

A Box That Earns Its Stripes

Got a tablesaw and tape?
Make a miniature masterpiece

BY ADRIAN FERRAZZUTTI

My first veneered box started when I noticed that some scraps destined for the fireplace were of contrasting colors. On a whim, I glued these offcuts into a thick block and then resawed that into slices of striped veneer. Cutting the slices into geometric shapes, I discovered that making patterns with contrasting veneer is a lot of fun and really gets the creative juices flowing. I've now made many of these veneered boxes and the process keeps evolving, but the basic tools and techniques remain simple.

Both the geometric veneer shapes and the rabbet joinery for the plywood core are cut on the tablesaw, but attention to detail elevates these small boxes into jewels.

Because of their scale, your eye sees every detail, so the workmanship must be crisp and clean. On the other hand, you won't need a vacuum bag to glue on the veneers; simple clamps and cauls work. Once you've pulled off



this project, you'll have the skills to tackle larger veneered projects with confidence.

Start with woods that catch the eye

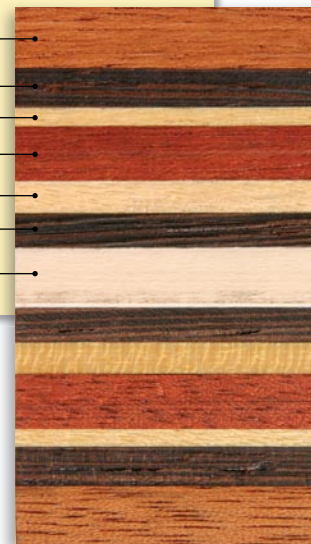
Pick some woods with contrasting but complementary colors and mill them into strips a little over 2 in. wide by 16 in. long, varying in thickness from 1/16 in. to 1/2 in. Joint the face of each strip and then thickness-plane each one to whatever thickness

HOW TO MAKE STRIPED VENEER

CREATE A SYMMETRICAL SANDWICH

Choose contrasting wood species and mill them to whatever thickness looks right, but make sure the sequence is the same in both directions from the center of the block.

- ¼-in.-thick mahogany
- ¼-in.-thick wenge
- ⅛-in.-thick yellowheart
- ¾-in.-thick bloodwood
- ⅛-in.-thick yellowheart
- ¼-in.-thick wenge
- ¼-in.-thick holly



Glue the contrasting woods. Ferrazzutti uses a notched spreader to apply a liberal amount of yellow glue to the strips of colored woods.

makes an interesting stack of contrasting strips. For the pattern to work, though, the layers should be identical on both sides of the center layer. Also, when glued together, the block should be at least 2 in. thick and 3½ in. wide.

Place the glued strips in a clamping cradle to prevent them from skating around when pressure is applied. When dry, square up the block but remember to keep the two outside layers the same thickness.

Because the core of the box is plywood, you also need to veneer the inside and bottom of the box. You can pick one of the woods used on the outside, or use a different one. In this case, I used bubinga.

Glue a backer board to both the outside striped block and the block you are using for the inside. You can now resaw the whole of each block for veneer and still have a large surface to handle safely. I slice the veneer ⅛ in. thick or slightly thinner, jointing the block after each cut to remove sawmarks. You'll need a minimum of 14 slices to provide enough segments for the box along with some spares.

Tablesaw delivers precise pieces

Now cut the stack of striped veneer into the shapes needed to make the pattern. I do



Clamp firmly. Place the glued strips in a clamping cradle lined with packing tape to prevent sticking. Place a thick caul (also faced with tape) on top of the strips and apply plenty of pressure.

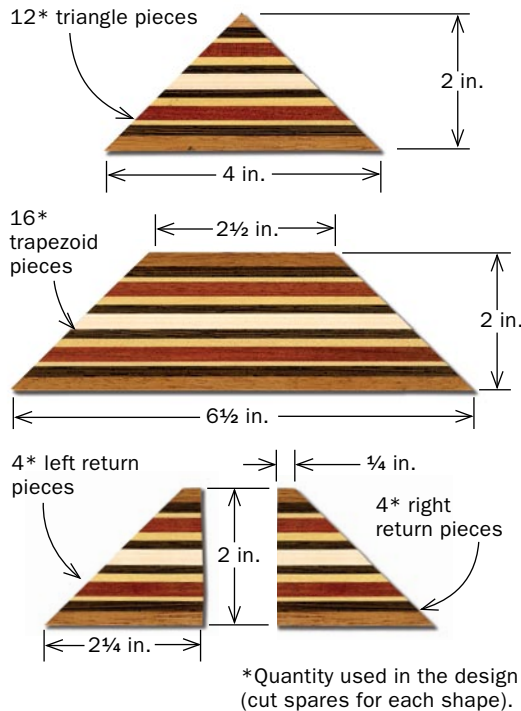


Resaw the veneer. After squaring the block and gluing a backer board to it, resaw ⅛-in.-thick strips of the striped wood for the box's exterior. You'll need to do the same thing with a block of solid wood for the interior.

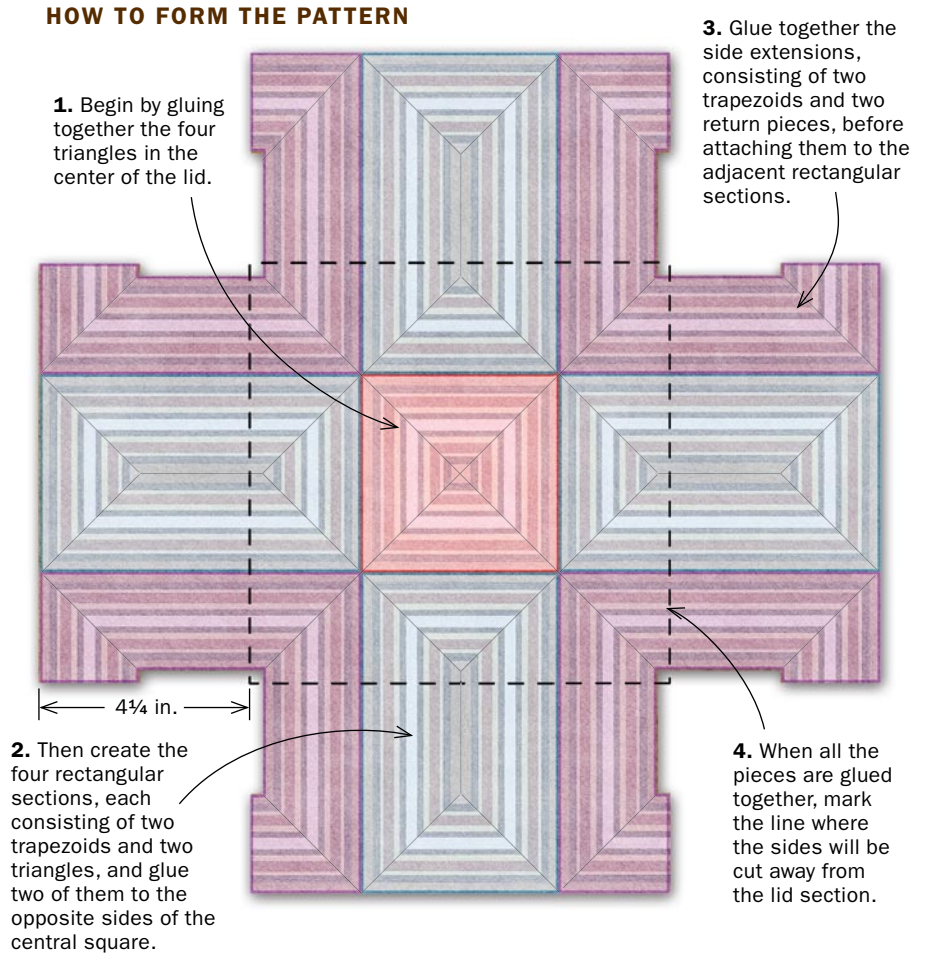
ONE PATTERN COVERS THE WHOLE BOX

SIMPLE CUTLIST

The flowing design on the outside of the box may appear complex, but it consists of just four simple shapes with all the angles cut at 45° on the tablesaw.



HOW TO FORM THE PATTERN



Online Extra

DESIGN YOUR OWN VENEER PATTERNS



Once you start working with striped veneer, you'll quickly want to create your own designs. The best way to start is to place a couple of mirrors on the veneer and then vary the angle between them to see potential patterns. To read and learn more, go to FineWoodworking.com/extras.

this on the tablesaw using a clean, sharp crosscut blade and a simple sled. The sled's base is 1/2-in.-thick plywood, a little larger than the veneer, with a piece of P220-grit sandpaper glued to the top surface, backed by a 4-in.-tall fence. I clamp the sled to the auxiliary fence of a miter gauge, dial in exactly 45°, and cut through the base and fence of the jig. The sandpaper prevents the veneers from slipping as they are cut, and the edge of the sled tells me exactly where the cut will be.

My aim is to get all the joints crisp off the saw and not to mess around with planes and shooting boards. So after cutting the shapes slightly oversize, I tape them into tight stacks of matching shapes, and trim them to uniform size using the same jig. This leaves a crisp edge that shouldn't need any more fussing.

It's now time to assemble the veneer pattern for the top and sides of the box. Beginning at the center, tape the shapes into

pairs and the pairs into fours, gradually working out to what will be the sides of the box (see drawing above). Once all the parts are glued together, I use a knife and a straightedge to cut away the side panels from the top panel.

The next step is to glue the striped veneer and the interior veneer to opposite sides of the Baltic-birch-plywood core. The top and bottom are pressed onto 3/8-in.-thick material and the sides are pressed onto 1/2-in.-thick material. To make this go quickly, I veneer the sides on one piece and the top and bottom on another.

Tablesaw makes joints easy, too

On the tablesaw, rip and crosscut the side panels square and to the same dimensions. Clamp a sacrificial fence to the rip fence, insert a wide dado stack, and then raise the blade into the sacrificial fence. Run one end of each side, pattern up, against the fence and through the dado stack to make

STACK VENEER TO ENSURE PRECISE CUTS



1
Lay out the segments. Tape together a stack of the striped veneers and lay out the geometric shapes, keeping them slightly oversize.



2
A nonslip sled. Crosscut the shapes on a dedicated sled whose base has sandpaper glued to it to hold the workpiece steady.



3
Uniform, precise cuts. After rough-cutting the shapes, tape them back together and trim them all to the final size.



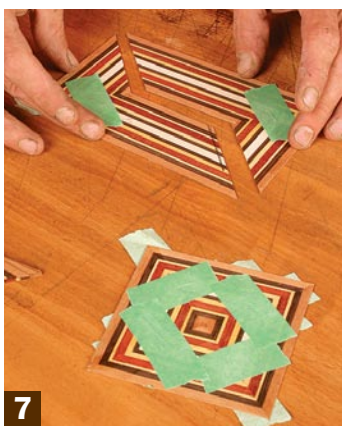
4
Begin assembling the puzzle. Use a straight-edge to align a pair of shapes and tape them together on their rougher, bandsawn faces.



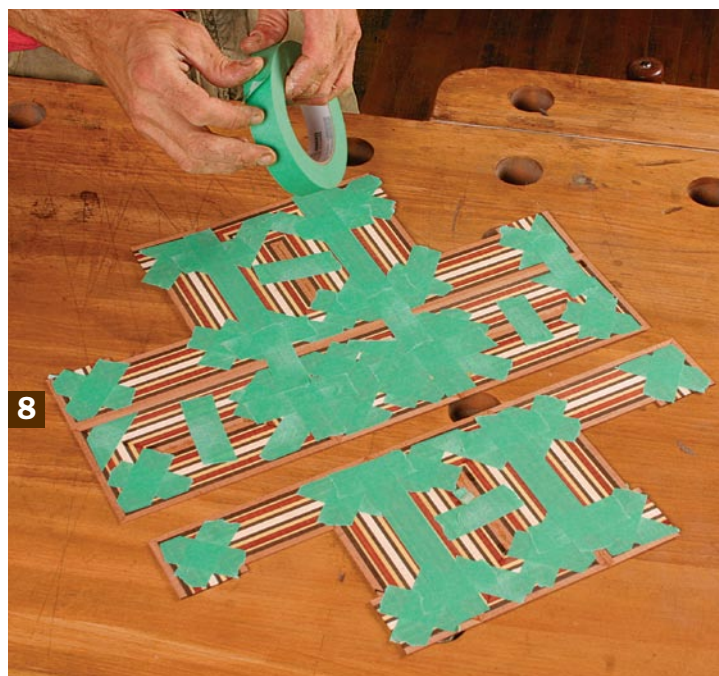
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The hinge trick. Flip over the pair of pieces, open up the joint using the tape as a hinge, and apply a thin bead of glue.



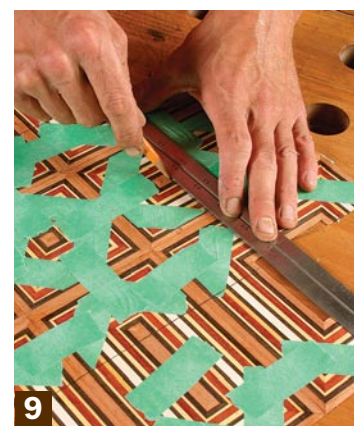
6
Close the joint. Use the back of a chisel to remove squeeze-out and bring the joint flush. Tape this face side while the glue dries.



7
Work outward from the center. After the center square is formed, construct the four rectangles that adjoin it (above). After attaching the side extensions to two opposite rectangles, attach them to the center section (right). If necessary, you can improve the alignment by planing the edges lightly.



8



9

Cut away the side veneer panels. Align a straightedge with the ends of the side sections of veneer and mark where to slice the side veneers away from the top piece.

TURN THE PATTERNS INTO PANELS

GANG UP PARTS

Press the veneer. To speed things up, Ferrazzutti creates the box top and bottom on one piece of plywood, and all four sides on another. Before spreading glue, he uses veneer tape to hinge the veneer sections to the plywood to maintain alignment.



TRIM AND RABBET THE SIDES



Saw the sides apart. Once the panels are dry, rip the plywood down the middle, leaving two sections, each with two side pieces.



Trim to size. After cutting the box sides to length, rip them to width. A piece of masking tape on the back corner prevents tearout.

a $\frac{7}{16}$ -in.-square rabbet. Each of the four corners will form a rabbeted butt joint, leaving a $\frac{3}{16}$ -in.-square rabbet at the outside corner. This is based on a $\frac{1}{2}$ -in.-thick core with $\frac{1}{16}$ -in.-thick veneers on each side for a total panel thickness of $\frac{5}{8}$ in.

The next step is to cut rabbets for the top and bottom panels. Leave the blade height alone but set the fence for a $\frac{5}{16}$ -in.-wide cut because the veneered top and bottom panels are only $\frac{1}{2}$ in. thick. Now run the top and bottom edge of each side, pattern up, against the fence and through the dado stack to make a rabbet $\frac{7}{16}$ in. wide by $\frac{5}{16}$ in. tall. When the top and bottom are dropped in, they also leave a $\frac{3}{16}$ -in.-square rabbet on the outside corners.



Rabbet three edges. Using a dado blade, cut a rabbet on the same end of each side piece and rabbet the top and bottom edges, too.

DIRT-SIMPLE JOINERY

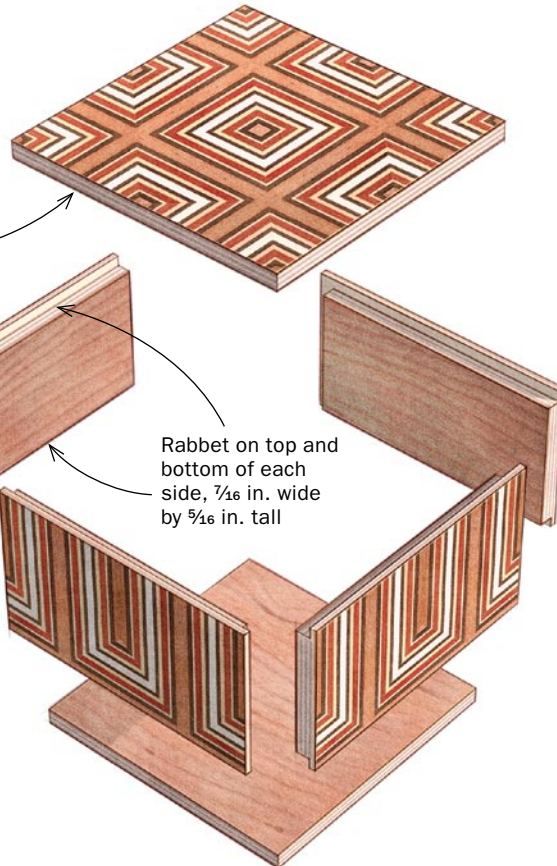
A rabbet cut at the top and bottom, plus one end, of each side holds the box together.

Top and bottom, $\frac{1}{2}$ in. thick ($\frac{3}{8}$ -in. plywood plus two pieces of $\frac{1}{16}$ -in. veneer) by roughly 8 in. square. Fit these to the assembled box.

Sides, $\frac{5}{8}$ in. thick ($\frac{1}{2}$ -in. plywood plus two pieces of $\frac{1}{16}$ -in. veneer) by $4\frac{1}{8}$ in. wide by $8\frac{1}{8}$ in. long

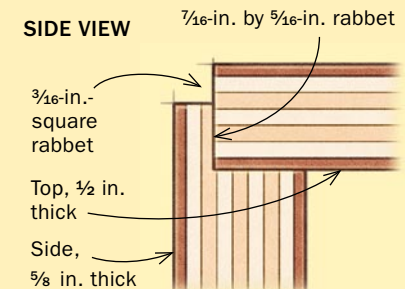
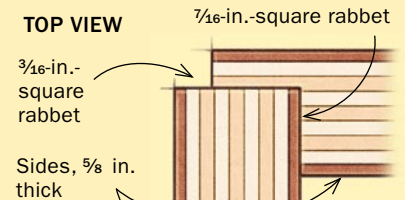
Rabbet on one end of each side, $\frac{7}{16}$ in. square

Rabbet on top and bottom of each side, $\frac{7}{16}$ in. wide by $\frac{5}{16}$ in. tall



HOW RABBETS MULTIPLY

Rabbets along the top, bottom, and one edge of each side leave $\frac{3}{16}$ -in.-square rabbets along each edge of the box where the edging will go.



With the joinery complete, sand the inside surfaces with P220-grit paper, tape off the areas that will be glued, and apply two or three coats of a clear finish. I prefer a wiping varnish, such as Minwax's Wipe-On Poly or Waterlox Original, for the interior and exterior, which offers an in-the-wood look and a little protection.

After a dry run, glue the box together, check it for square, and use a small block and a hammer to ensure the corners of the rabbets are flush (don't let them dry with steps). Let the squeeze-out harden on the inside corners, then pop it off with a sharp plane iron and apply another coat of finish.

Trim the top and bottom panels until they press in nicely without distorting the sides. When sizing the top, take care to keep the pattern lined up with the patterns on the sides. Tape off the glue area around the inside of the top and bottom, then apply some finish.

Using a stiff, flat surface as your table, glue on the top of the box and clamp each corner of the box to the stiff surface. Let this sit for a half hour, remove the clamps, and pop off the squeeze-out around the inside corners with a sharp plane iron. Glue in the bottom the same way, but because you won't be able to get at the squeeze-out, adjust the amount of glue you use based on how much squeeze-out you got with the top.

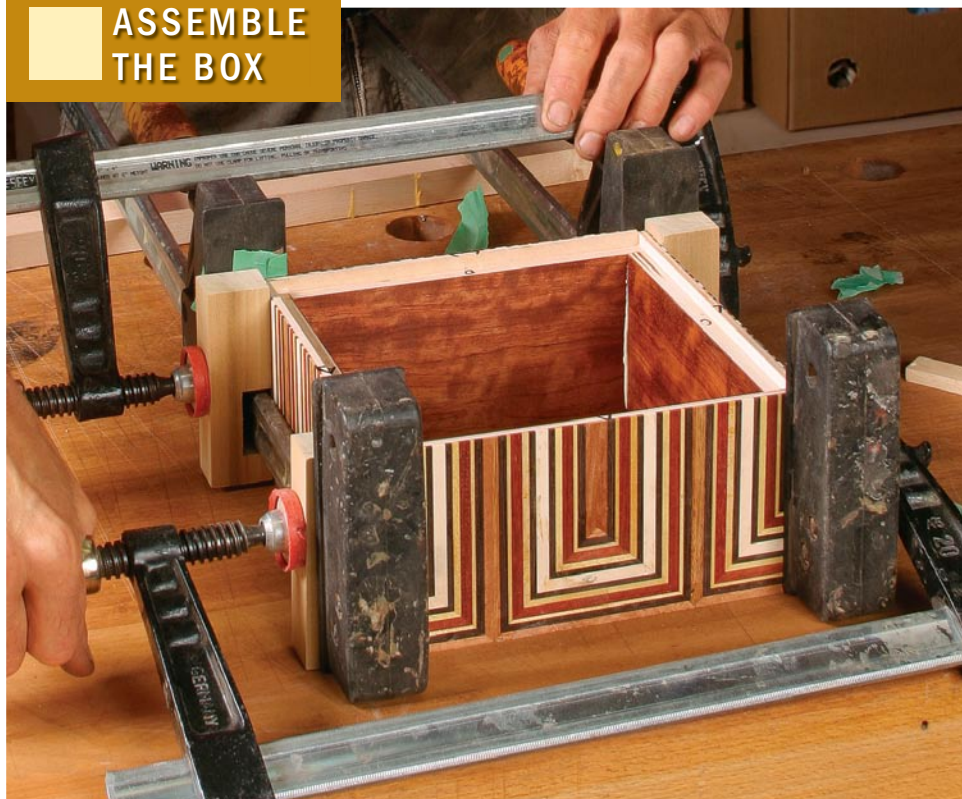
Add the trim and cut open the box

The box has hardwood trim (I like to use holly or ebony) on the corners, around the top and bottom edges, and on the contact surfaces of the lid and the base. Set up a rabbeting bit in a router table to clean up and enlarge the existing corner rabbets to $\frac{1}{4}$ in. square.

Mill the stock $\frac{9}{32}$ in. square with enough pieces to go around the top, bottom, and sides. Cut four pieces for the corners about $\frac{1}{4}$ in. shorter than the total height of the box. Use a block plane to chamfer the inside corner of the edging to help it seat better in the rabbet, then round over the outside corner slightly so that the tape used for clamping is less likely to break.

Apply glue to the rabbet and set in the edging so that each end extends into the rabbets on the top and bottom. Stretch-clamp three or four strips of tape on each corner, let it sit for about an hour, and

ASSEMBLE THE BOX



Sides first. To ensure even pressure along each corner joint, Ferrazzutti starts with a pair of parallel clamps. He then places four notched cauls over the bars of the parallel clamps and applies pressure to the cauls with a pair of bar clamps.

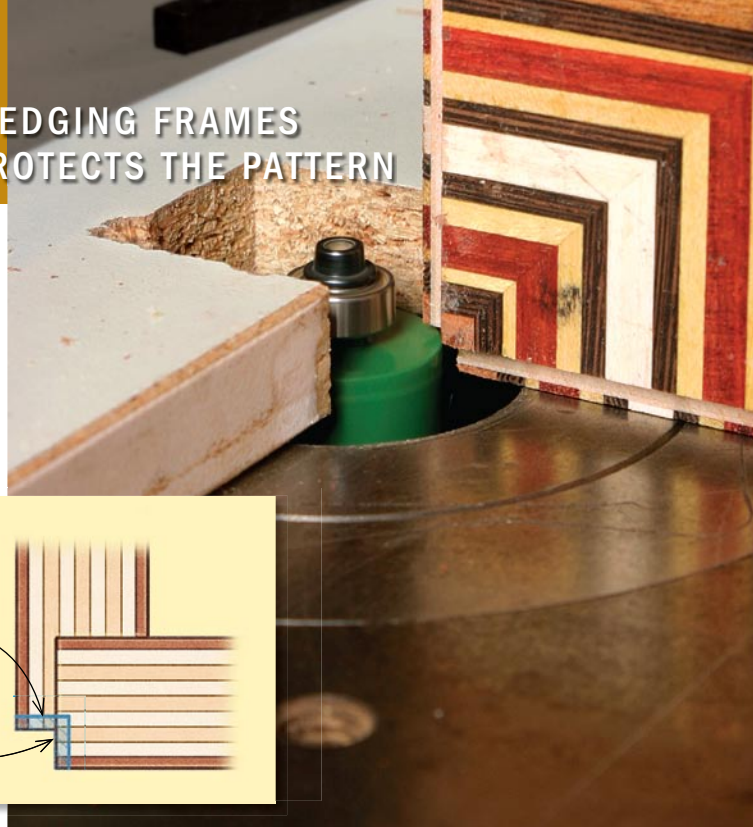


Add the top and bottom. When cutting these pieces to fit into their rabbets, make sure that the veneer pattern is aligned. Then glue and clamp them into place.



SOLID EDGING FRAMES AND PROTECTS THE PATTERN

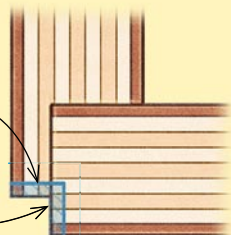
Clean up the corners. Use a rabbeting bit in a router table to enlarge the corner rabbets where the sides meet. Don't do the top and bottom edges yet.



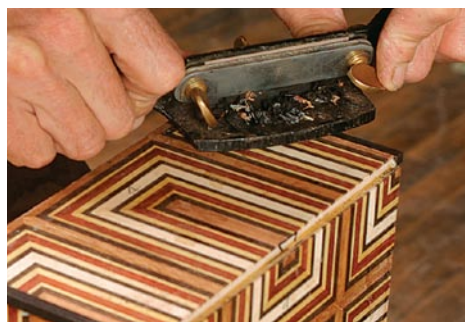
TOP VIEW

Final rabbet, ¼ in. square

¾-in.-square rabbet



Apply the edging. Blue masking tape supplies enough force to hold the corner edging in place while the glue dries.



Bring it flush. Use a block plane followed by a cabinet scraper to bring the corner edging flush with the box sides.



Now the top and bottom edges. Use a rabbeting bit to trim the ends of the corner edging and enlarge the rabbets around the top and bottom of the box sides (above). This edging has mitered corners, so apply it to opposite sides (right) to make fitting the last two pieces easier.



then peel off the tape. Use a fine-set block plane and then a cabinet scraper to bring the edging flush with the sides, taking care not to damage the veneer.

With the side corners complete, rabbet around the top and bottom of the box, taking care not to blow out the side corners you just glued on.

The top and bottom edging gets mitered, and it's best to glue two opposite edgings on the top and bottom first. This avoids cross-grain tearout when smoothing them flush and makes fitting the miters on the remaining edge pieces much easier.

The lid should be at least 1¼ in. deep; a thinner lid has a greater chance of springing or twisting. Sawing off the lid on the tablesaw may seem a risky procedure, but with a few simple tricks it's really nothing to fear. Get a good, clean crosscut blade, make a zero-clearance throat plate, and set the rip fence so it is dead parallel with the blade. Set the blade height so it will just break through the box. After each cut, insert a couple of the kerf shims, and stretch tape over the saw cut to hold the lid tightly in position.

The last step is to cap the plywood that you just exposed. Using the same wood as the edging, mill some strips ¾ in. wide and a fat ⅛ in. thick. When the lid is closed, the thickness of the two cap edges should visually equal the ¼-in. corner edging.

Before gluing on the caps, I use a block plane followed by a cabinet scraper to correct any twist in the lid so that it rests on the body without rocking.



SAW OFF THE LID AND COVER THE CUT

Shim it as you cut. First, to eliminate tearout, apply a piece of tape around the box where the cut will be made. Then apply a piece of tape to each lower corner of the box so it won't rock. Now cut the first side, insert two pieces of wood equal in width to the sawkerf, apply a piece of tape across the box, and then cut the next side. Repeat until all four sides are cut.



Cap the core. After cutting off the lid, glue strips to both parts of the box to conceal the plywood core. The front corners are mitered, but the back corners are butt joints that will be concealed by the quadrant hinges. Apply the sides last.

I miter the front corners of the cap strips but leave the back corners as butt joints; this prevents a tiny piece of the mitered corner from blowing out when routing for the quadrant hinges.

The idea is to have the inside edges of the caps flush with the inside faces of the box so that there is minimal trimming to do. The outside edges protrude, but will be trimmed after glue-up. A bonus of having the strips slightly wide is that if a mitered cap strip gets trimmed too short, a light pass on the inside edge with a plane makes the strip longer, so you don't have to cut another piece.

Glue on the front and back caps, waiting about an hour before trimming them flush. Then cut the side caps with a miter on the front and let the back extend over the edge. Apply glue and stretch tape across the miter joint and the butt joint, pulling the side cap tightly against the adjoining caps.

After installing the hardware (see Master Class, pp. 84-89), I finish the box using P320- and P400-grit disks on a random-orbit sander. You don't want to hand-sand, as this forces different colored dust into the pores of other woods. I finish the outside in the same way as the inside. □

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Power sanding only. Hand-sanding will force different-colored sawdust into the pores of the contrasting wood, spoiling the appearance. Use a random-orbit sander to smooth the outside of the box (left). Finish the box with a clear coat of your choice (below). The hinges and lock are covered on pp. 84-89.

