lighted Display Cabinet

Stylish glass doors and interior lighting put the contents on display, but the design and construction of this cabinet holds a few surprises.

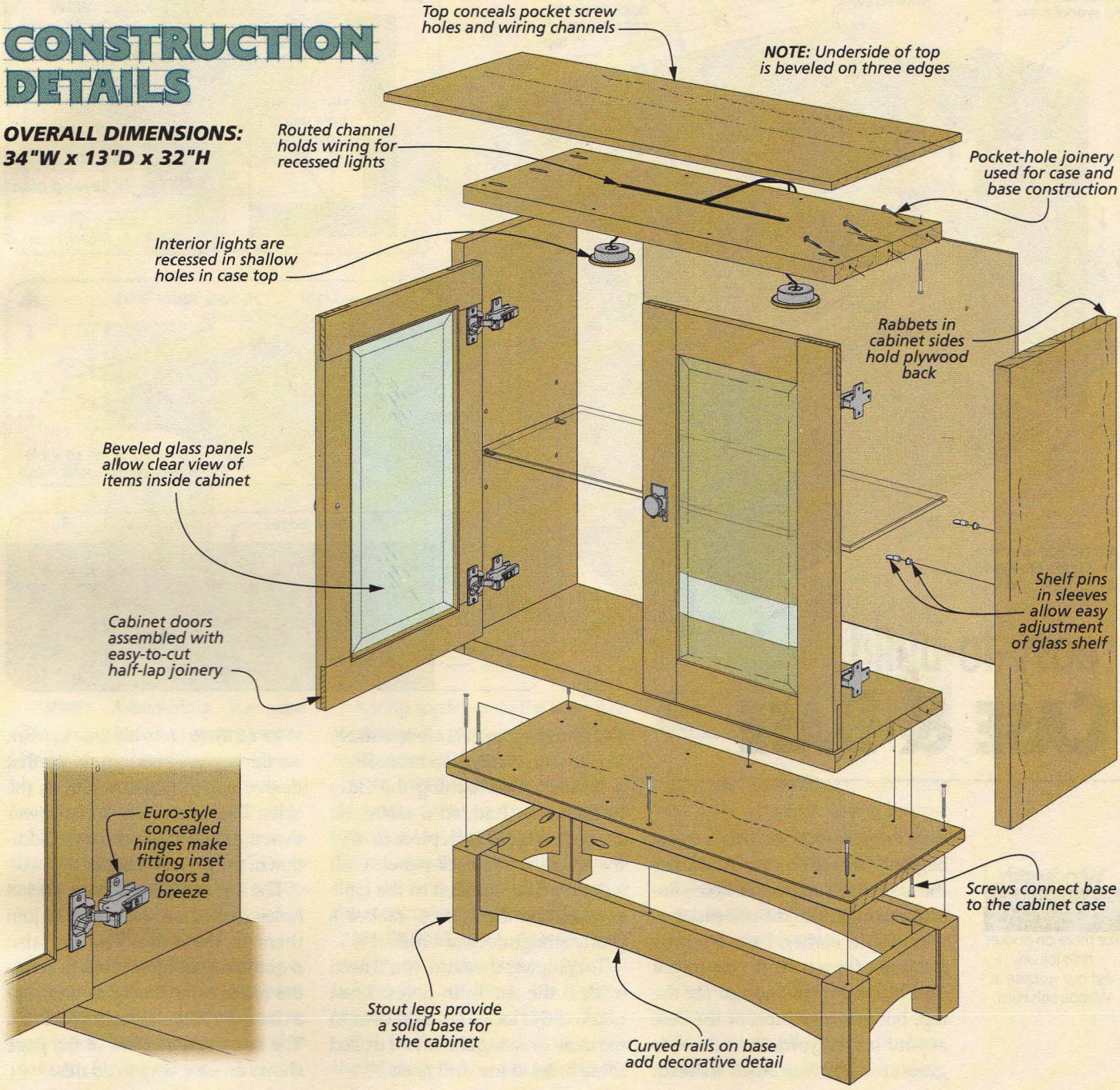
This lighted display cabinet can be the perfect accent piece for just about any room in the house. The beveled glass doors and shelf allow you to display your collectibles to full advantage. And the small scale of the cabinet means it will fit in almost any space.

But from a woodworking perspective, when you look at it you're probably thinking about the mortise and tenon joinery and an expensive hardwood used for its construction. You might be surprised to learn that this project relies on simple, but strong pocket-hole joinery. This means it's quick and easy to build. And the expensive-looking wood is simply poplar stained with a blend of gel stains.

All these elements combine to give you a great-looking project that's both easy to build and relatively inexpensive. The best of both worlds!

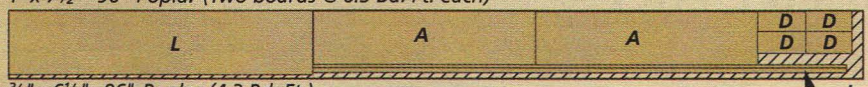
CONSTRUCTION DETAILS

OVERALL DIMENSIONS:
34"W x 13"D x 32"H

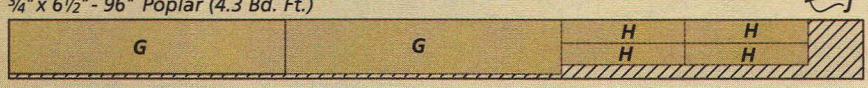


Cutting Diagram (for Materials & Supplies list, see page 27)

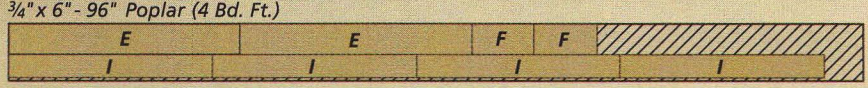
1"x 7½" - 96" Poplar (Two boards @ 6.3 Bd. Ft. each)



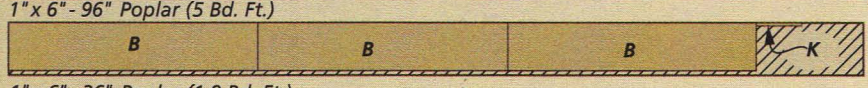
¾"x 6½" - 96" Poplar (4.3 Bd. Ft.)



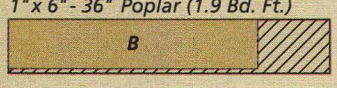
¾"x 6" - 96" Poplar (4 Bd. Ft.)



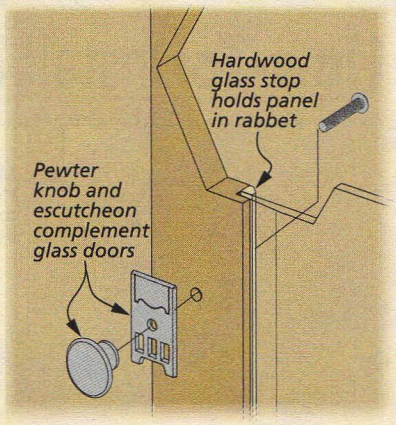
1"x 6" - 96" Poplar (5 Bd. Ft.)

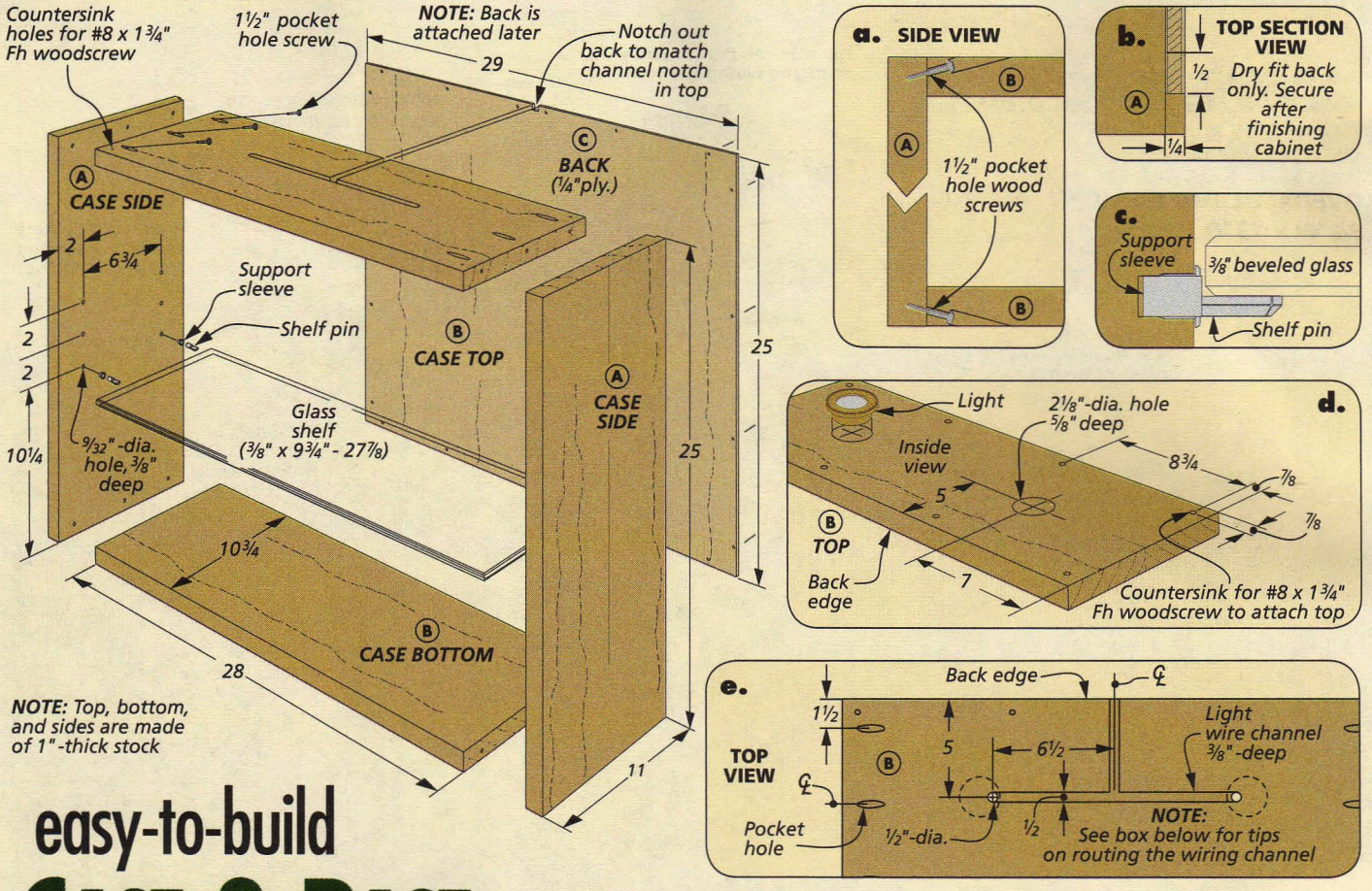


1"x 6" - 36" Poplar (1.9 Bd. Ft.)



Also needed: One 48"x 48" sheet ¼" Birch plywood





easy-to-build CASE & BASE

Like most cabinets, this project begins with a solid case. And since the case relies on pocket-hole joinery, making it couldn't be easier.

As I said earlier, I used poplar for this cabinet. And you might find boards wide enough for the top, bottom, and sides of the case at your lumberyard. But I chose to glue-up narrower stock instead. The glued-up panels are less likely to cup with changes in humidity.

THE SIDES. After cutting the sides to final size, I added a rabbet on the back edge of each piece to hold the ¼" plywood back panel. With a dado blade installed in the table saw, cutting the ¼" x ½" rabbet is pretty straightforward (detail 'b').

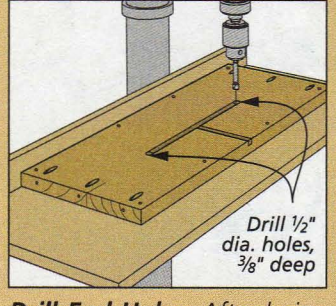
To complete the sides, you'll need to drill the shelf-pin holes. I just marked the locations as shown in the main drawing above and drilled these holes at my drill press.

TOP & BOTTOM. Now it's time to work on the top and bottom. Note that they're not the same width as the sides. Both pieces are ¼" narrower than the sides to allow for the addition of the plywood back.

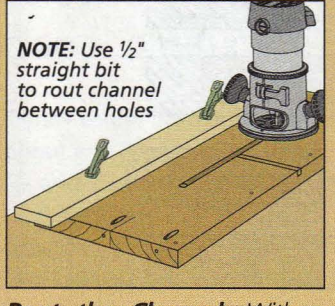
The top and bottom have pocket holes drilled on each end to join them to the sides. The top also requires a little more work to create the recesses for the lights and rout a channel for the wiring (detail 'd'). The box at the bottom of the page shows an easy way to do this.

Woodsmith GO ONLINE EXTRAS
For more on pocket hole joinery, visit our website at Woodsmith.com.

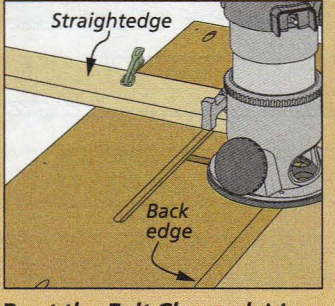
How-To: Install Recessed Lights



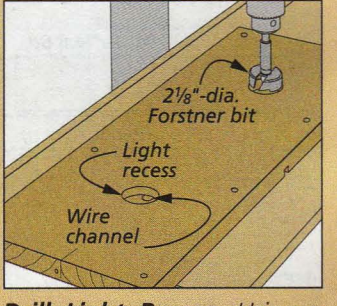
Drill End Holes. *After laying out the channel for the wiring, drill a hole at each end.*



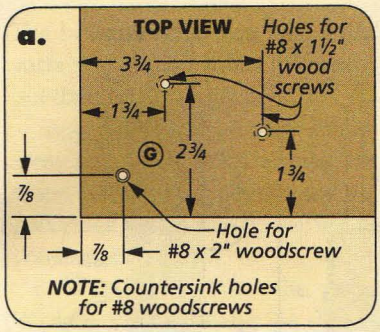
Rout the Channel. *With a straightedge clamped to the top, rout the ⅜"-deep channel.*

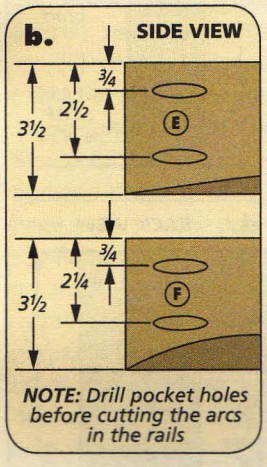


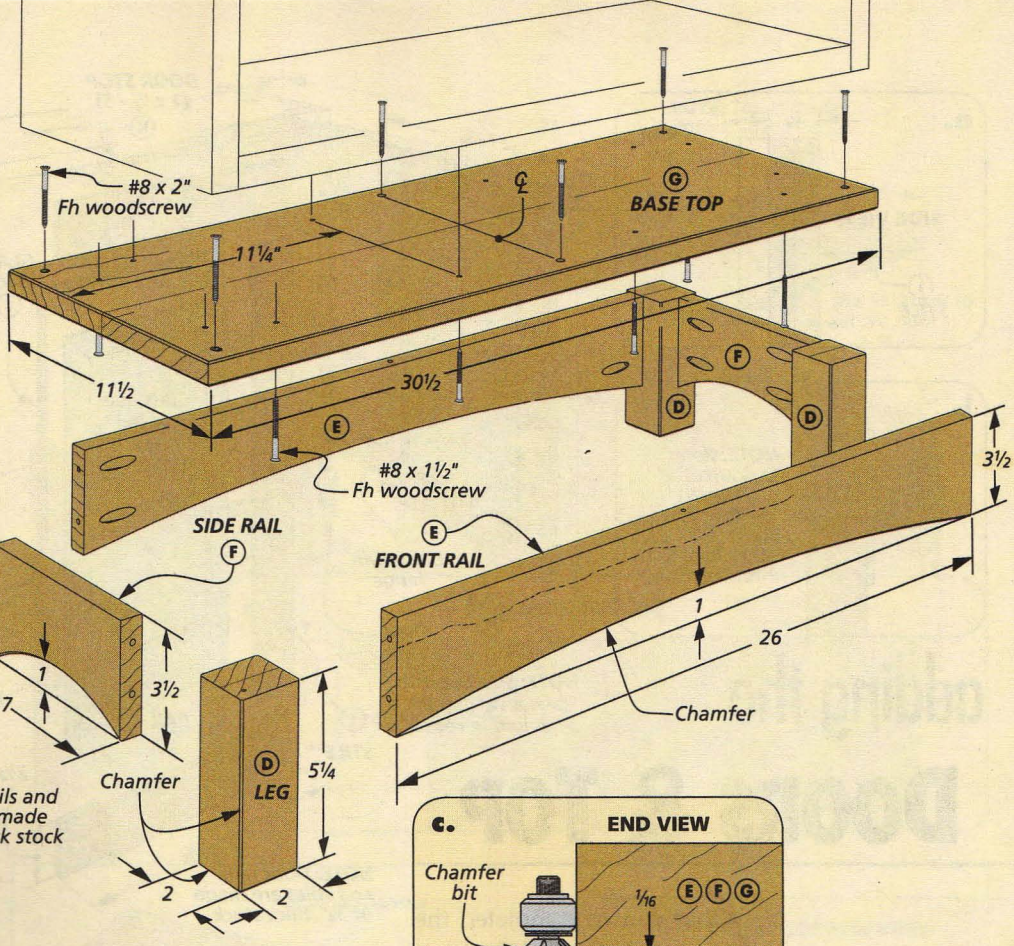
Rout the Exit Channel. *Move the straightedge to rout the perpendicular exit channel.*



Drill Light Recess. *Using a Forstner bit in the drill press, drill the recesses for the lights.*







ASSEMBLY. Assembling the case with pocket hole screws is a breeze. I find it helpful to clamp the assembly while driving the screws to keep the joints flush and square.

Finally, cut the plywood back to size and set it aside. Adding it later makes finishing the cabinet easier.

ADD THE BASE

After assembling the case, you're ready to get to work on the base. The front, back, and side rails connect to short legs to form a stable platform for the cabinet.

A solid top fits over the base. The top makes it easy to connect the base to the case with screws.

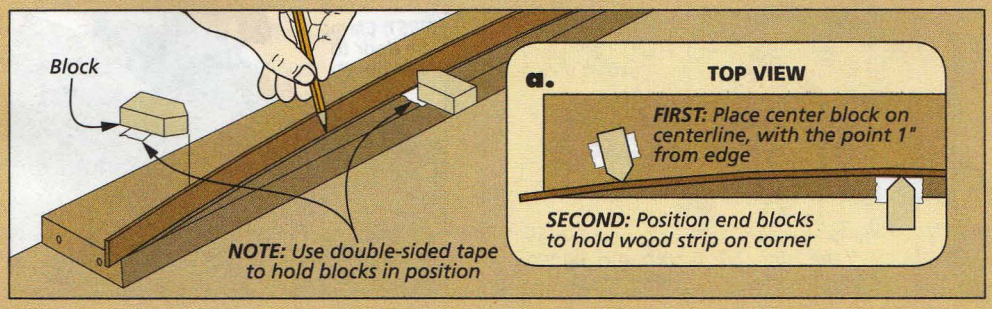
START WITH THE LEGS. To get the 2" thickness necessary for the legs, I glued up two thinner pieces. Then, all you need to do is cut them to final size and add a 1/16" chamfer to the corners and bottom edges.

ADD THE RAILS. All four rails have an arc cut on the lower edge. But before you cut these, it's a good idea to drill the pocket holes first.

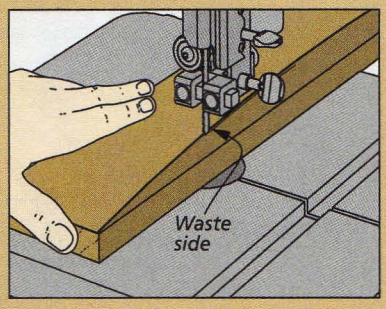
To cut the arcs in the rails, see the box below. You can smooth the edges using a sanding drum. Then, add a 1/16" chamfer to the bottom edge. Now you're ready to assemble the rails and legs with screws.

THE BASE TOP. To complete the base, you can cut the top to size and then drill the screw holes in the locations shown above. Once again, add a 1/16" chamfer to the top and bottom edges to match the rails. After fastening the top to the base, attach it to the case with screws.

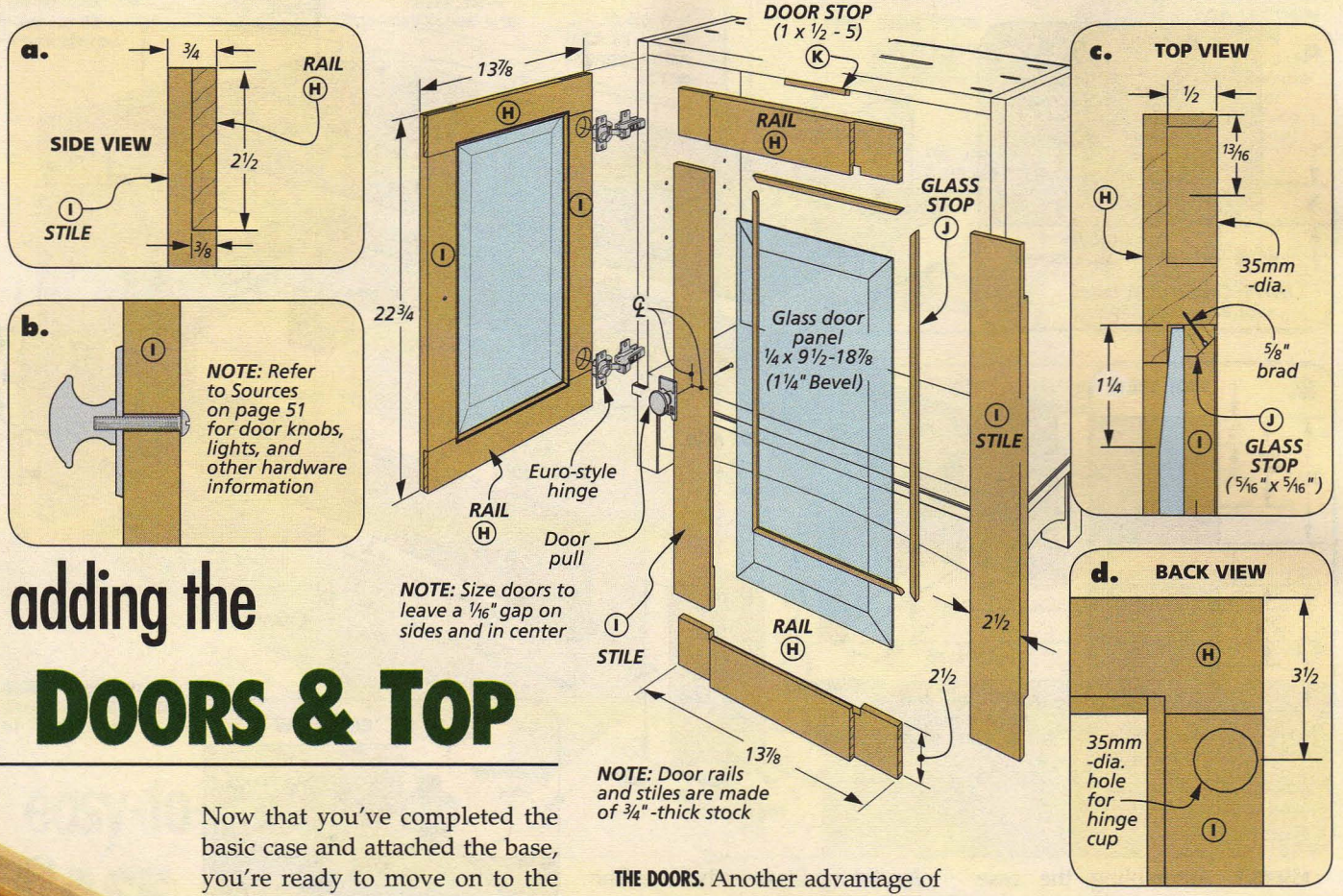
Make the Curved Rails



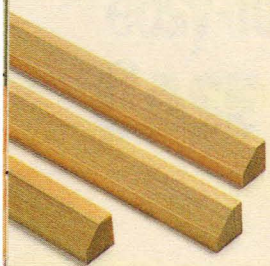
Lay Out the Arcs. *To lay out the curve of the rails, start by attaching a block at the centerline, marking the highest point of the arc. Next, bend a thin strip of hardwood to the end point of the curve and add a block on each end. Now trace the curve with a pencil.*



Cut the Rail. *At the band saw, carefully cut the arc, making sure to stay on the waste side of the line.*



adding the DOORS & TOP



▲ To make the beveled glass stops, refer to Shop Notebook on page 28.

Now that you've completed the basic case and attached the base, you're ready to move on to the doors. I used straightforward half-lap joinery for a couple of reasons — it's easy and reliable and it also provides plenty of strength to hold the heavy glass panels.

THE RAILS AND STILES. You can start by ripping the rails and stiles to width and then cutting them to final length. Then, install a dado blade in the table saw and use a piece of scrap as a test piece to set the blade height to cut the half laps. The test piece allows you to sneak up on the perfect height.

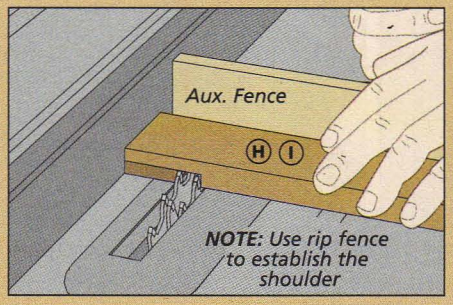
THE DOORS. Another advantage of half-lap joinery is that the joints are self-squaring. In other words, if the cuts are square, using the technique shown in the box below will result in a square door frame. Large clamps pull the joints together while smaller clamps apply pressure directly to the glue surfaces of the half lap.

ROUT THE RABBETS. After the glue dries, scrape or sand the joints so the door will sit flat on your workbench. The next step is to rout the rabbets that will hold the glass panels in each door. The lower right illustration shows you an easy way to do this.

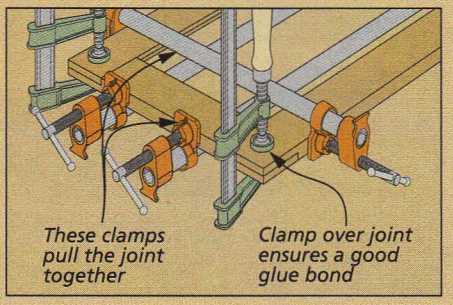
ADD THE HINGE HOLES. Now it's time to drill the counterbores for the hinge cups at the locations shown above in details 'c' and 'd'. A Forstner bit works best for these holes.

GLASS STOPS. After drilling the holes, you're ready to make the stops. They're just narrow hardwood strips beveled on one edge and mitered to fit in the frame.

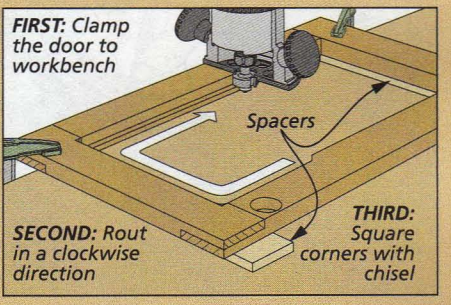
How-To: Assemble & Rout the Cabinet Door



Cut the Half Laps. *With a wide dado blade installed, use the miter gauge to support the workpiece for square cuts.*



Proper Clamping Technique. *Clamping pressure on the half laps and across the frame guarantees a tight assembly.*



Rout the Rabbet. *Use a rabbeting bit and rout in a clockwise direction to create the rabbet that will hold the glass.*

The beveled edge provides a flat surface to nail the brads into without damaging the glass.

Shop Notebook, on page 28 has some helpful ideas for making the stops. After cutting the stops, it's a good idea to stain the doors before you install the glass.

HANG THE DOORS. With the glass in place, you can hang the doors. The Euro-style hinges make this an easy task. But first, cut out the small door stop and glue it in place (main drawing, opposite page). There's also the matter of attaching the door knobs. The main illustration and detail 'b' on the opposite page show you the position.

INSTALL THE LIGHTS. Before you can go much further, you'll need to install the lights. You've already prepared the case top to accept the lights and wiring, so the directions that come with the lights should help you finish this task.

PREPARE THE TOP. With the wiring out of the way, the next step is to make the beveled-edge top. The top covers up the wiring channels and the pocket holes used to assemble the case.

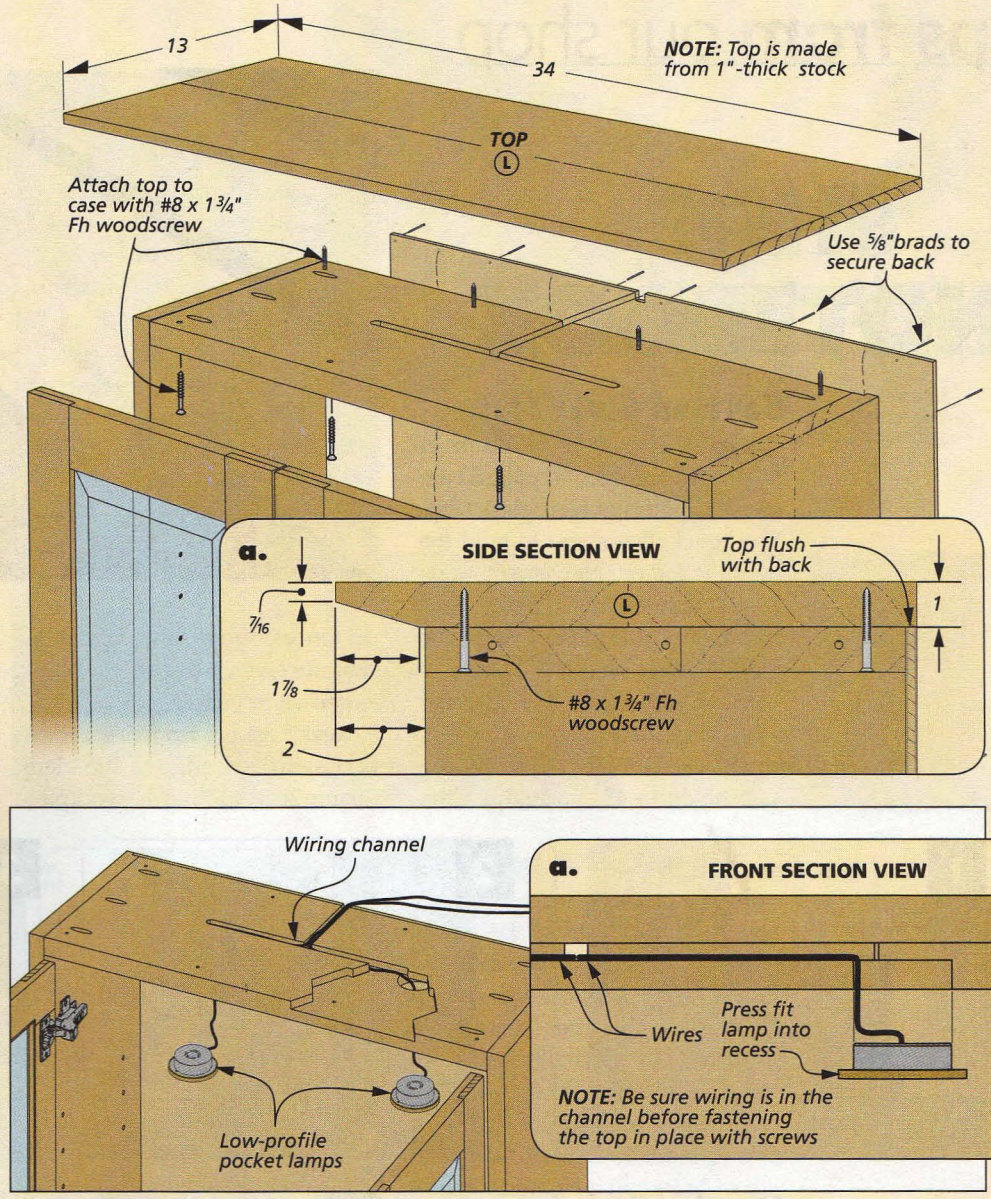
After cutting the top to final size, head to the table saw and set the blade angle at 15° to cut the bevel. A tall auxiliary fence helps make this cut easier and safer. I beveled the underside of the front and both sides. A good sanding to smooth the cut edges is all it takes to complete the top.

ATTACHING THE TOP. Since you might need access to the wiring and the lights at some point in the future, attach the top with screws only. I clamped the top in place to prevent it from sliding while I drilled screw holes from the inside of the case. Then keep the clamps in place while you add the screws.

A GEL STAIN FOR POPLAR. Poplar is seldom used as the primary wood in fine furniture. However, the right stain can make it look like a far more expensive choice.

To get the right color for this project, I used a mixture of equal parts *Georgian Cherry* and *Java Gel Stain* from *General Finishes*. You can find out where to get the stain and the hardware used on the cabinet in Sources, on page 51.

You'll find the gel stain even hides the green streaks often found in poplar. Save some scraps for sampling stain combinations I finished the cabinet with lacquer.



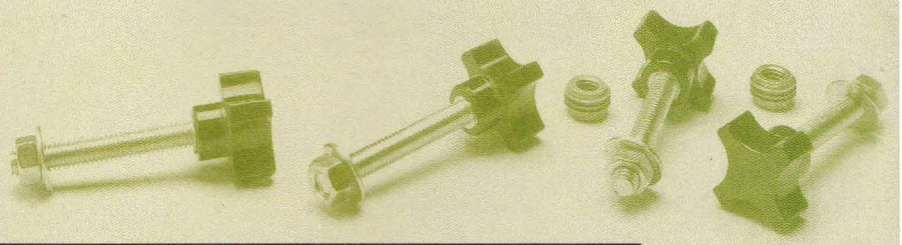
Materials & Supplies

A	Case Sides (2)	1 x 11 - 25
B	Case Top/Bottom (2)	1 x 10¾ - 28
C	Back (1)	¼ ply. - 29 x 25
D	Legs (4)	2 x 2 - 5¼
E	Base Front/Back Rails (2)	¾ x 3½ - 26
F	Base Side Rails (2)	¾ x 3½ - 7
G	Base Top (1)	¾ x 11½- 30½
H	Door Rails (4)	¾ x 2½- 13⅞
I	Door Stiles (4)	¾ x 2½- 22¾
J	Glass Stop (2)	5/16 x 5/16 - 60
K	Door Stop (1)	1 x ½ - 5
L	Top (1)	1 x 13 - 34

- (2) ¼" Glass Panels (9½" x 18 7/16")
- (1) ⅜" Glass Panel (9¾" x 27⅞")
- (2) 1⅞"-dia. Knobs w/ Escutcheons
- (4) Euro Hinges w/ Screws
- (16) 1¼" Pocket Hole Screws
- (12) 1½" Pocket Hole Screws
- (8) #8 x 1½" Fh Woodscrews
- (8) #8 x 1¾" Fh Woodscrews
- (6) #8 x 2" Fh Woodscrews
- (35) ⅝" Brads
- (4) Shelf Pins w/Sleeves
- (1) Low-Profile Xenon Light Kit

ADD THE BACK. The last thing to do is attach the back panel. It fits snugly in the rabbets on the sides. I used ⅝" brads spaced about every 6" all around the edges of the case. Now all you need to do is decide which room to put the cabinet in. W

Sources



BENCH DOGS & HOLD-DOWNS

To get the most out of your workbench, you'll want to add a few handy devices to help hold your work securely in place. The bench dogs and hold-downs in the article on page 8 are just a sampling of the variety available. The *Veritas* line of bench accessories is sold by *Lee Valley*. You can find the other items shown at *Rockler*. Contact information for both is listed in the right margin.

ONE-HAND CLAMPS

One-hand clamps, like the ones shown on page 10, can make glueups and lots of other workshop tasks simpler. To find the clamp that fits your needs, check out the websites for *Amazon.com, Woodcraft,* and *Rockler*.

JIG-IT MORTISING SYSTEM

The *JIG-IT Mortising System* shown on page 12 makes short work out of adding hinges to a project. The *JIG-IT* system (32457) is available from *Rockler* and the *Woodsmith Store.*

GETTING A STRAIGHT EDGE

You can save a lot of money by passing up the S4S section of the lumber yard and building your projects with rough lumber. And the techniques in the article on page 14 will get you pointed in the right direction. To build the jig for cutting a straight edge, you'll need a few supplies. The mini T-track (36033) and star knob hold-down clamps (21912) both came from *Rockler.* The *E-Z Jointer Clamp Kit* shown in the article is from *General Tools* (846).

MAGAZINE RACK

The magazine rack on page 16 is a great way to keep track of your reading material. And it doesn't require a lot of time to build. The antique copper continuous hinge (35256) and the heavy-duty, twin-wheel casters (90365) came from *Rockler*. The connector screws (1420-CWB) are from McFeely's.

DISPLAY CABINET

You'll need a few pieces of hardware to complete the display cabinet on page 22. The low-profile pocket lights (39705) are from *Rockler*, and the door knobs and escutcheons (01A23.76) are from *Lee Valley*. The ¼"-thick beveled glass (with a 1" bevel) used for the doors was obtained from a local glass supplier. The mixture of equal parts *Java* and *Georgian Cherry* gel stain from *General Finishes* makes the poplar look like walnut. Sprayed lacquer completes the finish.

SWING-LEG TABLE

The swing-leg table featured on page 30 offers a versatile design. You don't need to worry about not having a lathe or a lack of turning skills either. We ordered the Sheraton-style legs (303-D.CH) and the Shaker legs used in the Designer's Notebook variation (202-L.CH) from *Classic Designs by Matthew Burak*. They also sell turning blanks so you can make your own legs. The drop-leaf hinges (29256) are from *Rockler*. The finish we used is cherry *Gel'd Stain* from *Wood Cote.*

CUSTOM-MIXED STAIN

You can give your projects a unique look with colored stains. The article on page 44 will help you get started. The *Winsor & Newton Winton Oil Colour* paints are sold at most art supply stores. For butcher block oil and boiled linseed oil, check your local hardware store or home center.

MAIL ORDER SOURCES

Project supplies may be ordered from the following companies:

Woodsmith Store
800-444-7527
Bench Dogs, Butcher Block Oil, Gel Stains, Hold-Downs, One-Hand Clamps

Rockler
800-279-4441
rockler.com
Bench Dogs, Casters, Connector Bolts, Continuous Hinge, Drop-leaf Hinges, Hold-Downs, JIG-IT Mortising System, Low-Profile Pocket Lights, One-Hand Clamps, T-Track

Amazon
amazon.com
One-Hand Clamps

Classic Designs by Matthew Burak
800-748-3480
tablelegs.com
Table Legs, Turning Blanks

General Finishes
800-783-6050
generalfinishes.com
Butcher Block Oil, Gel Stains

General Tools
212-431-6100
generaltools.com
E-Z Jointer Clamp Kit

Lee Valley
800-871-8158
leevalley.com
Bench Dogs, Cabinet Door Knobs & Escutcheons, Hold-Downs

McFeely's
800-443-7937
mcfeelys.com
Connector Screws

Woodcraft
800-225-1153
woodcraft.com
One-Hand Clamps