

SIMPLE SIDE CHAIR

PROJECT 17

BY GLEN HUEY

After years of building furniture, mostly case pieces, I've come to understand that chair building is different. Where most casework involves working with panels and straight lumber, most chair building turns to bending stock or forming parts. When you find a chair that fits into the casework criteria, you should take every opportunity to build that piece.

This chair fits into that framework. I envision this chair sitting anywhere from around the dining room table, to welcoming guests to your home in the foyer, to being perched beside the dressing table in your bedroom. It is sturdy, comfortable and the construction is beginner friendly to say the least.

The focus of most chairs is the back and the seat. This chair has gathered the eye appeal with the shapely hour-glass back splat and the colorful seat that is woven with Shaker tape. One chair just might not be enough.





Set the miter saw to a five degree angle. Place the leg on the saw so that the cut begins about $\frac{1}{2}$ " down from the top of the leg. Use a stop block to hold the leg in place as you rotate the leg 90° to make the four cuts for each leg.

For Starters - Get a Leg Up

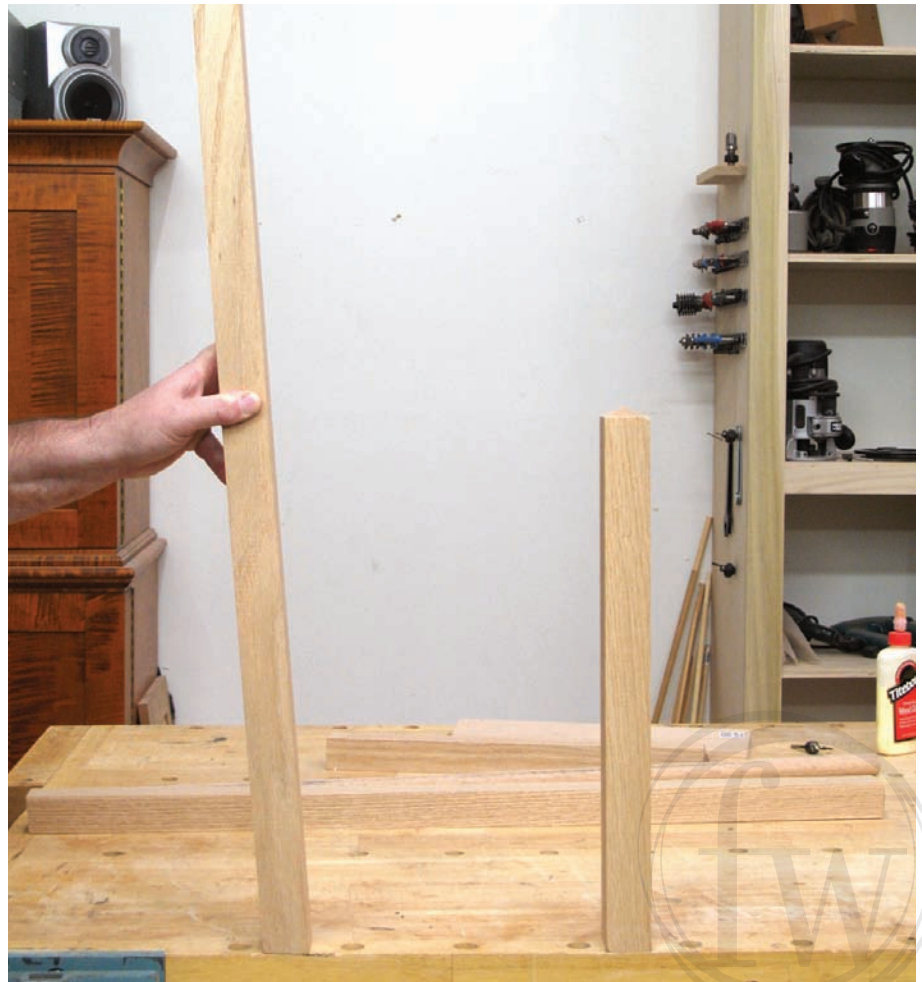
Building chairs begins with the legs. Since you've already got the width and thickness of the pieces ($1\frac{1}{2}$ " square) by buying stock material from the home center store, the next step is to cut them to length. You'll need two front legs that are 18" in length and two back legs that begin at 36" long.

To add interest to the chair, cut the top of each leg to a pyramid design. Set the miter saw to a 5° angle. Place the leg on the saw so that the cut begins about $\frac{1}{2}$ " down from the top of the leg. Four cuts are needed to create the pyramid – one at each face. Making the cuts is easy enough, but what might present a problem is aligning each cut to the previous cut.

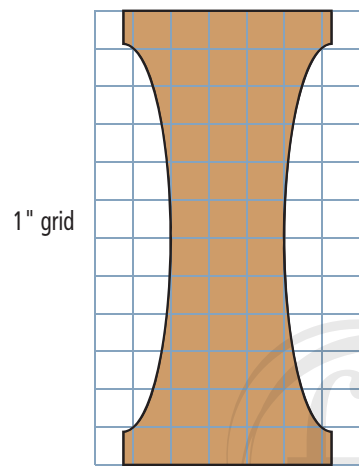
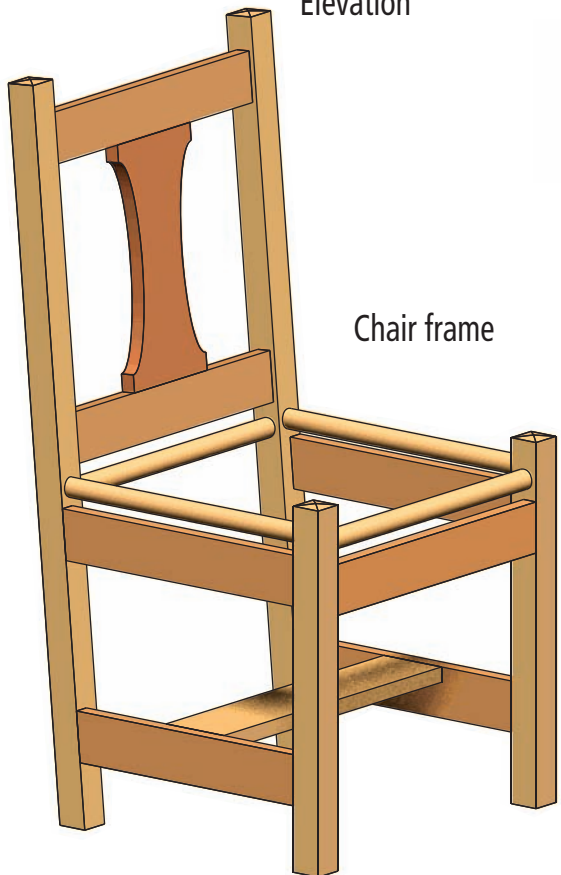
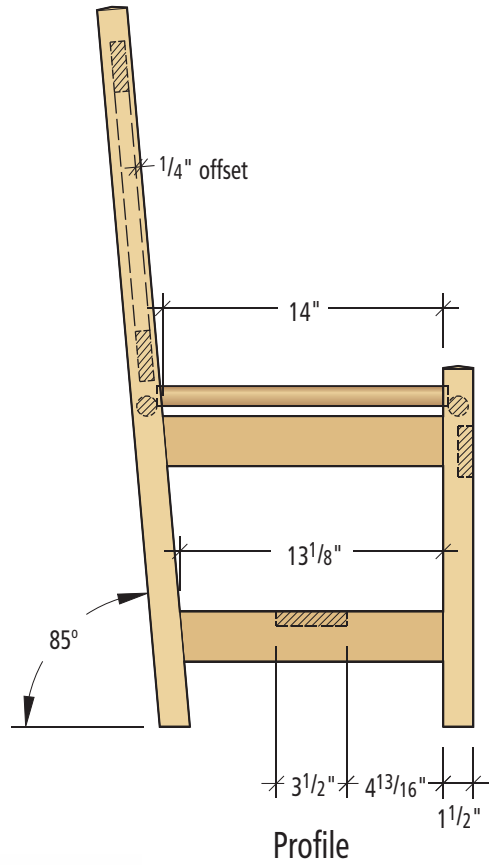
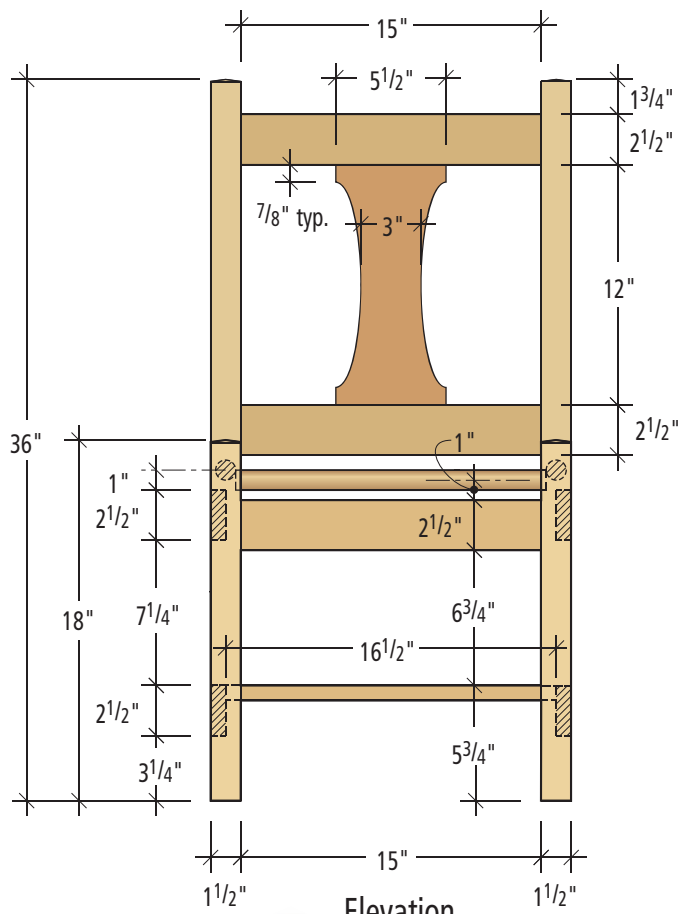
This is best accomplished by setting a stop block to position each leg and each cut against. Place the leg against the block and make the first cut. Next, rotate the leg one turn and make the second cut. Repeat this pattern for each face and each leg. There is one set-up for the front legs and another for the back legs. The finished tops appear as small pyramids when viewed.

If you can't easily add a stop to your miter saw, you can also mark a line all the way around the top of each leg, $\frac{1}{2}$ " down from the top. This will be your cut line.

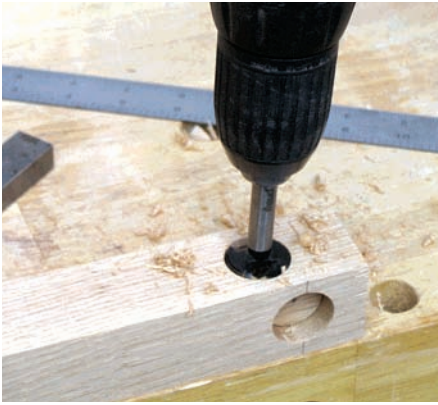
A chair is not comfortable if the back



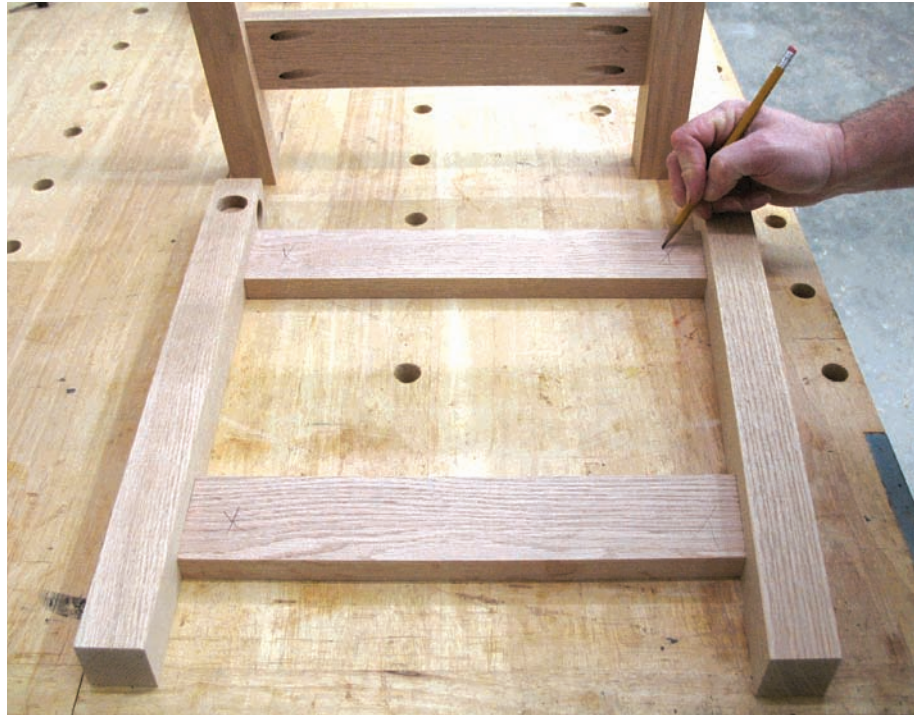
The rear leg (left) needs only a slight (5°) angle cut on the bottom to add about fifty percent more comfort to your chair.



Back splat pattern



The dowel holes are offset from one another by $\frac{1}{2}$ ". Make sure you've marked the front and left, or right face of each to avoid drilling the wrong hole in the wrong face. The depth of the hole isn't critical, but I tend to drill till the top of the cutting faces reaches the top of the hole. This is usually about $\frac{1}{2}$ " deep with most Forstner bits. To keep the hole perpendicular to the leg face, you can stand a try square next to your drill to give you a true 90° angle to follow.



Laying the pieces for the side assemblies on your bench and marking everything will make sure you cut the pockets in the right places. Pencil lines are much easier to sand off than holes in the wrong location.

is straight. I wouldn't want to spend much time sitting with that posture, it's unnatural. So, we need to add angle to the chair. Most times to add angle to the chair you need to bend the back legs. We aren't going to do that.

So how do you create a comfortable angle using straight stock? Easy, tilt the leg. At the miter saw, again with the angle set to 5°, cut the bottom of each back leg. Take as little material as possible in making this cut. You are not looking to shorten the legs, just add the angle.

Hold That Seat, Please

In any chair the longevity of the chair depends on keeping the parts together. A lot of times you can find chairs where the seat is actually holding the parts in place. That is what this chair does.

The seat is wrapped around dowels that are positioned just above the stretchers and slightly offset from one another. Select the front face of the chair legs and mark the side and front edges. Locate the

position of the holes and drill them into the front legs only.

To find the dowel positions, start from the pyramid cut and move down $1\frac{1}{2}$ " for the center of the side dowel location. Slide down another $\frac{1}{2}$ " for the location of the front dowel hole.

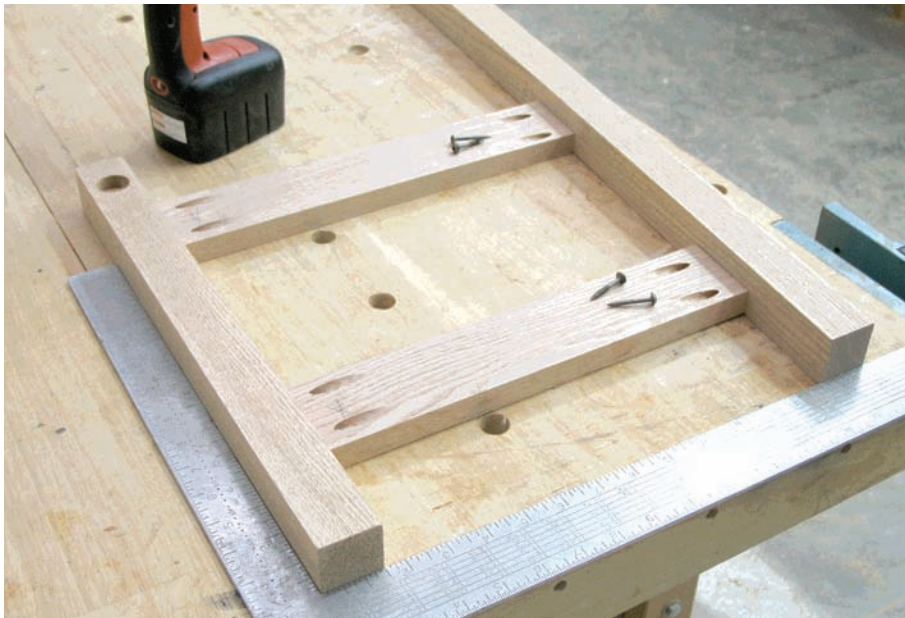
Make these holes with a drill and 1" Forstner bit, squaring the bit to the stock from both directions. Cut the hole about $\frac{1}{2}$ " deep – it's not critical because you'll take an exact measurement after the chair is assembled.

Assembling the chair starts with the side profile. Lay the legs of one side of the chair on your bench. Orient the pieces so the angle cut on the back leg is parallel to the edge of the bench. Next, cut the rails for the sides. One end of each piece is cut square while the opposite end is cut at that five degree angle. Both cuts are made at the miter saw.

Fit the rails into position with the legs as shown (next page top left photo). Notice that the front leg (at the left in the photo) is positioned with the front dowel hole facing upward. The top side rails will fit $\frac{1}{2}$ " below the bottom edge of the side dowel hole or 1" from its center point.

PARTS LIST

NO.	PART	STOCK	THICKNESS X WIDTH X LENGTH	
			INCHES	MILLIMETERS
2	back legs	oak	$1\frac{1}{2} \times 1\frac{1}{2} \times 36$	$38 \times 38 \times 914$
2	front legs	oak	$1\frac{1}{2} \times 1\frac{1}{2} \times 18$	$38 \times 38 \times 457$
1	front rail	oak	$\frac{3}{4} \times 2\frac{1}{2} \times 15$	$19 \times 64 \times 381$
2	back splat rails	oak	$\frac{3}{4} \times 2\frac{1}{2} \times 15$	$19 \times 64 \times 381$
1	back splat	oak	$\frac{3}{4} \times 5\frac{1}{2} \times 12$	$19 \times 140 \times 305$
2	top side rails	oak	$\frac{3}{4} \times 2\frac{1}{2} \times 14$	$19 \times 64 \times 356$
2	lower side rails	oak	$\frac{3}{4} \times 2\frac{1}{2} \times 13\frac{1}{8}$	$19 \times 64 \times 333$
1	bottom stretcher	oak	$\frac{3}{4} \times 3\frac{1}{2} \times 16\frac{1}{2}$	$19 \times 89 \times 419$
4	seat dowels	oak	1×15 dia.	25×381 dia.



The “clamp-included” pocket hole jig (right) makes cutting twin holes on the ends of all the stretchers much easier. Once the holes are cut, lay the pieces on your bench, square things up and add the screws.



Position the lower side rail starting $3\frac{1}{4}$ " up from the bottom of the leg. Mark an X at each end of the rails to indicate the area for the pocket screws.

Quick, Strong Connections

Use the pocket-screw jig to cut the holes in the side rails. Make sure that the ends of the rails fit tightly to the base of the jig;

the angled cut will tip the rails to one side.

Place the holes, two per end, about $\frac{3}{4}$ " in from the edges of the rails. Using a framing square will ensure that the chair sides are square to the floor. Position the pieces to the legs as before and make sure that the bottom ends of the legs fit to the square and all faces are tight to the bench. Drive the screws to assemble the sides.

Repeat the same steps for the second side, but this time the chair back or angle must face the opposite direction.

Because the angle is in the side assembly, installing the front rail is a snap. The ends are square-cut straight from the miter saw and the pocket-screw holes are drilled just as they were for the side rails.

Set the side assembly onto the front leg front face down to the bench. Position the front rail $\frac{1}{2}$ " below the bottom edge of the dowel hole. Hold the face of the rail flat to the bench and drive the screws to attach the front rail. Repeat the steps to attach the second side assembly to the front rail.

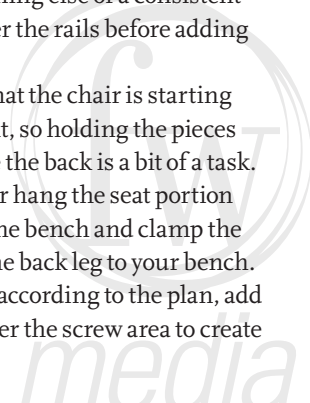


With the side assembly sitting on it's face on the bench, the front rail is screwed into position $\frac{1}{2}$ " below the dowel hole.

Adding a Bit of Design

To add a few shadow lines to the chair back you'll need to set the rails by spacing them off of the front edge of the legs. To make it easy slide a scrap piece of $\frac{1}{4}$ " plywood, or something else of a consistent thickness, under the rails before adding the screws.

You'll find that the chair is starting to gain in weight, so holding the pieces as you assemble the back is a bit of a task. To make it easier hang the seat portion off the edge of the bench and clamp the top portion of the back leg to your bench. Locate the rails according to the plan, add the spacers under the screw area to create



the shadow and drive the screws to attach the back rails.

Once the chair is assembled you need to take an accurate measurement of the stretcher and fit it to the chair. It doesn't fit between two legs so the size will be different.

If you install the stretcher it will get in the way of other operations, but clamping it in place will add strength for the next step.

The side dowel is installed in a hole in the back leg that is drilled at an angle. That hole is parallel to the side rail and is set $\frac{1}{2}$ " above that rail and centered in the leg.

Chuck the 1" forstner bit into the drill and set the center point of the bit in position. Drill the hole to a depth of $\frac{1}{2}$ " while remaining parallel to the rail and square to the leg.

Measure the length of the dowels by placing rulers into the holes as shown in the photo (bottom right). This measurement is exact for that particular dowel location and can vary depending on the depth you drilled the hole. So, each length needs to be measured. Cut the dowels at the miter saw to guarantee a square end.

There is no possible way to install the dowels in the assembled chair without



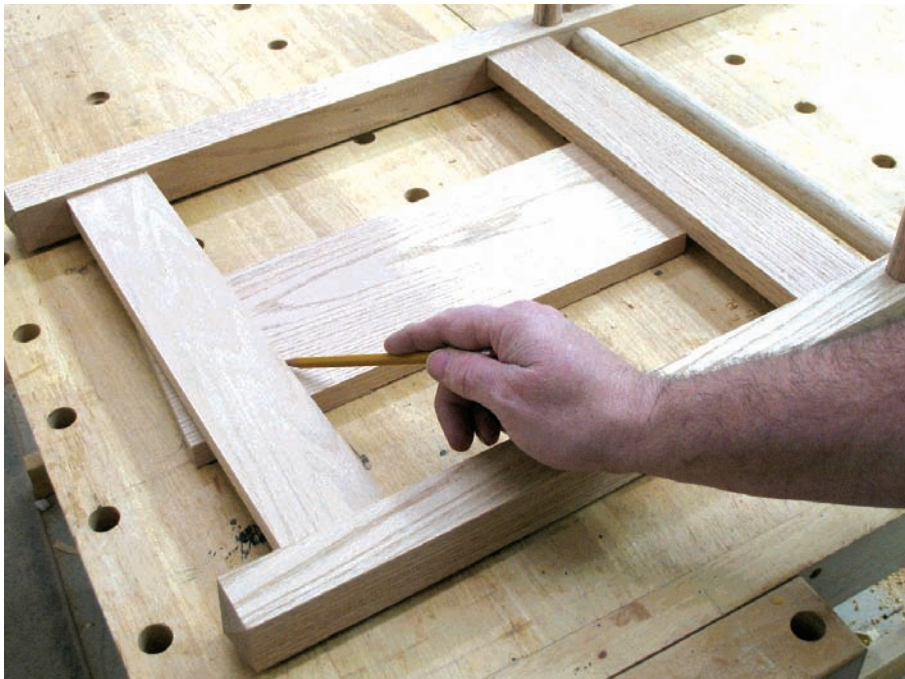
With the front faces of the rear legs clamped to the bench and the lower part of the chair hanging over the edge, it's time to add the back rails. To add some visual interest to the back, I used some scrap wood to hold the rails back from the front edge of the legs as I added the screws.



The dowel holes in the rear legs need to be drilled parallel to the side stretcher, not perpendicular to the rear leg, otherwise they just won't fit.



By using two steel rules in tandem I'm able to measure the actual required length of the dowels by measuring to the bottom of the dowel holes.



After marking the required length of the splat at the chair itself (above), use a home-made trammel to mark the curves to shape the splat (right).



releasing the hold of the screws. Work one dowel at a time and when the piece is placed in the holes reattach the screws before moving to the next dowel. Also remember to install the stretcher at this time.

Another Shot at Design

The chair back splat is another area where you can influence the overall look of the chair. You can design something fantastic or simply leave it straight. I chose a simple arced cut.

To develop any design, first you need to find the length of the splat. This could be determined while installing the back splat rails or just find the measurement at this time.

Don't rely on rulers or measuring tapes for this. You want a snug fit. Lay the chair on its back then square cut one end of the splat stock. Raise the back off of the bench and slide the splat into position, keeping the square end tight to the lower rail. With a sharp pencil trace the inter-

section of the splat with the top rail. This is the exact measurement of the splat. Make the next cut at the miter saw.

To draw the arcs you'll need a compass that will expand to a radius of $10\frac{3}{4}$ ". That's not your average compass! So, you'll have to make your own. Use a piece of scrap or an older (read as not your every day ruler) ruler. Drill a small hole at one end of the piece just big enough for a small finish nail. In fact, I often use the exact nail for this step.

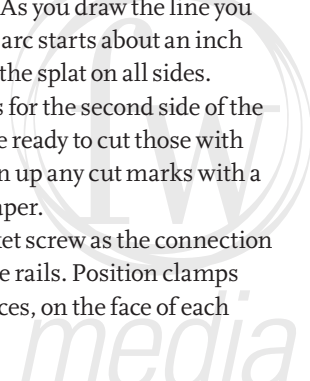
Next, move up the piece to the $10\frac{3}{4}$ " line and drill a second hole for the pencil lead to go through. That's your compass a.k.a. a trammel.

Place a scrap of equal thickness perpendicular to the splat material as shown in the photo (above). Measure down $9\frac{1}{2}$ " from the intersection of the two pieces and place the nail. This is the pivot point of the compass. As you draw the line you will see that the arc starts about an inch from the end of the splat on all sides. Repeat the steps for the second side of the splat and you are ready to cut those with the jigsaw. Clean up any cut marks with a rasp and sandpaper.

Use the pocket screw as the connection of the splat to the rails. Position clamps over the two pieces, on the face of each



With the splat held flush to the back face of the legs, the pocket screws are driven home, finishing the assembly of your stylin' chair.





Finish the chair before weaving the seat. See the illustration below for weaving details.



piece to keep them aligned as you drive the screws.

Fill any screw holes with the available plugs. This includes all holes in the back and the holes in the side lower rails. Other holes will not be seen once the seat is finished.

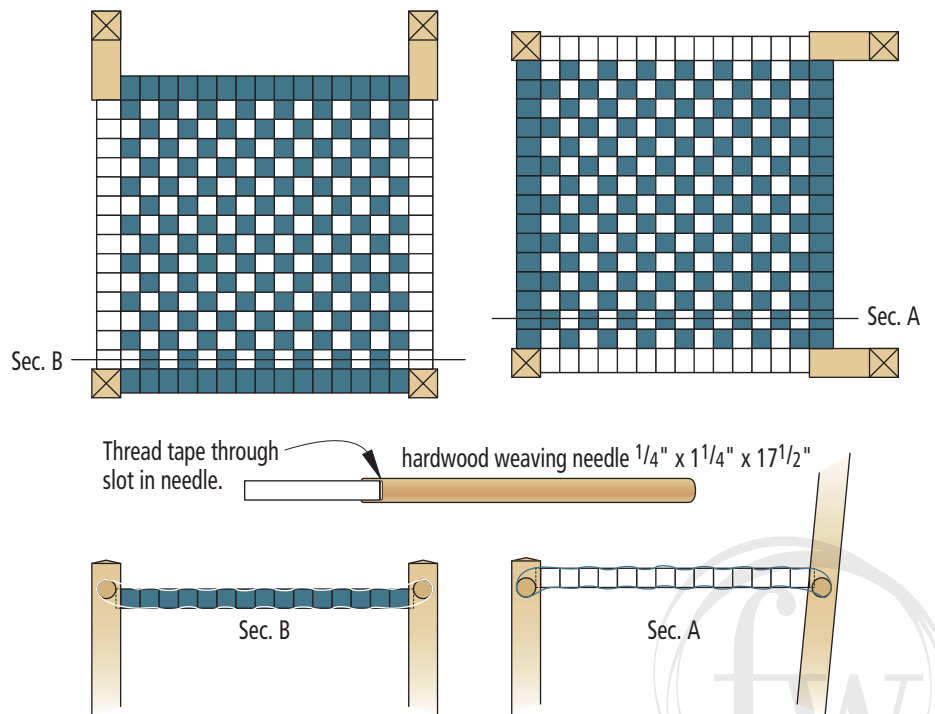
Add glue to the hole and tap the plug into place. Allow the fill to dry before sanding smooth.

Adding the Color

The chair is finished with the same formula as the coffee table in this book. Rag on a coat of Olympic Special Walnut stain that is allowed to soak for five minutes before wiping away any excess.

That is followed by a coat of Watco Danish Oil in the walnut tint. This is also allowed to soak for a short time before wiping the chair clean. Once the oil had dried I elected to spray on a coat of shellac. Shellac can be purchased in a spray can and this will allow better control with all the pieces of the chair.

After applying a single coat of shellac which has dried, knock down any nubs with 400-grit sandpaper and add a coat of paste wax and its on to the seat.



Staple the end of the warp strands to the underside of the front rail to start. Weave these strands front to back between the front and back dowels. Insert a 1"-thick piece of foam between the warp strands. Attach the weave strand to the hardwood needle. Thread the weave strand between the side dowels and between every other warp strand top and bottom. Staple the ends to the underside of the dowels.