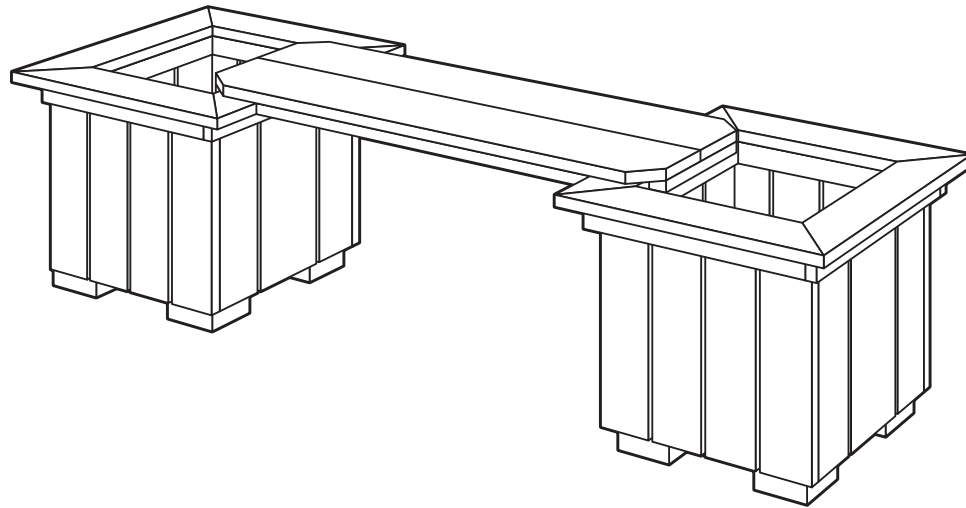




**WOODWORKS: INTERMEDIATE PROJECT 2008-2009**  
**MODULAR PLANTER BENCH**



The beauty of this modular system is that it can be as short or long as you like; it can be straight, or it can take hard lefts or rights to follow the footprint of a deck or patio. And, best of all, it's simple, quick and inexpensive to build. You'll be "up" and sitting in a few hours.

In this intermediate-level project, you'll gain experience in making precise crosscuts and miter cuts and in doing an equally precise assembly. And after you build it, you'll learn more about applying and using finishes to protect the wood and keep it looking beautiful.

## TOOLS REQUIRED

### Power Tools

- Table saw
- Miter or radial-arm saw
- Power drill with drill bits, countersink bit and Phillips-head screwdriver bit
- Orbital or finish sander

### Miscellaneous

- Tape measure
- Pencil
- Safety glasses
- 120-grit sanding belt
- 120-, 150- and 220-grit sandpaper
- Clean, lint-free cloths
- Respirator
- Gloves for finishing
- Mineral spirits, for oil-based waterproofer
- Good quality, natural-bristle brush (for oil-based waterproofer) or synthetic-bristle brush (for water-based waterproofer)

## SHOPPING LIST

**Wood Recommendation:** Pressure-treated pine

**Alternate Wood:** Any other type of rot-resistant wood

For two planters and one bench:

- 60 lin. ft. 1x4 pressure-treated pine or alternate
- 6 lin. ft. 1x8 pressure-treated pine or alternate
- 4 lin. ft. 5/4x6 pressure-treated pine or alternate
- 3 lin. ft. 2x4 pressure-treated pine or alternate
- Wood glue rated for exterior use

**Woodworker's Tip:** Knots can weaken a board and spell disaster, especially on furniture, so be sure to select boards with the fewest knots and to plan your cuts around any knots.

## HARDWARE

Use either stainless-steel or coated exterior-grade fasteners

- 1-1/4" screws 180
- 2-1/2" screws 32
- 6d galvanized finish nails 24

## CUTTING LIST

Overall dimensions		
Planter:		
Bench: 11" x 42"		
Key	Part	Size & Quantity
<b>Planter boxes</b> (amounts for two boxes)		
A	Inner frames	1x2 x 12-1/2", 16 pcs.
B	Sides	1x4 x 13-1/2", 24 pcs.
		1x6 x 13-1/2", 4 pcs.
C	Floor	1x4 x 13-1/4", 6 pcs.
D	Feet	2x4 x 3-1/2", 8 pcs.
E	Top trim	1x2 x 15-1/2", 8 pcs.
F	Top frame	1x4 x 18-1/2", 8 pcs. (18-1/2" on the long side; ends are mitered at a 45° angle)
<b>Bench</b> (amounts for one 42"-long bench)		
G	Bench boards	5/4x6 x 42", 2 pcs.
H	Guide cleats	1x1 x 8", 4 pcs.
I	Trim strips	1x1 x 33", 2 pcs.

## WOOD FINISHING PRODUCTS

### Recommended Finish

- Thompson's® WaterSeal® Advanced Wood Protector Sheer Nutmeg Brown

### Alternate Finish

- Thompson's® WaterSeal® Waterproofer Plus Clear Wood Protector

## 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 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

### Planter boxes

1. Cut parts A, B, C, and D to length. Rip part A to the required width from 1x4 stock. Rip the four wide side pieces to the required width (5-1/2") from 1x8 stock. (Note: parts H and I will also be ripped from this stock, or from scrap.) To speed the job, clamp a stop block to the fence so you can quickly make repeat cuts without measuring every piece. Rip part A to the required width. (Note: Parts dimensioned as 1x2, 1x4, etc., refer to nominal dimensions. The actual size of a 1x2 is 3/4" x 1-1/2"; a 1x4 measures 3/4" x 3-1/2".)

2. Drill and countersink pilot holes through the inner frames (A) corresponding to the spacing of the side pieces (B) and using two 1-1/4" screws for each end of the boards to minimize cupping (Fig. 2). Use scrap to cut 1/4"- and 3/8"- thick spacers to ensure even gaps between the side pieces. The 3/8" spacers go between 1x4s and 1x6s, and the 1/4" spacers are for sides that are all 1x4s. Your goal is to make each space on a given side the same. Check this dimension before cutting the spacers.

3. Start fastening the side pieces (B) to the inner frames. Apply glue to the surfaces that will meet the frames and arrange the pieces so they're square to the inner frame. Drill shallow, 1/2"-deep pilot holes into the side pieces through the existing holes in the inner frames and drive 1-1/4" screws into the holes. Fasten the sides to one frame at a time; repeat the process for the second frame.

4. Glue and fasten the floor pieces (C) to the top of the lower frame, again using four screws per board to minimize cupping. Use the 1-1/4" screws.

5. Glue and fasten the feet (D) to the underside of the box (as shown in Fig. 1). Use the 2-1/2" screws.

6. Rip the top trim pieces (E) to the required width from 1x4 stock. Cut them to the actual length required and glue and fasten them along the top edge of the box (Fig. 1).

7. Cut the top frame pieces (F) to the actual length required. Use glue and the 1-1/4" screws to join the corners and make the frame. Then glue and nail the frame onto the top of the box with 6d galvanized finish nails. Set the nail heads below the surface and fill the holes with wood filler. After the filler dries, sand the top so the miter joints are smooth (Fig. 2).

### Bench

8. Cut the bench boards (G) to length and cut the corners (as shown in Fig. 1). Rip parts H and I from stock left over from the 1x8 or from scrap. Cut them to length.

9. Position and install the guide cleats (H) (as shown in Fig. 4). Use a scrap of 1x4 plus pieces of cardboard to determine the spacing and ensure a loose fit when the bench is set on the planters. Use glue and the 1-1/4" screws to secure the cleats.

10. Position and install the trim strips (I) with glue and the 1-1/4" screws. Sand all edges to soften sharp corners.

## PROTECTING YOUR PROJECT

Any type of wood that's used outdoors needs protection from water damage. There are a variety of protective coatings available, including clear and tinted wood protectors and semitransparent and solid stains. Each of these finishes has a different look and maintenance requirement.

To provide complete protection for your project, use Thompson's® WaterSeal® Advanced Tinted Wood Protector or Thompson's® WaterSeal® Waterproofer Plus Tinted Wood Protector. Both products not only prevent water damage, but also resist damage from mildew and ultraviolet (UV) radiation in sunlight, and they exceed industry standards for waterproofing on wood. Plus, the transparent tint will give plain pine just the right amount of rich wood tone. These products are available in five beautiful sheer wood tones.

*Woodworker's Tip: Always be sure to choose a waterproofer that claims to exceed industry standards for waterproofing on wood.*

### FINISHING TIPS

- Coverage: The approximate coverage of Thompson's® WaterSeal® Advanced Tinted Wood Protector and Thompson's® WaterSeal® Waterproofer Plus Tinted Wood Protector on pine is 200 square feet per gallon.
- When you apply Thompson's® WaterSeal® Advanced Tinted Wood Protector or Thompson's® WaterSeal® Waterproofer Plus Clear or Tinted Wood Protector, do not mix it with other waterproofing products, because variations in the final appearance of the surface being treated may result. Also, do not thin these products.

### Recommended Finish

11. Before applying Thompson's® WaterSeal® Advanced Tinted Wood Protector, the wood surface must be free of all dirt, wood dust and contaminants. This product can be applied to damp, freshly cleaned wood. If the wood needs cleaning, use Thompson's® WaterSeal® Deck Cleaner & Brightener or Thompson's® WaterSeal® Deck Wash. Read and follow the directions found on the back of the can. After the cleaning is done, read and follow the directions found on the back of the can of the Tinted Wood Protector. Then do a trial test before full application. The surface may darken slightly with application and color appearance is different when the wood is fully dry.

12. When applying this product, do not use it with other waterproofing products, as variations in the final appearance of the wood may result. Do not thin. To ensure good penetration, do not apply in direct sunlight or on hot days. Do not apply if rain is expected within 48 hours.

Also, temperature must be above 50° F. and remain above freezing for 24 hours.

**13.** Shake or stir contents for a minimum of 2 minutes before use. Intermix all containers (of the same color) to be used to assure color uniformity.

**14.** Use a paint pad or brush to apply, do not use a roller. For small projects, a brush is the preferred applicator.

**15.** Apply only one thin, even coat. **DO NOT APPLY A SECOND COAT.** A heavier or additional coat will not improve performance or appearance. Avoid puddling. Tackiness will result if overapplied. Tackiness may also occur after application if overnight temperature falls below 50°F. within 48 hours of application. Drying time will vary depending on wood surface and humidity. Allow a minimum of 12 hours before using the bench.

**16.** Brushes and equipment used for water-based products must be cleaned with soap and water; brushes used for oil-based finishes must be cleaned with mineral spirits. Dry product can be removed with mineral spirits.

#### **Alternate Finish**

**17.** Before applying Thompson's® WaterSeal® Waterproofer Plus Clear Wood Protector read and follow the directions found on the back of the can. Be sure that both surface and air temperature are above 50° F. during application and for 48 hours after application. And, if you're working outside, do not apply product if rain is forecasted within 24 hours of application.

**18.** The surfaces must be free of all dirt, wood dust and all other contaminants. To clean the wood, use either Thompson's® WaterSeal® Deck Cleaner & Brightener or Thompson's® WaterSeal® Deck Wash. If the surface is damp or wet from cleaning or weather, allow the surface to dry thoroughly (a minimum of 48 hours) before application.

**19.** Do not mix the product with other waterproofing products because variations in the final appearance of the surface being treated may result.

**20.** Before applying the product over the entire surface, a small trial patch is recommended.

**21.** In most applications, only one light coat is necessary. Apply with a brush, roller or applicator pad. Regardless of which application method is used, remove excess within 15 minutes by redistributing it to drier areas or wiping it off.

**22.** Oiliness and tackiness will result if overapplied, or applied to wet or damp surface or if overnight temperature falls below 50° F. within 48 hours of application.

**23.** Allow at least 48 hours to dry before you use the bench.

**24.** Clean brushes and equipment with mineral spirits, then rinse with clean water.

**NOTE:** The length of protection will vary depending on environment. Perform the following splash test once a year to see whether reapplication is necessary. Sprinkle water on various sections of surface to be sealed. If water absorbs and darkens color of substrate within 5 seconds, the surface is porous and considered ready to be treated. If water beads up or otherwise sits on top of surface, then surface doesn't need protection at this time. For maximum protection from color change and other damage caused by the sun, reapplication is recommended every year. Vertical and horizontal surfaces will experience color changes at different rates.

#### **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:

**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 US) or contact your local health authority.

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

Contains **ALIPHATIC HYDROCARBONS**.

**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 respiratory protection (NIOSH/MSHATC23C 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.

**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 OVEREXPOSURE.**

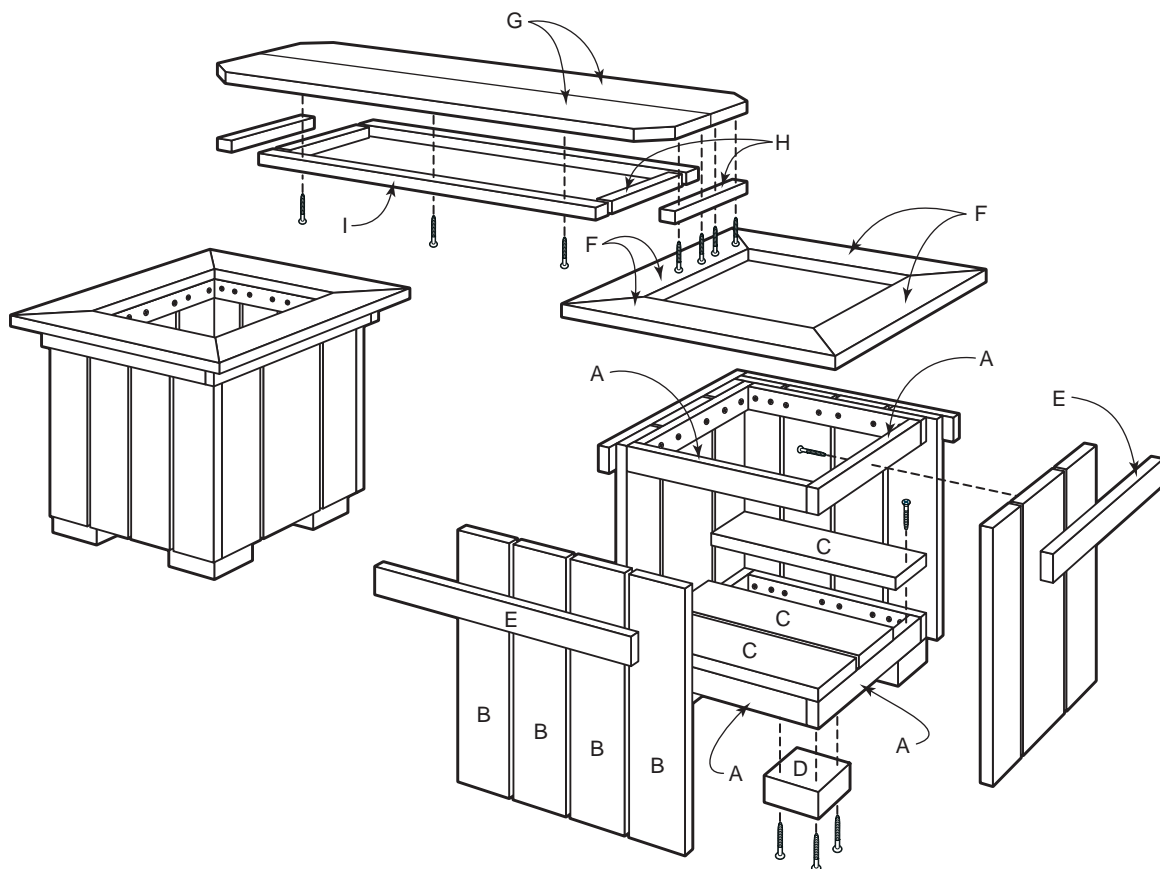
Contains solvents which can cause permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal.

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF REACH OF CHILDREN.**

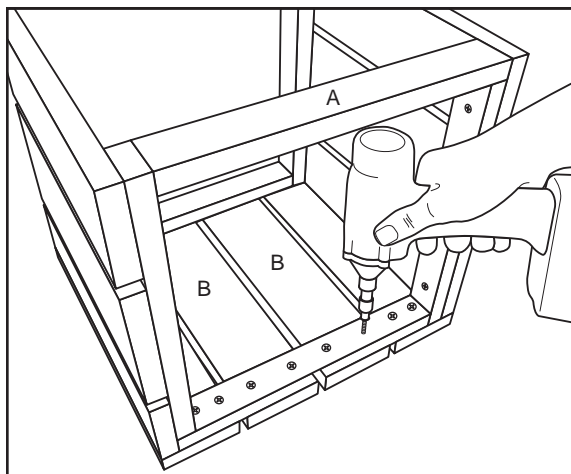
**SAFE DISPOSAL OF RAGS AND WASTE.**

**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.

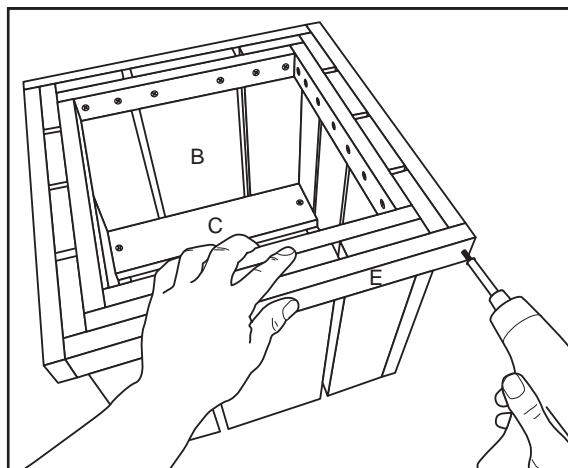
FIG 1.



**FIG. 2**



**FIG. 3**



**FIG. 4**

