



Fine  
Woodworking

## WOODWORKS PROJECT PLANNER: 2016-2017 INTERMEDIATE PROJECT BOOK RACK



Never judge a book by its cover, but always keep your favorite reads organized! This portable book rack is the perfect solution to your storage needs and thanks to Minwax®'s partnership with Fine Woodworking, now you can organize your go-to novels in style. With expert plans from Fine Woodworking, this project allows woodworkers to practice their skills and features traditional through-tenons and book-matched ends. Once you've finished building your book rack, learn how to personalize it with your favorite Minwax® stain color and protect your project for years to come by applying a clear protective finish.

## TOOLS REQUIRED

### Hand Tools

- 45-degree triangle
- Mallet
- Block plane
- Adjustable square

### Power Tools

- Table saw
- Miter saw
- Drill
- Orbital sander
- Router
- Jig saw
- Circular saw

### Miscellaneous

- 1/2" forstner bit
- 1/2" straight router bit
- 3/16" round over router bit
- 3/4" router bushing
- Sharp chisels
- Tenoning jig
- Tape measure
- Pencil
- Wood glue
- Assorted clamps
- Safety glasses
- Straight edge
- Wood rasp or file
- Sanding block
- Sandpaper (various grits)
- Gloves for finishing
- Good quality natural bristle brush
- Mineral spirits (cleanup for oil based products)
- Clean lint free cloths
- Respirator

## SHOPPING LIST

### Recommended Wood: White Oak

Material	Quantity
1" x 6" Highly Figured White Oak	10'
1" x 4" x 32" White Oak	4
1" x 6" x 32" White Oak	2

## CUTTING LIST

Quantity	Description	Thickness	Width	Length
2	Sides	3/4"	11 1/2"	29"
1	Bottom Shelf	3/4"	10"	32"
4	Angled Shelves	3/4"	4"	32"

Total board feet 10.5

## WOOD FINISHING PRODUCTS

Prep: Minwax® Pre-Stain Wood Conditioner (oil-based)

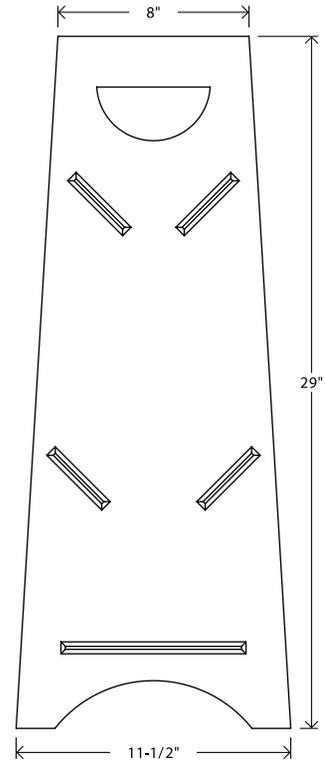
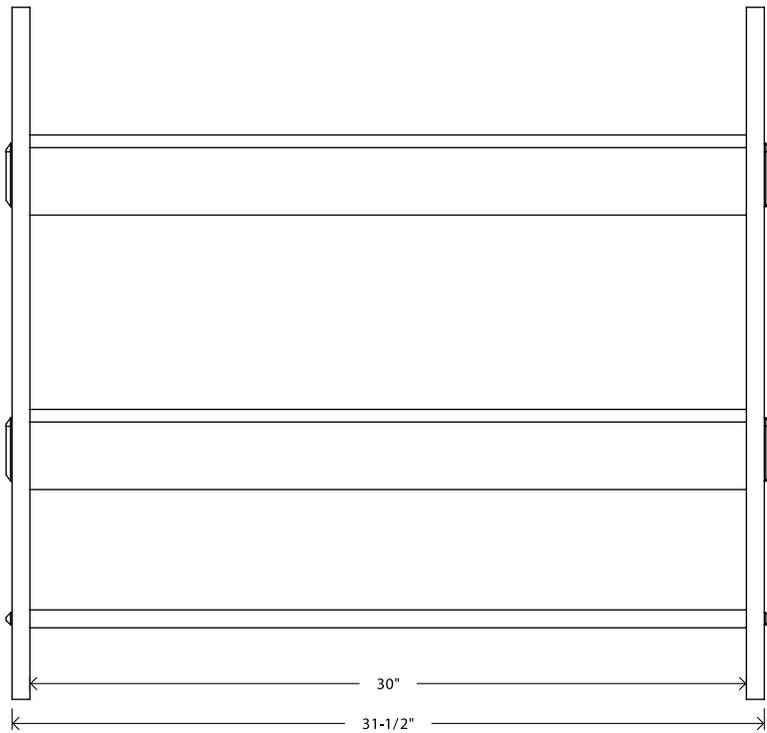
Stain: Minwax® Gel Stain, Coffee

Finish: Minwax® Fast-Drying Polyurethane, Semi-Gloss

## BEFORE YOU BEGIN

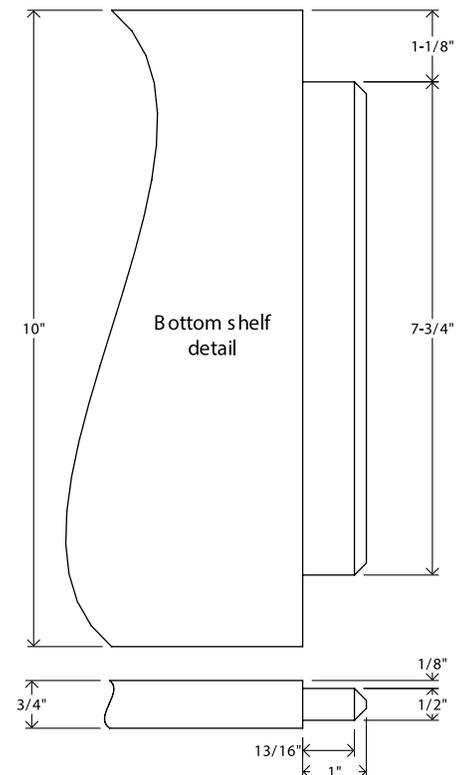
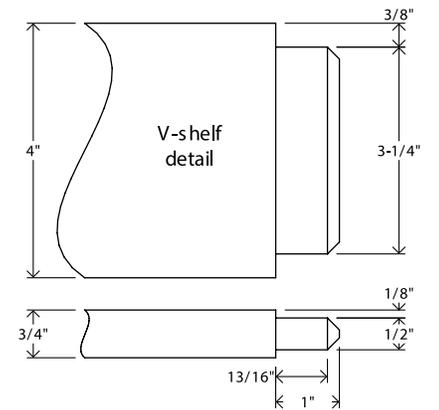
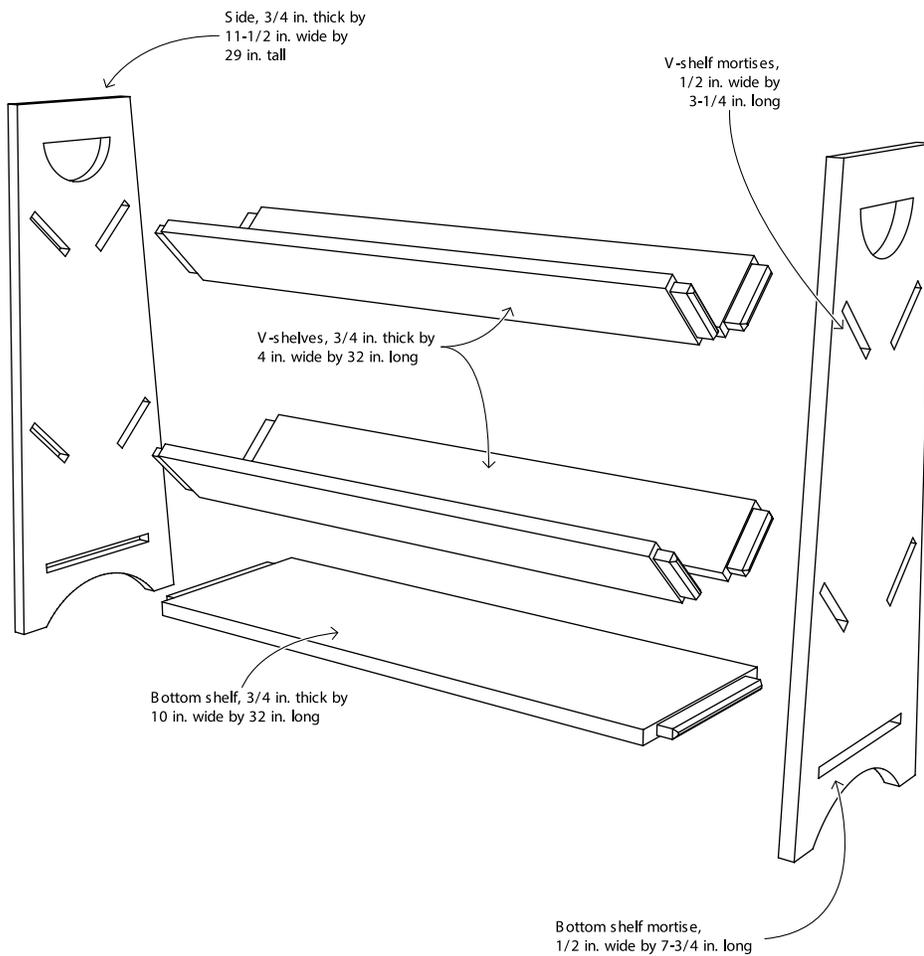
Good craftsmanship begins and ends with good work habits, so make the following steps part of your routine workshop practice. If you have any doubts or questions about how to proceed with a project, always discuss them with your shop instructor.

- Carefully and fully review plans and instructions before putting a tool to the project lumber.
- Work sensibly and safely. Wear safety goggles. Wear the appropriate 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.



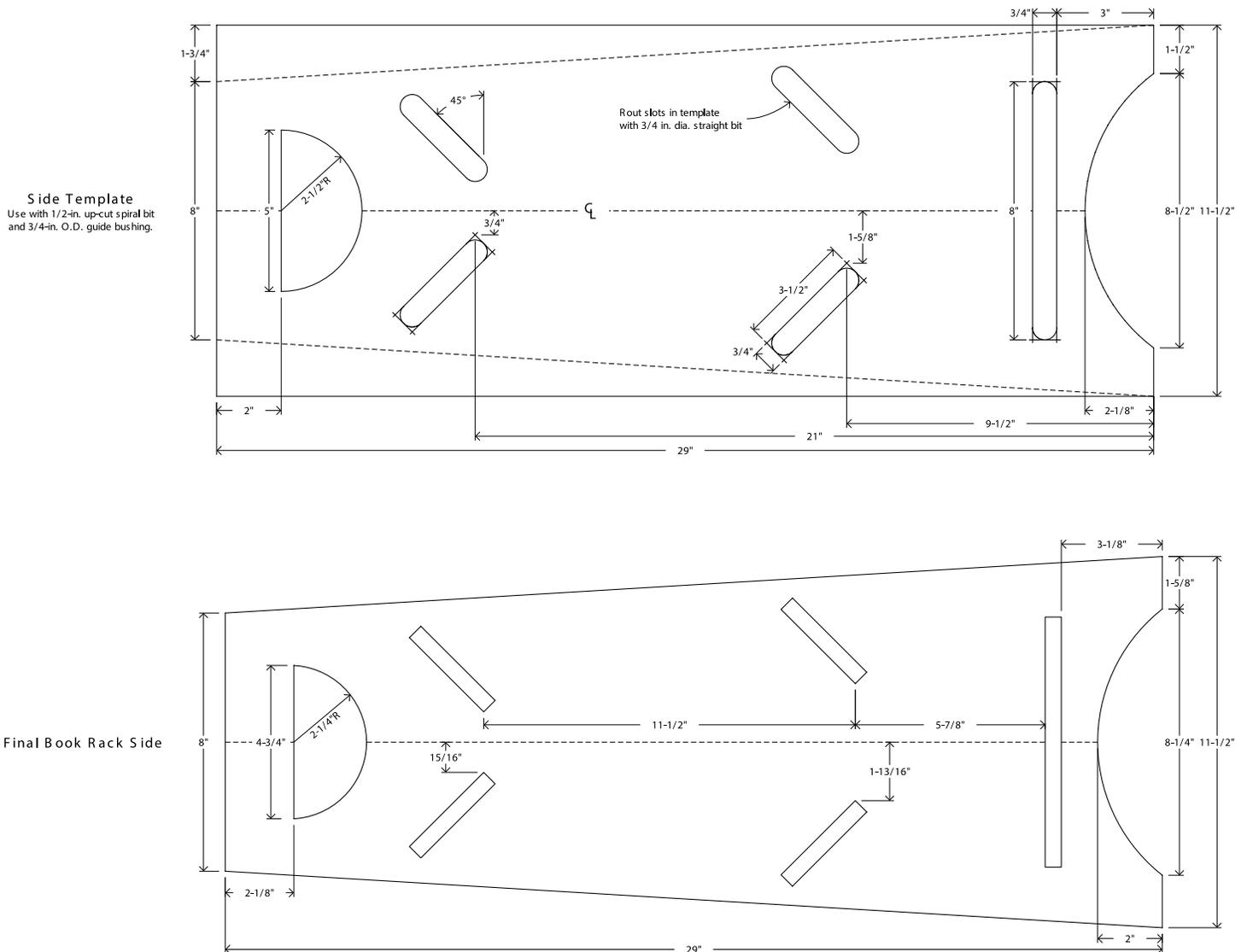
## CUTTING AND ASSEMBLY NOTES

1. Make a template using 1/4" MDF or a good grade of plywood.
2. Use a 45-degree triangle to layout the mortises for the angled shelves before the angles on the sides are cut. Cut the mortises with a 3/4" straight bit and a straight edge jig. Make sure that the straight edge jig is lined up exactly with the layout lines.
3. When actually cutting the mortises you will be using a 1/2" straight bit with a 3/4" OD guide bushing. Rout part way through then flip the workpiece over and use a flush trim bit with a bottom bearing to finish the cut. This will minimize any tear out. You will need to drill a clearance hole for the flush trim bit to enter. Remember to flip the template over when routing the 2nd end piece. This will insure that mortises will line up. Put the template on the outside of the first end and flip it over and put it on the inside for the second end.



## CUTTING AND ASSEMBLY NOTES

4. When cutting the arched bottom and the D Handle hole, cut the bulk of the waste with a jig saw. Don't cut all the way into the corner of the D Handle cut out. The bearing on the flush trim bit will not allow the bit all the way into the corner. Use a flush trim bit to trim the cuts using the template.
5. Finish cutting the workpiece angled sides by cutting close to the layout lines and finish the cut using the straight edge jig and a straight bit.
6. Sand all surfaces and edges. Use a  $\frac{3}{16}$ " round over bit to soften the edges, D Handle cut out and bottom arch. Do not rout the mortises.
7. Cut the shelf parts to size then cut the tenons on a table saw. Define the shoulders first with a combination blade then remove the waste with a dado blade. This could also be done with a tenoning jig if you have one.
8. Fit the tenons to the mortises. You may have to fine tune the fit with a file or rasp. After you are satisfied with the fit, chamfer the ends with a block plane. They should be  $\frac{1}{4}$ " proud of the sides. Chamfer the wide side of the tenons first, then the short part. This will help to minimize tear out. Rout the shelf edges with the  $\frac{3}{16}$ " round over bit.
9. It's a good idea to pre finish some of the pieces before assembly. Tape off the tenons with  $\frac{1}{2}$ " tape close to the tenon cheeks to keep the finish off of the glue surfaces.
10. When assembling the Book Rack make sure that the ends are protected so the clamps won't damage the workpiece.



## STAINING AND FINISHING

**Woodworker's Tip:** *Though you may be tempted to cut short your sanding, preparation, and application time, don't do it. 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 an impact on how people judge your craftsmanship. To ensure excellent results, follow the steps listed in this section and the instructions the wood finishing manufacturer puts on its products.*

### FINISHING TIPS

- Test the stain and clear protective finish you are planning to use on scraps of wood. On the back of the scrap, mark the stain and 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 temperature, humidity, and other climatic 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.

### BEFORE YOU STAIN

Carefully sand the pieces following the direction of the grain. Start with 100-grit sandpaper, proceed to 150-grit and finish with 220-grit. Remove all the sanding dust. Then proceed with the stain and finish of your choice.

### RECOMMENDED STAIN AND CLEAR FINISH

**Prep:** Minwax® Pre-Stain Wood Conditioner (oil-based)

**Stains:** Minwax® Gel Stain, Coffee

**Finish:** Minwax® Fast-Drying Polyurethane, Semi-Gloss

1. Before applying Minwax® Gel Stain, apply Minwax® Pre-Stain Wood Conditioner (oil-based), following the directions on the can. Using a pre-stain wood conditioner will help to ensure even absorption of stain and prevent blotchiness.
2. Before use and occasionally during the application, stir Minwax® Gel Stain until creamy. Apply a liberal amount of the Minwax® Gel Stain evenly with a brush or rag. Wait 3 minutes and using a clean rag, wipe with the wood grain to remove any excess stain. Allow Gel Stain to dry for 8 to 10 hours. To darken the color, apply additional coats of Minwax® Gel Stain following the directions above. Allow the stain to dry for 24 hours before applying the clear protective finish.
3. Apply Minwax® Fast-Drying Polyurethane according to the directions on the can. After the first coat is dry, sand the surface lightly to smooth and prepare it for the second coat. Allow final coat to dry for 24 hours before use.

### PRODUCT SAFETY

For your safety and the safety of those you work with, always read the manufacturer's safety warnings, and follow them to the letter.

**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 a 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 US) or contact your local health authority.

**DANGER:** Rags, steel wool, other waste soaked with this product, and sanding residue may spontaneously catch fire if improperly discarded. Immediately place rags, steel wool, other waste soaked with this product, and sanding residue in a sealed, water-filled, metal container. Dispose of in accordance with local fire regulations.

### CAUTION: CONTAINS ALIPHATIC HYDROCARBONS.

Contents are COMBUSTIBLE. Keep away from heat and open flame.

**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, or wear respiratory protection (NIOSH approved) 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.

**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, call Poison Control Center, hospital emergency room, or physician immediately.

### DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE.

Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

### DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.

CONFORMS TO ASTM D-4236. Contact a physician for more health information.