

Floating-Top Side Table

Elegant curves and subtle tapers invite a closer look

BY ALEX DOLESE



My dad and I are both professional furniture makers and teachers, and furniture design was something we liked to do together while I was growing up. This table design is one of our collaborations.

The first version was taller, but when my grandmother asked for a small, round end table, I revisited the design. I enjoy how the table looks at this smaller scale, though it can be scaled up in a variety of ways.

The smaller size adds versatility in how the table can be used and fit into a home. It can serve as a side table in a living room, a nightstand, a plant stand, or a pedestal for an art piece. And you can elevate the look by placing a small rock, ceramic pot, or other sort of art atop the lower rail assembly, which is partly why I made that joint flush at the top edge. You could also add a round shelf in that same spot.

How to simplify curved, angled joinery

The curves and angles in this table not only make it really fun to build, but also teach valuable techniques you can use on future projects.

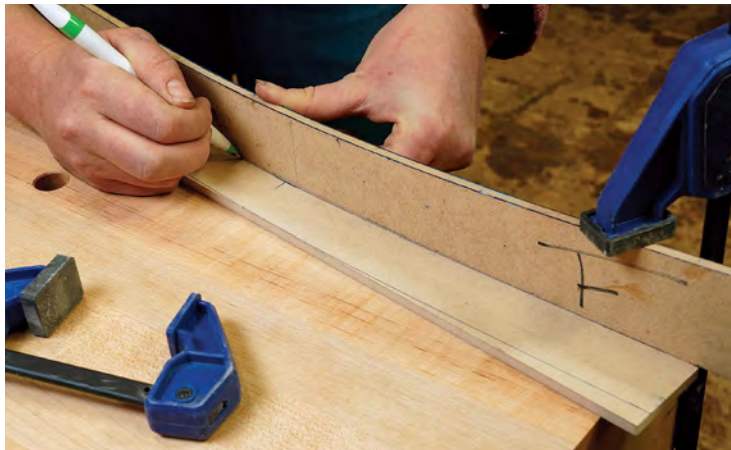
The legs are curved along their inner and outer edges and tapered on their sides, which requires a couple of different shaping techniques. You'll also learn how to use a drawing to find the angle of the legs where the rails hit them. And making the round top involves a handy router jig.

I prefer using slip tenons where parts meet at angles and curves. They let me cut simple butt joints at these tricky junctions, rather than angling or curving the shoulders of integral tenons, which is a lot harder. There are a variety of ways to make matching mortises for slip tenons. While I sometimes use a horizontal mortiser, I'm using my Domino DF 500 joiner here, a

Make a leg template

The legs are curved along their inner and outer edges, and they get flats on the inside edge so the rail joinery is gap-free. Start by making a leg template, which will be transferred to a router jig for shaping the legs.

Lay out the template. Using $\frac{1}{4}$ -in. MDF, make a template that represents the curved leg outline. Use the dimensions in the drawing to lay out the apex of the inward curve and the end points of the outward curve. Then bend an MDF strip as shown to draw the curves at each edge.



Cut and smooth the template. Rough out the shape on the bandsaw, leaving approximately $\frac{1}{16}$ in. of waste outside the line. Then smooth the curves to the line using your preferred sanding or planing tools. Dolese used her curved-platen edge sander here.



Sand flats where the rails hit. To make it easier to eliminate gaps where the rails meet the legs, Dolese sands small, nearly undetectable flats on the leg template, which template routing will transfer to the legs themselves. Start by laying out the mortise locations and the edges of the rails, and then sand up to those marks. Check that these landing spots are flat using one of the rails or another flat piece.



handheld power tool that cuts precise mortises in a variety of sizes, and comes with ready-made tenons that fit those mortises perfectly.

Shape the legs first

Making complex, repeatable shapes using shaper and router jigs has opened up a lot of possibilities in my work. I generally prefer using my shaper for template work, as it has a large, helical head that cuts very smoothly with minimal tearout. But I know many woodworkers lack a shaper, so I'll demonstrate a very similar router-table technique here.

You might be tempted to skip the router jig and shape the curves by hand, but bear in mind that any inconsistencies can leave gaps in the joints where the rails meet the legs. Note that we are shaping the curves on the legs before tapering their sides. That way they will sit flat on the router jig.

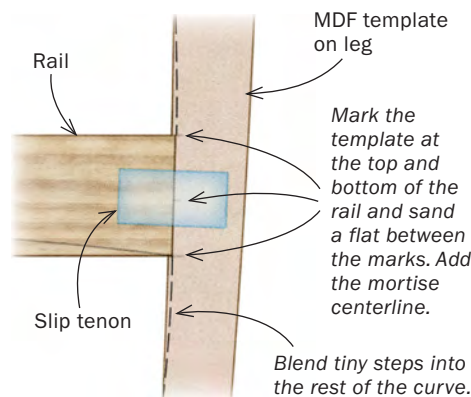
Start by making a leg template. You'll use it to make a two-sided leg-shaping jig, which shapes the concave edge on one side and the convex one on the other.

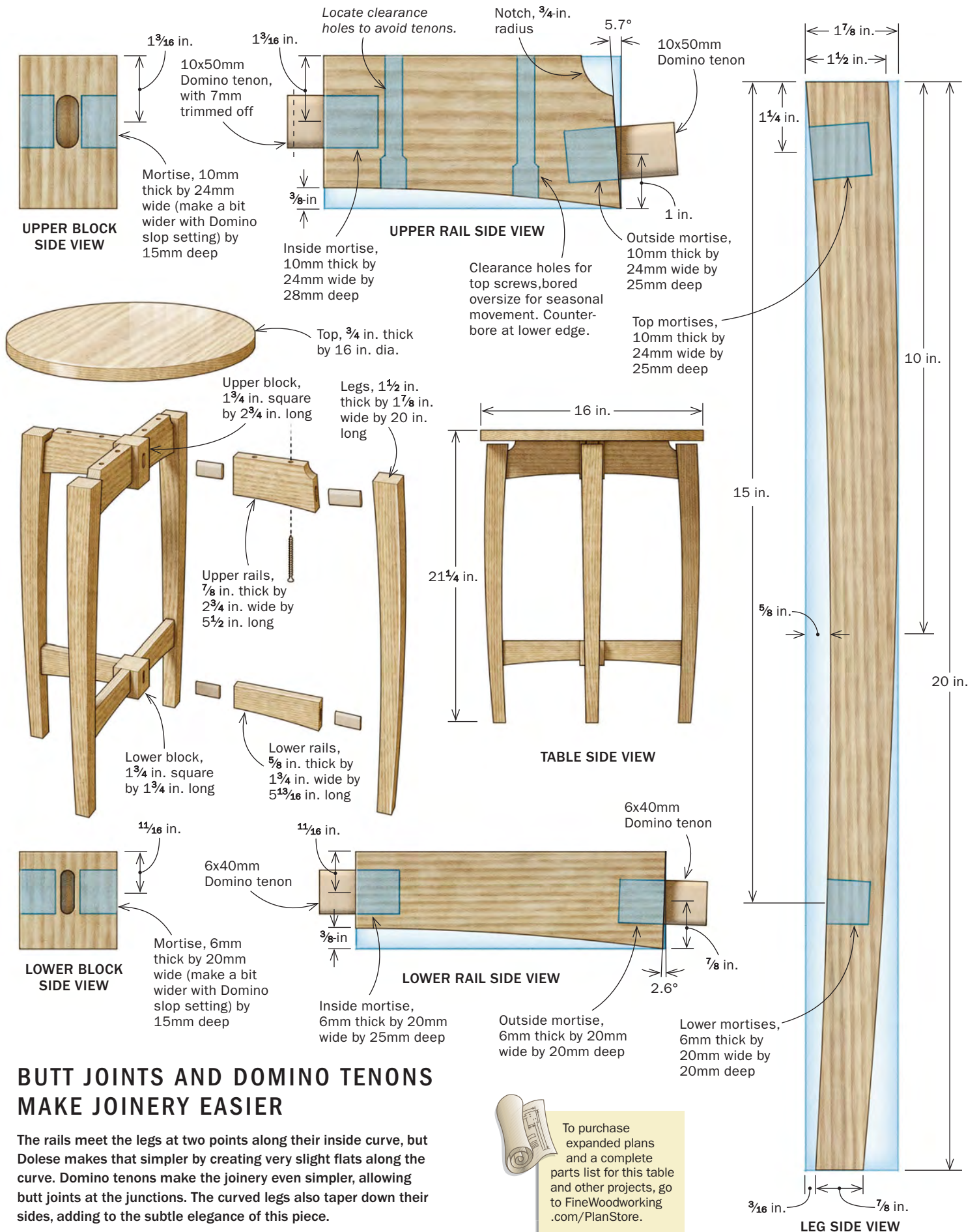
Hand-sand the joinery flats—To simplify the rail-to-leg joints, I create very small, almost undetectable flats along the leg curves, allowing me to cut a simple angle on the ends of those rails and know the joints will be gap-free. That's a lesson I learned from my dad—Tom Dolese, a chair-making specialist in Bellingham, Wash.

On the leg template, make center marks for the mortises. Then work from those to mark the top and bottom edges of the rails.

MAKE SMALL FLATS WHERE THE RAILS HIT THE CURVE

Small flats on the concave edge of the leg will let you cut the ends of the rails to a simple angle, simplifying the joinery. You'll get a tiny step at the end of each flat, which you can feather into the rest of the curve.





BUTT JOINTS AND DOMINO TENONS MAKE JOINERY EASIER

The rails meet the legs at two points along their inside curve, but Dolese makes that simpler by creating very slight flats along the curve. Domino tenons make the joinery even simpler, allowing butt joints at the junctions. The curved legs also taper down their sides, adding to the subtle elegance of this piece.



To purchase expanded plans and a complete parts list for this table and other projects, go to FineWoodworking.com/PlanStore.

Shape the legs

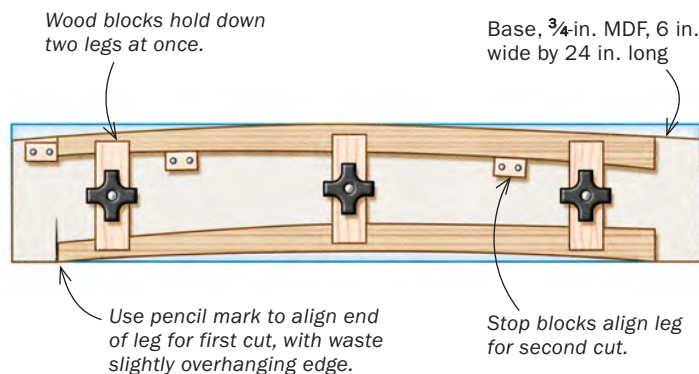
Use the leg template to make a router jig for shaping the leg curves. Before shaping the legs, you'll trace the leg template onto the leg blanks and bandsaw away most of the waste. The legs get tapered after the curves are cut.



Shape the router jig. Screw the leg template to the jig's base and cut the curve using a pattern-routing bit. On the convex side, add blocks to the ends of the template to create smooth entry and exit areas for the router bearing. Before removing the template from the jig, trace its back edge and ends, to show where stop blocks need to go.

ROUTER JIG HOLDS TWO LEGS

This handy jig works with a long flush-trimming bit in the router table. The concave side is shaped first on each leg, and then that side goes against stop blocks as you shape the convex side. The jig includes safe areas for entering and exiting the cut.



Now use a flat sanding block to create flat landing areas for the upper and lower rails, stopping as soon as the area between the layout marks is flat. Sanding these flats is a lot easier to do on the 1/4-in. template than it would be on the actual legs. Once it's done on the template, it then transfers to the routing jig and all four legs.

Use the leg template to make the routing jig.—Once the leg template is done, you can use it to make the leg routing jig. Before routing the legs, use the leg template to trace the curves on the leg stock, and cut away most of the waste on the bandsaw, without going past the lines.

To shape both the jig and the legs, I used the same 2 1/2-in. by 3/4-in. bit, which has a bearing at both ends. Whichever bit you use, its cutting teeth should be at least 1 1/2 in. long. My bit was 3/4 in. dia., but a fatter one will be even less prone to tearout.

The legs will be tapered along their other two edges, but hold off on the tapering for now.

Cut all of the joinery

On projects with curves, I cut all of the joinery while I still have square reference faces on the parts. So cut the rails to overall size now, and chop their outside ends to the correct angles. Also, lay out their curves and notches—as a reference for



Route the concave side first. Use a long flush-trimming bit. Line up the leg with the pencil mark on the jig, let the waste part of the leg overhang the edge, and clamp it in place (you'll need another leg in the jig to make the clamp blocks work). Move the jig right to left to rout.



Route the convex edge second. The concave edge is placed against stop blocks on this side of the jig, as is the end of the leg. Move the jig from right to left again.

Cut all of the mortises now

The Domino joiner makes short work of these matching mortises, though other methods will work too. The trick here is finding a way to hold the small pieces without getting in the way of the tool's fence. Note that two different bit/tenon sizes are used and mortise depths vary, so check the drawing carefully.

PRECISE RAIL END ANGLES

To angle the ends of the rails, tilt the blade and position the workpieces on edge against the miter gauge. Put a digital angle gauge against the blade to dial in the angle.

Top rail end: 5.7°,
Bottom rail end: 2.6°



Mortise both ends of each rail. Mark centerlines for the mortises, choose the right mortise width on the machine, and set the fence for the correct mortise position.

laying out their mortises—but don't shape those details yet.

Be sure to check the drawing carefully for the fence position, mortise depth, and bit size for each set of mortises. The Domino machine works from centerlines, so mark those on all of the parts.

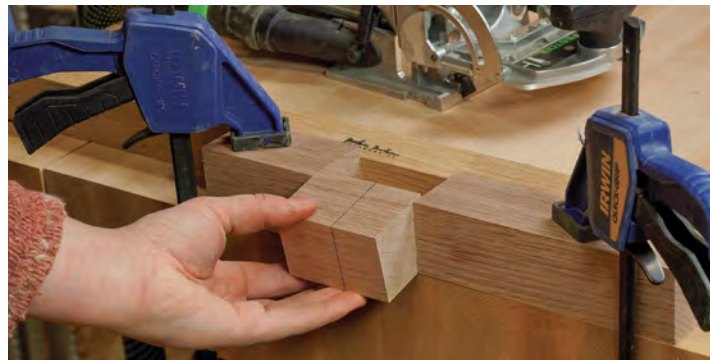
Note that the upper and lower rails are two different thicknesses, because the legs taper as they head downward. So I'm using two different-size tenons in them, which means the mortises are cut with two different bits in the Domino joiner. They are also cut to different depths.

Note also that the mortise locations are different in the upper and lower center blocks (where the rails intersect). These blocks also need to align with the top edges of the rails, so set the Domino for some extra wiggle room in these mortises, which will let you position the parts perfectly flush with each other during the glue-up. Also, to prevent the 50mm-long tenons from colliding inside the upper block, you'll need to cut 7mm off them. You can also start with the longer Domino tenon blanks, and simply cut tenons off those as needed.

Your leg template has centerlines marked on it for each mortise, so use the template to transfer those lines to the legs.

Shape the parts and assemble

Now you can finally shape the rails and taper the legs. Both upper and lower rails get a long curve along their bottom edges, and the top ones get a small, curved notch at the outside end of their upper edges.



Mark and clamp the center blocks. Each set of rails and blocks must end up flush at the top edges, so the centerlines for their mortises need to be the same also. This simple clamping setup, made with leftover stock, is enough to stabilize the parts for mortising with the Domino.



Mortise the blocks. Another long piece, clamped at the back, stabilizes the front pieces, and the machine does the rest. Set the Domino for slightly wider mortises here, to give you some wiggle room for bringing the rails and blocks flush during assembly.



Mark and mortise the legs. Carry the mortise centerlines from the leg template down onto the legs, and use a simple backer piece as shown to hold them for mortising. Remember to change out the bit for the upper and lower mortises.

Finish shaping

With the joinery done and a panel glued up for the top, you can shape the rails, taper the legs, and cut out the top.



Shape the rails. Both sets get a long curve along their bottom edge—cut on the bandsaw and then sanded smooth—and the top rails get a small, round notch, sawn out, then smoothed on a spindle sander.

Lay out those shapes using the tools you prefer. I suggest using a strip of 1/4-in. MDF for the long curves and a compass or circle guide for the round notch.

Cut the long curves close on the band-saw, and then simply smooth them to the line with any of the same tools I used for the leg template. Cut the round notches with a scroll saw, coping saw, or band-saw, and then smooth them with a spindle sander, if you have one, or a large dowel and sandpaper.

You'll be laying out the leg tapers on the curved edges we shaped earlier, so use a flexible ruler or a straight piece of 1/4-in. MDF to hug the curves as you draw sharp, dark lines. Then rough out the tapers on



Mark and saw the leg tapers. Use a straight, 1/4-in.-thick strip of MDF to hug the leg curves as you mark their tapers, and then saw close to the lines on the bandsaw, with the concave curves facing down as shown. If your bandsaw cuts are relatively straight, you can smooth these tapers to the line with light passes on the jointer or with a hand plane.



Cut out the tabletop. Dolese uses Rockler's Ellipse/Circle Cutting Jig here, with the tabletop panel attached to a scrap board with double-sided tape. Rout the circle with light, progressively deeper clockwise passes.



Round everything over. All of the parts get a 1/8-in. roundover on the router table, except for edges that meet other parts, like those at the ends of the rails.

Assemble in stages

The Domino creates uniform mortises that fit its pre-made tenons, and the butt joints tend to self-align the pieces. Start with a dry-fit to make sure the mortises are deep enough, and use Titebond III to allow additional working time.



Insert the tenons. Squirt some glue in each mortise, spread it around with a little stick, and press Domino tenons into both ends of each rail.



Start with the center assemblies. Spread glue in the mortises in the center blocks, and assemble each rail system upside down, clamping it down to make sure it stays flat and flush on its top side. Assemble just two opposite rails at a time.



Legs complete the base. Use thin pads to protect the curved legs, and make sure all four legs are flat on the benchtop as you clamp the assembly.

the bandsaw as shown, with the concave side of the legs facing down for best control.

Glue up the top panel from multiple boards; two or three look best. Some folks use a bandsaw jig to cut out round tops, but I prefer to use a router jig, which leaves the edges smooth and even with less sanding to do. I've used a shopmade jig in the past, until I tried Rockler's Ellipse/Circle Cutting Jig for Routers (\$80 at Rockler.com), which adjusts more easily and is a lot more durable.

After gluing up the base, I finished it and the top separately before screwing them together. I used three coats of Livos Kunos Natural Oil Sealer, which I like because it's non-toxic, low-VOC, easy to apply, and relatively durable for an oil finish, with a bit of water resistance as well. Like all oil finishes, it's also easy to repair. □

Alex Dolese is a professional furniture maker in Bozeman, Mont.



Finish the parts and attach the top. The attachment holes include wiggle room for seasonal movement. After evening out the overhang, mark pilot holes in the top. Drill those carefully and then drive the screws by hand.