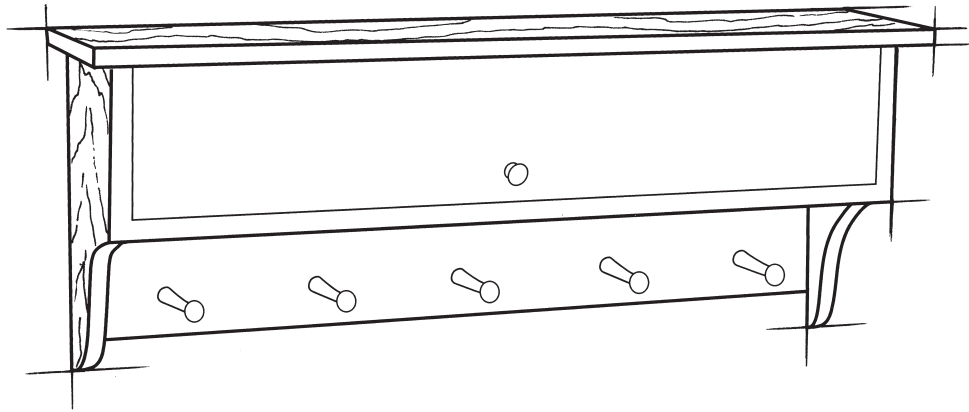




WOODWORKS: BEGINNER PROJECT SHAKER-STYLE COAT RACK



This little rack is easy to build and adds simple, good-looking storage to any home. Makes a great gift, too!

- The basic construction techniques allow you to create a finished piece that is both functional and decorative. By carefully reading and following these plans and directions, you will be able to successfully complete this project.
- Because the surfaces of the rack are flat and the edges are square and unadorned with trim or molding, you can easily master the basic steps for achieving a high-quality finish.

This project gives beginning woodworking students the opportunity to learn a number of important, basic skills, including measuring, cutting, marking, drilling, gluing, clamping, simple joinery and hinge installation. And after you make the rack, you'll learn how to apply stains and finishes to protect the wood and keep it looking beautiful.

TOOLS REQUIRED

Hand Tools

- Try or combination square
- Bar clamps
- Tape measure or folding ruler
- Screwdriver

Power Tools

- Scroll or saber saw
- Table or circular saw
- Electric drill, 3/8" spade bit, 1/2" spade bit, pilot hole/countersink bit
- Belt sander

Miscellaneous

- Pencil
- Compass
- Safety glasses

WOOD BUYING/CUTTING LIST

Key	Pcs.	Size	Description
A	2	3/4" x 6-1/4" x 14"	pine sides
B	1	3/4" x 6-1/4" x 32-1/2"	pine shelf
C	1	3/4" x 3-1/2" x 32-1/2"	pine peg strip
D	1	3/4" x 7-1/4" x 36"	pine top
E	1	3/4" x 5-13/16" x 32-5/16"	pine hatch
F	1	3/4" x 1-1/4" x 32-1/2"	pine hanging strip
G	2	3/4" x 1/2" x 6"	pine hatch stop

OTHER MATERIALS

Item	Quantity
1-1/2" no-mortise hinges*	1 pair
1-1/4" beech knob*	1
narrow magnetic catch*	2
3-3/8" long Shaker pegs*	5
3/8" screw hole buttons*	10
3/8" plugs*	5
1-5/8" wood screws	15
carpenter's glue	1 pint
150- and 220-grit sandpaper	

*Available from home centers, hardware stores or Rockler Woodworking and Hardware, Dept. HW, 4365 Willow Dr., Medina, MN 55340; (800) 279-4441.

WOOD FINISHING PRODUCTS

(Choose the recommended stain/finish or create your own combination.)

Recommended Finish

Prep: Minwax® Pre-Stain Wood Conditioner
 Stain: Minwax® Wood Finish™ Puritan Pine
 Finish: Minwax® Fast-Drying Polyurethane Satin

Alternate Finishes

Minwax® Water-Based Pre-Stain Wood Conditioner
 Minwax® Water-Based Wood Stain Colonial Pine or Water-Based Custom-Mixed Stain in Early Spring (or pick from 60 color choices)
 Minwax® Polycrylic® Protective Finish Satin
 Or, choose this one-step finish: Minwax® WoodSheen® Rubbing Stain and Finish, available in six colors

Miscellaneous

Gloves for finishing
 Sandpaper
 Clean, lint-free rags
 Mineral spirits (for oil-based finishes)
 Water-filled metal container with tight-fitting lid
 Minwax® Wood Finish™
 Stain Brush, a Polyurethane Brush, and/or Polycrylic® Brush

BEFORE YOU BEGIN

Good craftsmanship begins and ends with good work habits, so make the following steps part of your routine workshop practice. If you have any doubts or questions about how to proceed with a project, always discuss them with your shop instructor.

- Carefully and fully review plans and instructions before putting a tool to the project lumber.
- Work sensibly and safely. Wear safety goggles when doing work that creates flying chips and sawdust; wear the appropriate mask or respirator whenever making sawdust or working with thinners or other solvents.
- At the end of every work session, clean up your shop area and put away all portable tools.

CUTTING AND ASSEMBLY PROCEDURE

Refer to the project illustration shown on page 6.

1. Using a compass and a straightedge, transfer the pattern measurements for Part A to the pine stock. Then cut the sides (A) with a jigsaw. Sand the curved edges smooth either by hand or with a drum sander.
2. Cut and rip the shelf (B) to the length and width given in the Cutting List.
3. Cut and rip the top (D) to its length and width.
4. Cut and rip the hatch (E) to its length and width.
5. Cut the hanging strip (F) and the peg strip (C) to the same length as the shelf (B) and rip each of those pieces to their respective widths.
6. Cut and rip the hatch stop (G) to its length and width.
7. Drill the 3/8" counterbore holes for the screw-hole buttons into the outside faces of parts A with your 3/8" spade bit. Make each hole 3/16" deep.
8. Drill the 3/8" counterbore holes in the top (D). These holes must be 3/8" deep.
9. Mark the center points for the 1/2" holes to be used for mounting the Shaker pegs into the peg strip (C). Use your 1/2" spade bit and drill the holes perfectly perpendicular to the peg strip to ensure that the pegs will project evenly when they're glued in place.
10. Lay the pieces on your workbench and, using no glue, preassemble the hanging strip (F), the shelf (B), the peg strip (C) and the sides (A), clamping them together with a bar clamp.
11. Drill the holes for the wood screws with the combination pilot hole/countersink bit, using the center of the counterbore holes as a guide.
12. With the pieces still clamped together, screw the sides (A) to parts B, C and F. Fasten the top (D) to the sides in the same manner.
13. Glue and clamp the hatch stops to the inside of parts A.
14. Install the hinges to the underside of the top (D) and to the top of the hatch (E).
15. Install the magnetic catches to the face of each hatch stop (G).
16. Install the wood knob to the face of the hatch (E).
17. Glue the buttons, plugs and pegs into their corresponding holes. Use only a small drop of glue for the buttons but be sure to apply a thin coat of glue completely around the plugs and the base of the pegs. This will swell the wood and ensure a tight fit. After the glue is dry, trim or belt-sand the four plugs flush with the top.

STAINING AND FINISHING

Woodworker's Tip: *Though you may be tempted to cut short your sanding and wiping time, don't do it. Both of these tasks are very important steps in obtaining a high-quality finish. Remember, it is the finish, just as much as the fit and smoothness of the parts, that will have great bearing on how people judge your craftsmanship. To ensure an excellent result, follow the steps listed below and also the instructions that the finish manufacturer puts on its products.*

FINISHING TIPS

- Use scraps of wood to test the stains and finishes you are planning to use. On the back of the scrap, mark the stain/finish combination and the type of wood. Allow all samples to dry thoroughly before making your final finish selection. Save your samples for quick reference on future projects.
- All stains and finishes must be allowed to dry thoroughly between coats. Remember that drying times can vary due to humidity and other climate conditions.
- If you have some leftover stain or finish, wipe the can rim so that stain or finish in the rim won't dry out and prevent the lid from forming a tight seal.
- Brushes used for oil-based finishes must be cleaned with mineral spirits; for water-based products such as Minwax® Polycrylic® Protective Finish, clean brushes with warm water and soap.

1. Sand the entire piece with 150-grit paper, then move up to 220-grit to complete the pre-finish smoothing. Sand using with-the-grain strokes to remove any marks or scratches that may have occurred during assembly. Dust off the piece and wipe it carefully with a clean, lint-free rag dampened with mineral spirits.
2. Soft, porous woods like pine have a tendency to absorb stain unevenly. To prevent streaking and blotching apply Minwax® Pre-Stain Wood Conditioner following the directions on the label. After 15 minutes, wipe off all excess Conditioner using a clean, lint-free rag. Proceed to the staining within 2 hours.
3. Do the staining in two steps, starting on the interior surfaces and then moving to the exterior surfaces. Apply the Minwax® Wood Finish™ Puritan Pine (or the stain color of your choice) to the interior surfaces using either a rag or a brush. Allow the stain to set for about 10 to 15 minutes then wipe off any remaining excess. Repeat for the exterior surfaces. Allow the stain to dry for 24 hours before applying the finish.

Woodworker's Tip: *When wiping off stain, make certain that your last wipe with the cloth goes with the grain of the wood. This way, any stain you might miss during wipe-off will be visually minimized by the wood grain.*

4. Apply Minwax® Fast-Drying Polyurethane following the directions on the can. To obtain the look of hand rubbing, use Satin finish. If a high shine is desired, use Gloss. In either case, use a brush intended for use with Polyurethane. Allow the first coat to dry overnight.
5. The next day, sand all surfaces lightly with 220-grit paper using with-the-grain strokes. Dust off and wipe all surfaces with a clean, lint-free rag dampened with mineral spirits. Apply a second coat of Polyurethane and set the piece aside to cure overnight.

6. The next day, sand all surfaces lightly with 220-grit paper. Dust off and wipe the piece with a clean, lint-free rag dampened with mineral spirits and apply the third and final coat of Polyurethane. Allow the piece to cure for several days before installing and using the rack.

If you opt for a water-based finish:

All the basic finishing steps, such as sanding, dusting and wiping off, apply when working with water-based finishes. Following are the basic steps to a water-based finish:

1. When using a water-based stain, first apply a coat of Minwax® Water-Based Pre-Stain Wood Conditioner, which will help to ensure uniform penetration of the stain. Apply the Conditioner with a nylon-polyester brush and allow it to penetrate for about 5 minutes. Then wipe any excess off the surface with a clean, lint-free cloth.
2. Wait about 15 minutes, then use 150-grit sandpaper to remove any “whiskers” raised by the Conditioner.
3. Apply the stain you selected with either a nylon/polyester brush or clean rags. Allow the stain to penetrate no longer than 3 minutes. While the stain is still wet, wipe off all excess with a clean cloth that has been lightly dampened with stain. Allow the piece to dry for 2 hours before applying a second coat, if desired. Allow the piece to dry overnight before applying the clear finish.

Woodworker's Tip: *Minwax® Water-Based Wood Stain is available in six factory (wood-tone) colors, a White Wash Pickling Stain and 60 custom colors. This means that you aren't limited to just wood colors (pine, oak, walnut, etc.). Instead, you can actually pick and apply a color to complement the décor of the room in which the rack will be displayed. For this reason, make sure you look over all of the Minwax® color charts before making your final selection.*

4. Applying Minwax® Polycrylic® Protective Finish is the final step. Stir the contents of the can thoroughly before starting and periodically repeat the stirring during your work session.
5. Working a small area at a time to maintain a wet edge, apply the first coat. Work quickly and make the final strokes in each newly finished section using with-the-grain brushstrokes.
6. Allow the finish to dry a minimum of 2 hours and then sand lightly with 220-grit sandpaper wrapped around a soft backup block. Thoroughly dust off and wipe all surfaces with a water-dampened rag.
7. Repeat steps 4, 5 and 6 to apply the second and third coats.
8. Allow the piece to rest for about a week before installing and using the rack.

If you opt for a one-step finish:

This finishing technique, a combined gel stain and protective finish, is an easy one to use. Yet, it permits you to achieve a handsome hand-rubbed look in just a couple of hours. Use it only on raw wood or over previous coats of Minwax® WoodSheen®.

1. Sand surface smooth, to the 150-grit stage. Dust thoroughly and remove all dust with a clean, lint-free rag dampened with mineral spirits. Within 2 hours of this pre-treatment, proceed with steps 2 through 4.
2. Shake the bottle of WoodSheen vigorously for about 15 seconds.
3. Liberally apply WoodSheen using a clean, soft cloth or foam brush.

4. Allow 5 to 15 minutes for penetration, then remove excess by wiping lightly with a clean, soft cloth.
5. Two coats are best: Wait a minimum of 2 hours and apply the second coat in the same manner as the first coat. Extra coats may be applied if increased sheen and deeper color are desired.
6. For additional surface protection, wait 2 hours after second stain application and wipe on a couple of coats of Minwax® WoodSheen Natural, allowing 2 hours between coats.
7. Immediately after each use, tightly close the bottle.
8. Cleanup is with mineral spirits.

PRODUCT SAFETY

For your safety and the safety of those you work with, always read the safety warnings, which manufacturers print on their labels, and follow them to the letter. Typical safety advice and instructions will contain information such as the following:

DANGER! MINERAL-BASED PRODUCTS ARE HARMFUL OR FATAL IF SWALLOWED. SKIN IRRITANT. COMBUSTIBLE. KEEP OUT OF REACH OF CHILDREN. DANGER:

Contains mineral spirits. Harmful or fatal if swallowed. Do not take internally. Skin irritant. Avoid contact with skin and eyes. Wear rubber gloves and safety glasses when handling. Combustible. Do not use or store near heat, sparks, flame or other source of ignition. Close container after each use. Avoid inhalation and use only with adequate ventilation. If using indoors, open all windows and doors to make sure there is fresh air movement. If you experience light-headedness, dizziness or headaches, increase fresh air movement or leave the area. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

FIRST AID: If swallowed: Do not induce vomiting. Call physician immediately.

FOR SKIN CONTACT: Wash thoroughly with soap and water. If irritation persists, get medical attention.

FOR EYE CONTACT: IMMEDIATELY flush eyes thoroughly with water, then remove any contact lenses. Continue to flush eyes with water for at least 15 minutes. If irritation persists, get medical attention.

IF AFFECTED BY INHALATION: Immediately remove to fresh air. If symptoms persist, call physician.

When using Minwax Polycrylic Protective Finish:

VAPOR HARMFUL. Use only with adequate ventilation. To avoid overexposure, 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 NIOSH-approved respiratory protection 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 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 OVEREXPOSURE.

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 AND WASTE.

Please be mindful of the safe way to dispose of rags and other waste. Rags, steel wool and other waste products soaked with oil finishes or solvents may spontaneously catch fire if improperly discarded. Place rags, steel wool and other waste immediately after use in a water-filled metal container. Tightly seal and dispose of the waste materials in accordance with local trash removal regulations. Be sure to keep the waste out of reach of children.

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