



## WOODWORKS: INTERMEDIATE PROJECT STORAGE CABINET



Building this attractive storage cabinet will challenge the intermediate-level student, thus increasing his or her woodworking knowledge and skills. While the construction details are straightforward, you will learn techniques such as rabbeting, mortise and tenon joinery and how to make and install doors. The finished piece is functional and can be used in any room of the house. Its design blends with all types of home décor.

A final word before starting. Carefully read through the entire set of plan instructions. Study the drawings for building this cabinet before going to work on the project and discuss and resolve with your teacher any questions you may have. These steps will eliminate any chance of confusion and wasted materials.

### TOOLS AND MATERIALS REQUIRED

#### Hand Tools

- Pencil
- Ruler (zigzag or tape)
- Hammer and 1/32" nailset
- Square (combination or try)
- Drill bits assortment
- Phillips and slotted screwdriver (medium)
- Block plane
- Clamps, Hand screw and bar
- Safety glasses
- Respirator (for sanding step)

#### Power Tools

- Jointer
- Plate joiner with no. 20 biscuits
- Planer, if necessary
- Sanders: belts, random orbit, pad; with appropriate sanding papers in 80, 120, 150 grits, plus, 220-grit for pad sander
- Saws (radial and table)
- Mortising jig
- Electric drill (with screwdriver bit)
- Router, with cutters: 3/4" straight and 1/4" rounding over, 3/8" rabbet
- Molding Cutterhead Set
- Router table

### BUILDING MATERIALS REQUIRED

See Buying and Cutting lists

### WOOD FINISHING PRODUCTS

#### Finish recommended for this project

- Minwax® Water-Based Pre-Stain Wood Conditioner
- Minwax® Water-Based Wood Stain Island Water (or a Minwax® Water-Based Wood Stain of your choice, available in 50 custom-mixed colors and a White Wash Pickling Stain.)
- Minwax® Polycrylic® Protective Finish

#### Alternate Finishes

- Minwax® Pre-Stain Wood Conditioner
- Minwax® Gel Stain\*\*\*
- Minwax® Fast-Drying Polyurethane

#### Or, this one-step finish

- Minwax® Polyshades®

#### Miscellaneous

- Minwax® Wood Putty®
- Assorted rags, or use inexpensive brushes for applying stain
- Minwax® Finishing Brushes
- Tack cloths
- Clean, lint-free rags for wiping
- Water-filled metal container with airtight lid, if necessary

### STEPS FOR BUILDING THE STORAGE CABINET

1. Initially cut all parts slightly oversize making certain all boards which are to be edge-joined with biscuits are cut slightly over-length. However, cut the legs to exact width, thickness and length.
2. Arrange the boards for the top to achieve the most pleasing visual arrangement of wood grain. Before moving the boards, lightly with soft pencil, draw a cabinetmaker's triangle on the top surface (see drawing). This mark permits accurate, fast realignment of the boards to the selected arrangement later after ploughing grooves. Then carefully make the tick marks along abutted board edges marking the biscuit locations.

3. Cut these grooves using the plate joiner; join the boards using glue and number 20 biscuits. After aligning the boards, apply pressure with bar clamps and put the setup aside to dry overnight.
4. Lay out all of the carcass stiles and rails and mark the parts with identifying marks to ensure minimal waste of material.
5. Cut all carcass stiles and rails to size and set aside in orderly piles.
6. Lay out the tenons on the horizontal members; cut them using the mortise and tenon jig on the table saw.
7. Using the tenons as a guide, lay out and bore the mortises in all four legs. If your shop has a mortising tool use it to bore the mortises in the legs. Otherwise, create the mortises the old-fashioned way—by boring overlapping 1/4-in. dia. holes and cleaning the holes square with a sharp, narrow chisel.
8. Next, lay out the legs, rails and stiles for the grooves that will receive the panels. Plough the grooves using a straight 1/4-in. cutter chucked in a table-mounted router.

**Cabinetmaker's Tip:** Before you plough any of the grooves, temporarily lay out the cabinet sides and front members as they will go together. Mark the inside surface of each member with a light pencil "X." Do this as an orientation reminder—that is, to remind you of which surface should bear against the fence when routing. This way, if there is any slight variation of shoulder widths (both sides of groove), it will be repeated on the same side of the groove **on every piece**—and it will not matter.

9. After all routing is completed, dry-assemble (i.e., without glue) the carcass frame to check for fit; make adjustments if necessary.
10. With the side panels temporarily assembled, measure to determine the width and length of the panels and cut the panels.
11. After any adjustments have been made, assemble the first end panel. Use glue in the mortise and tenon joints but do not apply glue to the panel edges; the latter should "float" in the stile and rail grooves to allow for expansion and contraction.
12. Work quickly and carefully and try to avoid smearing any glue on the wood surfaces. With the first side assembled on the workbench, apply clamping pressure with a pair of bar clamps. Apply firm pressure—just enough to see some glue squeeze out along joint lines, no more. Resist the urge to use brute strength; it is unnecessary and, in fact, may cause damage to your workpiece.
13. Before setting the glued-up section aside, make certain to recheck its corners with a framing square; be aware that it is possible for clamp pressure to pull the setup out-of-square. You want to be sure your section is square before allowing the glue to dry.
14. Repeat the procedure to assemble the second side. Allow the glue to dry at least 4 hours before proceeding to the next step.
15. Next day, remove the clamps and bore the holes through the legs for the dowels through the tenons, as shown in the drawing. Glue-in the dowels, to lock all corners.
16. Since it is much easier to install the shelf cleats on both side panels before assembling the carcass, do so now. Make certain that they are accurately located.
17. Assemble the two sides with the top and bottom rails at front and back. Again, use glue in the joints and, after checking all for square, apply clamping pressure to hold all securely while the glue dries. Wait at least 4 hours before removing the clamps.
18. After removing the clamps, immediately bore the holes and install the dowels through legs and rail tenons (as you did for the sides).

19. Install the cabinet bottom. Measure for the notches that must be cut in all four corners; cut them out using a band or scroll saw. Test for fit and when satisfied, install the bottom using glue and 1-1/2 in. finishing nails.
20. Finally, install the stiffener cleat, centered between top rails using glue and 2-in. finishing nails.
21. Note: Set all nails slightly below surface and fill holes using Minwax® Wood Putty.
22. Measure for, and cut the two shelves to fit.
23. Measure for, and cut the top; then cut and attach the two bread-board ends. Attach these to the top using glue and 1-1/2 in. finishing nails. Set the nails and fill the depressions with Minwax® Wood Putty.
24. Position the top on the cabinet. Check the overhang on both ends and align the top flush with the back. Use a pair of clamps to hold the top securely in place while you lay out and bore the pilot holes for the screws. Notice that these lead holes are counterbored to receive the dowel plugs that cover the screw heads.
25. Secure top with 1-1/2 in. no. 8 flathead wood screws; glue dowel plugs in to conceal screw heads. (Allow 24 hours before sanding dowels flush with top.)
26. Since it makes the job much easier, install the shelf cleats from the back using glue and 1-1/4 in. flathead screws, turned into countersunk lead holes.
27. Measure for, cut and install the plywood back. Use 1-1/4 in. nails (no glue).

## MAKING THE DOORS

The cabinet doors, rails and stiles are assembled using half-lap joints, which is an excellent exercise in woodworking joinery for the second-year student. The corners on the prototype cabinet are held fast with dowels and glue. (If preferred, you can simply drive 5/8-in. screws through the laps, from the back. If you opt for this method, make sure the screw heads are seated in countersunk holes.)

In order to create the wainscot pattern on the door panels, you must use the molding cutterhead on the table saw. See step 5 on page 3. To do this, first install a wooden auxiliary fence on the rip fence. The auxiliary fence's purpose is to ensure that the spinning cutter head will not make contact with the metal fence. If you have never worked with an auxiliary fence or do not know the reason for using one, discuss this technique with your instructor. Your instructor will explain the fence and its use, and explain how to make and install it on the table saw.

1. Start by ripping all stiles and rails to width; notice that the bottom rail is slightly wider than the top rail and stiles. At this time, it is a good idea to rip two pieces of scrap stock to width for use as test pieces when setting up the half-lap joints and grooves for the panels.
2. The safest, most accurate way to cut the half-lap joints is on the table saw, with the mortising jig securely holding the workpiece. Lay out the half-lap cuts on the scrap pieces; when satisfied with their fit, cut the project wood.
3. The first cut is with the board clamped vertically in the tenoning jig. Cut all required tenons before resetting the saw to make the lap-joint width cuts. Lower the blade so it protrudes exactly 3/8 in. and set up your miter gauge to make the crosscut. Make a test cut in your scrap piece and, when satisfied, cut all boards to complete the tenon step.
4. Dry-assemble the two "doors" and lightly pencil an "X" on the inside surfaces of all eight pieces. This is *very important* because the half-lap

joints can make it confusing as to which side of the board to hold against the router fence when ploughing the groove (i.e., the stiles are one way, the rails 180 degrees opposite). The job will be error free when the “X” side of every piece is held against the fence when ploughing grooves. Plough the grooves in all stiles and rails.

5. Dry-assemble the two doors (e.g., no glue yet) so you can measure the width and length to which the panel inserts must be cut. Cut them to size.
6. Install the appropriate cutters in the molding head cutter and install the cutterhead on the table saw. Crank it to position the cutters at the desired elevation for the light cut to be made in the panel faces.
7. Install the wooden auxiliary fence and position it for the first pass. Using a piece of scrap plywood, make a test cut. If necessary, adjust cutterhead or fence then proceed with cutting the grooves in the project wood.
8. Cutting the “wainscot” grooves requires three passes on each panel.
9. After ploughing these decorative surface grooves, sand the panel faces, if necessary, using 150-grit sandpaper wrapped around a sanding block.
10. Assemble the doors in this manner:

- Apply glue to both ends of one stile and to one end only on both the top and bottom rails. (NOTE: Make sure all those “X” surfaces are facing the same plane.) Install the panel in the stile groove and position the rails. Apply glue to the third and fourth joints and completely assemble the door. Check for square and, when satisfied, apply light clamping pressure; set aside to dry. Repeat procedure for second door.
- Next day, remove the clamps and, as shown in the drawing, bore 1/4-in. dia. holes 5/8-in. deep through tenons. Apply glue and install dowels.

11. Install the doors on the cabinet trimming and fitting with a block plane as needed. When satisfied with the door installation, install the magnetic catches and the door pulls in the cabinet.

Construction is now complete and you can move onto the fun part of your project—the finishing.

## SANDING, STAINING AND FINISHING

For this project, we picked a user-friendly finish system that produces high-quality results. It is one of the latest finish techniques on the scene—and, no solvents are required because all steps use water-based product.

Other good reasons for choosing a water-based system include:

- a) Water-based finishes are low odor.
  - b) They are fast drying.
  - c) All cleanup is with water.
- If you choose to use Minwax® Wood Finish™ and Fast-Dry Polyurethane, follow all instructions on the can labels, including those for disposing of oil-soaked rags, steel wool, etc. Also, carefully read the label for all safety and first aid information.
  - Before starting the finishing steps, remove the doors from the cabinet and the hardware from the doors.

### Before Staining

1. Run the palms of your hands over the cabinet surfaces to check them for smoothness; sand where necessary using 150-grit paper wrapped around a soft backup block. Dust off the piece and wipe thoroughly with a tack rag. (Do not use steel wool to “sand.”)

2. Apply Minwax® Water-Based Pre-Stain Wood Conditioner; take care to brush it on evenly. Work quickly, maintaining a “wet edge” to avoid streaks or overlaps. Allow it to penetrate for about 5 minutes.

3. After 5 minutes, use a clean, lint-free cloth to remove any excess Conditioner remaining on the surface. Wait 15-30 minutes before proceeding.

4. Check the surface for “whiskers” that may have been raised; smooth them off using 180-grit (or finer) sandpaper wrapped around a soft backup block. Rub lightly, then remove all sanding dust with brush and tack cloth.

### STAINING

5. Open the Minwax® Water-Based Wood Stain and stir contents thoroughly with a clean stick. Note: To avoid any chance of pigment settling during your staining operation, it is recommended that the stirring be repeated every so often during the staining step.

6. Apply the Stain using a nylon/synthetic brush, foam brush, staining pad or rag. The Stain should be left on the surface for a relatively short period—about 3 minutes—so work a small area at a time. While the Stain is still wet, remove any excess with a clean, lint-free cloth lightly dampened with Stain. Make the final wipe-off parallel to grain direction. Use light to medium pressure to achieve even color penetration.

7. **NOTE:** If there is any uneven color penetration, immediately re-wet the surface with additional Stain and work it into the surface using either a rag or brush. Use light pressure over the dark and light areas until they blend in.

8. To increase color intensity, allow the first coat to dry 2 hours, then repeat steps 6 and 7.

***Finisher’s Tip:** No matter what clear finish you are working with, the job is certain to turn out better when you use a strong light. An inexpensive photo lamp is ideal. To ensure finding any missed spots, position the lamp so its beam of light strikes the surface at a 45-degree angle to your line of vision. A missed spot will be flat, there will be no reflection. Move the lamp about as you move from one surface to the next to maintain the strong reflecting angle.*

### Final Step: Applying Clear Finish

1. Open the can of Minwax® Polycrylic® Protective Finish and stir well. Do not shake Polycrylic. Note: Periodically repeat the stirring during the finish application. The finish appears milky in the can but will dry crystal clear.

2. Apply Polycrylic with a high-quality synthetic bristle brush. For best results, apply a thin first coat in the direction of the grain. Do not overbrush.

3. Allow the first coat to dry at least 2 hours, then sand smooth with 220-grit paper. Remove all dust with a tack rag.

4. Apply the next coat, repeating steps 2 and 3.

5. Apply the final coat. Do not sand.

Although the surface will be ready for light handling in 3 hours, allow the cabinet to cure for several days before reinstalling the doors and hardware and putting the cabinet into service. Maximum durability will develop after 4 days.

**ALTERNATE FINISHES**

You may want to try working with a Gel Stain, thereby increasing your staining and finishing knowledge. The instructions for applying it and a compatible clear finish follow.

**Working with Gel Stain**

1. A Gel Stain is a smart choice for this project because it provides a rich, even color and does not drip or run on vertical surfaces. That makes a Gel Stain a logical choice for a project like this one, which you will stain with the cabinet standing upright.
2. Check all surfaces for smoothness and sand lightly with 150-grit paper where necessary. Thoroughly dust and wipe with a tack cloth to remove all dust.
3. Start with the cabinet's top surface. Apply Stain liberally with a clean, lint-free application cloth. Saturate the cloth with Stain and wipe on using a circular motion.
4. When the entire top surface is covered with Stain, use a second, clean, lint-free cloth to remove excess product. Wipe with strokes parallel to the wood grain.
5. Repeat the above steps for the balance of your cabinet, staining just a manageable area at a time.
6. Set the entire unit aside to dry overnight.
7. If you should want a darker appearance than what one coat provides, simply repeat the Gel Stain application step.

**Now Apply the Clear Finish**

1. Open the can of Minwax® Fast-Drying Polyurethane and stir contents thoroughly before and during use to avoid settling on the can bottom. Stir with a motion that brings the solids up from can bottom to mix thoroughly with liquid above. Never shake Polyurethane.
2. With a good quality natural or foam brush, apply a thin coat of Minwax® Fast-Drying Polyurethane. Do not overbrush.
3. Let dry for overnight then sand lightly with 220-grit paper wrapped around a soft backup block. Dust off and wipe thoroughly with a tack cloth to remove all dust.
4. Repeat steps 2 and 3 to apply the second coat.
5. After the third coat, allow 24 hours before subjecting the cabinet to light use. It is better to permit the finish to cure for several days before putting the cabinet into full service.

**A ONE-STEP FINISH**

A one-step finish such as Minwax® PolyShades® can speed up your finishing process. This product allows for staining and finishing in one step. When you have a project with multiple surfaces, this product requires less drying time. The choice is yours. It is strictly a matter of personal preference since both finishes described in these instructions give beautiful results.

Two coats are recommended for maximum beauty and finish durability.

1. After sanding wood smooth, to the 150-grit stage, dust off and carefully wipe with a tack cloth to remove all traces of dust.
2. For superior results, pre-treat wood with a Pre-Stain Wood Conditioner. This liquid evens out surfaces to be stained and assures that the wood will accept stain evenly (i.e., prevents blotching).
3. Brush on the Wood Conditioner, then after 15 minutes, wipe with a clean, lint-free rag to remove any excess liquid remaining on any surface. Important: Within 2 hours, proceed to the next step.
4. Brush on a thin even coat of PolyShades® one-step stain and finish. As you work each section, make certain your final brush stroke is in a with-the-grain direction.

5. Once you begin the staining process, do not stop. It is especially important with this product that you maintain a wet edge at all times. You do not want to have visible brush or "lap" marks on your project.
6. Allow the finish to dry at least 8 hours, or overnight, if possible.
7. Next day, rub the surface lightly using 000 steel wool; take care to keep the steel wool in the shape of a flat pad; i.e., if you press too hard you not only will cut through the finish, but you also run the risk of rubbing-in very obvious finger marks. Dust off the piece and wipe carefully with a tack rag to remove every particle of dust or steel wool.
8. Apply a second, thin coat of PolyShades® as you did the first coat. Allow the finish to dry for several days before putting the piece into service.

**USEFUL FINISHER'S TIPS**

- You can slightly round or "break" sharp edges on raw wood by using 100-grit paper in the pad sander. For a more pronounced rounding over, round the edges with the router and a 1/4-in. rounding-over bit.
- To achieve an "antique" look when using a Minwax® Polycrylic® Protective Finish stain, don't break the edges until after the stain has been applied and dried. This will allow small amounts of wood to show through, creating the appearance of worn spots.
- Sand raw wood to at least the 150-grit level; use even higher grits for hardwoods such as walnut and birch.
- Allow all stains and finishes to dry thoroughly between coats. Sanding between coats is done with 180-grit to 220-grit sandpaper, the grit getting finer after each succeeding coat.
- Apply water-based finishes, such as Minwax® Polycrylic®, with quick with-the-grain strokes.

**Cleanup**

- Clean all brushes used for water-based finishes immediately after use with warm soapy water.
- If you have product left over, wipe the can rim to remove all product in the rim. Liquids left in the rim can dry out and prevent the lid from forming a tight seal.

Clean all brushes used for oil-based finishes with mineral spirits.

**PRODUCT SAFETY**

Use only with adequate ventilation.

**WARNING!** Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in U.S.) or contact your local health authority.

**VAPOR HARMFUL.** Use only with adequate ventilation. To avoid over exposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches or dizziness, increase fresh air supply or wear respiratory protection (NIOSH/MSHA TC23C or equivalent), or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage.

**DO NOT TAKE INTERNALLY.**



**FIRST AID**

In case of eye contact, flush eyes thoroughly with large amounts of water for 15 minutes and get medical attention. For skin contact, wash thoroughly with soap and water. In case of respiratory difficulty, provide fresh air and call physician. If swallowed, get medical attention immediately.

**DELAYED EFFECTS FROM LONG-TERM OCCUPATIONAL**

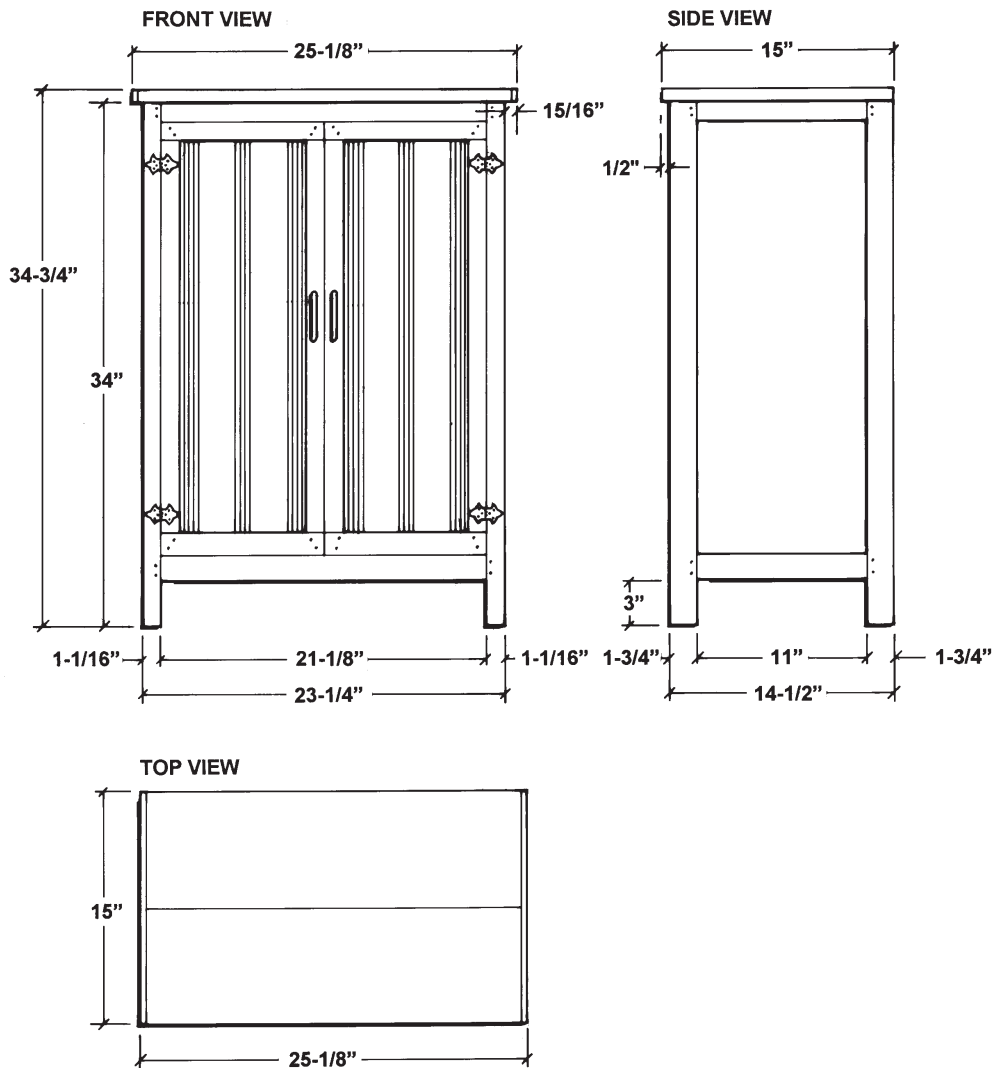
**OVER-EXPOSURE.** Contains solvents that can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

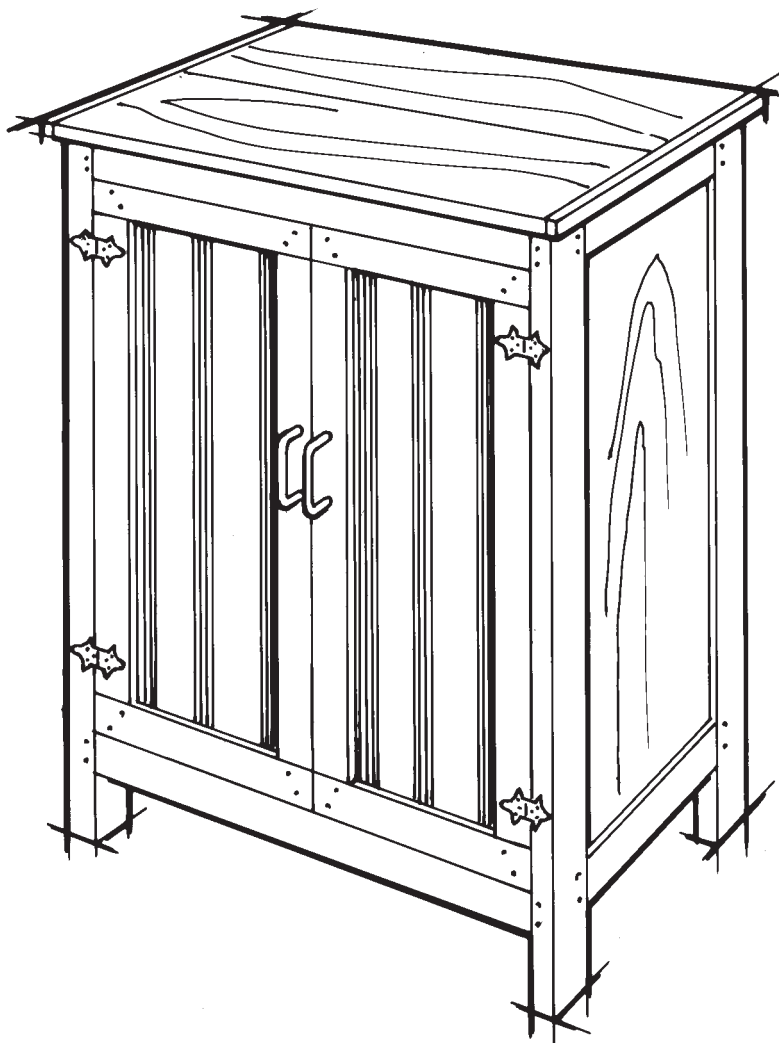
**Safe Disposal of Rags & Waste**

Please be mindful of the safe way to dispose of used rags and other waste. Remember that rags, steel wool and other waste soaked with oil finishes, mineral spirits, turpentine and the like may spontaneously catch fire if improperly discarded. Always place these items in a water-filled metal container immediately after use. Tightly seal the container and then dispose of it in accordance with local fire regulations. Be sure to keep the container out of reach of children.

Created for GW&J and Minwax® by Harry Wicks Woodworks, Cutchogue NY 11935 ©March 2000

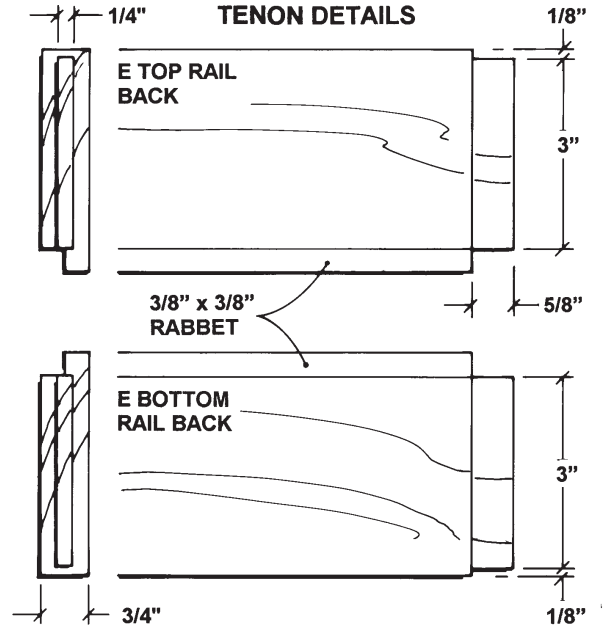
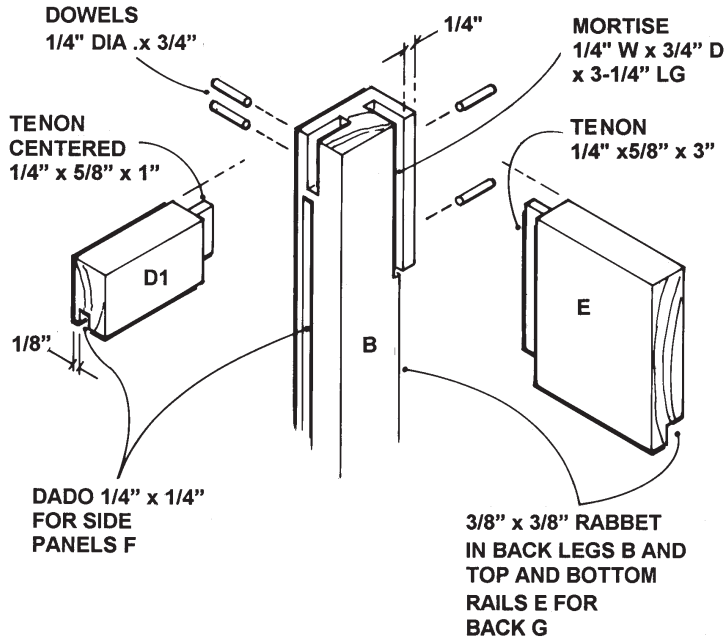
**STORAGE CABINET**



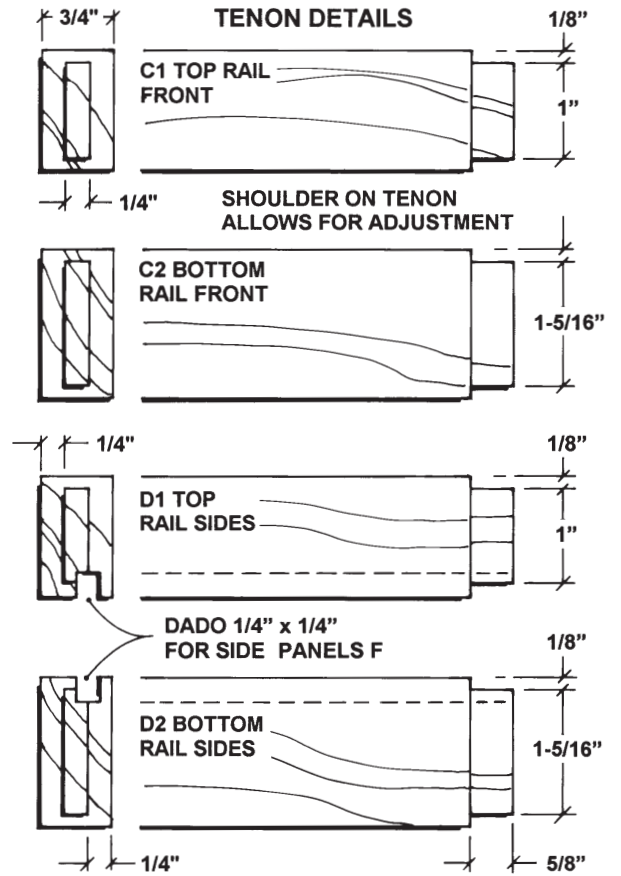
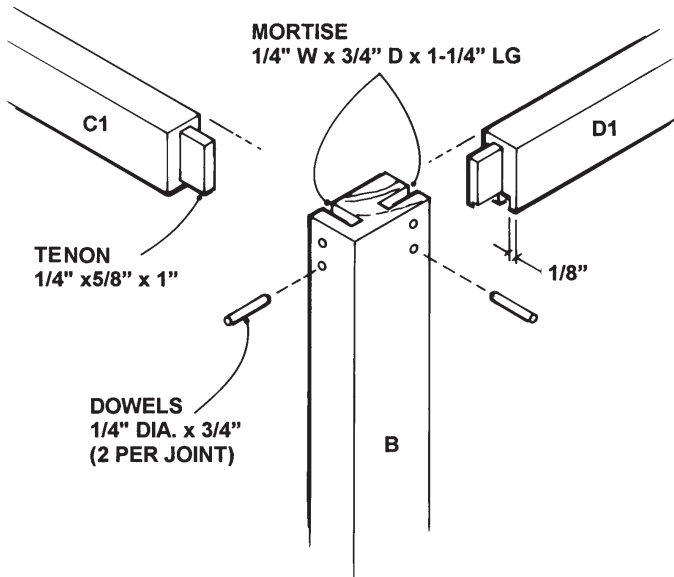




DETAIL NO. 1

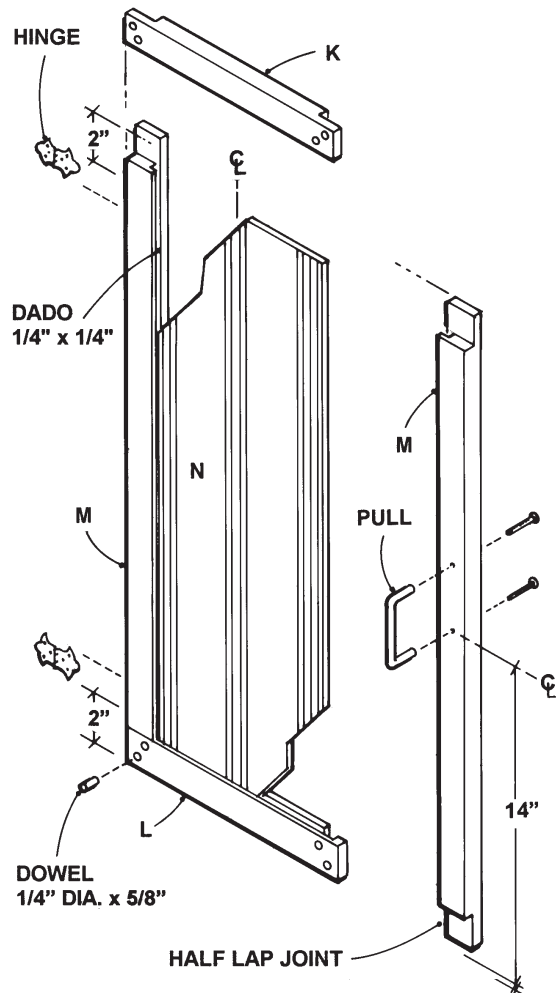


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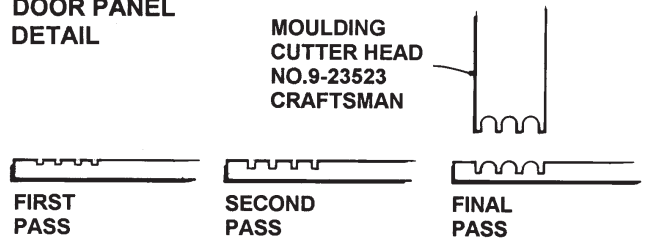




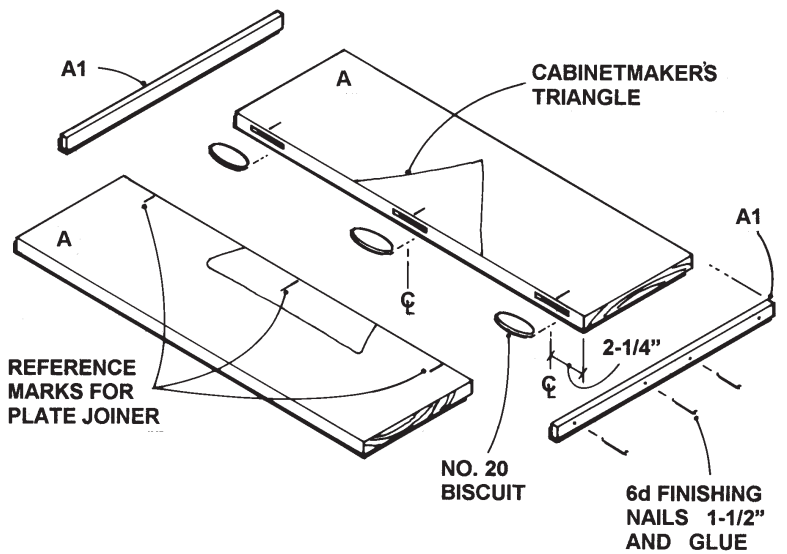
**DOOR CONSTRUCTION**  
LEFT DOOR SHOWN



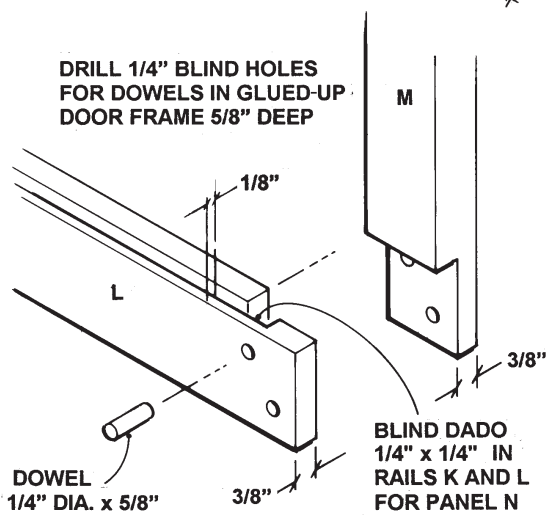
**DOOR PANEL DETAIL**



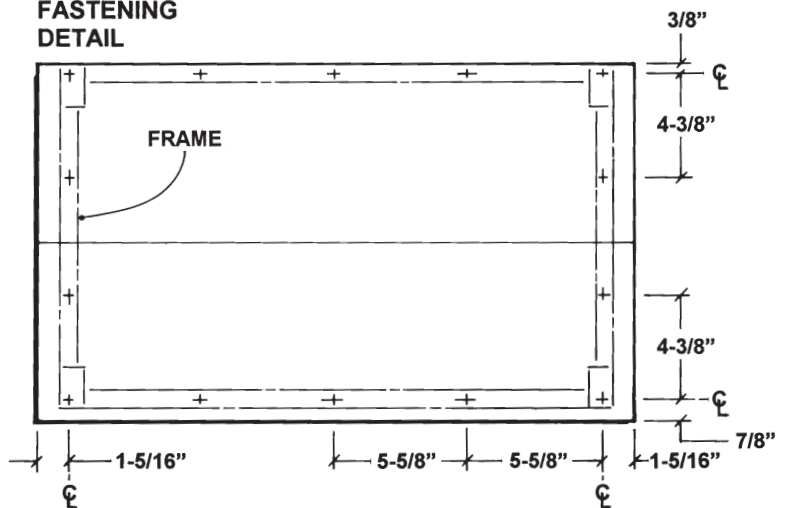
**EDGE JOINING DETAIL**



DRILL 1/4" BLIND HOLES FOR DOWELS IN GLUED-UP DOOR FRAME 5/8" DEEP



**FASTENING DETAIL**



**MATERIALS LISTS**

**BUYING**

Key	No. Pcs/Length*	Nominal Dimensions**	Material
A	1/5'	1 x 8	Pine
A1	1/3'	1 x 2	"
B	2/6'	5/4 x 3	"
C & D	1/5'	1 x 4	"
E	1/4'	1 x 4	"
F	1/4 x 4'	1/4" plywood	Cabinet-grade pine or birch
G	1/4 x 4'	1/4" plywood	A-C grade
H	From shop scrap		Pine
I	1/4'	1 x 8	"
	1/4'	1 x 6	"
J	1/4'	1 x 8	"

**Doors**

K,L,M	1/5'	1 x 4	Pine
N	1/4 x 4' sheet	1/4" plywood	A-C cabinet-grade pine or birch See Note

\*Listed in the fashion in which professionals order lumber. The number to the left of the slash mark is the number of pieces desired; the number to the right is the length of the board in feet (i.e., 1/5' means one 5-footer).

\*\*All lumber is ordered/specified using *nominal* dimensions. Make sure you know the *actual* dimensions your job requires, then convert to nominal to order. For example, if you want a board measuring 3/4-in. thick by 3-1/2 in. wide actual, you would order a 1 x 4, *nominal*.

**Misc.:**

Carpenter's glue, 1-1/2 and 2-in. finishing nails, 1/4-in. and 3/8-in. dowels, 14 1-1/2 in. no. 8 flathead wood screws, approximately 30 no. 20 biscuits.

**Hardware**

- Two pair of hinges, Model No. 76XC by Brainerd Mfg. Co., E. Rochester, NY 14445;
- Two door pulls, no model no. on package, just SKU # 7-22233-33701-1 by Laurey;
- Two magnetic catches by Amerock Corp., Rockford, IL

**Note:** The lumberyard may not sell plywood by the half-sheet (4 x 4'). This means you have to buy a full (4 x 8') sheet, so carefully lay out all of the panels before doing any cutting to both minimize waste and to ensure getting maximum use from the leftover piece on future projects. Discuss the laying out aspect with your shop instructor.

First, lay out the carcass (F) and door panels (N), then, the back (G). Make certain that the panels for the doors and carcass are laid out and cut so that the grain on these sheets will run vertically when installed on the cabinet.

**CUTTING**

**Cabinet**

Key	Part	Pcs.	Actual Dimensions
A	Top	1	3/4 x 15 x 24-3/8"
A1	Top, breadboard ends	2	3/8 x 3/4 x 15"
B	Legs	4	1-1/16 x 1-3/4 x 3 3/4"
C1	Top Rail, Front	1	3/4 x 1-1/4 x 22-3/8"
C2	Btm Rail, Front	1	3/4 x 1-9/16 x 22-3/8"
D1	Top Rail, Sides	2	3/4 x 1-1/4 x 12-1/4"
D2	Btm Rail, Sides	2	3/4 x 1-9/16 x 12-1/4"
E	Top and Btm Rails, Back	2	3/4 x 3-1/2 x 20-1/4"
F	Panels, Sides	2	1/4 x 11-1/2 x 29-1/2"
G	Back	1	1/4 x 21-3/4 x 31"
H	Shelf cleats	4	1/2 x 3/4 x 13-1/2"
I	Shelves	2	3/4 x 12 x 21"
J	Bottom	1	3/4 x 12-1/2 x 22-7/8" *Notched @ corners, see drawing
O	Stop	1	3/4 x 1-1 1/2 x 21-1/8"
P	Shelf cleat	2	3/4 x 7/8 x 12-1/2" (+ or -)
Q	Top stiffener	1	3/4 x 2-3/4 x 12-1/2" (+ or -)

**Doors**

K	Top Rails	2	3/4 x 1-1/4 x 10-1/2"
L	Bottom Rails	2	3/4 x 1-1/2 x 10-1/2"
M	Stiles	4	3/4 x 1-1/4 x 28"
N	Panels	2	1/4 x 8-1/2 x 25-7/8"