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Dave Campbell  
Editorial Content Chief, *WOOD* magazine



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easy-does-it

# garden bench



**This beauty's so simple to build,  
you'll be sitting pretty in no time.**

Looking for a weekend project that will yield years of outdoor service? Here it is. This contoured, eye-catching bench derives its durability from rock-solid mortise-and-tenon joinery and decay-resistant cedar. It has just eight different parts, and we've included full-size curved seat rail and support patterns for your convenience. Better yet, you can build the bench from knotty-grade cedar posts and deck boards, yet achieve the knot-free appearance of clear-grade cedar at a fraction of the cost. To learn how, see the **Builder's Note** from our penny-pinching Design Editor, Jeff Mertz, *page 5*.

## Start with the legs

**1** From a 4x4 cedar post 8' long, cut four clear 18"-long workpieces for the legs (A). Using your jointer, square two adjacent faces on each piece. Then, cut a 2¼"-square leg from each piece.

**2** Mark the two best faces on each leg for the outside. Then, lay out the ¾x2½" mortises on the legs' inside faces, where dimensioned on **Drawing 1**, making sure you have mirrored pairs of legs. Using a ⅜" Forstner bit in your drill press and a fence to keep the holes aligned, drill the ⅞"-deep mortises. (The mortises are ⅛" deeper than the mating tenons' length to prevent glue squeeze-out and ensure tight-fitting joints.) Now, square their sides and ends with a chisel.

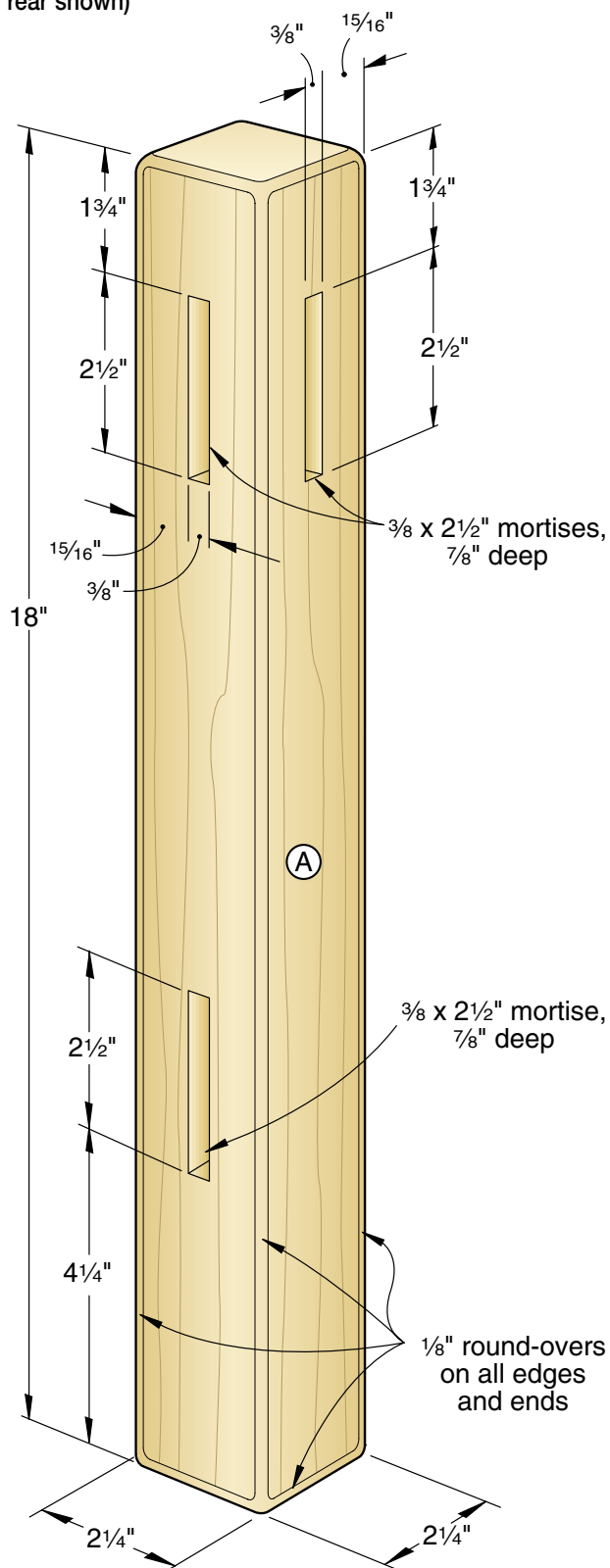
**3** Rout ⅛" round-overs along all of the legs' edges and ends. Then, sand the legs smooth using 180-grit sandpaper.

## Next up: the frame parts

**1** From 5/4 cedar deck boards planed to 1" thick, cut the seat rails (B), bottom side rails (C), and front/back rails (D) to the sizes listed in the **Materials List**. Cut an extra piece with the same thickness and width for forming test tenons. (Our deck boards measured 1⅛" thick. We planed them to 1" thick by removing equal amounts of material from both faces.)

**2** To form the tenons on the rails' ends, where dimensioned on **Drawing 2a**, fit your tablesaw with a ¾" dado blade, and raise the blade to ⅝". Next, attach an auxiliary fence to the saw's rip fence and an auxiliary extension to the miter gauge as a backer to prevent tear-out. Position the

### **1** LEG (Left rear shown)



fence so it just touches the dado blade. Now, form a  $\frac{3}{8}$ " tenon  $\frac{3}{4}$ " long on the end of your test piece, as shown in **Photo A**. Test the tenon's fit in the leg (A) mortises. If necessary, adjust your setup, and retest. When you're satisfied with the fit, cut the tenons on the ends of the rails (B, C, D).

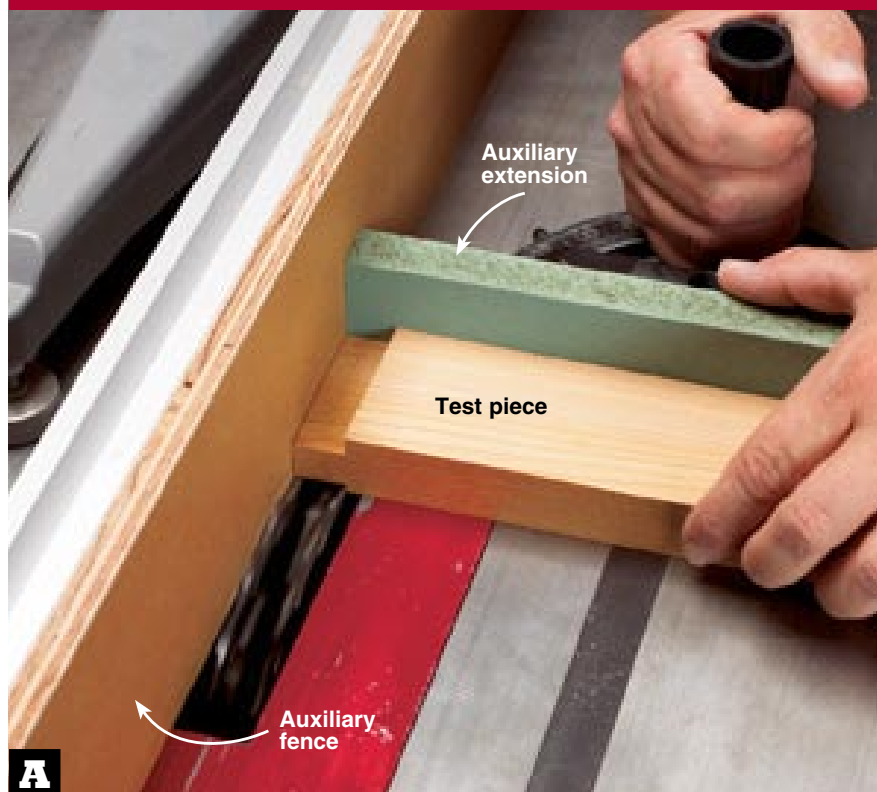
**3** Raise your dado blade to  $\frac{1}{2}$ ". Then, crosscut both edges on your test piece to trim the tenon's width to  $2\frac{1}{2}$ ". Check its fit in the leg mortises. Adjust the blade height, if necessary, to achieve a good fit. Now, trim the tenons on the rails.

**4** Make four copies of the combined seat rail (B) and seat support (F) full-size half patterns on *page 8*. Set two of the copies aside for a seat support. Then, cut out and spray-adhere the remaining copies to a seatrail, aligning the applicable patterns' ends with the tenons' shoulders. (You'll need to flip one of the patterns over to complete the contour.) Now, bandsaw and sand to the pattern line. Using the rail as a template, mark the contour on the other seat rail, and cut and sand it to shape. Remove the patterns.

**5** Lower your dado blade to  $\frac{1}{4}$ ". Then, making two passes, cut a 1" dado centered on the inside face of the bottom side rails (C), where shown on **Drawing 2**. Now, cut two 1" dados  $\frac{1}{4}$ " deep on the inside face of the front/back rails (D), where dimensioned. Inside face of the front/back rails (D), where dimensioned.

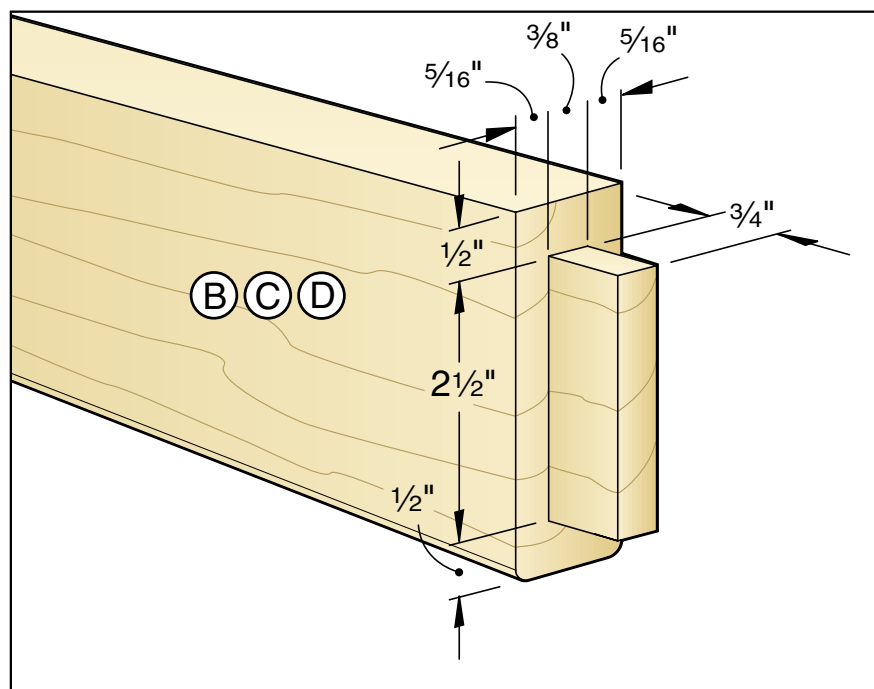
**6** Mark the center of the arches on the bottom side rails (C) and front/back rails (D), where dimensioned. Then, bend a fairing stick to these points, and draw the arches.

## CUT A TEST TENON

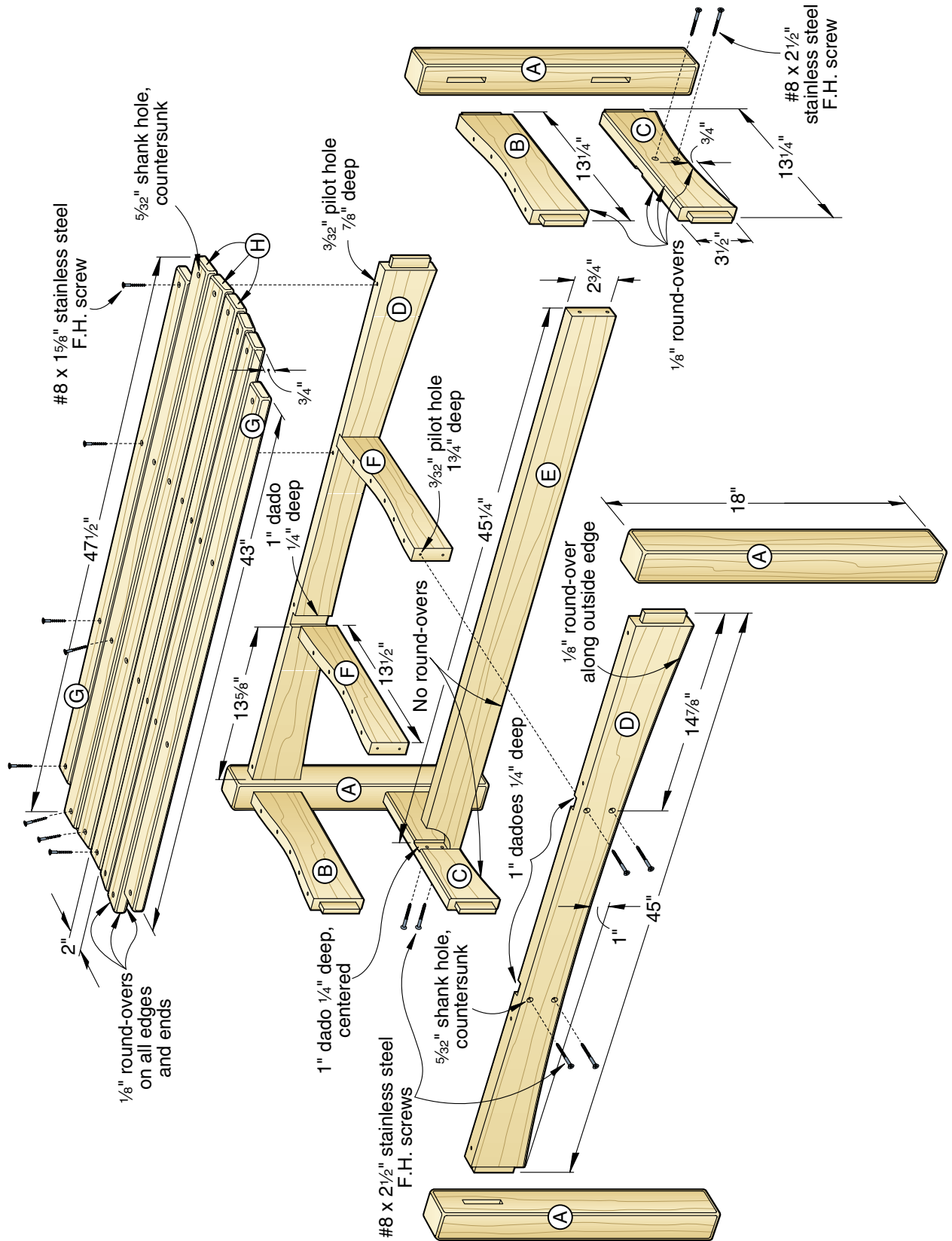


Keeping the end of your test piece tight against the auxiliary fence, crosscut both faces to form a  $\frac{3}{8}$ " tenon  $\frac{3}{4}$ " long.

## 2a TENON DETAIL



**2 EXPLODED VIEW**



(For a free fairing stick plan, go to [woodmagazine.com/fairing](http://woodmagazine.com/fairing).) Bandsaw and sand the arches to shape.

**7** Round over the edges of the rails (B, C, D), where shown. Sand the parts smooth.

**8** Cut the stretcher (E) and seat supports (F) to the sizes listed. Then, retrieve the two copies of the seat support half pattern, and spray-adhere them to a seat support, aligning them with the support's ends. Bandsaw and sand them to shape. Now, using this part as a template, mark the contour on the other seat support, and cut and sand it. Remove the patterns, and sand the supports and stretcher smooth.

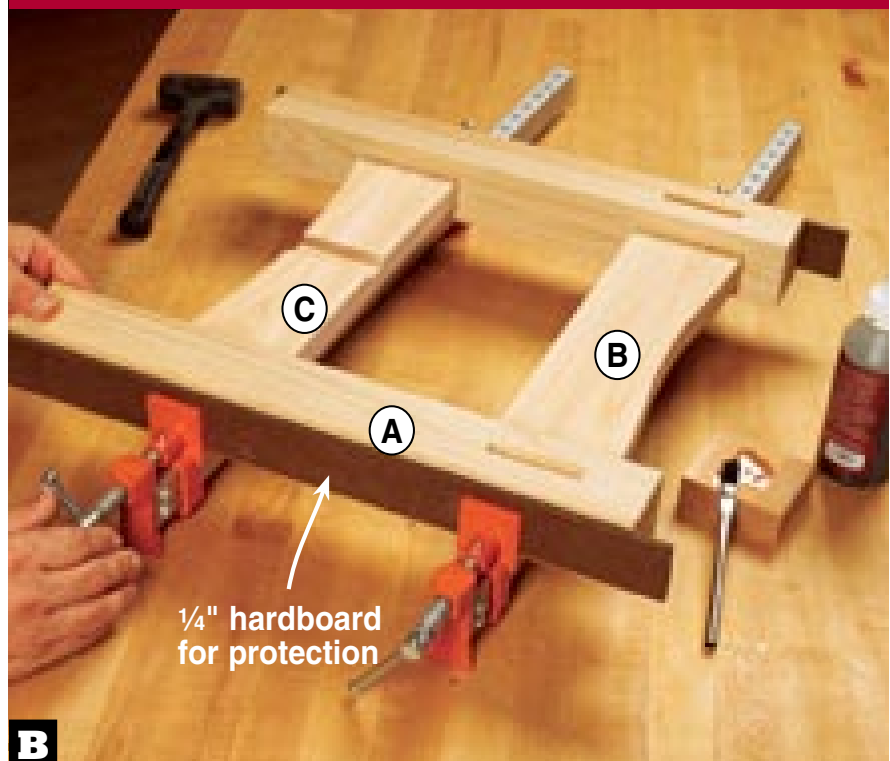
### Assemble the bench frame

**1** To assemble the legs (A), seat rails (B), and bottom side rails (C), first refer to **Drawing 2** for the required orientation of the parts. Then, referring to the manufacturer's instructions, apply a thin layer of polyurethane glue in the mortises of two legs, and assemble the legs, a seat rail, and a bottom side rail. Clamp the assembly together, as shown in **Photo B**. (We applied glue only in the mortises to prevent squeeze-out.) Repeat to assemble the other two legs, seat rail, and bottom side rail.

**2** Glue and clamp the seat supports (F) between the front/back rails (D), and check for square. Then, drill countersunk screw holes through the rails, centered in their dadoes, and into the supports, where shown. Drive the screws. Keep the assembly on a flat surface while the glue dries.

**3** Glue and loosely clamp the end assemblies (A/B/C) to the seat support assembly (D/F), as shown in **Photo C**. You can avoid using extra-long clamps by

### ASSEMBLE THE ENDS



**B** Using scrap 1/4" hardboard strips to protect the legs (A) from marks, clamp together the legs, seat rail (B), and bottom side rail (C).

### BUILDER'S NOTE

#### A low-budget way to get clear cedar

If you've tried to buy clear-grade cedar recently, you've discovered that it's a pricey, special-order item. To build this garden bench with premium stock, you would spend about \$245, enough for most of us to say uncle. But, for about one-third of this cost, you can get the same unblemished look that I did using readily available knotty-grade cedar (found at home centers) and working around the knots when laying out the parts, as shown *right*. Of course, you'll need to spend a little time finding the clearest boards (it took me about 15 minutes), and you may need to buy an extra board or two for insurance, as I did. But the savings are significant. My materials cost about \$85, including the extra boards.



Look over your stock to find the clearest areas. Then, lay out the parts with chalk, as I'm doing here on a 4x4 post for the bench legs (A).

*Jeff Meaty*  
Design Editor

clamping from the seat rails (B) to the seat supports (F), as shown. Then, glue the stretcher (E) in place between the bottom side rails (C), and tighten the clamps. Drill countersunk screw holes through the bottom side rails, centered over their dados, and into the stretcher. Now, drive the screws.

### Add the slats and finish

**1** Plane 5/4 cedar deck boards to 3/4" thick. Cut the front/back seat slats (G) and center seat slats (H) to size. Round over the slats' edges and ends, where shown on **Drawing 2**. Sand the slats smooth.

**2** Before mounting the slats, apply a coat of waterproof penetrating oil wood sealer to the bench frame and slats. (We used Behr Premium Clear Weatherproofing Wood Sealer & Finish, available at Home Depot.) To give the bottoms of the legs (A) extra protection, soak them in sealer in a disposable pie pan.

**3** When the sealer dries, position the front/back seat slats (G) on the bench frame with their ends 1/4" from the legs (A) and their inside edge flush with the legs' inside face, as shown in **Photo D**. Then, drill countersunk screw holes through the slats and into the front/back rails (D), where shown on **Drawing 2**, and drive the screws.

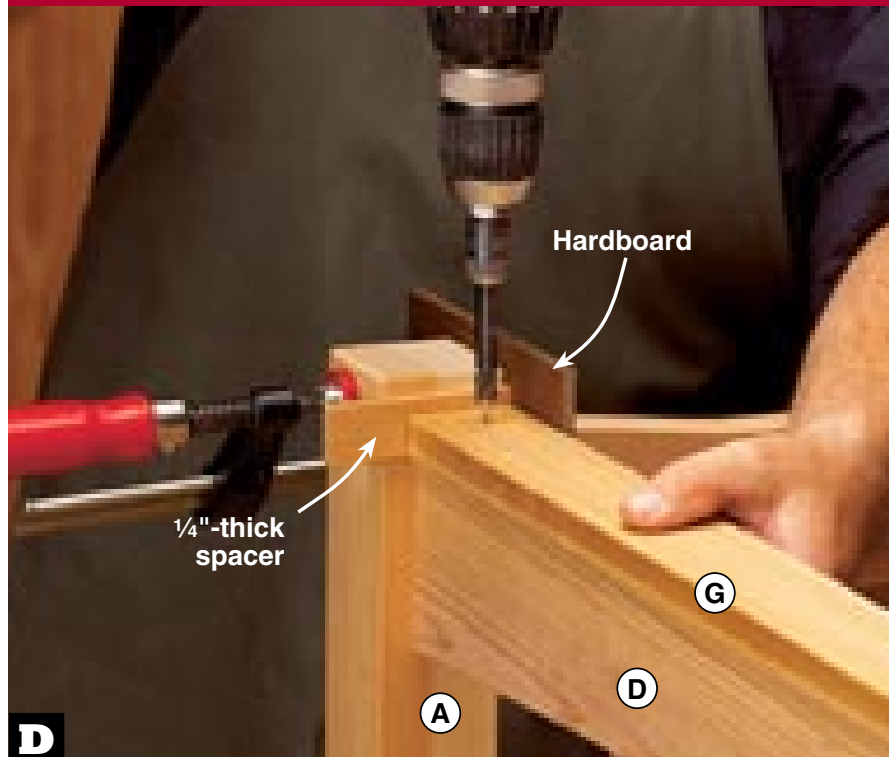
**4** Position the center seat slats (H) on the bench frame, inserting 1/4"-thick spacers (not hardboard) between them and the front/back seat slats (G). Center the seat slats so they overhang the seat rails (B) 3/8" at each end. Make any adjustments needed for uniform spacing. Then, drill countersunk screw holes through the seat slats and into the seat rails and seat supports

## COMPLETE THE FRAME



With the seat support assembly (D/F) on 1 1/2"-tall spacers, glue and clamp the end assemblies (A/B/C) to the front/back rails (D).

## MOUNT THE SEAT SLATS



Using 1/4"-thick spacers and hardboard scraps to position the front/back seat slats (G) on the frame, drill the holes, and drive the screws.

(F), where shown, and drive the screws. Now, move the bench to your garden, kick back, and take some time to smell the roses. 🌹

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## Materials List

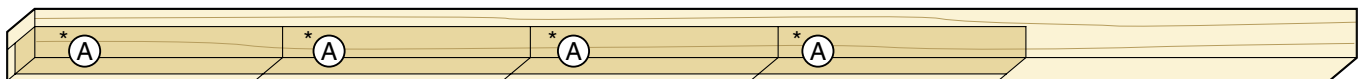
Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A legs	2¼"	2¼"	18"	C	4
B seat rails	1"	3½"	13¼"	C	2
C bottom side rails	1"	3½"	13¼"	C	2
D front/back rails	1"	3½"	45"	C	2
E stretcher	1"	2¾"	45¼"	C	1
F seat supports	1"	2⅝"	13½"	C	2
G front/back seat slats	¾"	2"	43"	C	2
H center seat slats	¾"	2"	47½"	C	5

**Materials key:** C—choice of cedar, redwood, or cypress.

**Supplies:** Spray adhesive, polyurethane glue, #8x2½" stainless steel flathead screws (12), #8x1⅝" stainless steel flathead screws (28).

**Blades and bits:** Dado-blade set, ⅛" round-over router bit, ⅜" Forstner bit.

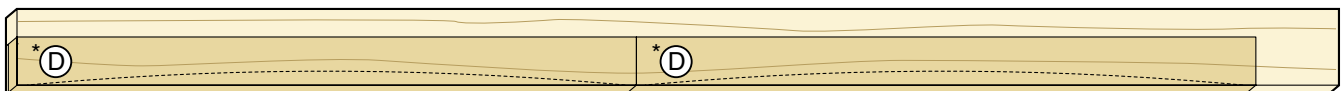
## Cutting Diagram



3½ x 3½ x 96" Cedar (4x4) \*Plane or resaw to the thicknesses listed in the Materials List.



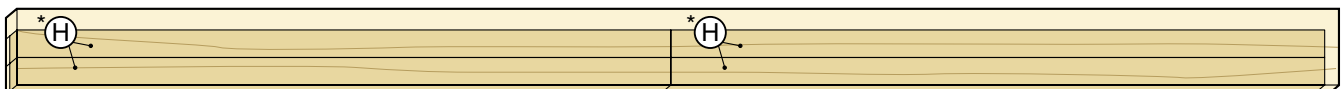
1⅙ x 5½ x 96" Cedar (5/4x6)



1⅙ x 5½ x 96" Cedar (5/4x6)

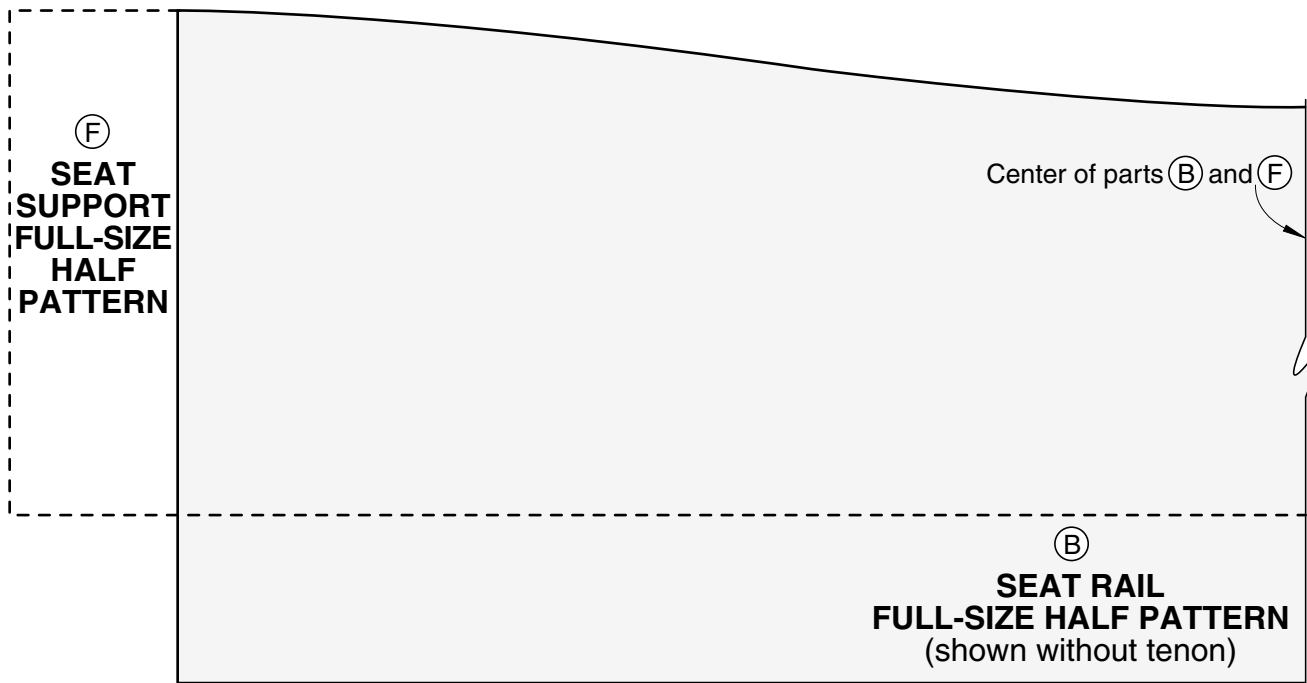


1⅙ x 5½ x 96" Cedar (5/4x6)

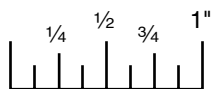


1⅙ x 5½ x 96" Cedar (5/4x6)





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