cut the small mortises for the vertical slats. Clamp the corresponding sets of upper and lower rails together, inside face to inside face, making sure the upper edge of the bottom rail and the bottom edge of the upper rail are in the same plane, and mark the mortises on both pieces. The center slat is a little wider than the rest and doesn't have a hole, which makes the math easier. The corbel that will attach to the back of the center slat disguises the difference in width and covers where the hole would have been.

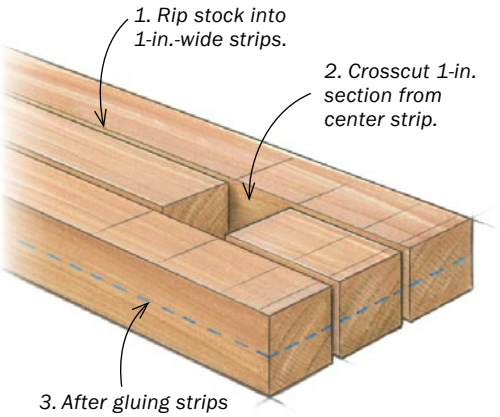
I cut the mortises with a router, using a fence riding along the inside face of each rail, and then I chisel the mortises square.

Bevel the lower rails and run a groove for the seat cleat—The upper rails are complete, but the lower rails need a few details. The lower rails get a bevel of about 20° to their upper outside edge. Using a dado set, cut a groove (to hold a cleat that supports the seat frames) around the inside face of the lower rails.

Arches—At this point you can cut the arches along the bottom edges of the four rails. I draw the arch on a ¼-in. Masonite template, bandsaw close to the line, and file and sand the rest of the way. Then I use the template to trace and rout the arches on the workpieces.

Template ensures smooth arches. *After tracing the shape of the template (above), bandsaw close to the line, and then use a top-bearing template-guided router bit (Amana No. 45468) to shape the arches (right). The rails are thicker than the bit, so you'll have to make two passes, the first with the bearing riding the template and the second with it riding on the just-shaped part of the rail.*

SLATS MADE SIMPLE



Cut slat stock into five pieces. *First, make two 1-in. rip cuts through the stock (left). Then crosscut the center strip in two places, cutting out the area of the square hole (above). Make sure to mark the slats before cutting them so reassembly will be easy and the grain will match.*

Move on to the vertical slats

Now it's time to make 23 vertical slats, 22 with square holes and one slightly wider (the center slat in the back) without a hole. To minimize waste, increase consistency, and save time, I make 11 slat blanks from 5/4 stock, rip the blanks into three strips, lightly joint all the sawn edges, cut the holes on the tablesaw, reassemble the pieces, and then resaw them into 22 slats. Mill the odd slat without a hole to the same thickness and length but about ½ in. wider.

Careful marking and organization are the keys to keeping this process quick and painless. First, lay the 11 blanks out on a bench and joint one edge (either all the right edges or all the left edges). With a square, draw a tentative end cut line across the top face of each blank. Move down ½ in. and draw the tenon shoulder line, move down 1 in. and draw the top of the square hole, and finally move down another 1 in. and draw the bottom of the hole.

Once you resaw the slats you should have 22 of them. Don't forget to mill the wider center slat to the same thickness as the rest. Now cut the tenons on the ends of the slats, using the same quick method you used on the rails.

Reassemble the pieces. *Glue all the pieces back together, using the cutoff from the center strip as a spacer. Rotate the cutoff 90° to keep it away from the glue squeeze-out. When the glue is dry, mill the blanks lightly, to clean them up, and rip them to exact width.*

Resaw the stock to double the count. *Before resawing, cut the 11 blanks to length. Mark a line 1½ in. from the top of the square hole. All the blanks must be cut the same, or the holes will not line up. With the top cut made, cut the blanks to length. Now resaw them to make 22 slats, mill them flat and smooth, and cut all their tenons.*

Putting it all together

Start with the two sides. Glue and clamp the slats into the side rails, and then add the leg posts. While these are drying, glue together the remaining slats and the long back rails.

When all these subassemblies have cured, glue the seat frame cleats into the grooves, then glue the back subassembly and front rail to the two sides.

With the basic framework complete, it is time to attend to a few more details: the center brace, corbels, arms, and ebony plugs.

Center brace—Because the center brace is never seen, it can be made from lower-grade stock. Notch the upper face of each end of the brace to fit around the seat-frame cleats that are glued to the rails. The top face of the center brace should be level with the top faces of the frame cleats. Screw and glue this brace from underneath at the settle's center point into the underside of the seat frame's cleats.

Corbels—The corbels are largely decorative but do give some support to the arms. I use a template made of ¼-in. Masonite to draw the shape of the corbels onto the stock. Then I rough-cut with the bandsaw along the curved sides and use the tablesaw to

ASSEMBLE THE FRAME

Start with the sides. *The first assembly consists of the short horizontal rails and the vertical slats (above). Rodel uses the arch cutoff to aid in the glue-up and measures diagonals to be sure the assembly is square. While the sides are still in clamps, add the leg posts to complete them (right).*

crosscut the wide end square before attaching the corbels to a jig and trimming them flush to the template.

Using the tablesaw, cut the tongue along the straight side simply by cutting two rabbets along each side and leaving the tongue in the center. The center corbel for the back of the settle doesn't get a tongue because it is glued directly to the back slat rather than inserted in a groove. So cut off the extra tongue material at this point. Cut the tongues on the other six corbels. Cut off the lower section of the tongue to match the length of the groove. Finally, cut the corbels to their finished length with a 20° bevel cut. Bevel the upper 2½-in. facing edge to a centerline, 20°, either by handplane or tablesaw. Lay out and chisel a recess for an ebony plug at the lower end, sand, and attach. The odd corbel in the center back needs to be notched to fit over the upper back rail. Its bottom edge is beveled at 20° in the reverse direction of the other corbels to fit snugly over the beveled upper edge of the bottom rail. This tongueless corbel is glued directly to the hole-free center slat.

Arms—The arms (two short side pieces and a long back piece) are the *pièce de résistance* of this design, so use your best figured stock here. To cut the mortises in the side arms, use the same router method that was used to cut all the slat mortises in the rails. The 30° bevel on each end of the side arms is cut on the tablesaw. You want to end up with a hip-roof shape. The sawmarks on the end grain can be removed with a file and some light sanding.

With the side arms complete, cut the tenons on the back arm. Presand all edges before gluing.

It is usually best to cut mortises first and fit tenons to them. But attaching the arm assembly to the framework is an exception; the

Move to the back and full frame. *Assemble and glue the long rails to the vertical slats. Once this assembly is dry, working with one side on the floor, add the back assembly and front rail to the side assembly (above). Turn the frame upright, add the second side, and clamp (right).*

ADD CORBELS AND ARMS

Glue the arm assembly together. *Use a spacer stick between the side arms at the open end to make sure the clamps do not pull the arms out of square (left). To cut the mortises, use a small handheld router to waste away material close to the line, and then clean up the mortise by hand (above).*

tenons had to be made first. Set the arm assembly on the frame to locate the mortises for the four leg-post tenons, then cut them.

Ebony plugs—For the decorative ebony pegs, I take some square stock, in this case ⅜ in. square and ½ in. square, and use a disk sander to shape a shallow pyramid head on one end. Lightly sand the sharp corners and edges and cut off by hand the length of peg needed. With some glue in the recess, tap the peg into place.

Now you can start finishing the settle while working on the seat frames and cushions. If you used white oak and plan to fume it, you can refer to my article "Fuming With Ammonia," *FWW* #126. After fuming, I use Tried & True Danish Oil for the first coat, followed by two to three coats of Tried & True varnish oil.

Get ready for the upholstery

The first step is the woven-cord seat frame. I use ash for the frame stock, but any strong hardwood will do. The two frames (with mortise-and-tenon joinery) sit on the cleats and meet in the center, overlaying the center brace. Dry-fit the frame, then lay out the hole pattern. I use ¼-in.-dia. cord (available at hardware stores), so I use a drill press to drill all the 5⁄16-in. holes. A countersink gives the holes a slight bevel to prevent wear on the cord. You'll use about 60 ft. of cord per frame.

With the holes drilled, the frame glued up, and the edges broken, clamp the frame into a bench vise and weave. It will be slow going at first, but it will speed up as you use more cord. Lace all of the horizontal rows, pulling tight as you complete each row. Then, on the verticals, weave the cord back and forth through the horizontal rows and again pull tight as you go. Tie off the ends with a simple overhand knot, keeping the knots on the underside. The finished web should be fairly stiff. You can screw these frames to the cleats or leave them loose. At this point, you can make the cushions or pick them up from the upholsterer. □

Kevin Rodel makes furniture in Brunswick, Maine.

Glue on the corbels and arms. *Before attaching the arm assembly, glue the six corbels to the leg posts and one to the wide center slat in the back. When dry, attach the arm assembly to the frame (left). The large amount of glue surface makes this a strong joint all around. Make sure to use enough clamps on the long back to apply consistent pressure.*

Online Extra

To see Rodel making the leather cushions for this piece, go to **FineWoodworking.com/extras.**

CUSHION SIZES

The cushions are medium-density foam with a cotton batten material glued to it. The upholstery is a high-quality supple leather.

Bottom cushion foam:
30½ in. by 26 in. by 5 in.

Back cushion foam:
30½ in. by 11½ in. by 4 in.

Side cushion foam:
20 in. by 11½ in. by 3 in.