

A Bench That Fits Every Room

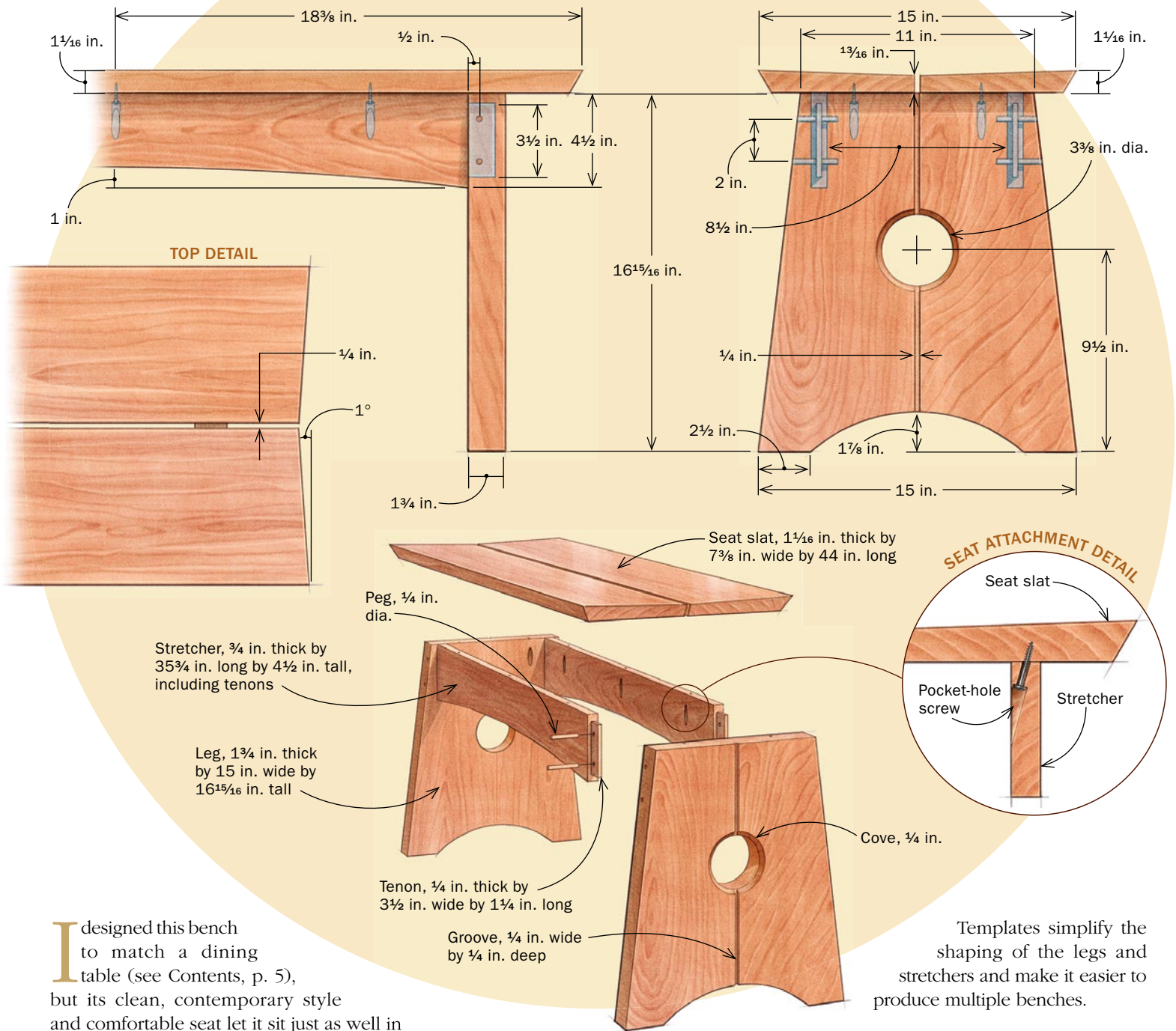
A photograph of a modern wooden bench with a curved, tapered seat and a circular cutout in the leg, set in a bright room with a window. The bench is made of light-colored wood and has a clean, minimalist design. The background shows a window with a view of greenery outside, and a small vase with dried flowers sits on a surface behind the bench.

Tapered seat is comfortable, elegant, and easier than it looks

BY DANIEL CHAFFIN

BUILD IT IN A WEEKEND

Aside from the mortise-and-tenon joints, everything else—from tapers, grooves, and bevels to pocket screws—is simple to execute.



I designed this bench to match a dining table (see Contents, p. 5), but its clean, contemporary style and comfortable seat let it sit just as well in the foyer, bedroom, mudroom, or on the front porch. It even works under a tree in the backyard, if made with exterior woods and finishes.

The slight taper on the tops of the seat slats complements their beveled edges. The legs, which are glued up from two boards, have a routed groove that both hides the glue line and ties the legs to the spaced seat slats. The legs also are arched along the bottom, a detail repeated on the stretchers.

These design details seem difficult, but they are surprisingly straightforward. Tapering the seat slats would be tough by hand, but I'll show you how a simple stick turns a planer into a tapering machine.

Templates simplify the shaping of the legs and stretchers and make it easier to produce multiple benches.

Make a template for the legs

You could make the legs from a single 15-in.-wide board, but few people have a jointer and planer wide enough to handle it. I recommend using two narrower boards for each leg.

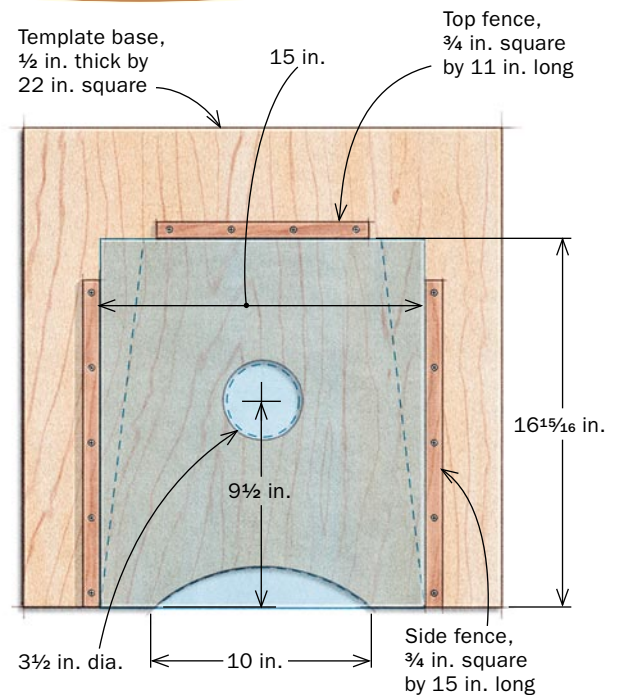
Leave some extra width on the boards. That will help keep the glue line centered so it will be hidden by the routed groove. Keep the boards a bit long as well, so there's room to adjust them for the best grain match. After gluing the boards together, joint one edge and rip the leg to width, keeping the glue line centered.

Making a template for the legs is time well spent. A Forstner bit large enough to cut the hole in the leg will leave tearout on the

A template makes quick work of the legs

This template not only helps lay out the arc and hole before roughing them out, but it also works as a guide for your router, ensuring that both legs are the same and that the hole and arc are accurate and clean.

1 MAKE THE TEMPLATE



Attach three fences—one for the top and two for the sides—to align the legs in the template so that they're marked and routed consistently. After attaching the first two, place the leg blank against them, and use it to align the third.



2

REMOVE THE WASTE BEFORE ROUTING

Place the leg blank in the template, and trace the arc and circle onto its inside face. Cut the waste from the arc, leaving about $\frac{1}{16}$ in. to be routed away. For the hole, Chaffin uses a $3\frac{3}{4}$ -in. Forstner bit, which leaves about $\frac{1}{8}$ in. of waste. Any tearout on the outside is removed by the router.



walls of the hole. The template allows you to drill the hole undersize and rout it to finished diameter with a spiral bit, leaving a smooth surface.

I guide the spiral bit with a bushing, so the hole in the template needs to be $3\frac{1}{2}$ in. dia. to account for the offset and create a $3\frac{3}{8}$ -in.-dia. hole. The arc, on the other hand, is made with a bearing-guided, flush-trimming bit, so it should be actual size on the template. To draw the arc, use a $\frac{1}{8}$ -in.-thick batten made from quartersawn lumber. Register the ends of the batten against two small clamps, push it to its apex, and trace the arc.

Remove the waste at the bandsaw. Smooth the cut by sanding to the line. Bore the hole at the drill press and attach the fences.

Put that template to work

Use the template to mark the arc and hole on your leg stock. Then bandsaw and drill out the waste. Put the leg back in the template and secure it to the bench—I use holdfasts. There's no need for double-faced tape, because the three fences and clamping pressure hold the leg in place. Rout the arc and hole to final size.

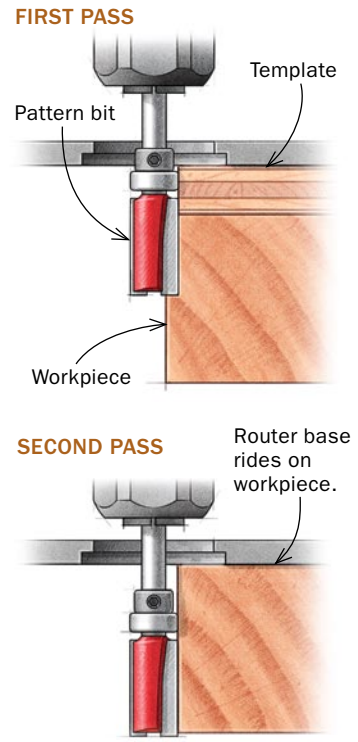
I clean up the routed surfaces with a card scraper—using a narrow one for the hole—and sandpaper. While you have

Photos, except where noted: Matt Kenney



3 ROUTE THE ARC AND CIRCLE

Route the arc. Because the legs are 1¾ in. thick, it takes two passes with a pattern bit to rout the arc flush. On the first pass, the bearing rides against the template. For the second pass, remove the template and register the bearing against the routed surface (see drawings above).



the router out, rout the cove detail on the show sides of the holes and then groove the center of the legs. Now mortise the legs. I do this before tapering them because I use a hollow-chisel mortiser to cut them, and I want square edges to register against its fence. A router and edge guide would also work.

After all the mortises are cut, lay out the leg tapers with a straightedge and cut close to the lines at the bandsaw. Clean up the cuts with a smoothing plane. Mark the arc on the stretchers. I make a plywood template, using a batten to lay out the arc, so that they're the same. Cut the tenons and trim them to fit. Then cut the arc at the bandsaw and clean it up with a spokeshave.

Simple stick tapers seat

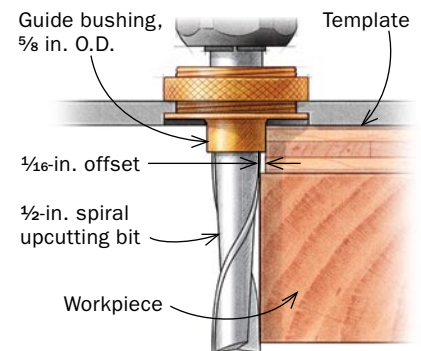
Nearly every surface on the seat slats is beveled or tapered, and it's important to cut them in the right order. First, taper the slats' thickness. Then cut the compound angles on the ends. Finally, bevel the outside edges.

I've tapered the seat slats across their width with a handplane, but it took forever. I've also used an elaborate sled for my planer. Every taper I cut with it had to be fixed with a handplane, so I rethought my approach and came up with a simple solution—so simple, I wonder how I could have missed it earlier.

All you need so that your planer will make this cut time after time is a stick that lifts the inside edge of the slat higher than the outside edge. Ironically, the stick I use is an offset from the elaborate sled. Attach the stick to the bottom of the slat on the inside edge with double-faced tape, and use a



ROUT THE HOLE WITH A SINGLE PASS

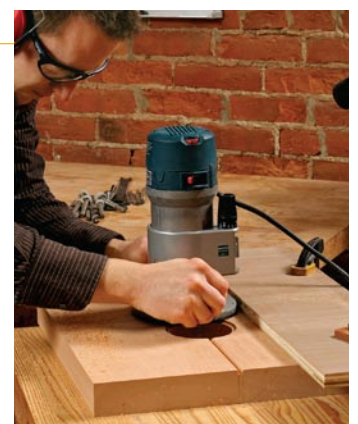


Route the hole. A 2-in.-long spiral bit cuts end grain and long grain cleanly, and is long enough to trim the walls in one pass.

Finishing touches



Cove the edge. A ¼-in. bearing-guided cove bit routs a nice detail on the outside edge of the hole.



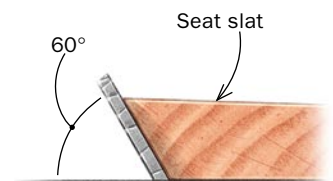
Groove the glue line. Use a ¼-in. straight bit to rout a ¼-in.-deep groove over the glue line.

Taper and bevel the seat

A flat seat isn't comfortable. Taper the slats across their widths so that they are thinner on the inside edge than the outside.

Taper first

Bevel second



Ends get a compound angle. With the blade tilted to 60° and the miter gauge set at 89°, cross-cut the slat to length. The outside edge should be against the fence. For the second cut, move the miter gauge to the other side of the table and turn the board over.



Edges last. Leave the blade at 60° and bevel the outside edge of the seat slat.

A SIMPLE TRICK FOR BIG TAPERS

TIP

All you need to taper the seat slats is a ¼-in.-square stick. Attach it to the inside edge of the slat with double-faced tape (below). Chaffin puts cross-hatching on the board to gauge his progress (above).



pencil to mark lines over its entire face. When the last bit of pencil has been removed, you're done. It's that simple.

With the ends still square, clamp the slat between benchdogs and plane all the surfaces smooth.

Tilt the tablesaw blade to 60°, adjust the miter-gauge fence to 89°, and crosscut the slats. Move the gauge to the other side of the table and flip the board onto its other face to cut the second end. With the blade still at 60°, bevel the outside of each slat.

Prep all the surfaces for finishing now. If you wait until after assembly, you'll find places that you can't get at well enough to do a good job, like between the stretchers. I use a smoothing plane and break the edges with a block plane. Because cherry is prone to blotching, I lightly sand all the parts

Assembly is straightforward

With only four joints, assembly isn't tough. Glue the base together, then peg the joints.



Glue the stretchers to the legs. Spread glue on the tenons and tap them home. Scrape away the squeeze-out when the glue starts to gel, but leave the clamps on for a few hours.



Peg the joints. Saw off the waste, and use a sharp block plane to bring them flush.



Add the seat. Secure the top with pocket-hole screws. Note the 1/4-in.-thick spacer on the bench keeping the tapered slats flat against the legs.

with P320- or P400-grit sandpaper so that it absorbs the oil finish more evenly.

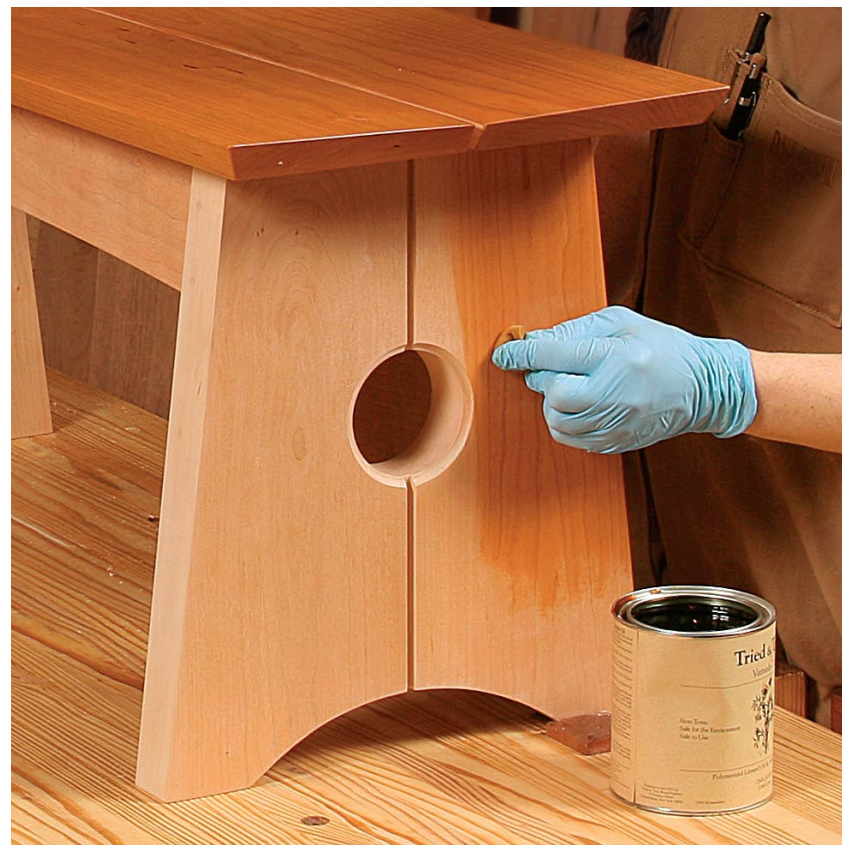
Assemble and finish the bench

I use pocket screws—located on the inside of the stretchers and legs—to attach the seat slats. Cut the pocket holes before assembling the bench.

Begin the assembly by gluing and clamping the stretchers and legs together, making sure that their top edges stay aligned. Let the glue set for a few hours and then drill holes for the pegs that pin the tenons. I make cherry pegs with a dowel plate, but you also can buy them. Don't use much glue on the pegs. They're a tight fit in the holes, and the pressure created when you drive them in could force glue out through the faces of the legs. Cut the pegs close and plane them flush. Now place the slats on top of the legs, aligning their inside edges with the groove cut into the legs. Drive in the pocket screws and you're ready to finish the bench.

You can build this bench in a weekend, but the finishing might take longer. I applied three thin coats of Tried and True varnish oil, wiping away excess oil after an hour. Allow plenty of time for each coat to dry before applying the next. In Kentucky, that can mean four days between coats in the summer, less in the winter. Buff the first coat with 0000 steel wool, and the last two with a soft cloth. Top it off with a coat of paste wax. □

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Oil finish for warmth. Three coats of a linseed oil/varnish finish brings out the natural color of cherry, and protects the seat.