

BOARDED SETTLE CHAIR Chapter 99

A moose at a mouse rave.

Building a chair out of flat planks of wood seems a recipe for a sore backside – like sitting on a crate. And yet, if you take the basic principles of making a comfortable staked chair and apply them to a boarded chair, you can create something quite nice.

Best of all, this chair is easy to make. Once you get the planks prepared, constructing the chair takes about a day.

These settle chairs – also called plank chairs, winged chairs or "lambing" chairs – were common in Northern Wales and North England in the 18th and 19th centuries. They could be simple, as shown here, or have an elaborate frame-and-panel back, scrolled arms and a drawer under the seat.

There is no evidence you did anything with a lamb in these chairs. They were designed to be used by the fireside to capture its heat. Cushions, pillows and blankets all add to the coziness (and comfort) of these chairs. If you are an avid reader, you will enjoy the cocoon-like environment they offer.



About the Angles

I am of the mind that 90° is not special. It is but one of 360 angles, and you can cut a 93° or 97° angle just as easily as a 90°, especially if you use hand tools. With that said, here's how the chair goes together.

You start with the big side panels. These start out square all around, and you cut the through-dados for the seat in both side panels at a 7° slope. Surprisingly, the seat slopes down from the back to the front. This seems backward, but it's correct. After the chair is together, you cut the feet to make the chair lean backward.

Then you cut (or handplane) a 9° angle on the back edge of the side pieces. This angle opens up the wings of the chair, making it less crateish and more inviting. Then you screw the sides to the back piece, which is square and flat in all dimensions.

Now plane a 7° angle on the back edge of the seat board and fit the seat between the dados.

The last important step is to cut the feet so the chair leans back and is comfortable. Everything else on the chair is decoration. If you follow these steps, you'll find the process forgiving, even if you botch an angle or two.

Your Materials – Pine is Fine

Many of these settle chairs were made in pine and painted. I think that's still a good idea. Even in pine, these chairs are massive and heavy. Oak would be expensive and be a (literal) burden if you ever wanted to move house. And painting them can help them blend into a room instead of looking like a moose at a mouse rave.

This chair was built using 2x6s construction timbers from the home center. About six 12' planks do the job. The species? SPF, which means it could be spruce, pine or fir. The price? About \$55. Not bad for a big chair. Glue up the panels you need and use the cutting list as a guide.

A second (tempting) option is to buy premade 1-1/8"-thick pine panels from a home center. I gave these a try; they have pros and cons.

Pros: Speed. You don't have to glue up any panels. You just unwrap the panels like a 7-Eleven burrito and go.

Cons: Expense – you'll spend about twice as much for the panels as for 2x6s. Moisture – some of the panels are wet and warp after you open them. Some don't. Mine didn't. Appearance – these panels are typically glued up from many narrow strips and have lots of knots. If you like that look, you are in so much luck.



Sealed for your protection? Premade pine panels can speed you up, but they have some headaches built-in – moisture and knots, for example.

Angled Dados

Two 1/2"-deep dados in the side pieces hold the seat in place and are angled at 97° to add comfort. Lay these out from the front edge of the chair – 15-3/4" up from the bottom edge of the side panels. Use the actual panel for the seat to lay out the width of the dado. And don't forget to lay out the depth of the dado at both ends of the side piece.



Start a dado. Lay out the dado using a knife. A knife will sever the grain, making for a clean arris. Once you lay out one wall of the dado, use the seat to lay out the second wall.

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Two-handed saw. Nibble next to the knife line along the entire wall of the dado before trying to make significant progress in the depth of the cut. Once you have laid in a kerf all along your knife line, use your off hand to keep the toe of the saw engaged and square to the work.

I say all this because you should cut these by hand. It's faster and much less prone to error. You might have an AccuGauge 2000 that works to a 10th of an angstrom when cutting on your table saw. Don't use it. It's too easy to get turned around and upside down. And even a tiny bit of slop in your gauge or saw will spoil this joint.

You have been warned.

Cutting dados is one of the easiest hand-tool joinery operations. Saw out the walls, chisel out most of the waste and clean the bottom of the joint with a router plane. It takes longer to read about it than it does to do it. (And I'm not going to write a lot about it.)

Don't worry if the dado's walls aren't perfectly vertical. If you want them dead on, clamp a wooden fence to the work and use that to guide your saw. You'll quickly tire of that crutch.



A ripper. Bash out most of the waste between the walls of the dado with a chisel. Begin working bevel-up. Then work bevel-down. Get as close to the bottom of the dado as possible. Chisels are fast. Router planes are slow.



A clean bottom. Shave the fur from the dado's bottom with a router plane. Light cuts work best with this tool.

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Angled edges. The angle doesn't look like much, but it dramatically changes the chair. No matter how you cut this angle, clean it up with a smoothing plane and confirm the angle is correct along its entire length.

Angle the Back Edges

To make the sides of the chair open like wings, you need to cut an angle on the back edges of the side pieces. I used 9°, but there are historical examples that are much more dramatic. Note that if you increase this angle, you will need to make a bigger seat.

Lay out the angle and cut it with a jack plane, a table saw or a circular saw. Again, it's easy to get turned around during this step and cut the angle the wrong way. So lay it out. Then show the side pieces to the chair's back piece and make sure your sides angle out and not inward.

Believe it or not, it's now time to temporarily assemble the sides and the back with screws. You need to assemble things so you can get an accurate measurement of the seat and its angles. There are lots of ways to screw the back and sides together. I placed the back on some sawbenches



One way to do it. You might devise a better way to hold the parts in place while screwing them together. This is the best I could do on a Saturday.



Tricky clamping. This is a second (unsuccessful) chair I made, which is why things look odd. Here's how to clamp the back feet to the sides. Apply glue to the edges. Use a handscrew to pinch the two parts to keep them aligned. Then apply bar clamps. Start clamping next to the handscrew and work down. Place bar clamps on both faces of the joint.

and propped up the sides below until they were in the right position.

Then attach everything with #9 x 3" screws, or something in that neighborhood. Don't get too worked up about it. You can replace the screws with glue and fancy nails during the final assembly.

Add the Back Feet

Because this chair will lean back and because it is so top-heavy, you must add some back feet at the bottom of the sides to keep the chair from tipping over.

Because the back edges of the sides are angled at 9°, you'll need to cut a 9° angle on one long edge of each foot as well. That's easy enough. But gluing the feet to the sides can be frustrating. The joints want to slide apart.

You could add loose tenons or dowels to the joint to keep the parts aligned. Or you could just be smart about it and use a handscrew to keep the parts in line while you clamp the feet to the sides.

When the glue is dry, fit the seat.

An Easy Chair

Fitting the seat is simple, even though it's an odd shape and has a weird angle on its back edge. All you have to do is measure the opening in the assembled chair and lay that out on the blank for your seat. You cut to your lines and you are done. Really.

First cut the angle on the back edge of the seat that will allow the seat to mate tight with the back plank. This angle should be 7°, but I recommend you simply record it from the chair itself using a sliding bevel and transfer it to the seat.

Now determine the width of the seat at the back. Pinch together two pointed sticks and use them to probe the distance between the dados at the back.

Now measure the width of the seat at the front – that's easy to do with a tape measure. Finally, measure the depth of the seat from the front of the chair to the back. That's also easy. Lay a stick over the dados so it imitates the front edge of the seat. Now measure from the stick to the back of the chair. Record this measurement.

You have everything you need to lay out the seat. Draw a centerline through your seat blank and lay out its width and depth. If you want to add an overhang to the front edge of the seat (1" or so) now is the time.



Accurate scraps. I'm using some garbage to measure the width of the seat. The sticks are pointed, which allows me to get them right where I need them. Touch them to the insides of the dados. Remove them and record that dimension.



Two straight lines. The wooden straightedge represents the front edge of the seat. The perpendicular steel ruler determines the true depth of the seat.



Not for CAD. I recommend you finalize your layout on the workpiece itself. After drawing this up a dozen times in CAD, I realized that direct experience was superior.

Saw the seat to shape and fit it to the dados in the assembled chair. You might have to thin the seat at the edges to get it to fit. Do this on the underside with a handplane. When the seat fits, screw the seat in place by driving a 3" screw through each side and into the seat.

Disassemble the chair and plane all the panels. Next is the fun part.

Curves

While the shape of the sides looks complex, it's not. The swoops at the top are made with trammel points set to 9-5/8". The centerpoints of the arcs are 18-1/4" apart. I don't have an exact layout to offer you. Play around with your trammels until you get something you like.

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Unsung hero. I love my band saw, but I'll never own a band saw big enough for this. A jigsaw with a new blade makes this an easy task.



Scrub it now. Even if you use hide glue, which is easily cleaned with water, it's easier to remove any squeeze-out while the glue is wet. Use a toothbrush and warm water to get in the corners.

Most people say they don't like the pointy bits at the front of the arms. I do, and they are found on a fair number of traditional chairs and settles. So adjust things around until you are happy.

Use a straightedge to lay out the angle of the feet. This angle is somewhat arbitrary, but I make the back feet 14" long, measured from the floor to the underside of the back. (Look at the construction drawing, which explains this better than words.) Now lay out the arc between the feet – it's a 7-1/2" radius or so.

Cut all these shapes with a jigsaw or a turning saw. Clean up the shapes with a rasp, spokeshave and sandpaper. This part of the project takes the longest. I also decided to add one more decorative detail to the sides -I cut a $1/4" \times 1/4"$ rabbet on the curvy bits to add an additional shadow line.



Hide the geometry. It's easier to plane the 9° angle on the back after assembly instead of before.

Final Assembly & Finish

Remove any machine marks left, then reassemble the chair, this time using glue in all the joints. Because of the grain orientation of the seat, glue the seat to the sides only in the front 6" of the dado. And don't forget to add glue between the seat and the back.

Clamp the back to the seat and use a toothbrush and warm water to scrub away any squeeze-out.

After the glue dries, plane the long edges of the back so they are in the same plane as the sides. This is quick work with a jack plane. Get close with a jack plane and finish the job with a smoothing plane.

Before finishing, break all the sharp edges with a bit of sandpaper. Dress the feet with a rasp until the chair sits flat on the floor.

I finished the inside of the chair with organic linseed oil. The outside is painted with a black acrylic. The idea was to make sitting in the chair similar to sitting inside a tree. While sitting inside, you are surrounded by natural wood. And the wood's light color reflects light, which is nice if you read books.

The chair's dark exterior is supposed to represent the exterior bark of the tree and make the size of the chair diminish in a room. This is a huge chair.

There are lots of things you could do with this design. You could saddle the seat to add some more comfort. You could get the interior upholstered. You can make the chair into a rocker. These are all examples found in the historical record.

The one thing I couldn't accomplish is to create a version with a low back. I'm sure, however, someone out there is up to the task. Sadly, all my low-back examples looked like Klingon vacation furniture.

NO.	PART	SIZES (INCHES)			
		Т	W	L	
1	Seat*	1-1/4	26	20	
1	Back	1-1/4	21-1/2	40	
2	Ends	1-1/4	19	59	
2	Back feet*	1-1/4	5	19	