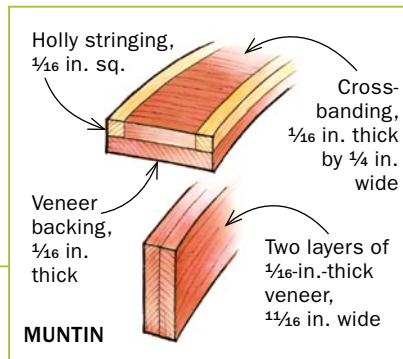


Curved dividers for glass doors

BY RICHARD OEDEL

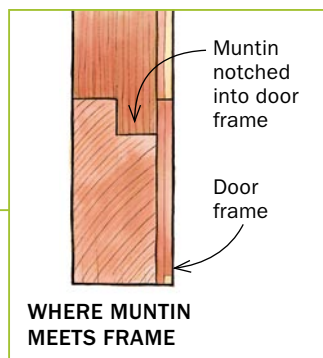
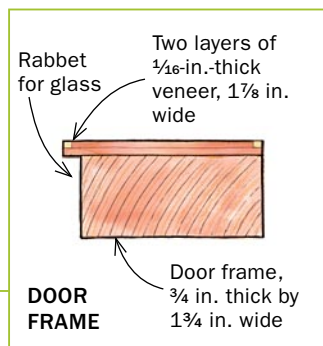
American use of glass-paned doors with curved dividers, known as muntins, first appeared in the 1750s. These early muntins were thick and chunky, like exterior window panes. However, by the beginning of the Federal period, the muntins on furniture were graceful and elegant, influenced heavily by the designs of Sheraton and Hepplewhite.

Making these doors has always been a time-consuming task, but when executed well they elevate any piece. My method is centered on a template. It acts as a jig when cutting and assembling the ribs; it serves as a guide when attaching the muntin faces; and it is used to tie the muntins into the door frame. This method works for any design, so go ahead and create your own unique divided-light doors.



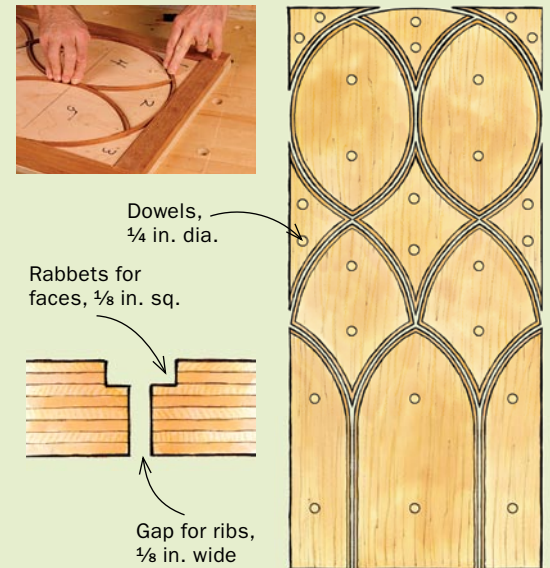
MULTIPURPOSE JIG

Start with a full-size drawing of the doors. Life will be much easier if all the muntins are the same radius. Next, build some strong door frames. Mine are $\frac{3}{4}$ in. thick by $1\frac{3}{4}$ in. wide with mortise-and-tenon joints. Cut a piece of $\frac{1}{2}$ -in.-thick plywood the same size as the inside of the frame, and mount it (using dowels an inch in from the corners) on a backer board of $\frac{3}{4}$ -in.-thick plywood that is just larger than the outside of the frame.



JIGSAW-PUZZLE JIG

Oedel uses a router to cut the $\frac{1}{2}$ -in. plywood into individual templates, which are doweled into the backer board.



Photos: Mark Schofield; drawings: Stephen Hutchings



Lay out the template. Draw the design onto the 1/2-in. plywood, making sure to mark the center points of the arcs. Some of these points are off the main panel, so you will have to clamp on side panels.

1. BUILD THE TEMPLATE FOR THE MUNTINS



Rout a groove. Place the door frame onto the template assembly. Place 1/4-in. shims under the 1/2-in. plywood to bring it flush with the frame. Use a laminate trimmer on a radius jig with a brad inserted the correct distance from the center of a 1/8-in.-dia. straight bit (Onsrud #52-244). First cut 1/4 in. deep, cutting into the frame where the ribs will go (left). Then remove the door frame, attach the side panels, and cut the grooves whose center points are off the main panel. Next, number the template sections and connect each one to the backer panel with dowels before routing through the 1/2-in. plywood. To create a recess for the muntin faces, cut a channel 1/8 in. deep with a 3/8-in.-dia. bit straddling the existing groove (right). Last, on the router table, cut a 1/8-in.-sq. rabbet on the straight edges of the jigsaw pieces that adjoin the frame. This will accommodate the overhang of the frame's face veneer.

2. LAMINATE THE RIBS



Create the rib stock. To make the form for the curved ribs, use the laminate trimmer at the same setting used on the template, and cut a 220° arc in some 3/4-in.-thick medium-density fiberboard (MDF). Go beyond 180° because the last 2 in. of the curved rib generally must be cut away. Use 1/8-in.-thick tempered Masonite as cauls. To minimize springback, tape the ends of the dried ribs at about the correct diameter. Make extra ribs; you will spoil some during the fitting.



Rip the ribs to width. Cut both edges of the ribs on the tablesaw using a jig with a similar radius so that their width is 1/16 in. less than the thickness of the unveneered door frame.

3. MAKE THE CROSSBANDED FACES



Assemble the muntin face stock. The form is three layers of MDF routed to the same radius as the rib form but with only about 90° of arc. Assemble the mahogany segments in the middle and work toward the ends. To ensure there is no gap, sand slight bevels to give the segments an invisible wedge shape. Because of the many small parts, Oedel uses hot hide glue and clamps with waxed cauls.



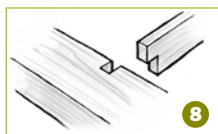
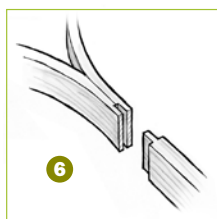
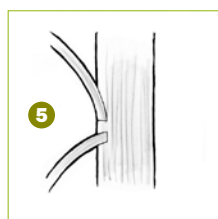
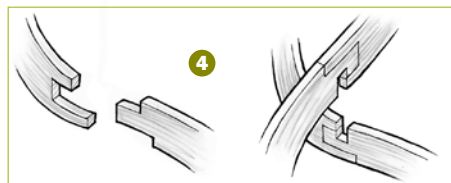
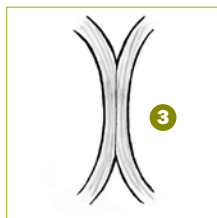
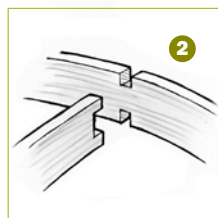
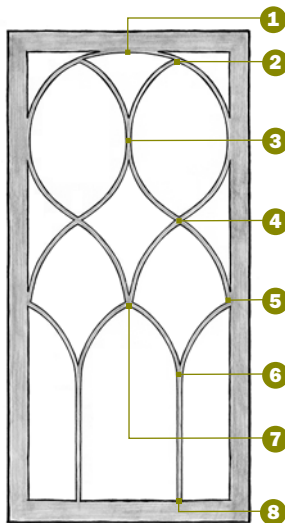
Rip away the individual faces. Glue a curved extension piece to the edge to make it easier to handle when ripping. Use a thin-kerf blade to slice the banding into 1/16-in.-thick pieces.



Reinforce the face material. Glue a backing of 1/16-in.-thick mahogany veneer onto and perpendicular to the thin face banding. When the glue is dry, slice away the overhang of the backing veneer with a knife, or use a scrollsaw and a sanding block.

4. ASSEMBLE THE RIBS AND VENEER THE DOOR FRAME

The ribs require a variety of joints where they intersect and where they meet the frame. Before placing the door frame around the template jig, use a carving gouge to deepen the $\frac{1}{4}$ -in. grooves cut by the trimmer (1), to within $\frac{1}{16}$ in. of the back of the frame. This gives you a solid surface to push the ribs against so that they are level with the surface of the door frame. Where the rib ends enter the frame, notch the frame (5, 8).



The template now acts as an assembly jig. It holds the rib stock in place while you measure, cut, and glue the ribs together. The circle at the top might require a scarf joint, but most of the other sections can be cut from one piece of rib stock. Always do the measuring and scribing while the rib is in the fixture groove, because the ribs have a fair amount of springback. A block of wood with a $\frac{1}{8}$ -in. rabbet helps hold curved sections of rib while cutting the joinery (right).



A merger of equals. Where two ribs come together and then separate, use the template to mark the center point, and then align that mark with the center of the form used to laminate the rib stock. Trim the stock until at the apex of the curve one lamination is just removed.

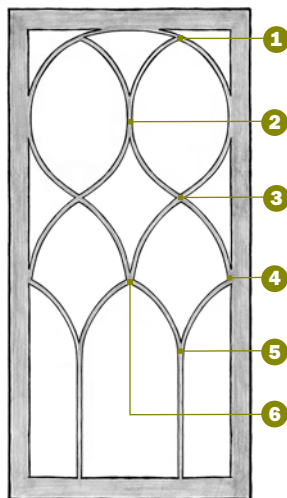


Glue the ribs in place. Due to the number of joints, either use a slow-set epoxy or do sections at a time with yellow glue. Make cauls that will reach across the door frame to hold the ribs at the correct depth, cutting holes above the joints so that you can inspect them. Wax the base of the cauls. When dry, take the cauls off and finish-sand the ribs and the inside of the frame.

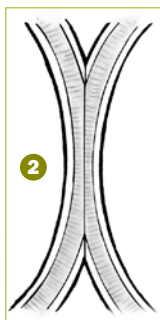
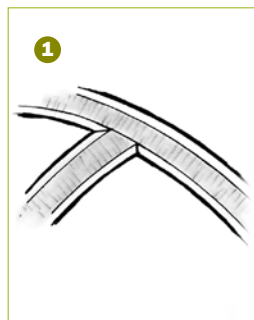
Veneer the door frame. Apply two $\frac{1}{16}$ -in.-thick layers of veneer, oriented perpendicular to each other for strength, to match the $\frac{1}{8}$ -in. thickness of the muntin faces. The face of the frame is outlined by holly stringing applied before cutting the face veneer to length. To prevent warping, veneer the back side of the frame with one layer of $\frac{1}{16}$ -in. veneer.

5. ADD THE MUNTIN FACES AND SIZE THE GLASS PANELS

Disassemble the template by pushing the dowels all the way through, removing the 3/4-in. backboard, and pushing out the puzzle pieces one by one. Reassemble the template, placing small 1/4-in.-thick shims under each piece to bring them flush with the top of the ribs. You can now measure and cut the muntin faces to length, using the shallow channels in the template as a guide.



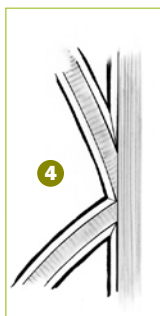
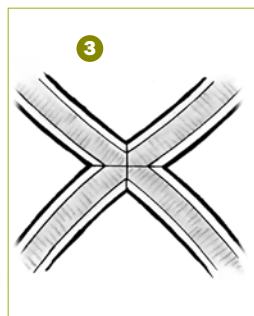
Where the muntin meets the frame. Where the facing intersects the frame, cut flats on the curved muntin faces. Use a small MDF jig with a 3/8-in.-wide curved groove made using the original laminate-trimmer setup. Slide the jig across the tablesaw to cut the banding at the correct place.



Slice away the holly. Remove the holly stringing on the frame where the muntin face connects, and also where two sections of muntin join. If you need to join two pieces of the muntin face for a long section, use thin cloth on the back side, and bevel the joint so that you do not see the joint line in the holly.



A template for muntin joinery. To achieve seamless unions, it is sometimes easiest to create an MDF replica of the joint and use it to cut the muntin faces to size.



Apply the muntin faces. The entire face should be assembled dry, then glued piece by piece. Use a fairly thick epoxy, as gaps between the ribs and the faces need to be filled and the pressure is minimal. Use the same cauls you used for the ribs, but add extra so that every section receives uniform pressure.



Make cardboard templates for the glass. Each piece should drop into the corresponding space without touching the ribs. Take the cards to a local glass supplier. Plain window glass will work fine, but for a truly authentic feel, use restoration glass. To secure the glass, Oedel uses a tiny drop of Phenoseal clear caulking in several places on the back of each muntin face.

