

# Display

# Cabinet,



An approach  
to seeing and building  
that launched a generation  
of furniture makers

BY JIM BUDLONG

James Krenov's writings, gifted eye, love of wood, impeccable craftsmanship, and philosophical approach to woodworking have made his work timeless and influential. Although he didn't invent the cabinet-on-stand form that he popularized, Krenov spent his career perfecting it. This cabinet has all the hallmarks of Krenov's philosophy. Its clean lines, perfect proportions, beautiful surfaces, and special details combine to create a piece that's inviting to touch.

I was fortunate to study with him at the College of the Redwoods Fine Woodworking Program from 1983 to 1985. And in 1989, I began teaching in the same program. I spent 14 years alongside "JK" in the classroom, teaching and learning as much as I could. His method of working is far from the ways of mass-production furniture shops. It's personal, and

## Words from the master



**Editor's note:** As we went to press, we learned that James Krenov was very ill. Our thoughts and prayers go out to him and his family. We'll post updates at [FineWoodworking.com](http://FineWoodworking.com).

We recently visited Krenov in Fort Bragg, Calif., where he was still working in the shop every day. We asked specifically about the cabinet-on-stand form that he made famous. You'll find his answers at right.

**For more Krenov-inspired work in this issue:**

- Smart Sawhorses, p. 56
- Master Class on Krenovian details, p. 84

# the Krenov Way

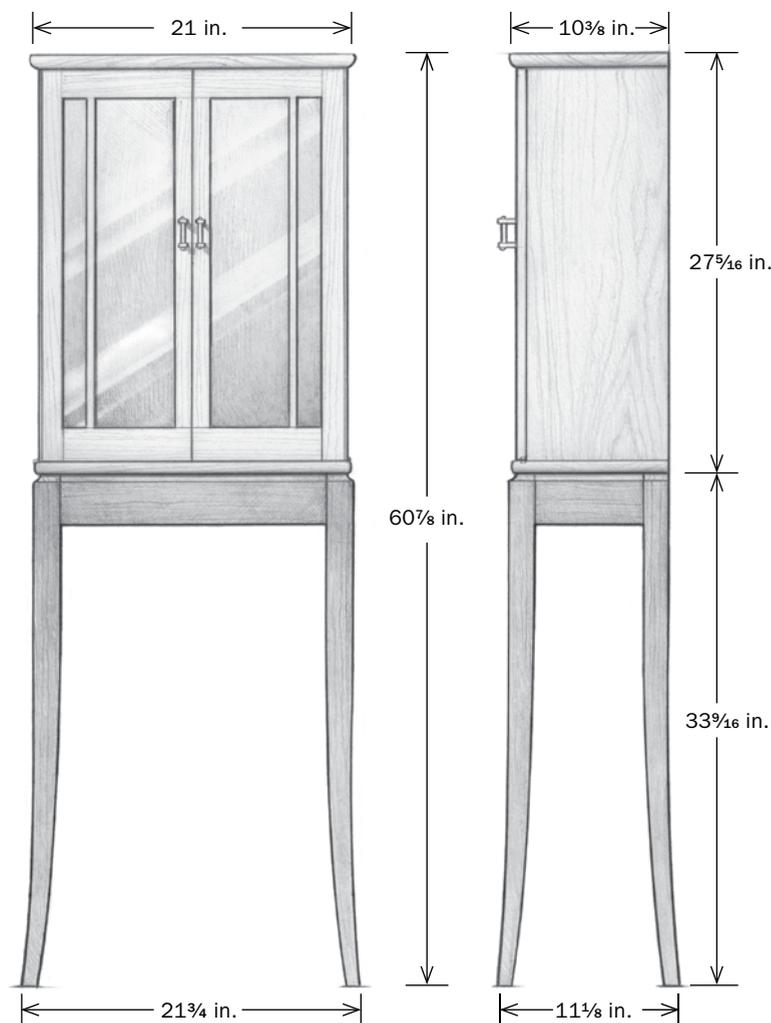
that carries through in the finished product. As Krenov worked, he'd move from a sketch to a mock-up, and then to a final finished piece. He never worked from plans; rather, he'd watch a piece develop as he built it, always willing to give in to the needs of the piece instead of being stuck on one idea.

When I build, I incorporate all the lessons and details I learned in my years with Krenov. And this cabinet is a perfect example of that. It's not technically challenging: It uses familiar construction methods such as mortise-and-tenon joints, dowels, and bridle joints. I used ash, kwila, and spalted maple for this cabinet, but don't be limited by my choices. Finding the right combinations of wood can be as enjoyable and rewarding as building the piece. For more on Krenovian details, see the Master Class on pp. 84-86.

## Begin with the doors

Taking on the most difficult challenges at the beginning is energizing and provides the motivation to see you through the project. The door work is a good starting point because it requires the most accuracy. A side benefit is that I can adjust the carcass to deal with any wind in the doors.

When I mocked up this cabinet and stand out of scrap, I was able to manipulate the look and feel of the cabinet by tweaking the door frame. By running all of the stiles through vertically, the cabinet felt taller, but when the rails ran all the way across, the cabinet



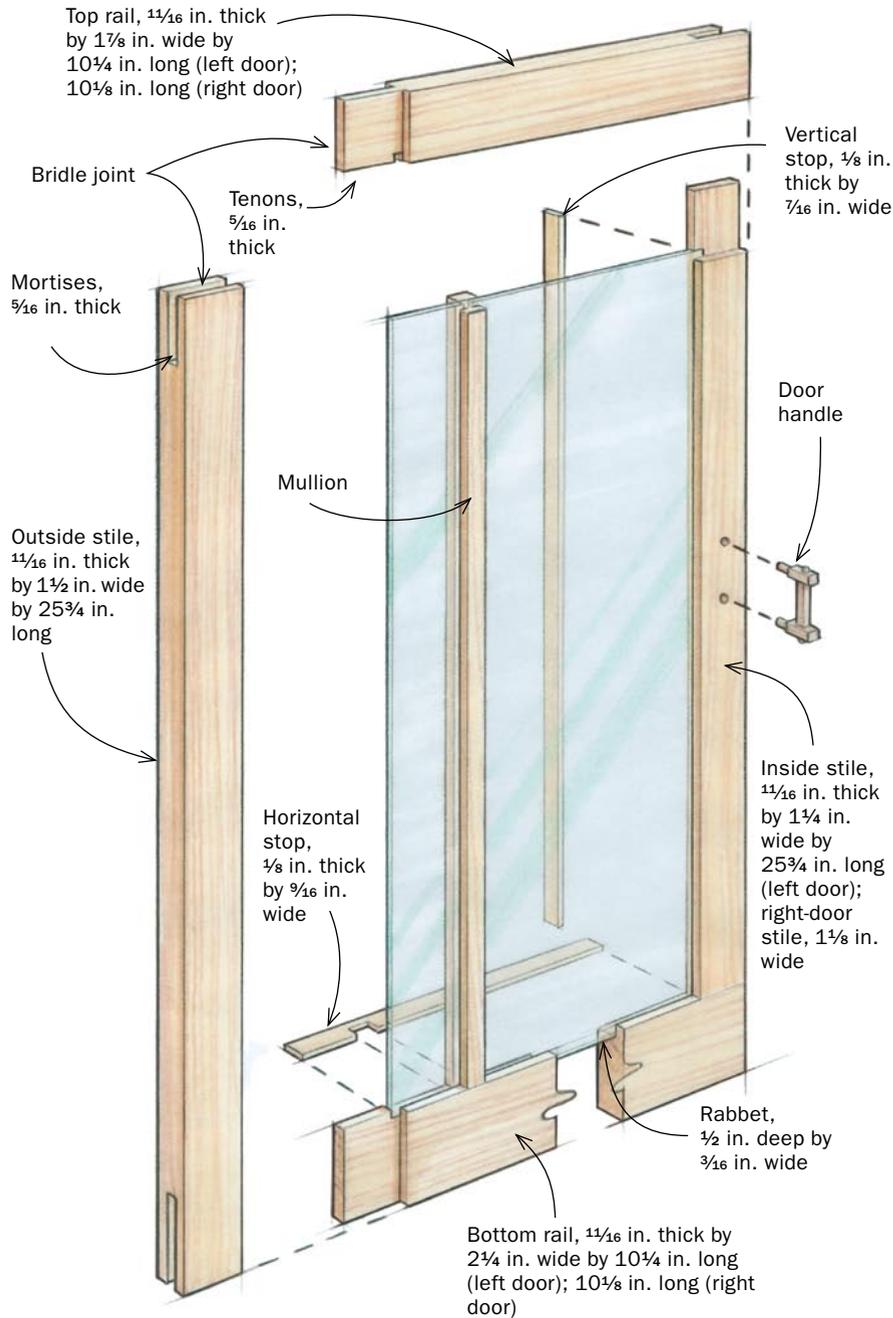
You know, the alternative is a cabinet without a stand, and then you have a question of whether to put it on something, which should have been the stand, but happens to be the hall table or something. The convenience of the stand is not to be denied. And some of the cabinets that look very well with some air underneath and a little bit of geometry that is the stand would not necessarily look good as a continued cabinet all the way down to the floor. It would be too much of a good thing.

There are a great deal of surprises in a stand, a lot of geometry, a lot of aesthetics, a lot of guessing and composing it. Should the legs flare out, go straight to the floor? It's not just putting [together] four legs and a crosspiece and calling it a stand. You've got to be lucky to get a stand to go properly with the piece. If you don't take it too casually, you learn about the cabinet itself from the stand. They talk to one another—they should anyway. They should be on a friendly basis.



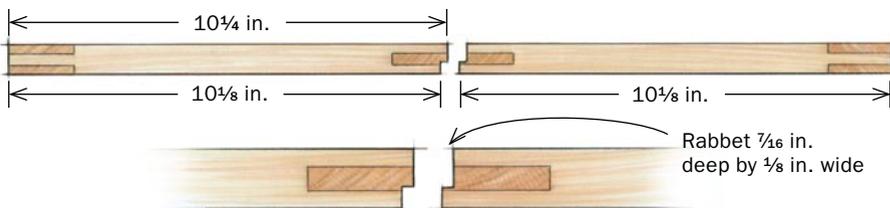
## TACKLE DOORS FIRST

Knowing that doors seldom come out perfectly flat, Krenov built them first, fitting the front of the case to them later. Bridle joints are a strong, elegant joinery option, and mullions are a delicate way to break up the plainness of the glass.



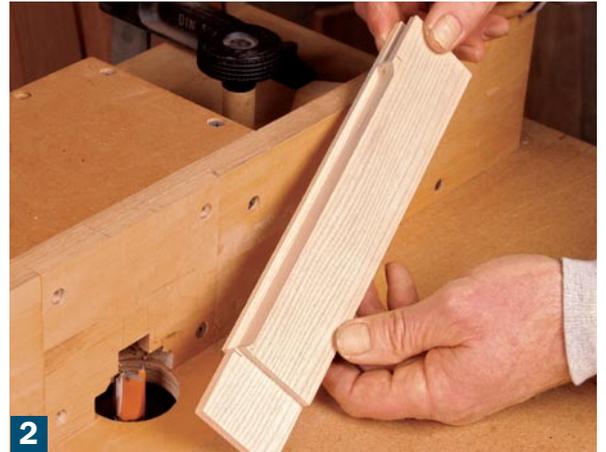
### DOOR FRAMES NESTLE TOGETHER

The right door opens first, so there is a small  $\frac{1}{8}$ -in. rabbet on the back of the door; the left door receives a mating rabbet on the front.



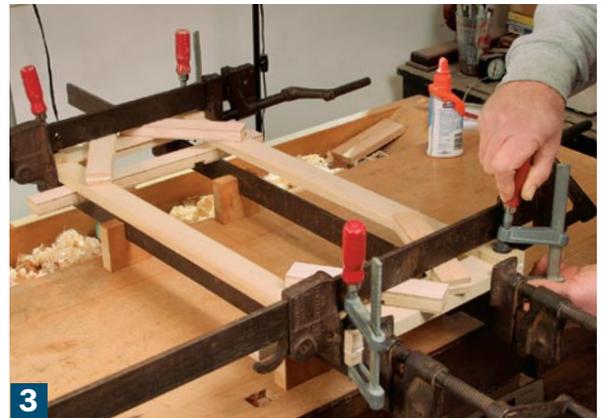
1

**Cut bridle joints on the table saw.** Budlong crosscuts the tenon shoulders first. Then he uses a tenoning jig to cut the mortises and complete the tenons (shown).



2

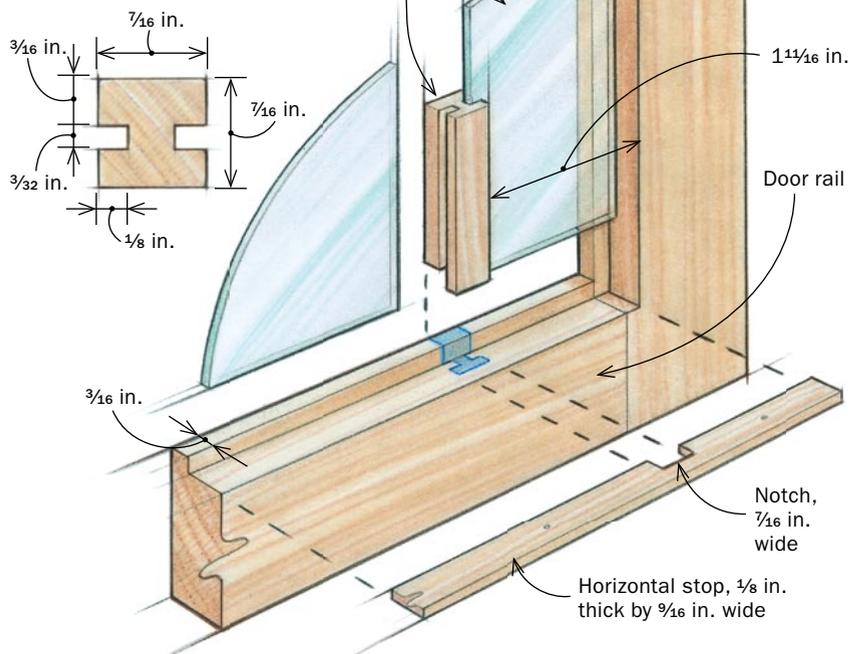
**Rabbet the back of the door frames for glass.** With the inside faces down, rout the rabbets using a straight bit. Stop the cut before the stile and rail intersect, or it will show in the finished door. Chisel the round corners square after assembly.



3

**Glue and clamp the door frames.** Use bar clamps to bring home the shoulders, and cauls and hand clamps to pinch the corners together. Be careful not to set the cauls over the shoulder areas, because you need to be able to see that the joints are all the way home.

## HOW TO INSTALL DIVIDED GLASS



felt wider. Running the outside stiles all the way and the inside stiles inside the rails gave the piece a nice balance. In addition, I arranged the individual frame widths with the bottom rail the heaviest, the top rail next, then the outer stiles, and finally the center stiles. The center stiles are the lightest because there are two together. The effect is subtle but powerful and is typical of Krenov-style work.

**Make the frames**—The bridle joint is attractive, strong, and fairly simple. All three steps (tenon shoulders, mortises, and cheeks) are cut on the tablesaw. First, saw the shoulders using a sled or miter gauge with a stop block to get the proper tenon lengths. There will be several lengths to accommodate the various frame-member widths. Move to the mortises and use an over-the-rip-fence tenoning jig. Save the tenon cheeks for last so you can creep up on a friction fit.

### Move on to the glasswork

With the frame joinery cut, dry-fit the parts and make sure the inside faces are all flush with each other. These are the reference faces for cutting the rabbets for the glass.

**Rabbets hold glass**—With any kind of glasswork, it's best to use rabbets so you can access and replace

broken panes. The glass is held in place with removable wood strips. When cutting the rabbets, don't try to remove all the material in one pass. Set the cutter to final height, but progressively move back the fence as you mill away the material.

**Glue up door frames**—Before I glue up the door frames, I apply finish to the inside edges. The trick to glue-ups is to do a dry run to make sure all the necessary items are at hand. Don't try to glue one corner at a time; put glue on all the joinery at once to prevent a corner from tacking up and getting stuck.

**Rabbit door frames where they meet**—After the glue-up, clean up the front and back faces of the doors, and flush the edges and the ends where the bridle joints meet. High-end work often has a pair of rabbets, cut on the router table, that spoon together when the doors are closed. Krenov taught us to take a 1/2-in. straight router bit and grind a slight radius on the tip of the cutting edge. Rabbets cut with this bit have a soft inside corner, a sweet detail.

**Mullions and stops**—Mullions break up the visual landscape of a plain door. The glass and



**Glass and mullion first.** Cut grooves on both sides of the mullion with a slot cutter on the router table. Use a push stick on narrow pieces. Trim the mullion stock to length and use a handsaw and chisel to notch the ends to fit inside the rabbet.



**Top and bottom stops go in next.** Notch these stops around the mullions. Budlong cuts the notches with a hand saw and pares them clean with chisels.



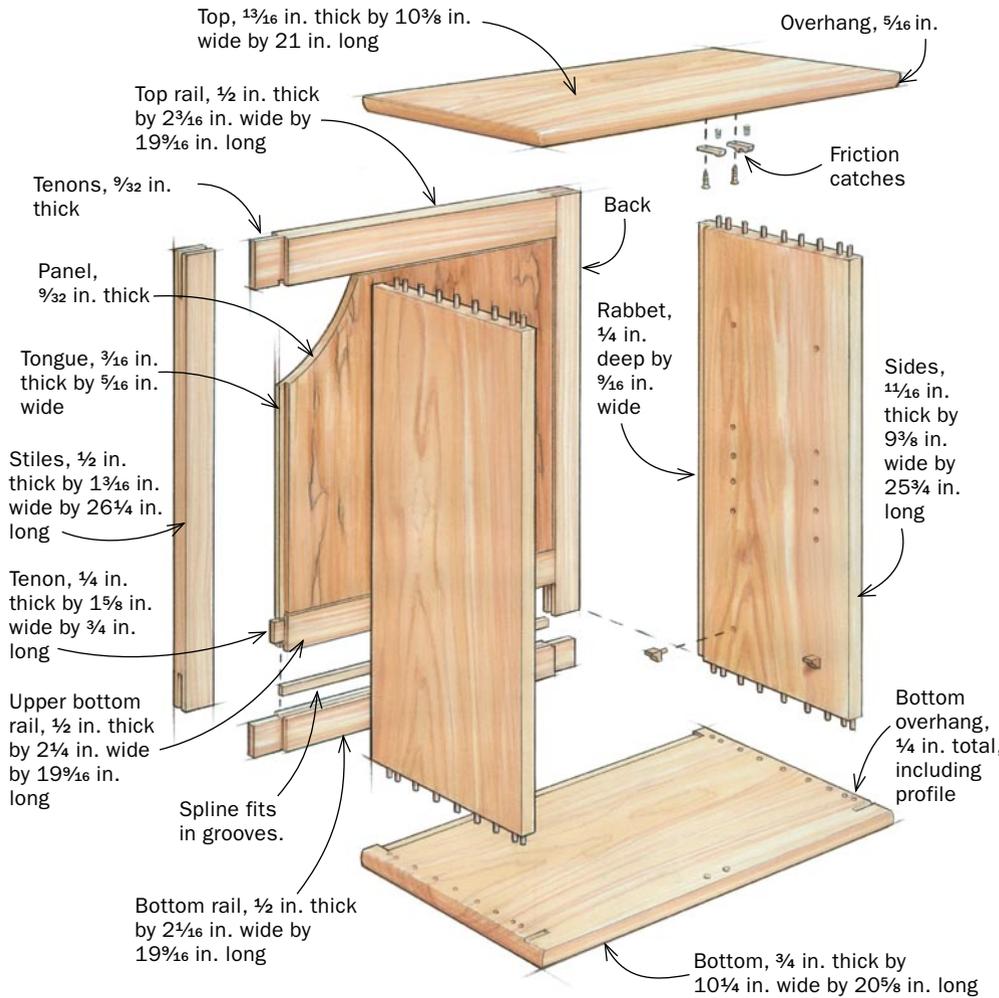
**Finish with vertical stops.** Use small brass brads, pre-drilling through all the stops and into the frames so that you could almost but not quite push the brads home with your finger. Angle the holes slightly toward the glass and countersink for the brad heads.

### Online Extra

For the complete finishing recipe, plus tips on pre-finishing, go to [FineWoodworking.com/extras](http://FineWoodworking.com/extras).

**DOWELED CARCASE IS BETTER FOR DRY-FITTING**

The dowel joint has a number of advantages: It is easy to make and it allows for easy dry-fitting of the case (see facing page) when fitting the doors.



mullions are secured with small strips of wood called stops. Make and install the top and bottom stops first, and then move on to the vertical stops.

**Dowels ideal for joining the carcass**

Doweling is the easiest way to build a cabinet with an overhanging top and bottom, but it is critical to the process in other ways, too. Doweling allows the multiple dry-fits necessary for door-first construction, knife hinges, and pre-finishing parts.

To begin, make a simple doweling jig (a piece of hardwood with a heel glued to an end) to locate the holes precisely in the ends of the sides and on the inside faces of the top and bottom. Always reference the jig off the back edge of the workpiece and the inside face of the sides.

By the way, when fitting the case to the doors, cut the sides about  $\frac{1}{16}$  in. shorter than the height of the doors to allow for some door trimming if the cabinet gets glued slightly out of square.

**Lay out and drill the dowel holes—**Bunch a few dowels on the ends, say  $\frac{3}{8}$  in. to  $\frac{1}{2}$  in. apart, and spread them out in the middle where the stresses aren't as great. Drilling is easy. The critical part is orienting the jig accurately at each joint.

**A few dry-fits before gluing up**

At this point the cabinet is ready to be dry-assembled, using two or three temporary semi-loose-fitting dowels for each joint. Use the second hole from each edge for

**SHOPMADE DOWEL JIG ENSURES MATING HOLES**

Always orient the jig the same way on all workpieces. Reference off the back and the inside of the case.

Outline of case side

$\frac{3}{8}$  in. at ends

1 in. to 2 in.

Heel glued to back end

Hardwood jig, approx.  $\frac{3}{4}$  in. thick by  $\frac{7}{8}$  in. wide

$1\frac{1}{32}$  in.

Reference edge

$\frac{5}{16}$ -in.-dia. holes

Side

Heel

Layout line represents inside of case.

Bottom

For consistent referencing, the fasteners will need to be threaded in from both sides.

**Drill holes in the top and bottom.** Screw the jig in place. On the drill press, create the holes in the jig at the same time you drill the first set of holes in the workpiece.

**Side pieces are next.** Clamp the sides in a vise to drill into the ends. Budlong uses a hand drill with a shopmade depth stop, taking care to keep it plumb.

## DRY-ASSEMBLE TO FIT THE CASE TO THE DOORS

A few key steps—fitting the doors and mortising for hinges—need to happen before the carcase can be glued. You may have to dry-fit more than once, but patience here will make a difference in the end.



**Set the doors in the carcase.** The doors are longer at this point than the case, so use shims to raise the top slightly (above). Flush the center stiles with each other (right), and make sure the outer stiles sit evenly against the front edges of the sides.



**Fine-tune the fit.** If the door does not meet the front edge of the side evenly, mark that amount on the side, take apart the case, and plane off any discrepancies.

### TIP CUT HINGE MORTISES BEFORE GLUE-UP



**Knife hinges.** These narrow, well-made hinges are available at [www.sandersonhardware.com](http://www.sandersonhardware.com) for \$33.50.



**Mortise the top and bottom pieces first.** A  $\frac{1}{16}$ -in.-thick shim represents the space between the back of the door and the back of the hinge. Push the hinge against it, and mark the front of the hinge (above left). With the case apart, mark around the hinge and extend the lines out to the ends, rout close to the line, and chisel to the line (above right).



dry-fitting, so you preserve the tight fit on the outermost dowels. The first dry-fit is for flushing up the back edges and cutting the rabbets for the back panel.

**Rabbet for the back panel**—Assemble the carcase and clamp it together, checking for square and flushing the back edges. To cut the rabbet in the carcase parts, the process is similar to cutting the rabbets on the door frames. You must stop the cuts on the top and bottom pieces before they intersect the side pieces. Remember not to chisel out the corners at the ends of the rabbet until after the glue-up; this eliminates the risk of going too far.

**Fit the carcase to the doors and mortise for hinges**—Time to pull the doors back out. Slip the doors against the cabinet sides where they belong. The doors are extra-tall for now, so shims between the sides and top allow the doors to fit. While holding the center stiles flush with each other, check to see how much the outer stiles have fallen out of parallel to the front edge of the side. Don't panic. This inevitable situation is called "wind." Just plane the front edges of the sides so the doors lie flat and match up at the rabbet.

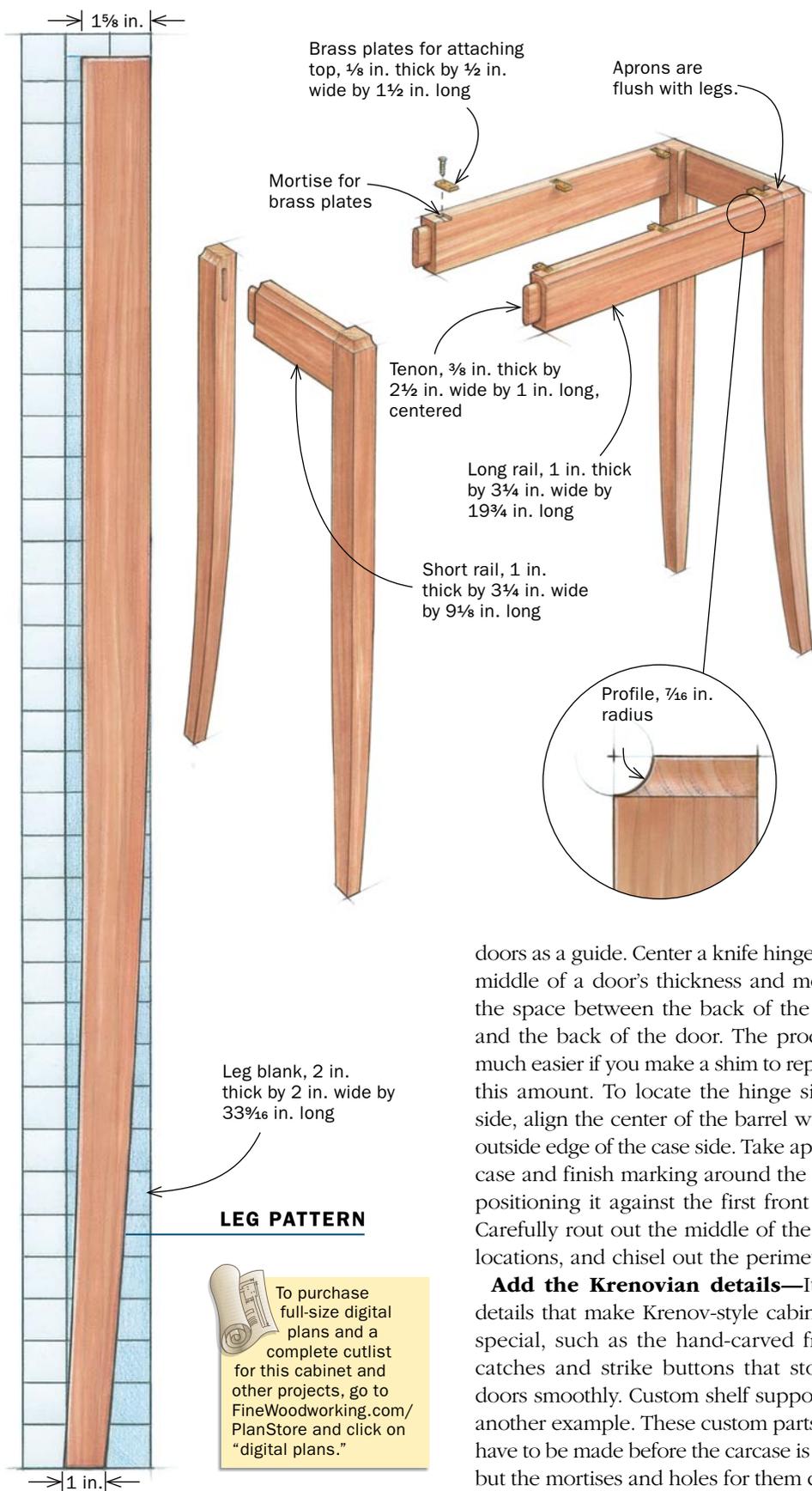
**Mortise the case for the hinges**—Locate the hinge mortises in the carcase, using the



**Now glue up the case.** Start by gluing all the dowels into the ends of the sides. Once they are dry, attach the top and bottom pieces. Try to keep the clamps perfectly parallel to the sides to increase the chances of clamping square. Measure the diagonals to be sure. Angle the clamps if necessary.

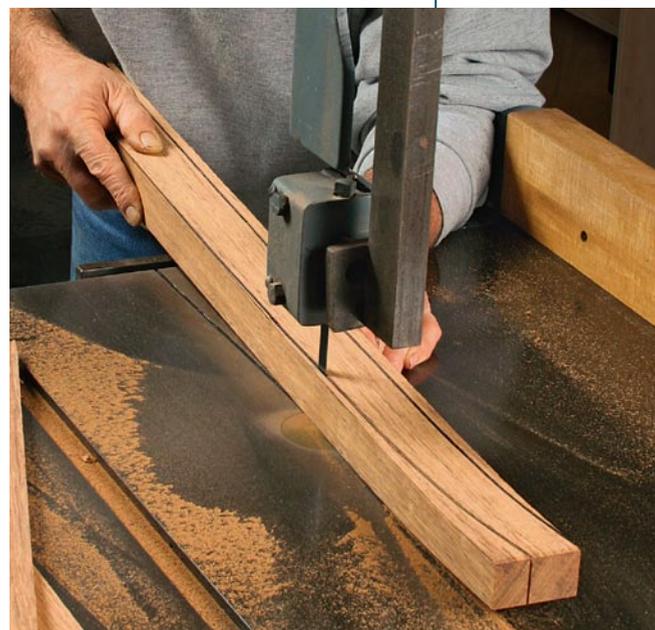
## CURVED LEGS ENLIVEN THE STAND

The base construction is straightforward. Mortises and tenons join the curved legs to the aprons, and a cove profile makes a nice transition from the stand to the cabinet.



### USE A LEG TEMPLATE

**Trace, cut, and refine.** Use a template to trace the leg pattern onto the stock (right). Bandsaw as close to the lines as you dare (below). Finish the job with a block plane, spokeshave, and sandpaper.



doors as a guide. Center a knife hinge in the middle of a door's thickness and measure the space between the back of the hinge and the back of the door. The process is much easier if you make a shim to represent this amount. To locate the hinge side-to-side, align the center of the barrel with the outside edge of the case side. Take apart the case and finish marking around the hinge, positioning it against the first front mark. Carefully rout out the middle of the hinge locations, and chisel out the perimeters.

**Add the Krenovian details**—It's the details that make Krenov-style cabinets so special, such as the hand-carved friction catches and strike buttons that stop the doors smoothly. Custom shelf supports are another example. These custom parts don't have to be made before the carcass is glued, but the mortises and holes for them do (for

full instructions on these Krenovian details, go to the Master Class on pp. 84-86).

### Glue up the carcass

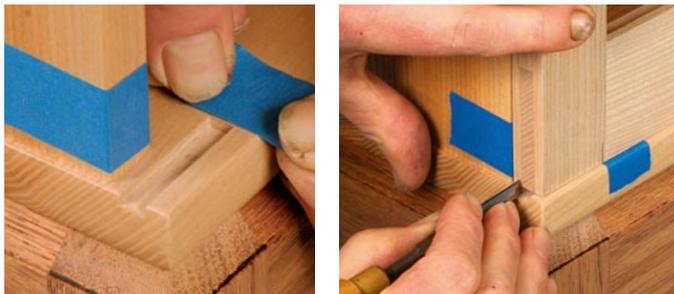
You're nearly ready for the final glue-up, but first you have to profile the ends of the top and bottom, glue the dowels into the sides, do a final dry-fit, and pre-finish.

Trim back the ends of the top and bottom to about 1/4 in. from the face of the sides, and do the same for the front edges of the top and bottom. The profiles (see p. 85) can be worked in with a plane or with a combination of a plane and router bits.

Glue all the dowels into the ends of the sides, and then cut them to length. Dry-clamp again and make sure everything goes home. Plane, sand (up to P320 grit), and pre-finish both sides of the sides, and the inside faces of the top and bottom.

## DOORS ARE EASY TO INSTALL

With the case glued up and the doors fit and resting in place, it's easy to transfer the hinge locations from the carcass to the doors.



**Transfer the hinge location.** Use tape to shim the door slightly outward and upward and to mark the location of the hinge end (above left). Set the door in place and mark the mortise width and length (above right).



**Cut the hinge mortises in the doors.** Support the router by clamping a piece of wood flush to the edge of the door. Rout close to the line and chisel the rest.

Now it's time to glue it all together. Load the dowels into the holes and coax things together with a mallet before clamping.

Showcase cabinets often have frame-and-panel backs, with the panels made from a lighter wood to give the inside of the cabinet the impression of illumination. For this cabinet I used spalted maple to complement the ash carcass.

### Shape the legs

After the joinery is cut, cut the legs to shape on the bandsaw. Refine the surfaces with hand tools. Hold them up in a raking light and sight down the edges, feathering any lumps and bumps into clean, fluid lines. Pre-finish the inside faces of the legs, and start by gluing up the two short ends first. After the ends are glued up, add the long rails. Be sure to check for square.

Flush the legs to the rails, level off the tops of the posts and rails, and get the cabinet to rest cleanly on the top of the stand with the back panel in.

Now put aside the cabinet, invert the stand, and run the transitional cove around the top edge on the router table. Do the final sanding and finish. Finally, attach the cabinet to the stand with small brass mounting plates. They are easy to make out of 1/8-in. bar stock and mortise into the stand.

### Fit the doors

With the carcass mounted and the back panel installed, it is time to fit the too-long doors and hang them. Mark the center of the cabinet where the doors will meet. Adjust the bottom edges with a plane so they sit cleanly on the bottom of the

cabinet. Make sure the joints in the door frames stay in horizontal alignment with each other as adjustments are made (this is why you left extra height when cutting the doors to length). Plane the top door edges until the inside edges of the doors line up with the centerline and slip in under the top.

JK taught us to have the outer edges of the doors pulled in from the face of the sides about 1/16 in. This creates a shadow and makes the corner more interesting. If you didn't account for it before, you can handplane that little bit off now. Once the doors have been fitted, mark the location of the hinges on the doors, cut the mortises, and hang the doors. □

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**Attach the doors.** Screw the hinges into the case and the tops of the doors. Load the loose hinge piece onto the lower hinge, aiming it outward. Holding the door, thread the pin into the upper hinge and slide the lower hinge into its mortise at the bottom. Screw the bottom hinges in place.