

Indigo Tray Table

A removable parquetry tray transforms a simple, three-legged table

BY HEIDE MARTIN

This tray table was built at the Center for Furniture Craftsmanship in Maine during my Nine-month Comprehensive training, under the guidance of lead instructor Aled Lewis and co-instructor Bruce Beeken. While the table project as a whole is on the complex side, it can be built in stages or adjusted for

simplicity. You could build the table or tray as solo pieces, or adapt the tray design to feature undyed parquetry panels or no parquetry at all.

The table itself is stout and straightforward in its construction, but the removable tray gives the piece personality, utility, and complexity. The hoop of the tray is built

by laminating shopsawn veneers, and an applied edging conceals the seams of the lamination while also protecting the edge of the dyed parquetry.

The tray's plywood bottom is glued in from below, fitted into a rabbet in the hoop. The rabbet overhangs the bottom and registers the tray on the tabletop.



A straightforward Table

The visual simplicity of the table allows the parquetry tray to take center stage. An underbevel lightens and adds visual interest to the table's profile. Turned and tapered splayed legs gain extra stability from applied collars and wedged through-tenons.

Make the top

Cut an underbevel. With access to a shaper, Martin cut the bevel by angling a straight cutter and using a high fence and a shopmade jig to hold the tabletop. Alternatively, you can use an Amana raised-panel bit with the circular top held on a router table using the same type of fixture.



Begin with the tabletop

To build the top, grain-match your boards and glue up an oversize panel. I used five boards for this top, making sure the leg through-tenons would land within the boards, not on the gluelines.

I cut the blank to a circle using a router method that gives clean, repeatable results. Start by making a circular template from

plywood or MDF. Using a jigsaw, rough-cut the circle on both the template and the maple top. Save the offcuts for the next step, beveling the tabletop. Use a pivot-point router jig to clean up the cut on your template. I got the idea for mine from a Methods of Work tip in *FWW* #99, "Router Circle-Cutting Jig" by James Guerami. Screw the template to the top, locating the screws

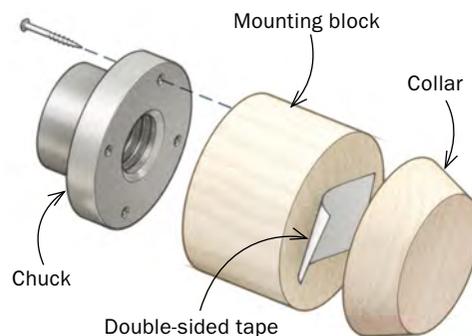
where the leg mortises will be, and then use a flush-trimming bit to cut out the top.

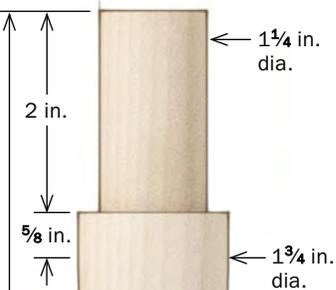
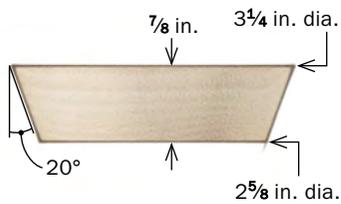
Next, cut an underbevel on the tabletop. I did this with two passes over the shaper, with a straight cutterhead set at an angle. The first pass takes off the bulk of the material. The second pass removes the last bit. I made a jig with the offcuts from the blank to support the circle as it rotates.

Cut the collars and legs



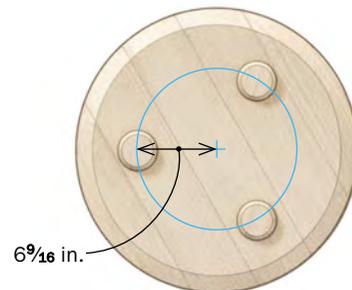
Collars first, then legs. Turn the tapered collars, then move on to turning the legs. To size the tenons, Martin uses a scrap drilled with both 1 $\frac{3}{4}$ -in. and 1 $\frac{1}{4}$ -in. test holes. First, turn the tenon. Because you will wedge it, don't worry about having a piston fit. Then, turn the top $\frac{5}{8}$ in. of the leg to 1 $\frac{3}{4}$ in. dia., aiming to have a tight fit after sanding on the lathe. Finally, taper the rest of the leg.



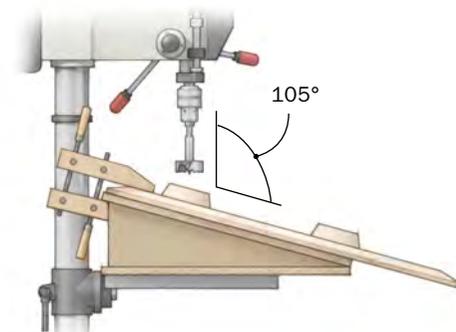


Assembly

Secure the collars. Before drilling the leg mortises, mark the collar locations. Attach the collars with double-sided tape and predrill for a screw in the center of each collar. Remove the tape, add glue to the collars, and screw them in place.



Drill mortises. Once the glue is dry, Martin removes the screws and drills stepped mortises, using a pair of Forstner bits and a fixture on the drill press that holds the workpiece at the correct angle.



Attach the legs. Keep the tabletop up on risers so the extralong tenons can come all the way through the collars and top. Martin uses yellow glue and wedges the tenons in place. Then she trims off the excess flush to the top.

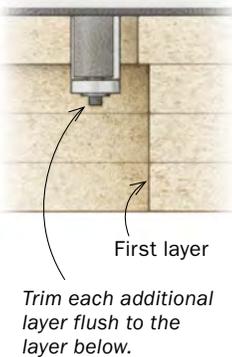


A removable Tray

Start with a form

The key to building the laminated hoop is putting effort into the form up front.

Layer by layer. Use a pivot-point router setup to make a circular cutout in a piece of $\frac{3}{4}$ -in. particleboard. Trace the circle onto a second layer and rough it out. Glue and screw it to the first, and then template-route. Repeat until all the layers are done.



Divide and locate.

Carefully cut the form in half. To make sure that her form registers accurately while clamping, Martin uses a Festool Domino to make mortises on both halves of the jig, and glues Dominos into one side. Alternatively, you can use dowels or biscuits.



Turn the collars and legs

Now you are ready to turn the legs and the leg collars. I turn the collars first, then the tapered legs. Leave the first $\frac{5}{8}$ in. below the tenon shoulder untapered, since that is glued into the stepped mortise.

With the legs complete, move on to the mortises. Build a drill-press jig that will allow you to present the tabletop to the drill at a 105° angle. Back up the tabletop with a sheet of MDF to minimize blowout while drilling. First, drill the $1\frac{3}{4}$ -in.-dia. section, then drill the $1\frac{1}{4}$ -in.-dia. section right through the tabletop. Glue and wedge the legs into the stepped mortises.

Build the hoop for the tray

To create the bent-laminated hoop, I start by building a form from four 32-in.-square pieces of $\frac{3}{4}$ -in. particleboard. Use the pivot-point router jig to cut a 24-in. outside-diameter circle in the center of the first piece. Remove the interior circle and set it aside (you can use that later to build cauls for gluing on the parquetry). Place the first piece over a second, trace the circle, then cut it out with a jigsaw. Using glue and screws, attach the second piece to the first, then use a router and a flush-trimming bit to clean the cut. Repeat with the third and fourth pieces. Next cut the form in half cleanly on the bandsaw, making sure to mark and locate the mating edges.



Four steps to a hoop

Slice the veneers, dry-fit them, apply glue, and clamp them together.



1 Resawing tips. When sawing the veneers, use a featherboard for even pressure and a clean cut. Mill them $\frac{1}{16}$ in. to $\frac{1}{8}$ in. over final thickness, and joint the main stock after every slice.



2 Fitting tips. While math helps as a guide to proper length, dry-fitting is essential to get the butt joints exact. The most critical joints are in the inside and outside veneers.



3 Gluing tips. Martin uses Unibond for a longer open time and because it is a good color match to the maple. She rolls the glue on all the veneers at the same time.



4 Clamping tips. Be sure to line your form with packing tape or plastic, and work on a plastic surface. As you begin to tighten the clamps, keep an eye on the veneers to be sure they are not sliding up. Use a block and mallet to tap them flush. Let the hoop cure in the form for a day or two, to make sure that you do not have any major warping or cupping.



Add a parquetry pattern

Martin's subtle pattern combines wedge-shaped pieces of veneer in varying shades of indigo.



Trim by hand.

After sawing the tiles to a taper, Martin uses a plane and a shooting board to edge-joint them before gluing.

Work in small sections.

Martin glues the pieces into pairs, using a glue syringe. She uses yellow Frog tape because it stretches, adheres well, and removes cleanly. For each glue-up, stretch the tape over the seam on the back face, then flip the parquetry over and crack open the seam to apply the glue. Tape the seam closed from the front, then clamp or place a weight on the pair. Glue three pairs into a larger section.



Laminate the hoop

On the bandsaw, slice veneers from wood that has tight, straight grain. Be as accurate as you can when you take the veneers to final thickness (I used a drum sander) so the math will be simpler. Each veneer represents a layer of the final hoop, and the circumference of each one is affected by the thickness of all of the others. For my 24-in. hoop I used five $\frac{1}{16}$ -in.-thick veneers. The outside veneer was 24 in. dia. ($75\frac{13}{32}$ in. long), the next $23\frac{7}{8}$ in. dia. ($74\frac{39}{64}$ in. long), and so on. Even if your math is accurate, though, you'll need to do test fitting to get the butt joints perfect.

For the glue-up I used Unibond for its color match to the maple and longer open time. I apply glue to all the hoop layers and use the form to bend them and apply pressure. Before applying any glue, place clamps over the form, loosely tightened. Once you apply the glue, start with the outside veneer and place each layer in the form, then tighten the clamps.

Build the parquetry

I made my parquetry from $\frac{1}{16}$ -in.-thick shopsawn veneers that I dyed with indigo (see *Finish Line*, pp. 20–24), cut into tapered tiles, and arranged in a pattern. I sealed the dyed veneer with shellac.

To apply parquetry to the inside of the hoop, work in stages for easier assembly. First lay out the entire pattern flat, then break it into short segments (8 in. or so) and edge-glue those. Once the segments cure, glue them into the hoop one at a time. Trim any overhanging parquetry.

Add edging to the top of the hoop

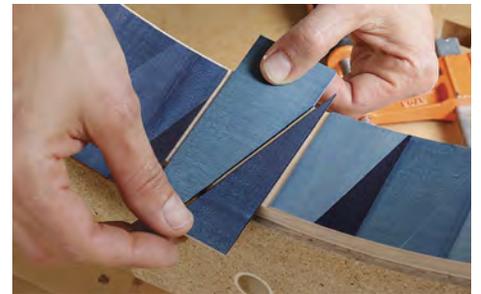
While not an essential step, adding hardwood edging conceals and protects the edge of the tray for a finished look. I built my edging by mitering 12 maple segments (see drawing, p. 56) to form an oversize ring. To create the ring, first mill all the pieces to width and thickness. Then cut the miters at 15° . With 11 pieces cut to length, fit them together to determine the exact length of the final piece, and cut it to fit. Glue the segments to each other end-to-end, and then to the top edge of the hoop. After glue-up, I trimmed the excess edging on the outside with a bandsaw, and

Parquetry meets hoop

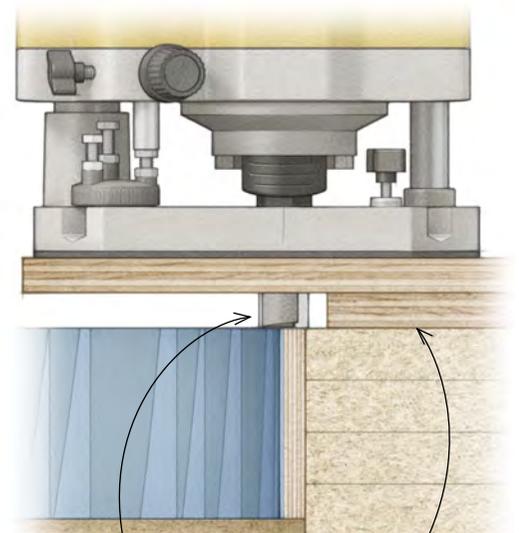
Martin does not try to glue all the parquetry into the hoop at the same time. Instead, she works in sections to make her way around the interior.



Assemble in segments. Three pairs glued together make a segment (above). Make a curved caul for clamping pressure (left) and use one half of the lamination form to hold the hoop vertical. Be sure to clean any squeeze-out at the edge of each segment, where the next one will meet it.



The final pair. Dry-fit the final two tiles individually (wedging them in place in opposition to one another). Trim a little at a time until you get perfect final joints. Martin blackens the edges with a Sharpie just in case there is even the tiniest gap, and then glues them in place.



Straight bit

Plywood router base rides on hoop form.

Trim overhanging parquetry. After using a bandsaw and coping saw to rough off the excess, Martin flush-trims with a router. The ring lamination form holds the hoop stable and provides a surface for the router's plywood base to ride on.

Finish off the top and bottom

A solid-wood edging on top will hide any gaps in the lamination and can be profiled for a more polished look. A plywood bottom sits in a rabbet on the bottom edge of the hoop.



Glue up the edging. Martin's edging is made of 12 maple segments mitered at 15° and glued into a ring. Stand the pieces up in a line on the long edge, glue the segments to each other, and use a band clamp to apply pressure while the glue dries.



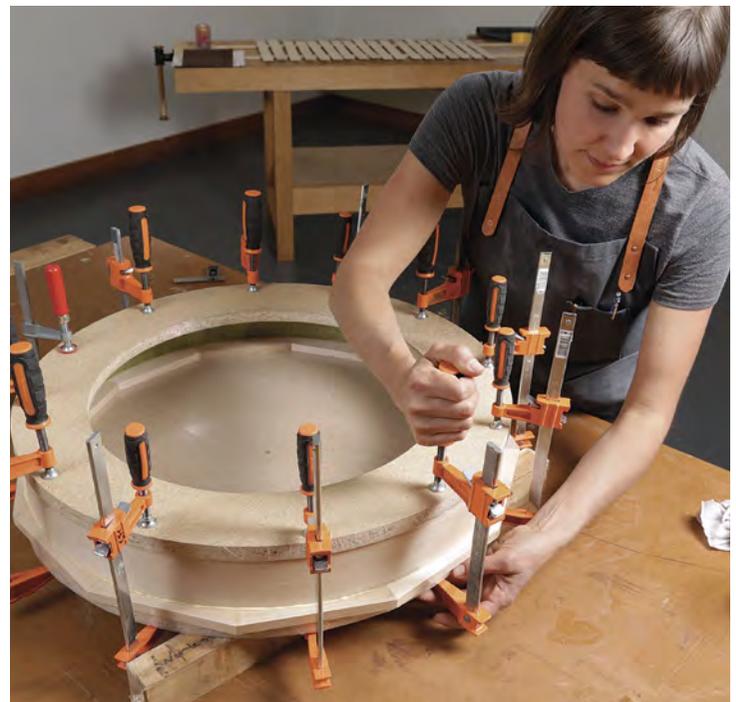
trimmed the interior overhang with a coping saw. Then I trimmed them flush with a bearing bit on the router table, and gave the edging its roundover profile.

Final steps on the tray

The first time I built this piece I faced the tray's plywood bottom with shopsawn veneers to match the hoop. Plywood alone is a perfectly fine substitute. Use a pivot-point router jig to cut the plywood to size. On the router table, cut a rabbet into the bottom of the hoop for the bottom.

Finally, apply a finish to the tray and table. For a project using dyed veneer, a spray finish is preferable on the interior of the tray. I used Super Kemvar "M" topcoat, but any clear, protective finish will do. I finished the table with Osmo Polyx Oil. I also glued circular leather pads to the underside of the tray to protect the tabletop. To cut these, I sharpened one end of a piece of 1½-in.-dia. steel pipe and used this as a leather punch. Leather pads are also available at amazon.com. □

Heide Martin is a designer and woodworker in Midcoast Maine.

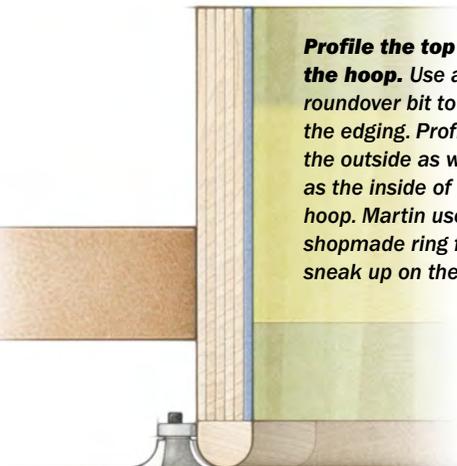


Glue the edging to the hoop. Don't worry about the strength of the end grain miter joints. Once the edging is glued to the hoop, that won't matter. Martin glues the edging ring in place using circular clamping cauls.

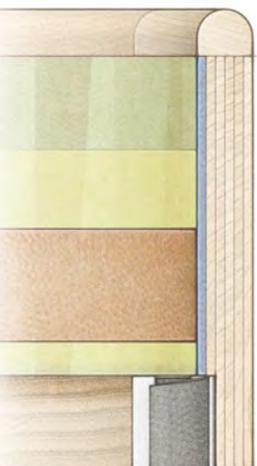


Trim the edging ring.

Rough-cut the excess on the outside with the bandsaw (above) and use a coping saw to carefully trim off the inside. Then use a bearing-guided bit, registering on the inside face of the hoop and then the outside face, to flush the lip to the hoop (right). Protect the parquetry by applying yellow Frog tape beforehand.



Profile the top of the hoop. Use a 1/4-in. roundover bit to shape the edging. Profile the outside as well as the inside of the hoop. Martin uses a shopmade ring fence to sneak up on the cut.



Rabbet the bottom. With a ring fence on the router table and a two-fluted straight bit, rout a rabbet in the bottom of the hoop for the bottom. The bottom will sit up inside the rabbet, leaving a small registration lip to seat the tray nicely on the tabletop. Final-sand the tray bottom and then glue it in, being careful to manage any squeeze-out immediately.

