

SLIDING DOOR DISPLAY CABINET



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SLIDING DOOR DISPLAY CABINET

The perfect combination of style and functionality makes this cabinet an ideal place to exhibit a few special items.

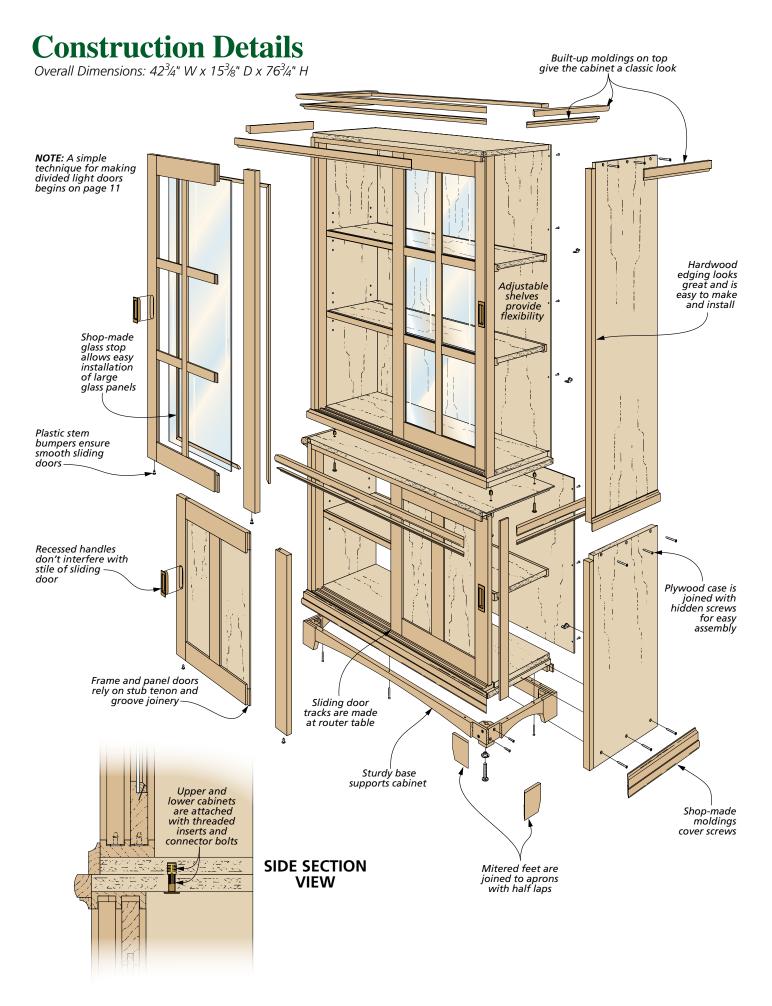


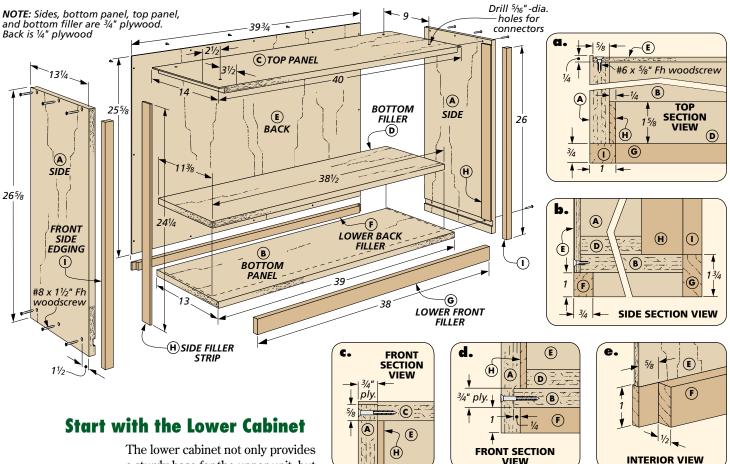
hether it's showing off a prized collection of first editions or a few pieces of a grandchild's school-made pottery, there's no end to the uses for a display cabinet. This one is both stylish and practical.

The sliding doors offer a nice alternative to hinged doors, and they're also easy to make. The elegant look of the upper cabinet glass doors is achieved by using thin dividers over a single, large pane of glass. This creates a divided-light look without all the fuss of individual panes.

OPTIONS. What's really nice about this project is that it offers plenty of

options for customization. By omitting the upper sliding doors, you can create an attractive bookcase with concealed storage down below. And if you're looking for something smaller, you can build just the lower cabinet for use as a sideboard or entertainment center (page 8).





a sturdy base for the upper unit, but it also contains all the joinery and construction techniques you'll use for the rest of the project. So that's the place to get started. As you can see in the drawing above, the cabinet starts out as a simple plywood case assembled with screws.

SIDES. Start by cutting the sides to final size. Then cut a dado near the bottom of each side to hold the bottom panel. The box below shows you how to set up and make this cut.

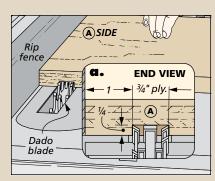
TOP & BOTTOM. Now turn to the top and bottom. The bottom is simply cut to size and set aside. After cutting the top panel, you'll need to add rabbets on the ends. You can cut the rabbets on the rear edges of the top and sides for the plywood back panel using the same setup.

VIEW

ASSEMBLY. With the sides, top, and bottom complete, it's time to assemble the basic case. Begin by fitting

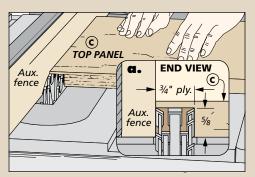
the bottom panel in the dado in the sides and drilling countersunk screw holes. Then, add a dab of glue, and drive the screws to attach the sides. The rabbet on the top panel fits over the sides. Once again, drill screw holes and attach the panel.

BOTTOM FILLER & BACK. Next comes the bottom filler. It provides a flush surface for the bottom of the cabinet and creates a "pocket" for the track.

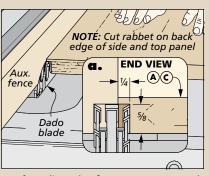


Dadoes. With a dado blade set to equal the thickness of the plywood, cut the dadoes for the bottom.

HOW-TO: CUT DADOES & RABBETS



Rabbets. Using the same setup, attach an auxiliary fence to the rip fence to cut the rabbets on the ends of the top panel.



Back. Adjust the fence to expose only ¹/₄" of the dado blade and cut the rabbets for the back in the sides and top.

Just cut the track to final size and install it with glue. Finally, you can cut the $\frac{1}{4}$ " plywood back to size and attach it with screws.

SIDE FILLER STRIPS & EDGING. The side filler strips flush the inside of the cabinet with the edging you'll add next. You'll need to resaw and plane these down to ¹/₄" thick. Cut them to final size and install them in the case with glue and clamps. Then cut the hardwood edging strips to size and glue them to the plywood.

FRONT & BACK FILLERS. Detail 'e' on the previous page shows how the end of the back filler strip is rabbeted to fit into the sides. The lower front filler strip is glued in place to flush out the front of the cabinet so you can add the moldings later.

DOOR TRACKS. With the filler strips in place, you're ready to add the upper and lower door tracks. After cutting a couple of extra-long blanks to width, I routed grooves in both pieces to hold the doors, as shown in the box at right.

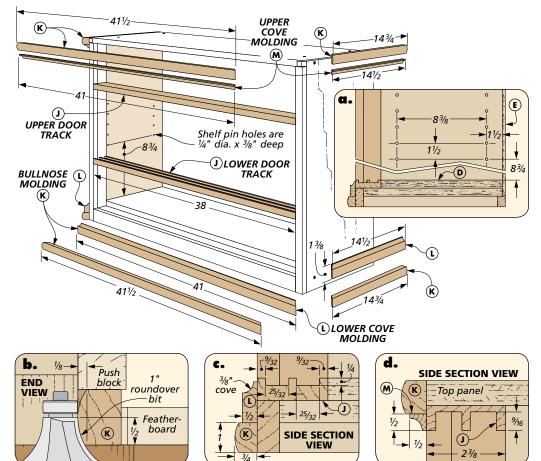
Note the different depths of the grooves. The upper track's grooves are deeper to allow you to install the doors simply by lifting them up and setting them into the lower track. Once you've cut the tracks to final length, glue them in place (details 'c' and 'd').

SHELF PIN HOLES. After laying out the hole locations, I used a handheld drill to drill the shelf pin holes inside the cabinet. I also added a stop collar on the bit to make sure not to drill too deep.

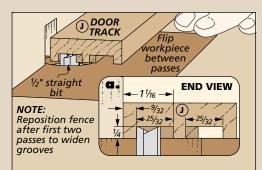
MOLDINGS. To give the cabinet a more refined look, I added bullnose and cove moldings on the upper and lower edges. I started by making the bullnose molding at the router table (detail 'b').

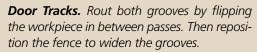
The bottom two drawings in the box at right show you how to get both the narrow upper and wide lower cove moldings from one blank. I simply routed the profile on both edges and then ripped the individual pieces to width.

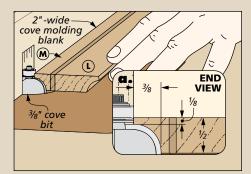
When the molding was finished, I mitered the ends and attached the pieces to the case with glue, as shown in details 'c' and 'd.'



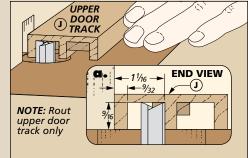
HOW-TO: ROUT THE TRACK & COVE MOLDING



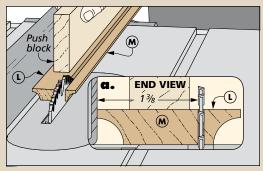




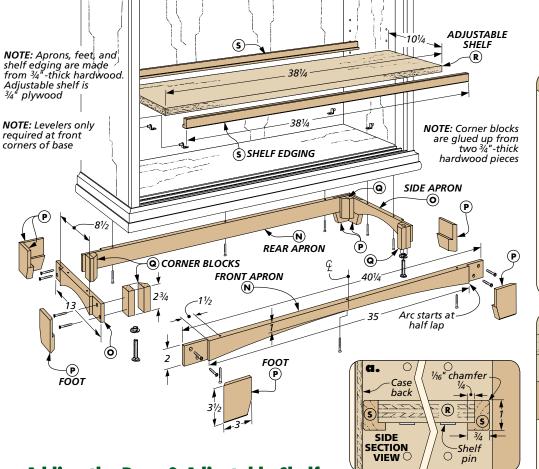
Rout the Coves. Start with an extra-wide workpiece so you can rout the coves for both the upper and lower moldings safely.

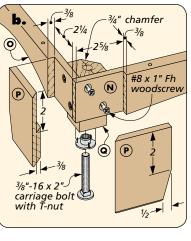


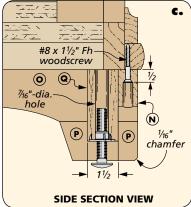
Upper Door Track. To complete the upper track, raise the bit and make a second series of passes to deepen the grooves.



Rip to Width. Rip the individual strips to final width with the wider piece against the fence. The narrower molding falls safely to the side.







Adding the Base & Adjustable Shelf

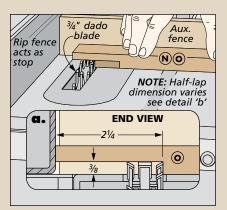
The lower cabinet rests on a sturdy base. One of the advantages of this design is that it keeps the cabinet up off the floor, making the contents of the lower cabinet more accessible. The base also provides an easy means of leveling the cabinet for slightly uneven floors.

The base consists of front, rear, and side aprons that are joined to corner blocks with screws. The corner blocks also incorporate levelers. The front and side aprons feature gentle curves. Mitered feet are joined to the apron with half laps.

APRON. I started by cutting the apron pieces to final size. After that, you can get to work cutting the half laps on both ends of each piece. For this, I installed a dado blade in the table saw and an auxiliary fence on my miter gauge. Use a mating

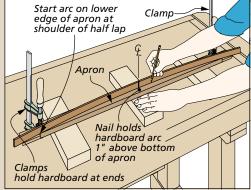
test piece to sneak up on the blade height for perfect-fitting half laps.

I also drilled a series of countersunk screw holes in the bottom edge of each of the apron pieces, as you can see in detail 'c' above. These holes allow you to fasten the base to the lower cabinet with screws.

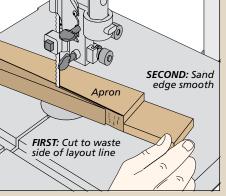


Half-Lap Joints. With an auxiliary fence on the miter gauge, use the rip fence as a stop to cut the half laps.

HOW-TO: CUT THE APRON JOINERY & CURVES



Layout. A strip of ¹/₄" hardboard is perfect for laying out the curve. Just bend it to the high point at the centerline and trace the shape.



Cut the Curves. Using a ¹/₄" blade in the band saw, you can simply cut to the waste side of your layout marks.

With the half laps complete, I laid out the curves on the side and front aprons using a strip of hardboard. Next, I moved to the band saw and cut the curves. The How-To box on the previous page walks you through each of these steps.

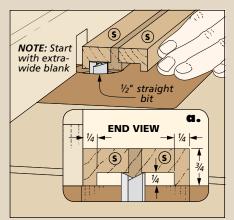
FET. Now it's time to cut the pieces that form the feet. The box below shows how I cut the half laps and miters by starting with oversized pieces. After completing the cuts, lay out and cut the small taper in each piece, as shown in detail 'b' on the previous page. I also chamfered the bottom edges at the router table.

CORNER BLOCKS. The corner blocks are glued up from two pieces of $\frac{3}{4}$ "-thick stock. After cutting the corner blocks to size, tilt your table saw blade to 45° and cut the chamfer on the inside corner.

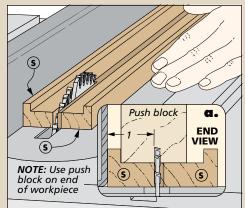
The two front blocks also serve as shop-made levelers for the base. I simply drilled a hole through the blocks and installed a T-nut (details 'b' and 'c'). A carriage bolt in the insert provides plenty of adjustability.

ASSEMBLY. At this point, you're ready to assemble the base. For this, I started by gluing and clamping the corner blocks flush to the ends of the side aprons. You can then drill countersunk pilot holes through the aprons and into the blocks and drive in the screws. After removing the clamps, repeat the same process with the front and

SHOP TIP: SHELF EDGING



Rout the Wide Groove. An easy and safe way to make the edging is to rout the groove in an extra-wide blank.



Ripping the Blank. Set the rip fence to the final width of the edging and use a push block to rip the edging to final size.

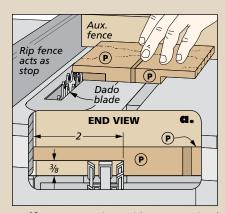
back aprons, making sure to keep the ends aligned with the sides.

All that remains is to add the feet. I began by assembling the right and left halves with tape holding the miters. Then I added glue to the joint and to the faces of the half laps. You can simply clamp the feet in place on the aprons and set the assembly aside to let the glue dry.

ADJUSTABLE SHELF & EDGING. The next step is to add the adjustable shelf. After cutting the plywood shelf to final size, turn your attention to the hardwood edging. As you see in detail 'a' on the previous page, the edging has a rabbet that wraps around the edge of the shelf. Once again, the key to making the edging safely is to start with a wide blank. The box above shows the process.

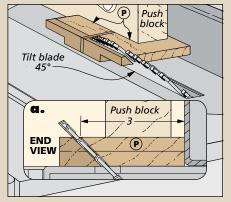
I started by routing the outside of the groove, and then I flipped the blank and routed the opposite side. To complete the wide groove, rout away the waste left in the center by resetting the fence.

Now install a rip blade in the table saw and rip the blank, forming two strips of edging. I also routed a small chamfer on the corners of the edging. After gluing the edging to the shelf, you can set it aside and get to work on the doors.

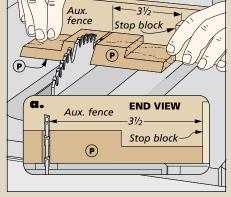


Half Laps. Starting with an oversized blank, use the dado blade to cut the half laps in both ends of the blank.

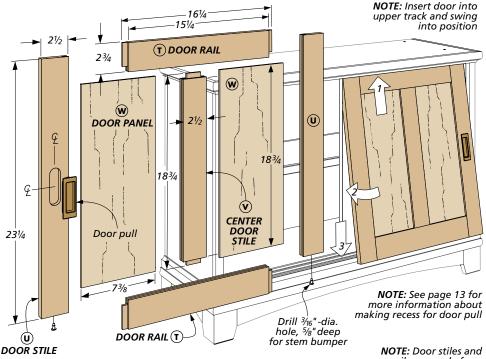
HOW-TO: CUT THE FEET

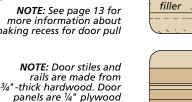


Miter Joints. Begin by setting the table saw blade to 45°, and then make the miter cut using a push block.



Cut to Length. After adjusting the blade to 90°, you're ready to use the miter gauge to crosscut each foot to length.



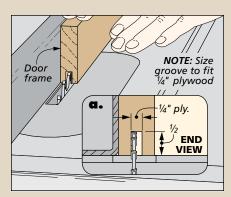


Building the Sliding Cabinet Doors

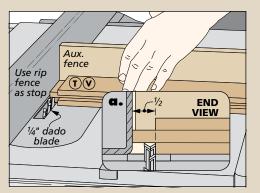
With the moldings in place and the base attached, all that remains to complete the lower cabinet is to add the doors. The sliding doors are a nice departure from standard, hinged doors. Not only do they add an interesting visual appeal, but they also allow you to skip the hassle of installing fussy hinges.

I used a simple frame and panel design for the doors. Stub tenon and groove joinery is the perfect way to build long-lasting doors, and it's also an easy technique to master. You have the option of using either wood or glass panels (see photos at the bottom of the next page). The basic construction is the same for both. But I'll show you a router technique that allows you to quickly make an opening for the glass. And by using shop-made glass stop, it's easy to replace a damaged panel.

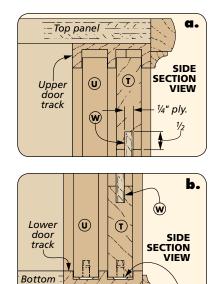
DOORS. Like any frame and panel door, making these doors starts with the rails and stiles. However, as you can see in the drawing above, I've also included a center stile to divide

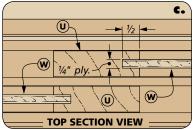


Cut the Grooves. With the blade roughly centered on the thickness, make a first pass. Then flip the workpiece and repeat.



Stub Tenons. Set the blade height by sneaking up on a snug-fitting tenon, checking the fit in one of the stiles after each adjustment.





Stèm

bumper

the door panels. This gives the wood panel doors a slightly more formal look, and it also accommodates the glass option more effectively by allowing you to use two smaller panels rather than a single larger one.

There's one thing to keep in mind whenever making door parts. Make sure the stock is perfectly flat. Any twist or bend will make it very difficult to build a door that fits well.

CUT THE GROOVES & TENONS. The next step is to cut the grooves for the panels in all the door parts. The box at left shows you an easy way to do this and keep the groove centered on the thickness of the workpiece.

Start by setting the rip fence to make a cut just off center on one of the pieces. Make the first cut, and then flip the workpiece end-for-end and make another pass. The resulting groove will be perfectly centered. Test the fit of the panel and adjust the fence for another pass, if necessary. In addition to cutting this groove in all the rails and stiles, you'll want to remember to cut it on both sides of the center stile, as well.

HOW-TO: STUB TENONS & GROOVES

Cutting the tenons is simply a matter of installing a dado blade and an auxiliary fence on the miter gauge. Use a scrap piece to sneak up on the right blade height for a snug-fitting tenon. I found it helpful to use the rip fence as a stop to make sure all the tenons were exactly the same length.

STEM BUMPERS. To make sure the doors slide smoothly, I added nylon stem bumpers to the bottom edges. All you need to do is drill $\frac{3}{16}$ "-dia. holes in the bottoms of the stiles, as shown in detail 'b' on the previous page.

PANELS & ASSEMBLY. Now it's time to prepare the panels and assemble the doors. As I mentioned earlier, I used ¹/₄" plywood for the door panels. After cutting them to size, I like to dry-fit the door before adding glue to the assembly. After that, simply glue up the frame around the panels, clamping the doors across each rail.

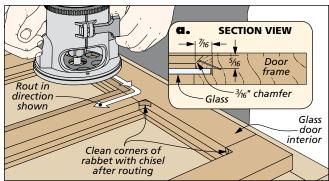
After the glue dries, you'll need to rout the recesses for the door handles. You can find a tip about how to do this on page 13.

ROUTING FOR GLASS DOORS. If you choose to make glass panel doors, the process is nearly the same. But instead of adding the panels when assembling the frame, you simply glue up the frames and set them aside to dry. Then you can use a rabbeting bit in your router to remove the lip on the inside of

MATERIALS, HARDWARE & CUTTING DIAGRAM (LOWER CABINET & BASE) ³/₄ ply. - 13¹/₄ x 26⁵/₈ A Sides (2) **Q** Corner Blocks (4) $1^{1}/_{2} \times 1^{1}/_{2} - 2^{3}/_{4}$ **B** Bottom Panel (1) ³/₄ ply. - 13 x 39 **R** Adjustable Shelf (1) ³/₄ ply. - 10¹/₄ x 38¹/₄ **C** Top Panel (1) ³/₄ ply. - 14 x 40 **S** Shelf Edging (2) ³/₄ x 1 - 38¹/₄ ³/₄ ply. - 11³/₈ x 38¹/₂ ³/₄ x 2³/₄ - 16¹/₄ D Bottom Filler (1) **T** Door Rails (4) ³/₄ x 2¹/₂ - 23¹/₄ E Back (1) ¹/₄ ply. - 39³/₄ x 25⁵/₈ **U** Door Stiles (4) F. Lower Back Filler (1) ³/₄ x 1 - 39³/₄ V Center Stiles (2) ³/₄ x 2¹/₂ - 18³/₄ ³/₄ x 1³/₄ - 38 W Door Panels (2) ¹/₄ ply. - 7³/₈ x 18³/₄ **G** Lower Front Filler (1) **H** Side Filler Strips (2) ¹/₄ x 1⁵/₈ - 24¹/₄ ³/₄ x 1 - 26 L Front Side Edging (2) (4) Stem Bumpers Upper/Lower Door Tracks (2) 3/4 x 23/8 - 38 (4) Stem Bumpers J **K** Bullnose Molding (1) ³/₄ x 1 - 150 rgh. (2) 3/8"-16 T-Nuts L Lower Cove Molding (1) ¹/₂ x 1³/₈ - 75 rgh. (2) ³/₈"-16 x 2" Carriage Bolts **M** Upper Cove Molding (1) ¹/₂ x ¹/₂ - 75 rgh. (2) 90 x 31mm Recessed Pulls w/Screws **N** Front/Rear Aprons (2) ³/₄ x 2 - 40¹/₄ (14) No. 6 x ⁵/₈" Fh Woodscrews ³/₄ x 2 - 13 (16) No. 8 x 1" Fh Woodscrews **O** Side Aprons (2) **P** Feet (8) ³/₄ x 3 - 3¹/₂ (22) No. 8 x 11/2" Fh Woodscrews 3/4" x 91/4" - 72" Cherry (4.6 Bd. Ft.) 3/4" x 91/4" - 84" Cherry (5.4 Bd. Ft.) 200 VOL 3/4" x 91/4" - 84" Cherry (5.4 Bd. Ft. NOTE: Parts L and M are planed to 1/2" thick. Part H is planed to 1/4" thick ALSO NEEDED: One sheet of 48" x 96" 3/4" Cherry plywood. One sheet of 48" x 48" 1/4" Cherry plywood

the doors. The drawing at right shows you what I mean. After cleaning up the corners with a chisel, just set the glass in place and add the glass stop that you see on page 12.

INSTALLING THE DOORS. The main drawing on the previous page shows how to install the doors. Simply insert the upper edge of the door into the track, swing the door into position, and then set it into the lower track.





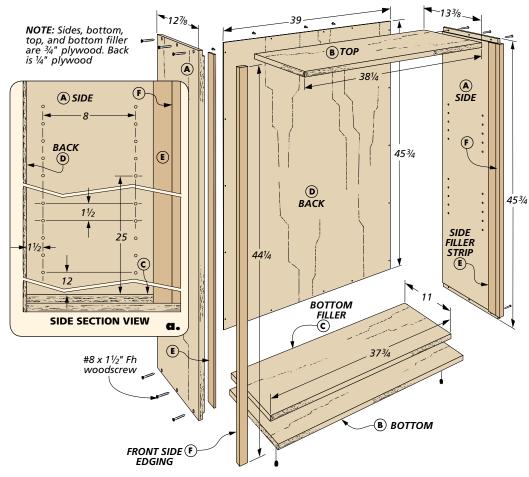
If you plan to use the cabinet for storage, installing wood-panel doors is a good way to conceal the contents and hide any clutter. They also provide a classic look and are easy to build.

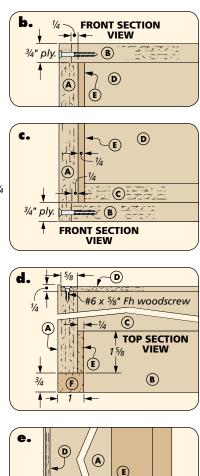
the back of the openings in the doors for the glass.



Beveled glass panels give the cabinet a completely different look. They're a great choice for an entertainment center since they allow infrared signals to pass through.





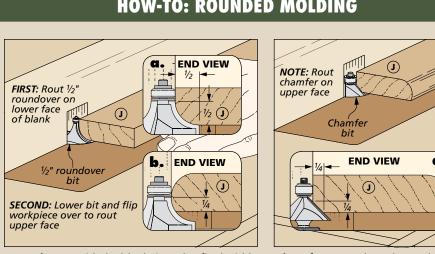


Starting the Upper Cabinet

With the base and lower cabinet complete, you're ready to get started on the upper cabinet. The good news is that, aside from the dimensions, there are only a few differences from the lower cabinet. Most of the joinery,

moldings, assembly processes, and techniques are the same. You'll start by building the basic case.

CASE CONSTRUCTION. As before, you can begin by cutting the sides, top, and bottom to final size. Next, install



Roundover. With the blank ripped to final width, round over one edge on the router table. Note the different bit height for the second pass.

α. **Chamfer.** Complete the molding by

installing a chamfer bit and routing the chamfer on the opposite edge.

a dado blade and an auxiliary rip fence, and cut the rabbets on the ends of the sides. Then set the fence to expose $\frac{1}{4}$ " of the dado blade and cut the rabbet for the back on the back edge of the sides.

(B)

SIDE SECTION VIEW

F

ASSEMBLY. Now you can drill countersunk screw holes in the sides. and assemble the case using glue and screws. After cutting the bottom filler to final size. I attached it with glue. The 1/4" plywood back is then attached with screws.

FILLERS & EDGING. The side filler strip and front edging work together as they did in the lower cabinet to protect the cabinet sides and hide the plywood edges. You can see how they're attached in details 'd' and 'e.'

SHELF PIN HOLES. Detail 'a' shows the locations for the shelf pin holes. Once again, I laid out the locations and then just used a hand-held drill to drill the holes.

HOW-TO: ROUNDED MOLDING

DOOR TRACKS. The door tracks are the next component to be installed. (Note: If you're building the cabinet without doors, you can skip routing the door grooves in the lower track and leave out the upper track entirely.)

MOLDINGS. As you can see at right, the moldings are a bit different here. In addition to the cove moldings, I added a rounded-edge molding at the top of the cabinet to create a crown molding effect (detail b'). You can see how I made the rounded molding in the drawings at the bottom of the previous page.

The cove moldings are made using the same techniques as before (page 4), but they're arranged a little differently. On this cabinet, I used the wider cove molding on both the upper and lower edges. Then, as in detail 'b' at right, I added the narrower cove molding to the top.

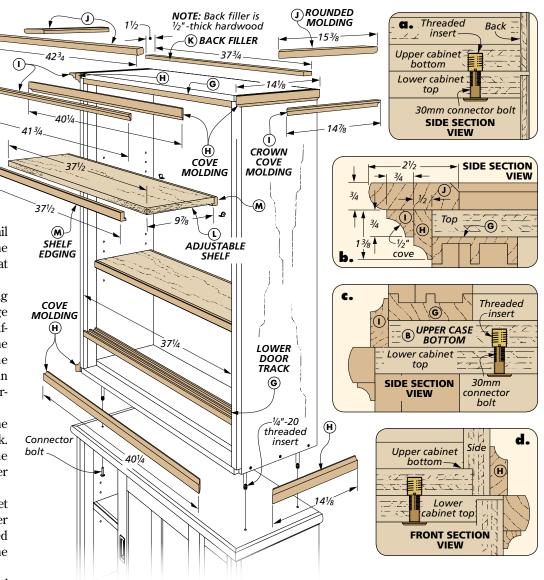
After building up these layers, the rounded molding completes the look. To install this molding, miter the ends and glue it in place. Add a filler strip in back to complete the top.

SHELVES & EDGING. This taller cabinet has two adjustable shelves. After cutting the shelves to size, I attached the same type of edging used on the lower cabinet's shelf (page 6).

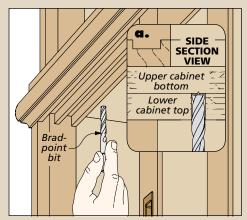
CONNECTING THE CABINETS. Details 'c' and 'd' show how I used threaded inserts and connector bolts to connect the cabinets. This makes it easy to take them apart if you need to move the cabinet.

The box at right gives you the details of how to mark the holes on the bottom of the upper unit for the threaded inserts. After drilling the holes, turn the cabinet upside down and set it on the floor to install the inserts. The thing to keep in mind here is to be careful to keep them straight in the holes to guarantee a good fit for the connector bolts.

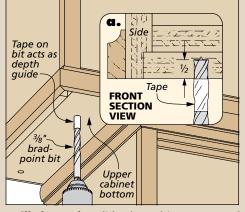




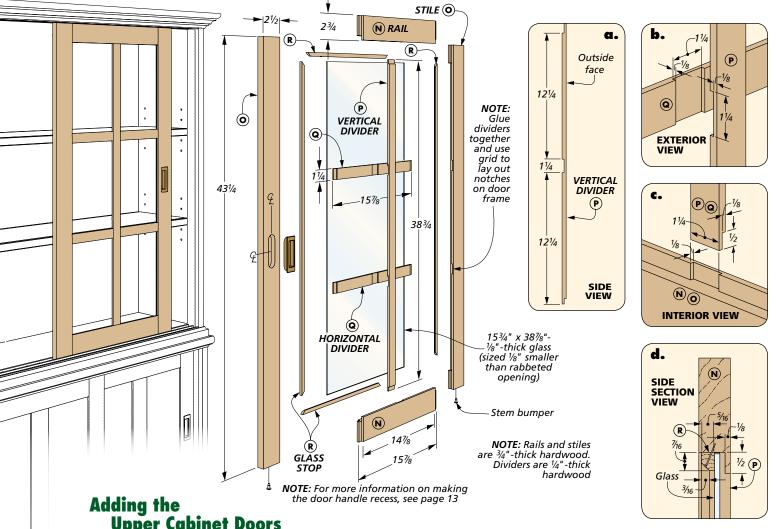
HOW-TO: CONNECTING THE CABINETS



Mark the Spot. Use a brad-point drill bit to mark the hole location for the threaded inserts on the bottom of the upper cabinet.



Drill the Hole. Slide the cabinet over and drill the hole for the threaded inserts. A piece of tape on the bit serves as a depth guide.

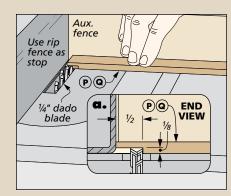


Upper Cabinet Doors The last major operation to take care

of is to make another set of sliding cabinet doors, this time to complete the upper cabinet. As you can see in the drawing above, the design of the upper cabinet doors is similar to that of the lower cabinet doors. Except for this cabinet, I added vertical and horizontal dividers to give the glass doors a divided-light look.

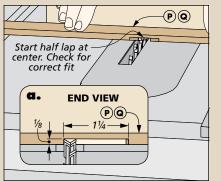
RAILS & STILES. Just as you did earlier for the lower cabinet doors, start by cutting the rails and stiles to size. Cut the grooves and the stub tenons, and drill holes for the stem bumpers in the bottoms of the stiles. At this point, the technique for making the doors departs from the earlier method. You'll need to glue up the rails and stiles now, and set them aside to dry.

Before you can add the dividers, you have to rout away the inside lip of the grooves (drawing on page 8).

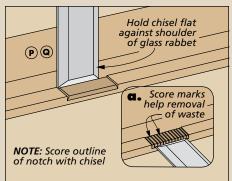


Shallow Rabbets. With these thin workpieces, sneaking up on the correct blade height is the key to good results.





Centered Cut. Using the rip fence as a stop, cut the workpiece and flip it to slowly widen the half lap to fit.



Notch the Rails & Stiles. A chisel makes short work of creating the notches that will hold the dividers in place.

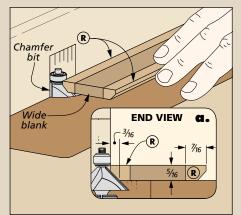
DOOR PULLS. You can also rout the recesses for the door pulls now. Use the same technique as you did on the doors of the lower cabinet.

DIVIDERS. To get started on the dividers, I resawed and planed some of the stock down to $\frac{1}{4}$ " thick. The pieces are only $1\frac{1}{4}$ " wide, so you can resaw it at the table saw safely and easily. Then, plane it to thickness.

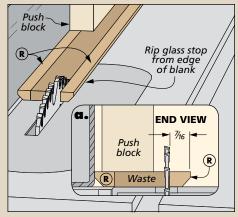
The dividers are assembled with half-lap joints. Detail 'a' on the previous page shows the locations on the vertical dividers. The notch in the horizontal divider is simply centered on the length of the piece. The box at the bottom of the previous page shows you how to cut the shallow half laps and the centered half lap on the horizontal dividers. After completing the cuts, glue up the dividers and set them aside to dry.

ADDING THE DIVIDERS. With the dividers glued up into grids, the next step is to mark the locations and cut the notches in the door frames that will house the ends of the dividers. Lay the assembled dividers on the doors and mark each position. Use a chisel to cut a shallow notch for the ends

HOW-TO: MAKE THIN GLASS STOP



Chamfer the Edges. An extra-wide workpiece allows you to safely chamfer the edges of the glass stops.



Rip to Width. Set the rip fence so the workpiece falls to the outside of the blade, and use a push block to make the cut.

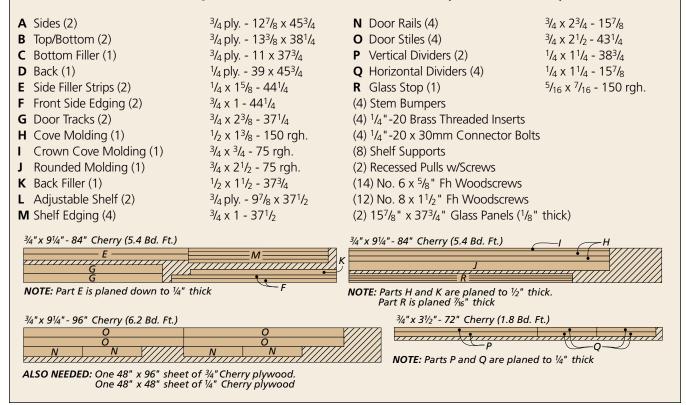
of the dividers. The right drawing in the box on the previous page shows you the technique. When you've completed the notches, simply glue the dividers in place.

GLASS STOP. The last step before adding the glass is to make some glass stop. The How-To box above shows you an easy way to do this.

Once you've finished, simply miter the pieces to length. After fitting the glass, you can attach the stop with small brads. This technique makes it easy to replace the glass in case it's ever damaged in the future.

After applying the finish, you're ready to pick the perfect spot in your home for the cabinet.

MATERIALS, HARDWARE & CUTTING DIAGRAM (UPPER CABINET)



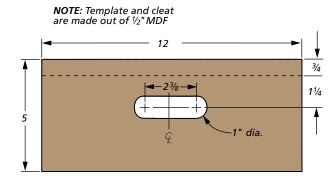


▲ Recessed pulls allow the doors to slide freely past one another.

Routing Door Pull Recess

The sliding doors of the cabinet are fitted with brass pulls, as mentioned on page 8 and illustrated on pages 7 and 11. These pulls fit into shallow recesses routed in the door stiles.

To create the recesses, I used a template and a bearing-guided bit. The template is nothing more than a piece of $\frac{1}{2}$ " MDF with an oval opening that's sized to fit the pull, as shown in the drawing above. A cleat along



DOOR PULL TEMPLATE

one edge centers the opening on the width of the door stile.

To rout the recess, attach the template to the door stile with doublesided tape. Use a dado cleanout bit and the template to rout out the waste in multiple passes (Figure 1).

Once the waste is removed, you can drill a couple of holes for the mounting screws (Figure 2).

