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**16**

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Great Outdoor Projects

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## Plant Holders

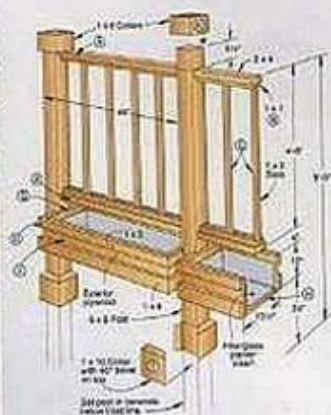
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## secure it with anchors

continued from page 4

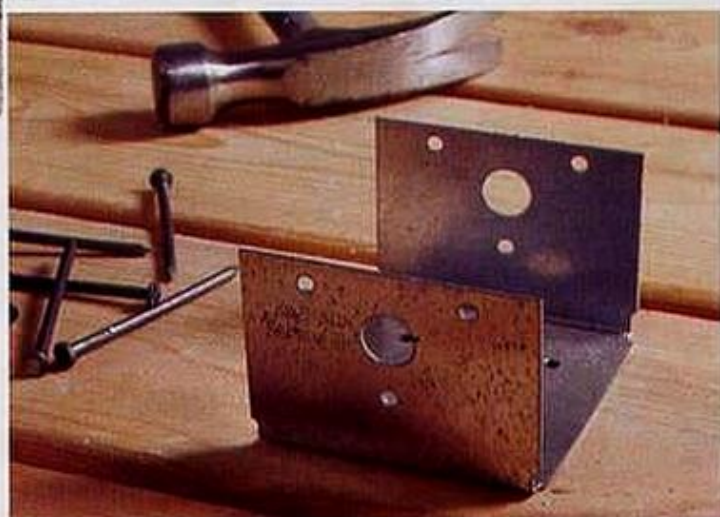


Attach a post to existing concrete with a bolt-down base, shown *above*. For new work, embed an anchor bolt for the base in the concrete when you pour. You can nail these bases to wood, too. Both provide 1" standoff height for weather exposure.

A plain U-shape base doesn't raise the bottom of the post above ground level, so water could puddle around it. Avoid using the style shown *right* for outdoor projects.



Embedded bases like the ones shown *above* go into the concrete as you pour your footing. Outside, use the one in the foreground, which provides 1" moisture-protection standoff when installed. The base behind it sits flush with the surface; so it's best suited to use in dry, sheltered places.



## Put in a base when you pour

When you're pouring new concrete footings for a project, you can take your choice between the post bases designed to be embedded in the concrete or the bolt-down variety. Deciding which to use is largely a matter of preference or convenience.

Embedded bases offer simplicity. After pouring the concrete, you just stick the base in place, level and align it, then let the concrete cure.

But beware: If you're anchoring a pre-built project that has several posts, such as the Lazing Haven on *page 94*, putting one base even slightly out of alignment can cause untold woe.

For projects like these, you'll do better using the bolt-down anchors. To save the

effort of drilling a hole in the footing, though, embed the bolt in the concrete when you pour it. Set the bolt in the center of each post location; post base designs allow some leeway for proper positioning when you bolt them down.

You also can take advantage of steel anchors when joining posts to another wooden structure, such as a deck or porch. Just nail or screw the base to the mounting surface. A U-shaped base like the one shown *above*, lower right will suffice in situations where no moisture-protection standoff is necessary.

## Advice on using anchors

When building and anchoring a structure, keep these points in mind:

- Check local building codes for partic-

ular requirements or limitations.

- The post bases shown are recommended for anchoring posts that have a supporting top structure. (The Lazing Haven on *page 94* is an example of a top-supported structure.)

- Always use the number and size of fasteners specified for the base.

- Don't substitute drywall screws for nails; use screws of the type and size specified by the base manufacturer.

- Outdoors or where water may splash onto the foot of the post, install a base that stands the bottom of the post about 1" above the surface. This prevents water from puddling around the bottom of the post and wicking into the end grain. ■

Photographs: Hetherington Photography



Stitch-in-time maintenance

# treat your deck right

Put off deck maintenance and you could ruin its appearance, shorten its life, and create a safety hazard. Here's how to keep a deck in tip-top shape.

## Say "ah"

First off, give your deck an annual physical, preferably in early spring, just before deck season begins. Start down underneath and work your way up. Check every support point—footings, posts, ledgers, and beams—to be sure everything is still anchored and safe.

Next, look at each joist, scrutinizing it for signs of twisting or cracking. If a joist is twisted, add diagonal cross bracing to stabilize it. A cracked joist should be replaced or shored up with a new "sister" joist next to it. Examine all of the joist hangers, screws, bolts, and other structural hardware. Tighten or replace hardware as necessary.

While you're down there, also look for evidence of insect infestation or dry rot. If you see mud tubes, you've got termites and should call in an exterminator. To check for dry rot, carpenter ants, or other destructive pests, poke members with an awl, ice pick, or screwdriver. If it goes through the surface and you find soft material inside, the deteriorated wood must be replaced.

Now move to the deck's surface and look for screws or nails that have worked loose. Tapping nails back into the holes they've been ejected from won't work for long. Replacing popped nails with screws works much better. Replace loose screws with longer ones. Also replace any split boards.

Next, make certain that the deck's railing and any attached seating is solid. Complete your inspection tour at the steps. If a tread or handrail is even slightly wobbly, take care of it immediately.

## The right chemistry

No deck material is truly maintenance-free. Even pressure-treated wood looks better and lasts longer with a weather-resistant finish. And for untreated lumber, such as redwood and cedar, a durable finish is even more important.

Ordinary paint and varnish aren't a good choice for decks. They don't hold up well and, worse yet, they can trap moisture, inviting mildew and insects. Instead, select a finish especially formulated for wooden decks.

You can choose a clear water repellent or a water repellent with a semi-transparent stain that brings color to your deck. Both are easy to apply, but the process differs somewhat depending on whether yours is a brand-new or older deck.

## Treating new lumber

A new deck is ready for clear water repellent as soon as you've driven the last screw. You can lay on the finish with a brush or roller, but the fastest way to go is with a garden-type pressure sprayer and a long-handled 18"-wide brush made especially for deck coatings. Simply spray on, then even it up with the brush.

If the coating you've selected includes stain, you have to wait until the wood dries out. Test this by flicking a few drops of water on the deck's surface. If the water beads up, the wood is still too damp; when the wood readily absorbs water, you can apply the stain.

## Rx for older decks

If yours is an older deck, you need to thoroughly clean it before refinishing. The quick and easy way to do this is to blast chemical deck cleaner through a high-pressure washer from your local

rental center. You can also apply the chemical with a garden sprayer, then scrub with a stiff-bristle push broom. Either way, be sure to rinse and let the deck completely dry before finishing.

Over time, sunlight and moisture combine to break down your deck's finish. How long it will last depends on the quality of the finish you selected, how well you applied it, and the severity of the climate in your area. When the finish starts to fail, clean the deck and recoat it.

## Ounces of prevention

Keep an eye out for early signs of trouble. A shaded deck can be relaxing on a hot summer day, but if it's so dark that mildew or moss begins to sprout, have your trees pruned to let in the sunshine.

Also, keep shrubs and flowers away from your deck. Maintaining at least one foot of space from vegetation promotes air flow, and that helps to prevent the onset of mildew.

Finally, make sure your deck drains well after a rain. Water that pools on the surface will provide a warm welcome for fungus as well as unwanted insects. ■





# furniture

Your patio or deck can be an outdoor room during warm months. Here's how to decorate with comfortable, functional furniture in wood tones that fit right in with nature's palette.



# eat

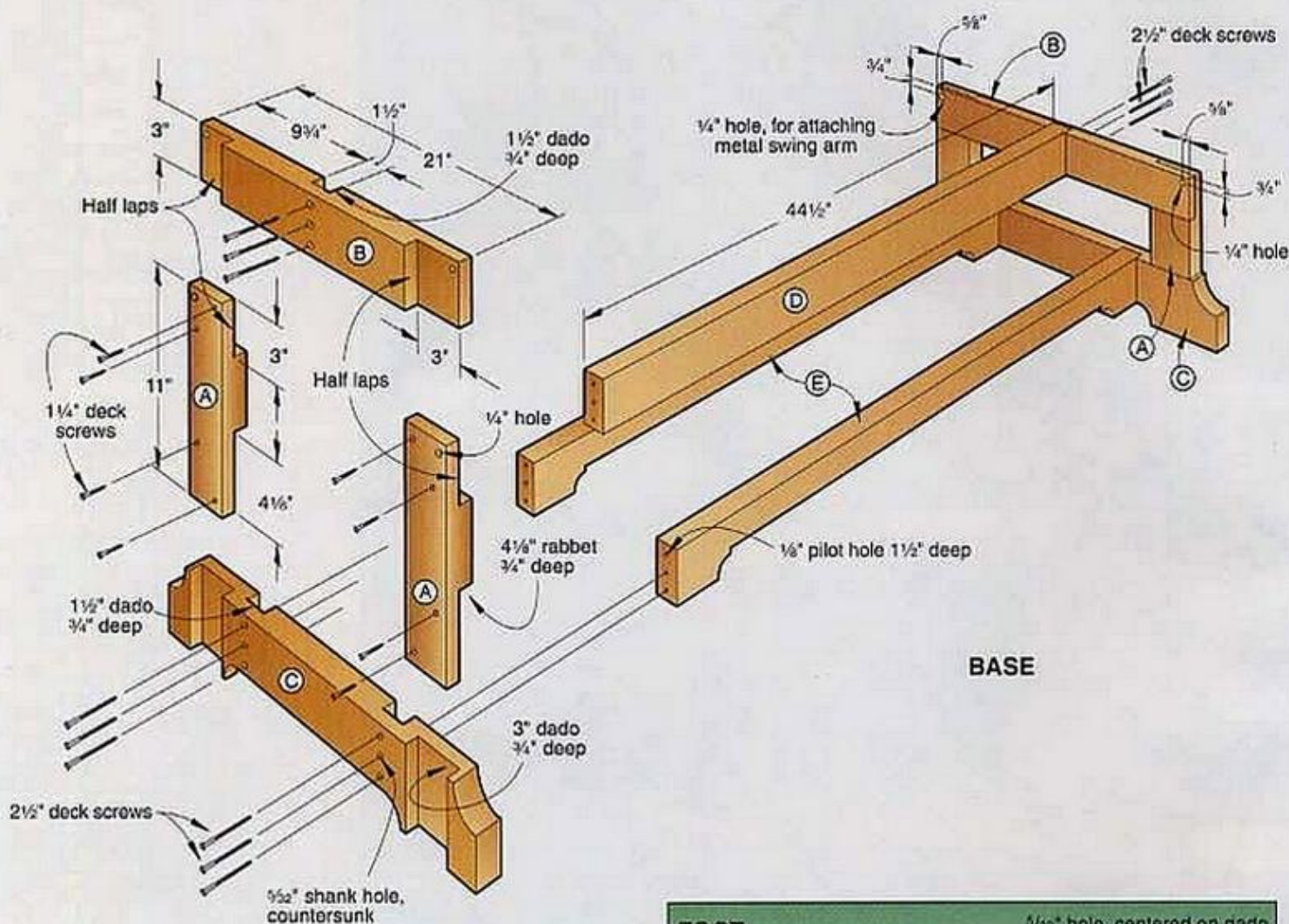




You don't have to laze away summer afternoons on a porch swing or hammock. Rock yourself gently on solid ground with our western red cedar glider. The sumptuous seat moves freely on swing arms made with simple strap iron and inexpensive bronze bushings. Colorful cutouts in the ends and back make this glider the apple of everyone's eye.

# sy glider



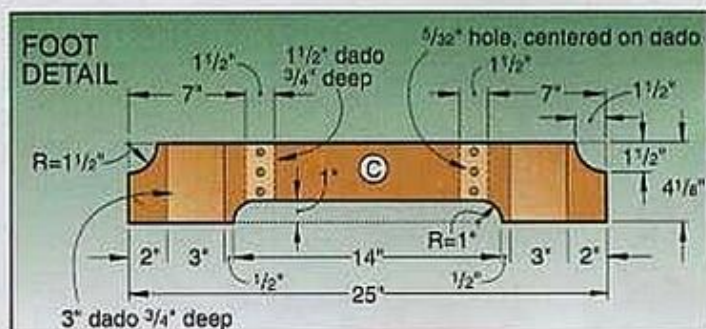


### A solid base makes for a firm foundation

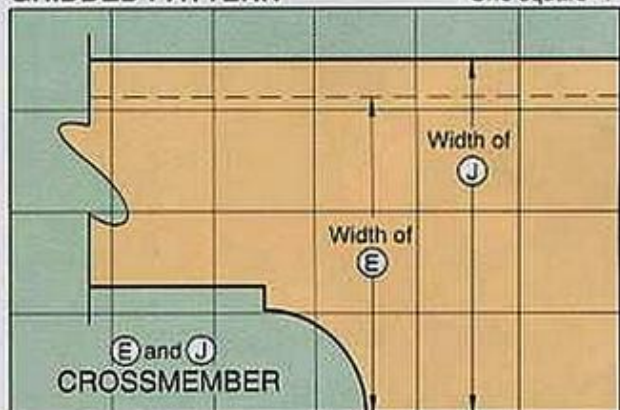
**1** Cut the uprights (A), base end tops (B), feet (C), and the top and bottom crossmembers (D, E) to the sizes listed in the Materials List. (We used cedar.)

**2** Mark the locations, and cut half-lap joints across both ends of the uprights (A) and base end tops (B). See the Base drawing above for reference. (We did this on our tablesaw using a dado blade. To support the pieces while cutting, we attached a wooden extension and stop to our miter gauge. Cut scrap stock first to verify the depth of cut and location of stop.)

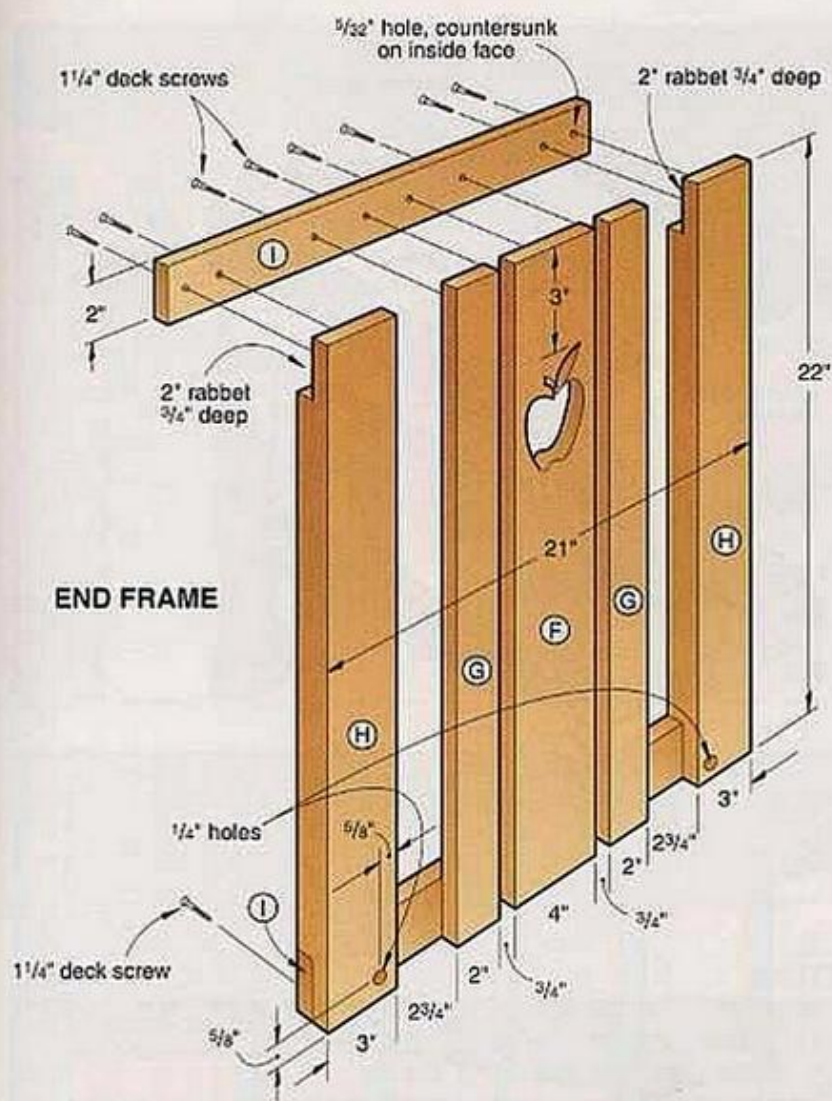
**3** Mark the location, and cut a 1 1/2\"/>



### GRIDDED PATTERN







## shopTip

The tannic acid in western red cedar is notoriously hard on galvanized and other coated screws. To avoid the unsightly black streaks that appear over time as the project weathers, we recommend stainless steel screws. See the Buying Guide at the end of the Materials List to find our source of screws. We suggest you construct your glider using a water-resistant glue such as Titebond II so that it will stand up to the weather.

**4** Using the dimensions on the Foot detail accompanying the Base drawing, mark the outline and dado locations on both feet (C). Cut a pair of dados on the inside and then the outside surfaces of each foot where marked. Now, cut the feet to shape.

**5** Using the to-scale gridded pattern shown at left, mark the bottom edge of the lower crossmembers (E), and cut them to shape.

**6** Use a drum sander to sand the radii on parts C and E.

**7** Glue and screw the base ends (A, B, C) in the configuration shown on the Base drawing.

**8** To facilitate adding the metal swing arms later, mark the centerpoints on the top corners of each assembled base end where shown on

the Base drawing. Using a  $\frac{1}{4}$ " brad-point bit mounted in your drill press, drill the holes.

**9** Drill  $\frac{5}{32}$ " countersunk shank holes in the base ends where shown on the Base drawing. Dry fit, then glue and clamp the crossmembers (D, E) in place between the end assemblies. When the glue dries, drive  $2\frac{1}{2}$ " deck screws to secure the crossmembers in place. Sand the base smooth.

## The end-frame assemblies come next

**1** Cut the end-frame slats (F, G, H) and rails (I) to size. Note that parts F, G, and I are cut from  $\frac{3}{4}$ " stock, and part H is from  $1\frac{1}{2}$ "-thick stock.

**2** Using your tablesaw fitted with a dado blade, cut a 2"-wide rabbet  $\frac{3}{4}$ " deep across both ends of each outside slat (H).

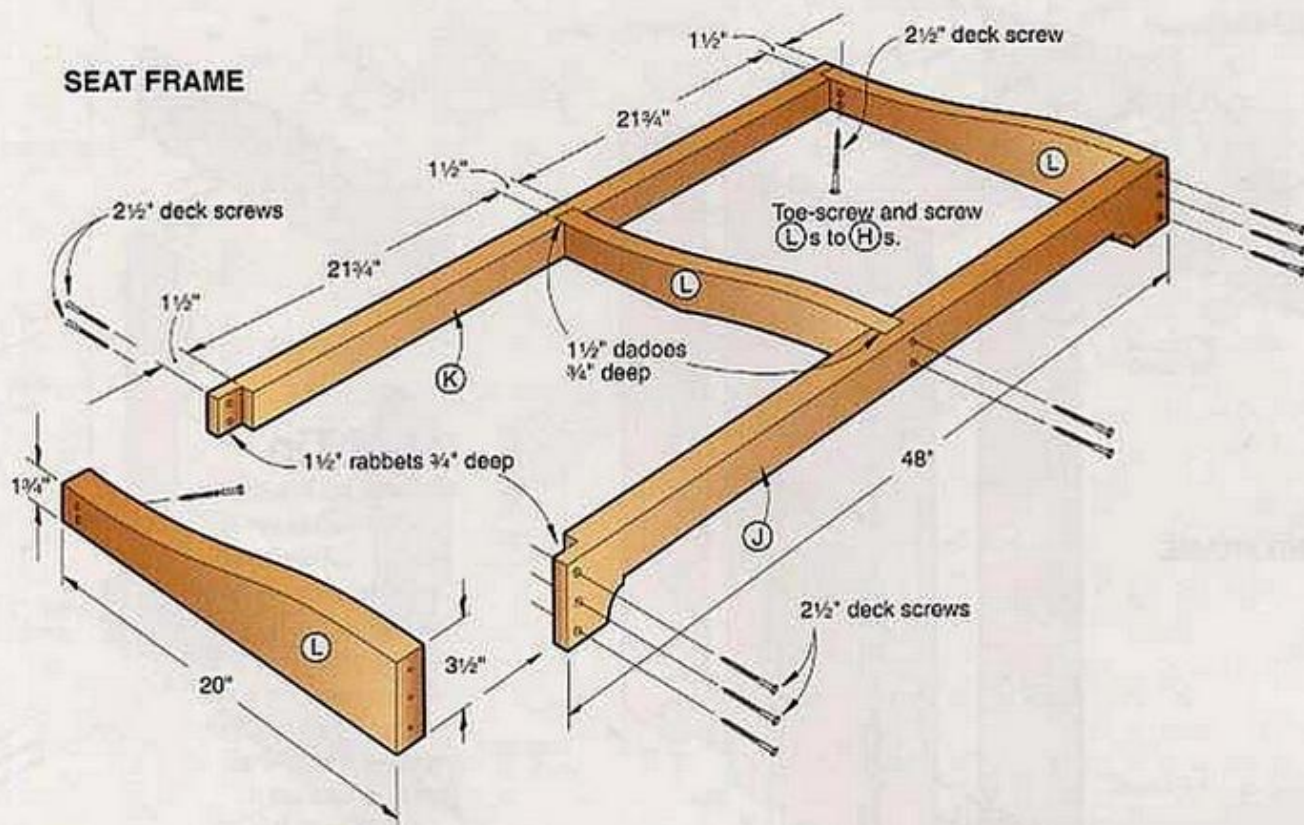
**3** Transfer the to-scale apple pattern, provided on page 15, to the center slats (F), 3" from the top end of each, where shown on the End Frame drawing. Drill a blade-start hole, and scrollsaw the patterns to shape.

**4** Glue and screw each end frame together in the configuration shown on the drawing.

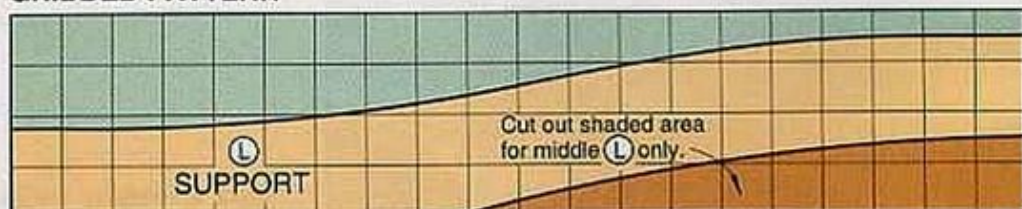
**5** For attaching the swing arms later, mark the centerpoints near the bottom corners of each assembled end frame, where shown on the End Frame drawing. Using a  $\frac{1}{4}$ " brad-point bit mounted in a drill press, drill the holes where marked. Sand the end frames.



# SEAT FRAME



# GRIDDED PATTERN



One square=1"

## Now, construct the seat frame, and add the slats

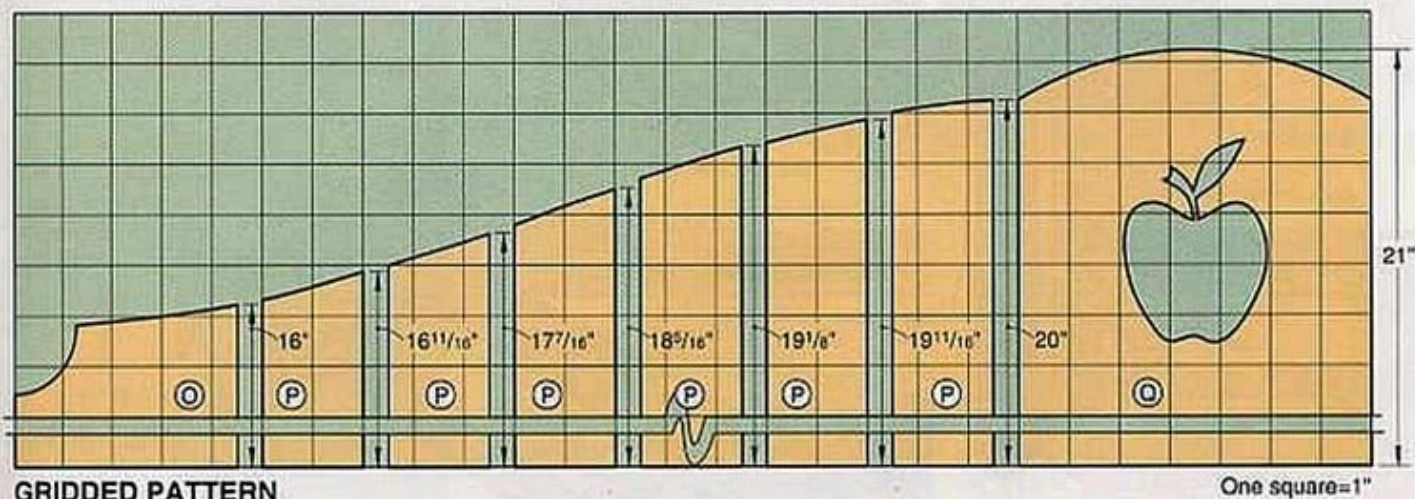
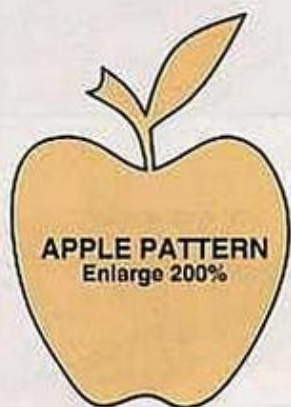
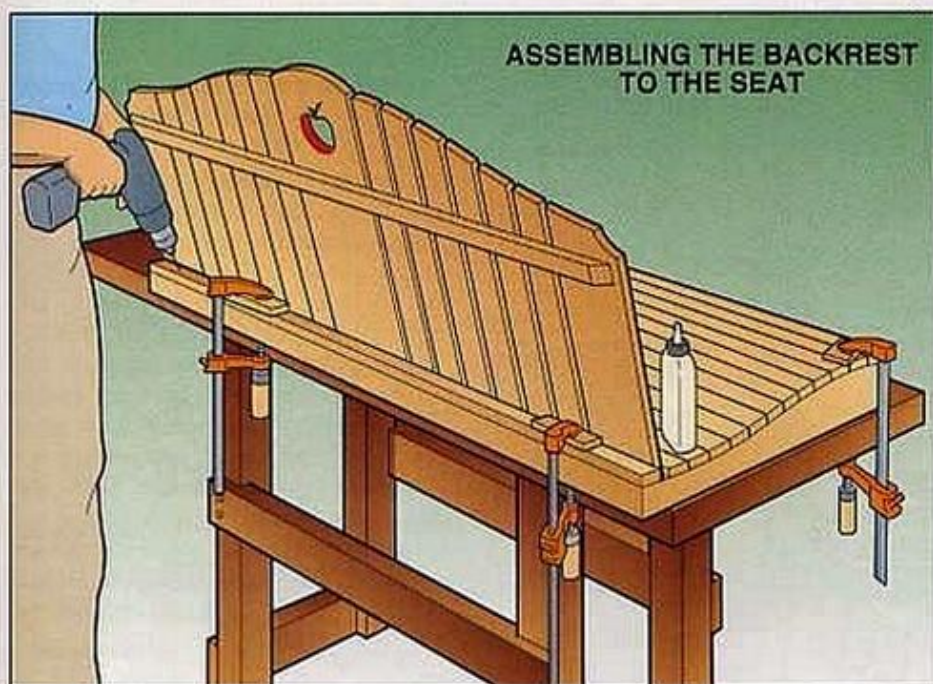
- 1** Cut the seat-frame crossmembers (J, K) and supports (L) to size.
- 2** Mark the locations, and cut rabbets and dadoes in the crossmembers (J, K), where dimensioned on the Seat Frame drawing above.
- 3** Transfer the gridded to-scale patterns, on page 12 and above, and cut the bottom edge of the front crossmember (J) and supports (L) to shape. Sand the cut edges.

- 4** Glue and screw the seat frame together, checking for square.
- 5** Cut the seat slats (M) and rear cleat (N) to size, bevel-ripping the front edge of N at 15°, where shown on the Section View drawing on page 19.
- 6** Nail or clamp stops to your wooden drill-press auxiliary table. Now, drill a countersunk mounting hole, centered from front to back and 3/4 inch from the ends of each seat slat.
- 7** Rout a 1/2 inch round-over along the front edge of the front slat (M). Rout a 1/8 inch round-over along the back edge of the front slat and along the front and back

edges (not ends) of all the remaining slats (M). See the Exploded View and Section View drawings for reference. Sand the slats.

**8** Starting at the front and working toward the back, screw the slats, but not the rear cleat (N), in place. (To check the spacing, we used spring clamps to hold the last five slats and cleat N in place before attaching. It's important that N attaches to the seat frame where shown on the Section View drawing.) Set the rear cleat (N) aside for now; you'll add it later.





GRIDDED PATTERN

One square=1"

### Next, construct the backrest assembly

**1** Cut the backrest splats (O, P, Q) and the top cleat (R) to the sizes listed in the Materials List.

**2** Transfer the to-scale pattern to the top of the splats, and cut them to shape. Then, crosscut the opposite end to cut the splats to the finished length stated on the splats gridded pattern. Rout  $\frac{1}{8}$ " round-overs along the top front edge of each splat. Sand the splats smooth.

**3** Enlarge, then transfer the apple pattern on *top right* to the center splat

(Q),  $1\frac{5}{8}$ " from the top end of the splat. Drill a blade-start hole, and scrollsaw the apple to shape.

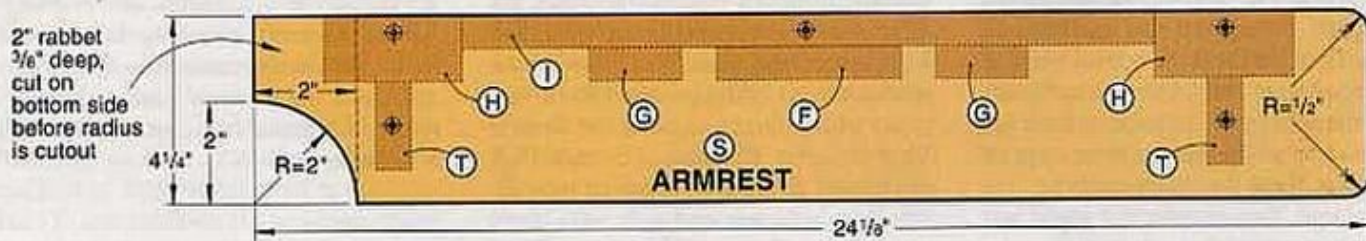
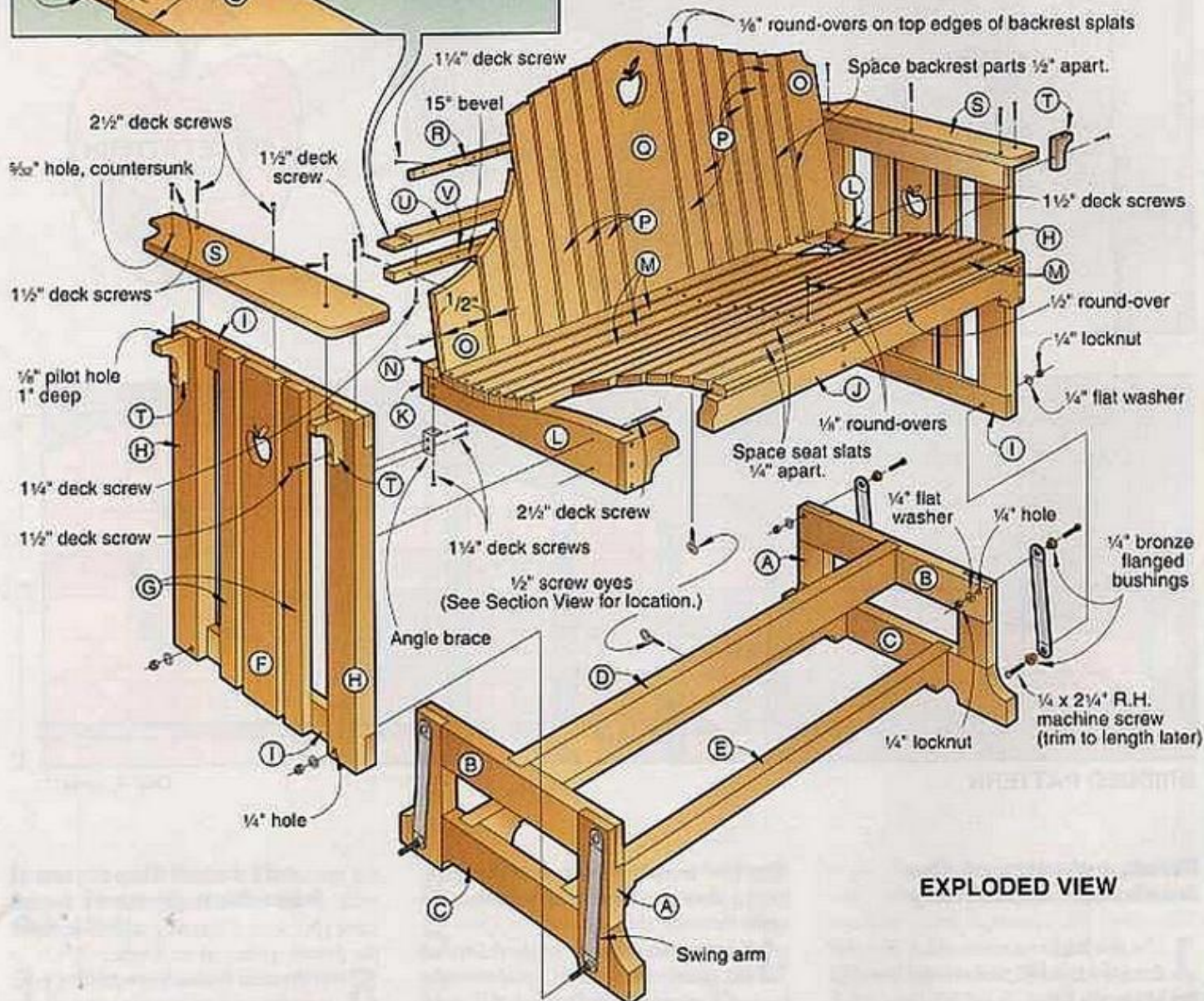
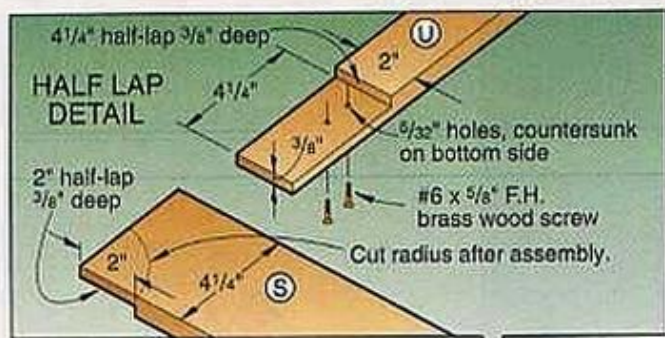
**4** Keeping the bottom edges flush and the good face down, position the backrest splats (O, P, Q) on a flat work surface. Place  $\frac{1}{2}$ " spacers between the splats, starting with the center splat, and work toward the ends. Now, position the rear cleat (N) and top cleat (R) on the splats where dimensioned on the Section View drawing. The ends of the rear cleat (N) should protrude  $\frac{1}{2}$ " beyond the outside edge of each end splat (O). Drill countersunk mounting holes, and screw

the splats to the cleats. Keep the bottom ends of the splats flush with the bottom cleat (N). Use a framing square to keep the pieces square to each other.

**5** Set the seat frame assembly on your workbench.

**6** As in the illustration *above*, clamp the backrest assembly to the seat frame, drill countersunk mounting holes, and screw the backrest bottom cleat (N) to the seat-frame rear crossmember (K) at 6" intervals.

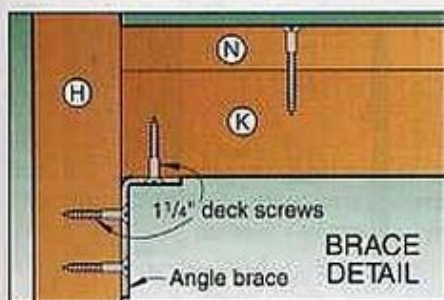
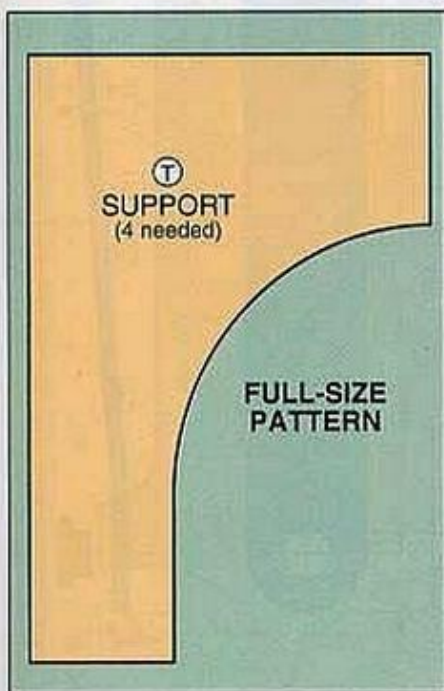




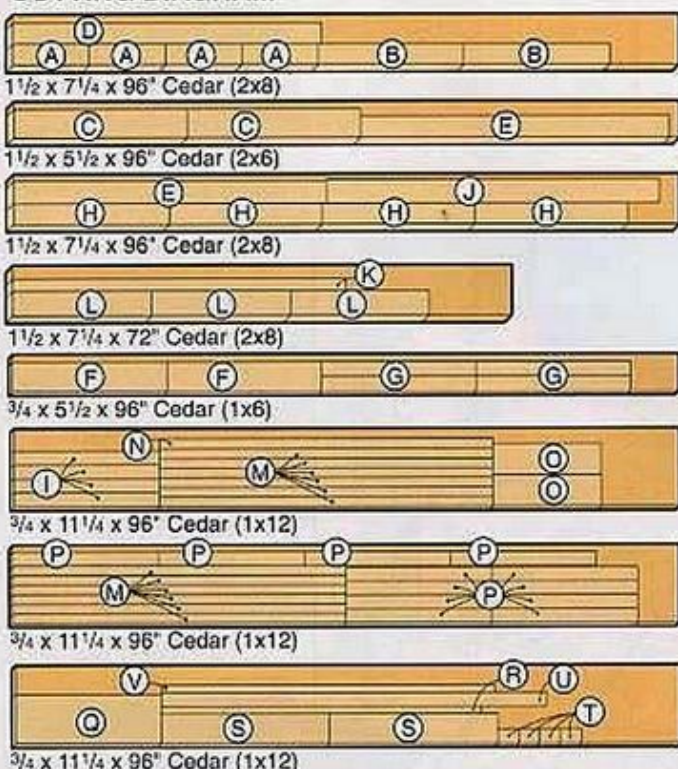


## Now it's time for a little assembly work

**I** Place one end-frame assembly (F/G/H/I), outside face down, on your workbench. Use a framing square to mark a reference line on the inside face of the end frame 10 1/8" from the top end. With the aid of a helper, position the seat assembly on the end frame so the bottom edge of the seat support (L) aligns with the marked reference line. See the Section View for positioning help. Drill mounting holes, and drive four screws through the seat support (L) and into the inside face of the end-frame slats (H). Repeat the process to attach the opposite end frame.



## CUTTING DIAGRAM



## materials list

| Base                | FINISHED SIZE |        |         | Matl. | Qty. |
|---------------------|---------------|--------|---------|-------|------|
|                     | T             | W      | L       |       |      |
| A uprights          | 1 1/2"        | 3"     | 11"     | C     | 4    |
| B frame tops        | 1 1/2"        | 3"     | 21"     | C     | 2    |
| C feet              | 1 1/2"        | 4 1/8" | 25"     | C     | 2    |
| D top crossmember   | 1 1/2"        | 3"     | 44 1/2" | C     | 1    |
| E bot. crossmembers | 1 1/2"        | 3 1/8" | 44 1/2" | C     | 2    |
| <b>End Panels</b>   |               |        |         |       |      |
| F slats             | 3/4"          | 4"     | 22"     | C     | 2    |
| G slats             | 3/4"          | 2"     | 22"     | C     | 4    |
| H slats             | 1 1/2"        | 3"     | 22"     | C     | 4    |
| I rails             | 3/4"          | 2"     | 21"     | C     | 4    |
| <b>Seat Frame</b>   |               |        |         |       |      |
| J crossmember       | 1 1/2"        | 3 1/2" | 48"     | C     | 1    |
| K crossmember       | 1 1/2"        | 1 3/4" | 48"     | C     | 1    |
| L supports          | 1 1/2"        | 3 1/2" | 20"     | C     | 3    |

\*Initially cut parts marked with an \* oversized. Trim to finished size according to the instructions.

**Supplies:** 1 1/4", 1 1/2", 2 1/2" deck screws (see the Buying Guide for our source of stainless steel screws); 8-1/2x2 1/4" roundhead stainless steel machine screws with 1/4" locknuts and flat washers; #6x4 1/2" brass flathead wood screws; 1/2x1x48" flat steel, 8 1/2" of 2/0 open link coil chain and two 1/2" screw eyes; exterior finish.

| Slats & Cleats           | FINISHED SIZE |        |         | Matl. | Qty. |
|--------------------------|---------------|--------|---------|-------|------|
|                          | T             | W      | L       |       |      |
| M slats                  | 3/4"          | 1 1/8" | 48"     | C     | 12   |
| N cleat                  | 3/4"          | 1 1/2" | 48"     | C     | 1    |
| <b>Backrest Assembly</b> |               |        |         |       |      |
| O* splats                | 3/4"          | 4 1/2" | 16"     | C     | 2    |
| P* splats                | 3/4"          | 2"     | "       | C     | 12   |
| Q* splat                 | 3/4"          | 7"     | 21"     | C     | 1    |
| R top cleat              | 3/4"          | 1"     | 46"     | C     | 1    |
| S armrests               | 3/4"          | 4 1/4" | 24 1/4" | C     | 2    |
| T supports               | 3/4"          | 2"     | 3"      | C     | 4    |
| U brace                  | 3/4"          | 2"     | 56 1/2" | C     | 1    |
| V cleat                  | 3/4"          | 1"     | 47"     | C     | 1    |

\*\*See the patterns on page 13 for exact lengths of splats O, P, and Q.

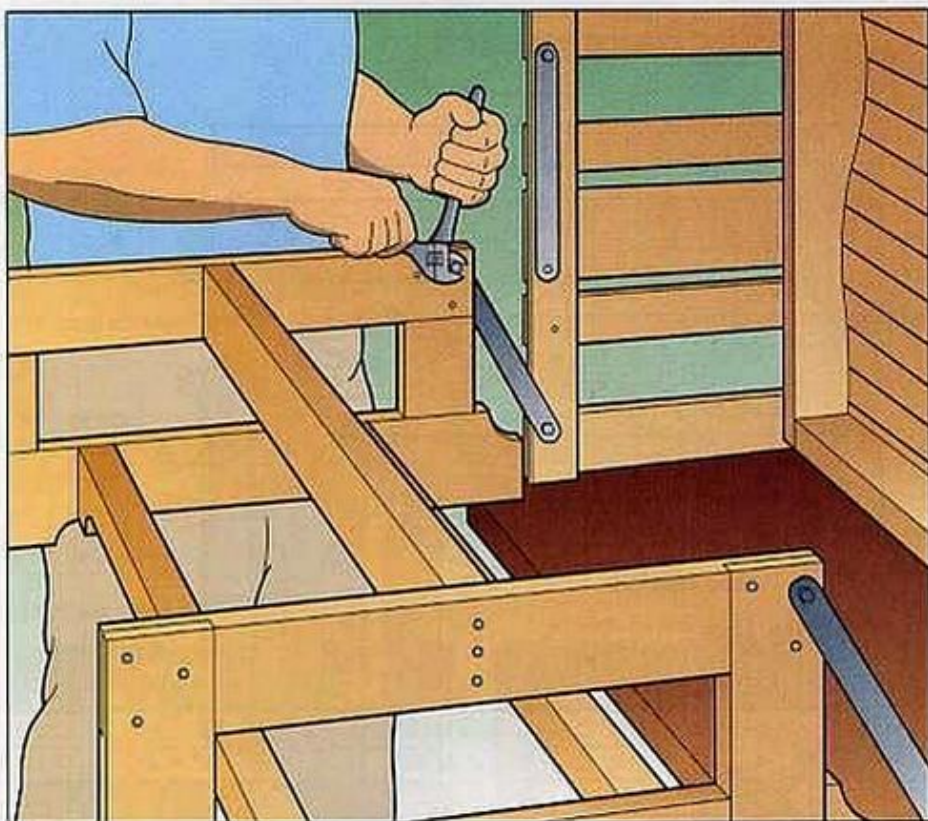
**Material Key:** C-cedar.

## Buying Guide

**Stainless steel screws.** Flathead, square-drive #8 screws, 100 per box. One box each of 1 1/4", 1 1/2", and 2 1/2" screws plus two #2 drivers. Kit no. WD-GLIDER. \$29.95 ppd. in continental U.S. McFeely's, P.O. Box 3, Lynchburg, VA 24505-0003. Call 800/443-7937.

**Bronze bushings.** Eight 3/8" O.D., 1/4" I.D., 1/4" long bronze flanged bushings. Stock no. NLIFL26-2. Call for current price. Standard Bearings, P.O. Box 823, Des Moines, IA 50304 or call 800/554-8123 to order.





Connect the steel swing arms from the rear holes in the base to the rear holes in the seat assembly. Form the swing arms as shown at right.

**2** Cut the armrests (S), supports (T), and armrest brace (U) to the sizes listed in the Materials List. See the full-size pattern of the supports (T), on page 16. Cut the brace cleat (V) to size, bevel-ripping the front edge at a 15° angle.

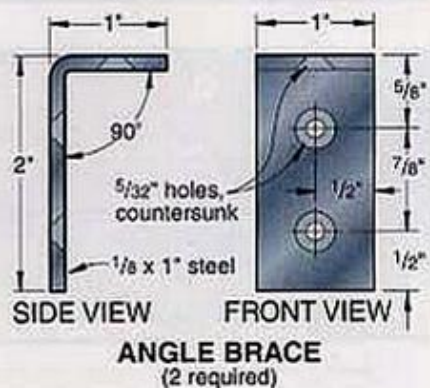
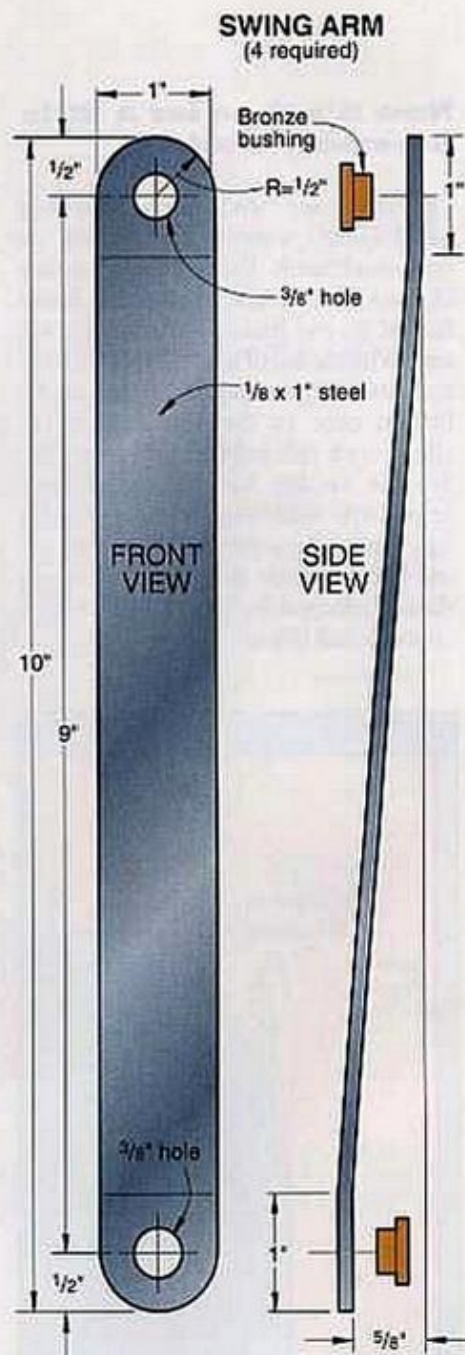
**3** Cut mating half-lap joints on the ends of the armrests and brace to the size shown on the Half-Lap detail accompanying the Exploded View drawing. Checking for square, glue and screw the armrests to the brace.

**4** Transfer the shape from the Armrest drawing, and cut the armrest front

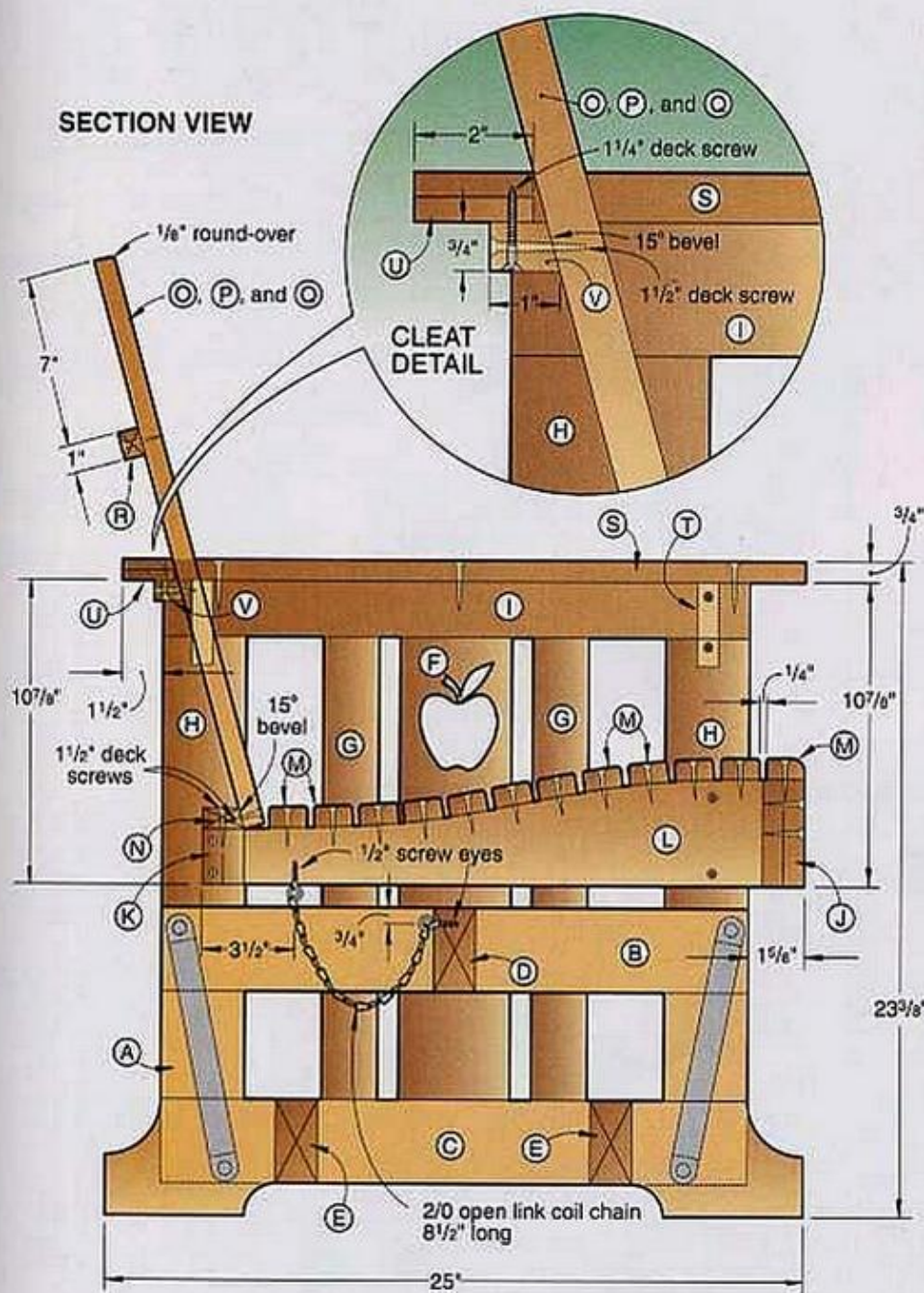
corners and outside back corners to shape. Using the pattern on page 16, cut the supports (T) to shape.

**5** Position and clamp the armrest assembly (S, U) on top of the end frames and against the back face of the backrest assembly. Drill the mounting holes, and screw the assembly in place.

**6** Glue and screw the brace cleat (V) to the bottom side of the armrest brace (U). Now, drill countersunk mounting holes through the brace cleat and into the back of the splats. Drive screws through each of these holes.







## Now form the swing arms and braces

**1** From a  $\frac{1}{8} \times 1 \times 48$ " piece of flat steel, use a hacksaw to cut four pieces measuring 10" long each. Drill a  $\frac{3}{8}$ " hole in each end of each swing arm, where shown on the pattern, *opposite top*. Grind the corners round.

**2** Clamp each end of each swing arm in a woodworker's vise, and bend to the angle shown on the pattern.

**3** To form a pair of angle braces, cut two 3"-long pieces from the remaining flat steel stock. Bend them to the shape shown on the Angle Brace drawing. Drill mounting holes, and screw the braces in the corner where parts K and H meet. The braces strengthen the joint.

**4** Press a bronze bushing into each  $\frac{3}{8}$ " hole in each swing arm, where shown on the pattern, *opposite top*. See the Buying Guide on page 16 for our source of bushings.

**5** As shown in the illustration *opposite*, position the seat assembly, back face down on either your workbench or the floor. Position the base in front of it, and connect the two swing arms from the rear top holes in the base to the rear holes in the seat assembly. Repeat the process to attach the front swing arms. Use a hacksaw and file to trim the protruding ends of the bolts flush with the outside ends of the locknuts.

**6** To keep the glider from swinging too far back, attach a pair of screw eyes and an 8 1/2" length of 2/0 open link coil chain to parts D and the middle L, where shown on the Section View drawing.

**7** Finish-sand the entire assembly, and add an exterior finish. We used Flood CFW (Clear Wood Finish). It's critical to get a good seal on the bottom of the base (those parts that come in direct contact with the ground or patio). Recoat the chair annually. For an added touch, paint the inside edges of the apples red and the stems and leaves green. Use durable acrylic enamels that are designed for outdoor applications. ■

Project Design: James R. Downing  
Illustrations: Ode Design  
Drawings: Kim Downing; Lorna Johnson  
Photograph: Marty Baldwin

For your convenience, full-size patterns for this project are available through our WOOD PLANS® service. See page 121.





Rock away lazy summer days on this classically styled love seat. Its slatted and contoured seat and back provide plenty of country comfort. It's easy to build, so you may want to create a matching seating arrangement by adding our slatted table and chair on [page 27](#).

# rockler





## Let's begin by building the rocker

**1** Cut four pieces of  $\frac{3}{4}$ " white oak to  $6\frac{1}{4}$ " wide by 32" long for the rocker blanks (A). Plane or resaw each piece to  $\frac{3}{8}$ " thick.

**2** Using the dimensions on the Rocker Lamination drawing on page 23, mark the dado locations on each rocker blank. Cut the dados. (We attached an auxiliary fence to our miter gauge, and clamped a stop to the fence to ensure the dados were consistently positioned from blank to blank.)

*Note: So your porch rocker can stand up to the elements construct the rocker using Titebond II water-resistant glue, slow-set epoxy, or resorcinol glue.*

**3** Glue the mating rocker blanks (A) face-to-face, with the dados aligned and the ends and edges flush. Clamp, and immediately remove glue squeeze-out from the mortises.

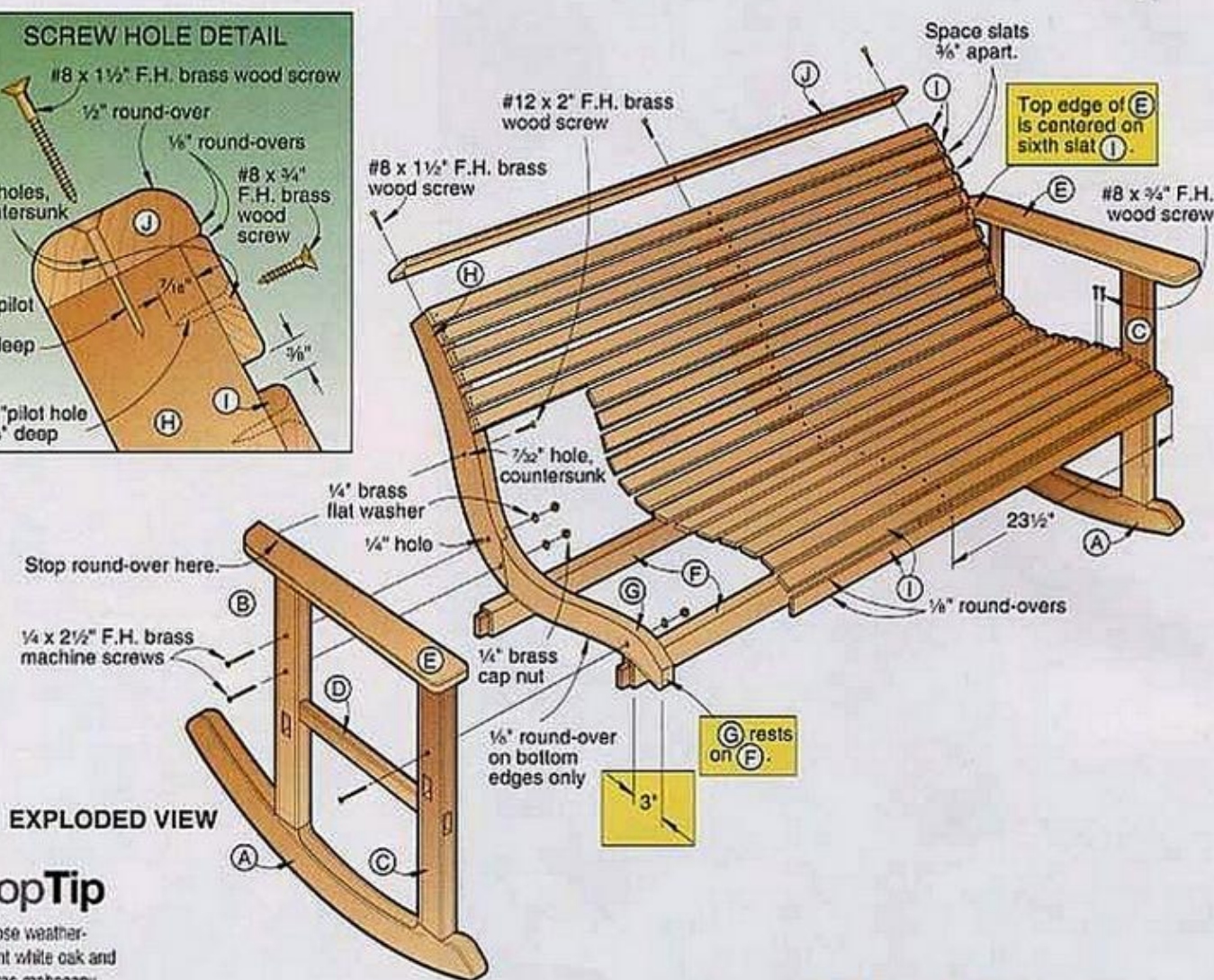
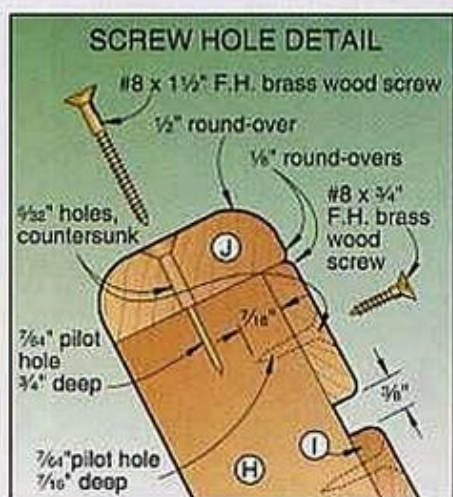
**4** Using double-faced tape, stick the two rocker blanks together face-to-face, with the edges and ends flush.

**5** Enlarge the Gridded Rocker pattern, shown on page 26, onto a 6x31" piece of paper. Using spray adhesive, adhere the pattern to one of the rocker laminations, aligning the dados on the pattern with those cut in the wood.

**6** Bandsaw the taped-together rocker laminations to shape. Sand the rocker edges flush. Separate the rockers, and remove the tape.

# for two

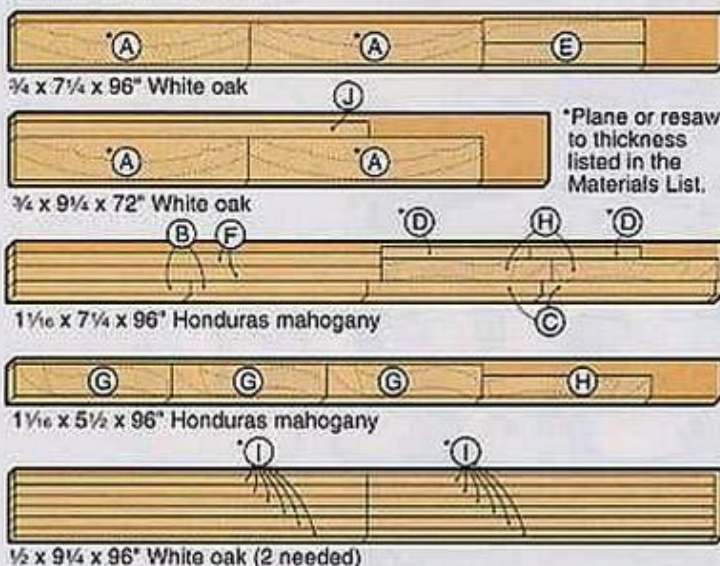




## shopTip

We chose weather-resistant white oak and Honduras mahogany so the rocker can be used outdoors. Don't substitute Philippine mahogany (which isn't really mahogany at all) or red oak. Neither will stand up to weather.

## CUTTING DIAGRAM



## materials list

|                      | FINISHED SIZE |        |         |       |      |
|----------------------|---------------|--------|---------|-------|------|
| Rocker Assem.        | T             | W      | L       | Matl. | Qty. |
| A* rocker            | 3/4"          | 6 1/4" | 32"     | WO    | 4    |
| B* back leg          | 1 1/4"        | 2"     | 24 1/4" | HM    | 2    |
| C* front leg         | 1 1/4"        | 2"     | 23 1/4" | HM    | 2    |
| D rail               | 3/4"          | 1 1/2" | 17"     | HM    | 2    |
| E armrest            | 3/4"          | 3 1/4" | 21 1/4" | WO    | 2    |
| F stretcher          | 1 1/4"        | 2"     | 50 1/8" | HM    | 2    |
| <b>Seat Assembly</b> |               |        |         |       |      |
| G* seat support      | 1 1/4"        | 4 1/2" | 21"     | HM    | 3    |
| H* back support      | 1 1/4"        | 3"     | 23"     | HM    | 3    |
| I* slat              | 3/8"          | 1 1/2" | 48"     | WO    | 20   |
| J top slat           | 3/4"          | 1 1/4" | 48"     | WO    | 1    |

\*Initial dimensions shown.

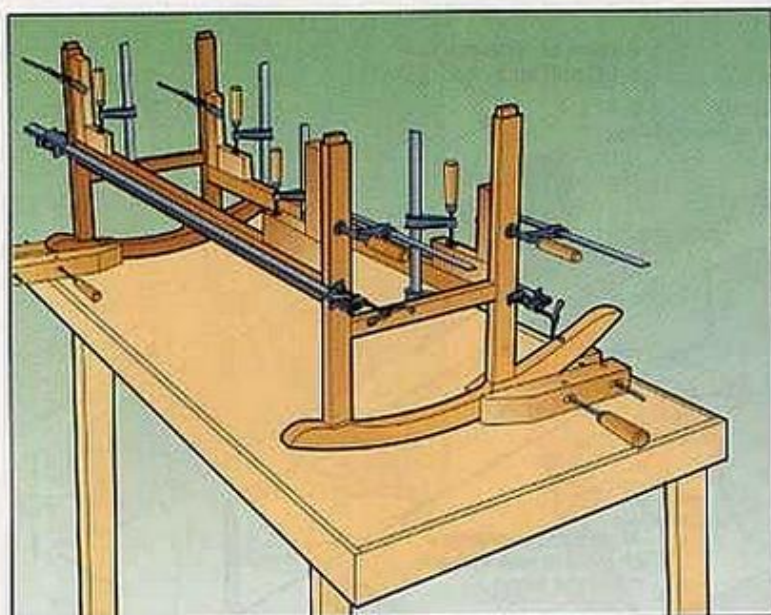
**Materials Key:** WO—white oak; HM—Honduras mahogany.

**Supplies:** double-faced tape, spray adhesive, 1/4x2 1/2" flathead brass machine screws with brass washers and cap nuts, #8x3/4" flathead brass wood screws, #8x1 1/2" flathead brass wood screws, #12x2" flathead brass wood screws, clear exterior finish.

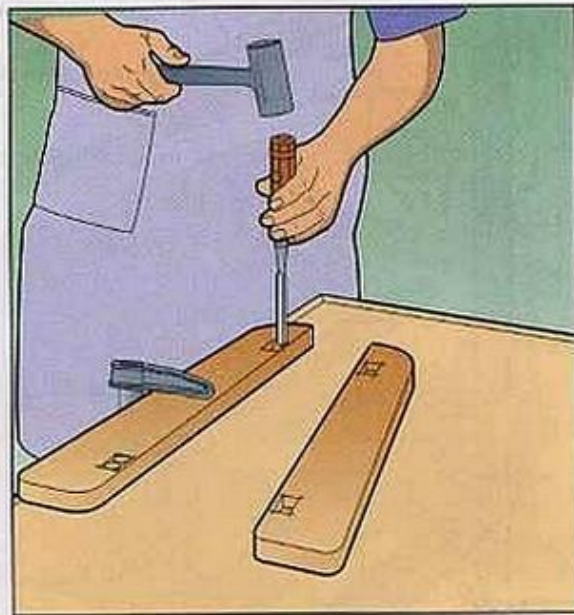








We used 90° corner braces to hold the rocker frame pieces square while the glue dried.



After drilling the holes, use a mallet and chisel to finish shaping the armrest mortises.

**7** Rout  $\frac{1}{8}$ " and  $\frac{1}{4}$ " round-overs along the edges of parts A, B, C, D, and E where shown on the End Frame Assembly and Exploded View drawings.

**8** Glue and clamp the two end frame assemblies. Check each for square.

### Now, add the stretchers, and join the end assemblies

**1** Cut the stretchers (F) to size. Cut  $1\frac{1}{16}$ "-long tenons on the ends of each stretcher.

**2** Glue the pair of stretchers between the end frames as shown above. (To ensure that the assembly would stay square, we clamped square corner braces in place until the glue dried.)

**3** Position an armrest on the top of each end assembly, and verify that the marked mortises match the tenon locations on the top of the legs. Re-mark if necessary.

**4** Drill overlapping holes  $\frac{1}{16}$ " deep where marked. Then, as shown above right, chisel the mortise sides square, and finish forming the mortise.

**5** Glue an armrest to the top of each end-frame assembly. Sand the rocker assembly smooth.

### Build slat-support assemblies next

**1** Rip and crosscut three pieces of  $1\frac{1}{16}$ " mahogany stock to  $4\frac{1}{4} \times 21$ " for the bottom-slat supports (G). Cut three pieces of the same stock to  $3 \times 23$ " for back-slat supports (H).

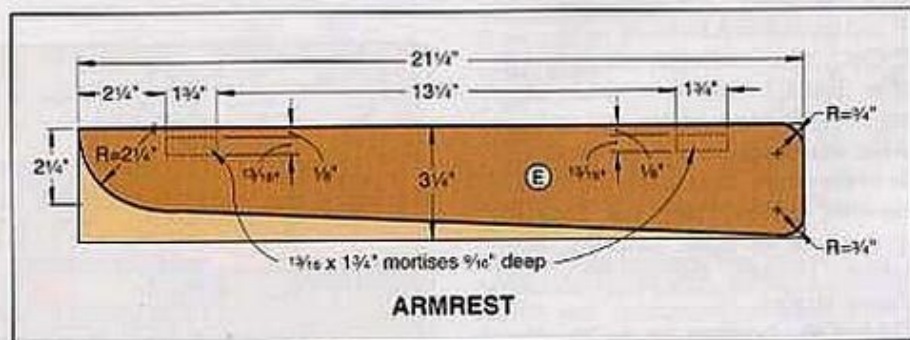
**2** Using the Slat Support drawing for reference, mark the location of the half-lap joint on one end of each of the slat supports (G, H).

**3** Mount a  $\frac{3}{4}$ "-wide dado blade in your tablesaw. Elevate the blade to cut exactly half the thickness of your stock. (We used scrap the same thickness as the supports, and made test cuts to verify blade height.) Angle the miter gauge  $20^\circ$  from center. Cut a half lap on one end of

each of the six slat supports, where shown on the Cutting the Half Laps drawing at far right.

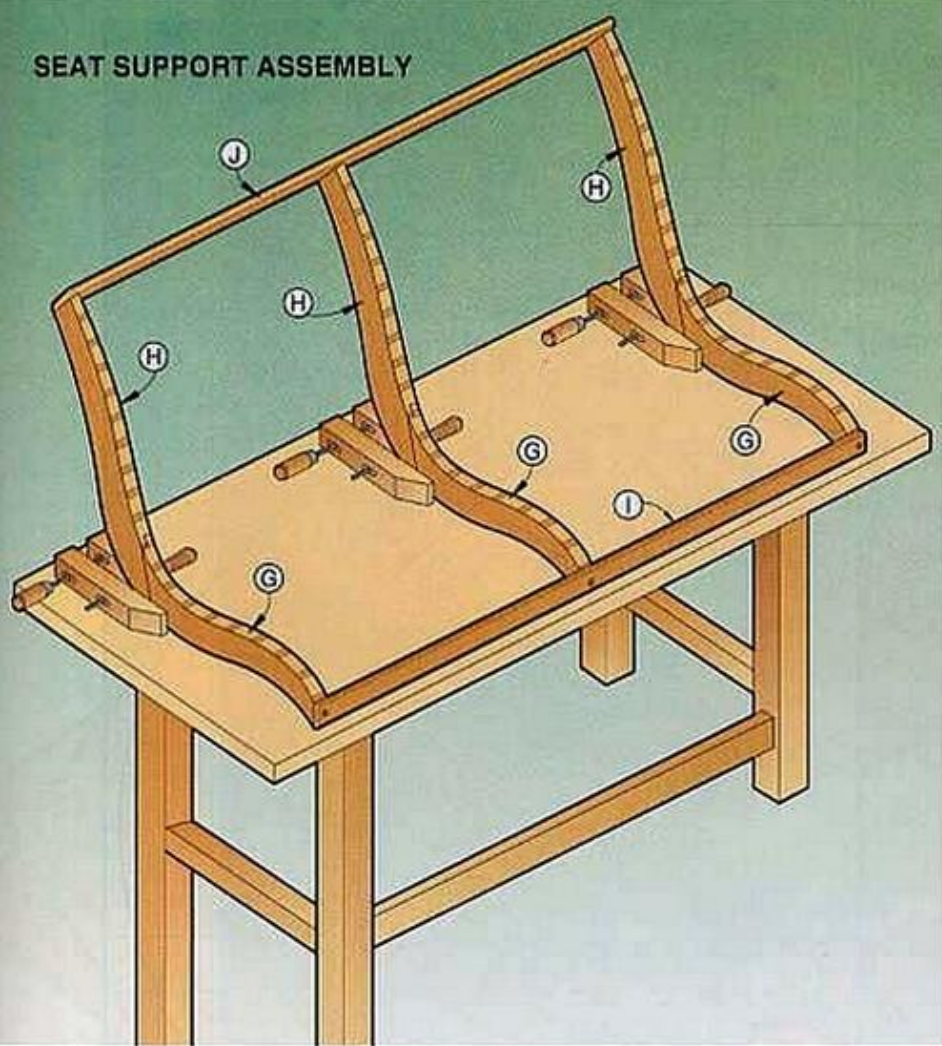
**4** Dry-clamp the three supports (one G and one H per support) to check the fit. Then glue and clamp each of the three supports.

**5** Enlarge the gridded Porch Rocker and Chair Seat Support pattern shown on page 26, onto a  $12 \times 33$ " piece of paper. Tape the assembled supports together, and adhere the pattern outline to them, using spray adhesive. Cut out the supports, and sand the edges. Transfer the slat locations to each slat support assembly (G/H). Pry the pieces apart, remove the double-faced tape, and finish-sand the supports, being careful not to sand away the slat location lines.





## SEAT SUPPORT ASSEMBLY



**6** Rout  $\frac{1}{8}$ " round-overs along the bottom and back edges of each slat support, where shown on the Exploded View drawing.

### It's time to fasten the slats to the slat supports

**1** From  $\frac{1}{16}$ "-thick oak (we planed thicker stock to size), cut 20 seat slats (I) to  $1\frac{1}{2} \times 48$ ". From  $\frac{3}{4}$ " stock, cut the top slat (J) to size.

**2** Rout a  $\frac{1}{8}$ " round-over along the top edges and ends of each  $\frac{5}{16}$ " slat (I) and a  $\frac{1}{2}$ " round-over along the top edges and ends of the top slat (J). Next, rout a  $\frac{1}{8}$ " round-over along the bottom front edge of the top slat.

**3** Drill the countersunk screw holes in each slat, where dimensioned on the Exploded View drawing and accompanying Mounting-Hole Location detail. (We clamped a fence and a stop-block to

our drill-press table to consistently position the holes from slat to slat.)

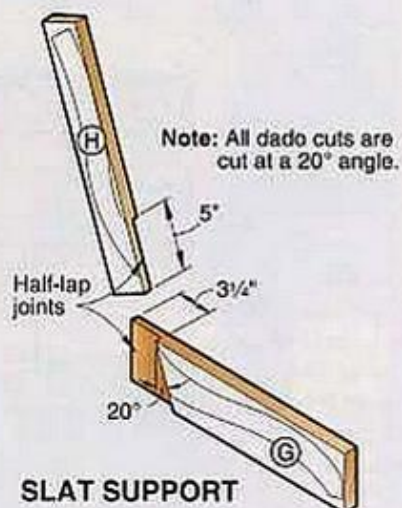
**4** As shown in the drawing above left, place the three slat supports on your benchtop. Clamp a large handscrew clamp to each to hold the pieces upright.

**5** Screw the top slat (J) to the three slat supports. Then, fasten one of the  $\frac{5}{16}$ " slats (I) to the opposite end of the assembly, where shown in the Screw Hole Detail drawing on page 22.

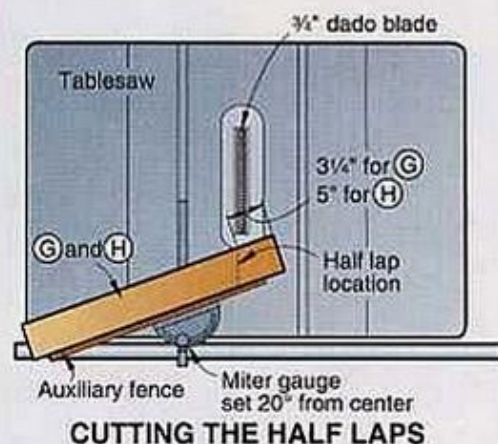
**6** Following the layout marks on the slat supports, fasten the remaining seat slats (I).

### A few more steps will complete the porch rocker

**1** With a helper, position the seat assembly on the rocker assembly where dimensioned in the yellow tinted boxes on the Exploded View drawing. Once the assembly is correctly positioned, clamp the seat in place.



## SLAT SUPPORT



## CUTTING THE HALF LAPS

**2** Using the previously drilled  $\frac{1}{4}$ " holes in the front and rear legs as guides, drill  $\frac{1}{4}$ " holes through the slat supports. Using  $\frac{1}{4}$ " machine screws, fasten the two assemblies together.

**3** Working from the back inside, drill a  $\frac{7}{32}$ " shank hole through the back seat support (H) and a  $\frac{5}{16}$ " pilot hole 1" deep into the inner edge of the armrests. Drive a #12x2" flathead brass wood screw through the support, into the armrest.

**4** Remove the screws, and separate the seat assembly from the rocker assembly. Finish-sand both assemblies and apply the finish. (We applied three coats of spar varnish.) Later, fasten the two assemblies back together. ■

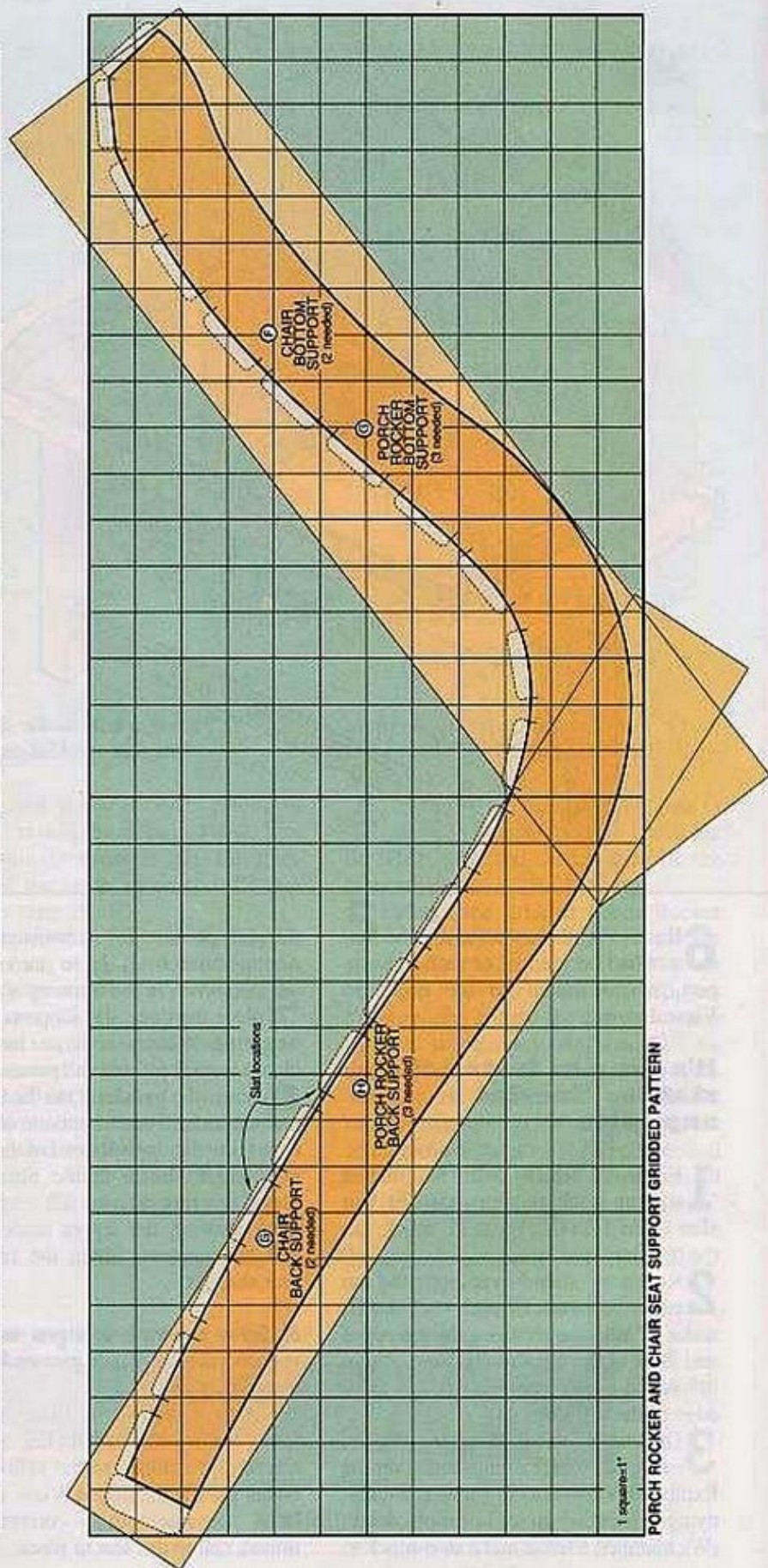
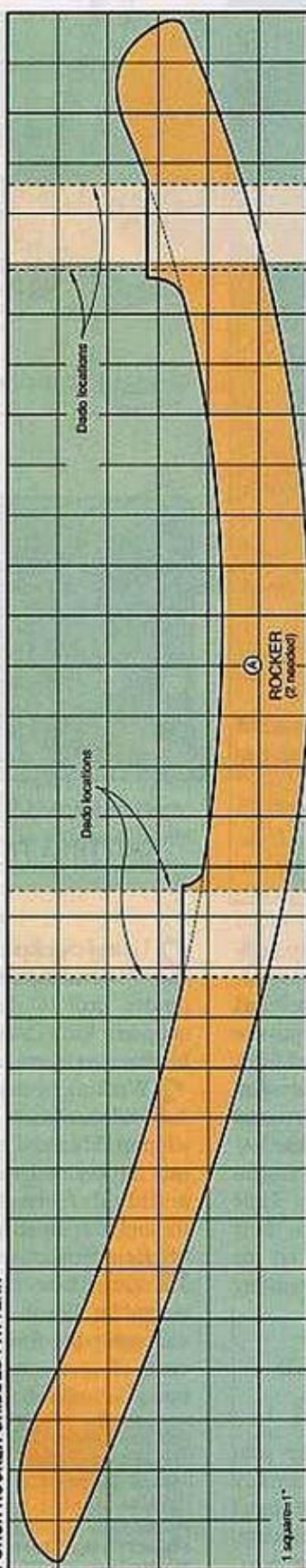
For your convenience, full-size patterns for this project are available through our WOOD PLANS® service. See page 121.

Produced by Marien Kemmet  
Project Design: James R. Downing  
Illustrations: Kim Downing; Bill Zaun;  
Lorna Johnson  
Photograph: Wm. Hopkins; John Hetherington



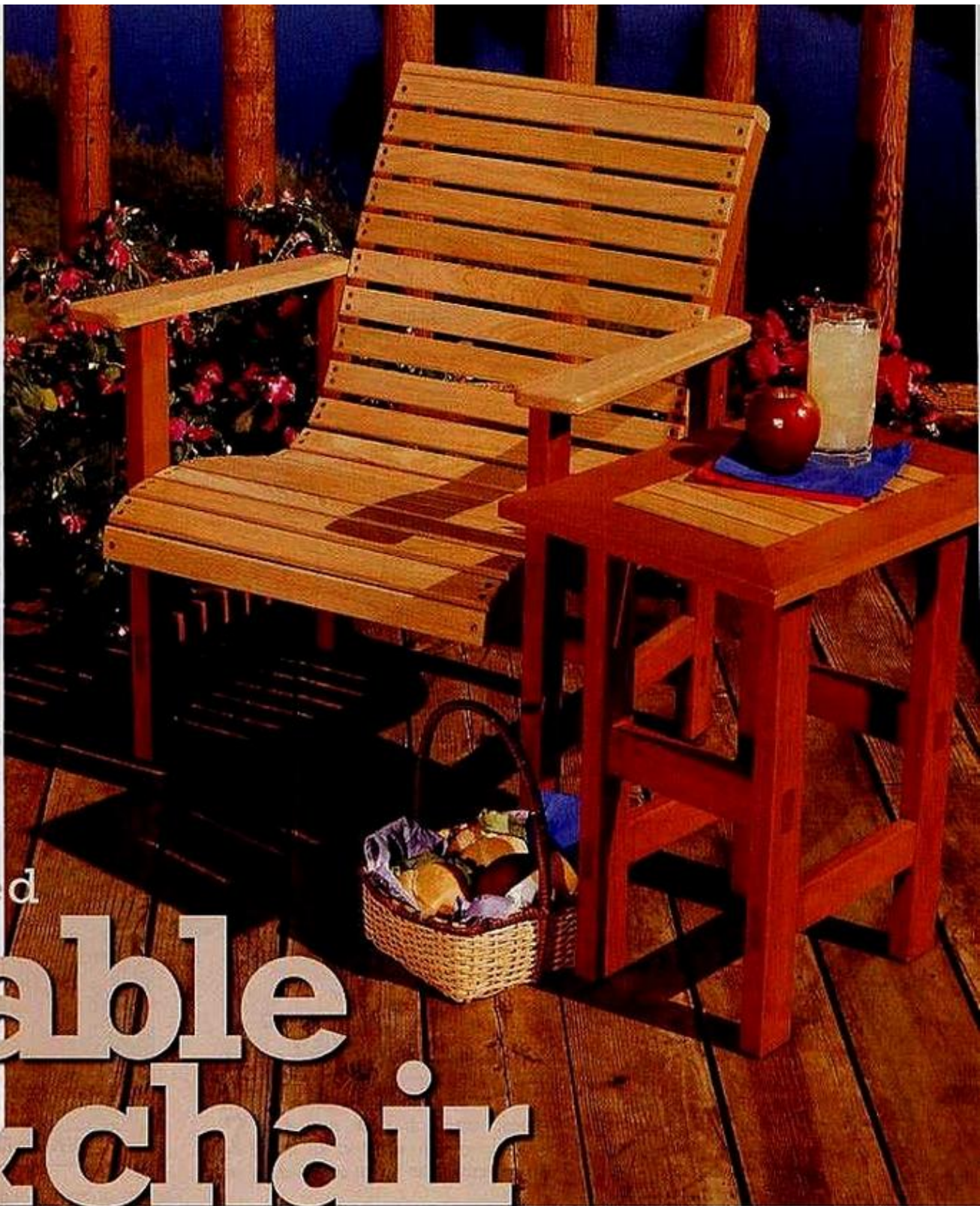
Enlarge these grids so that each square measures 1". Use the full-size patterns to create parts A, G, and H for the rocker, page 20, and parts F and G for the chair, page 27.

PORCH ROCKER GRIDDED PATTERN



PORCH ROCKER AND CHAIR SEAT SUPPORT GRIDDED PATTERN



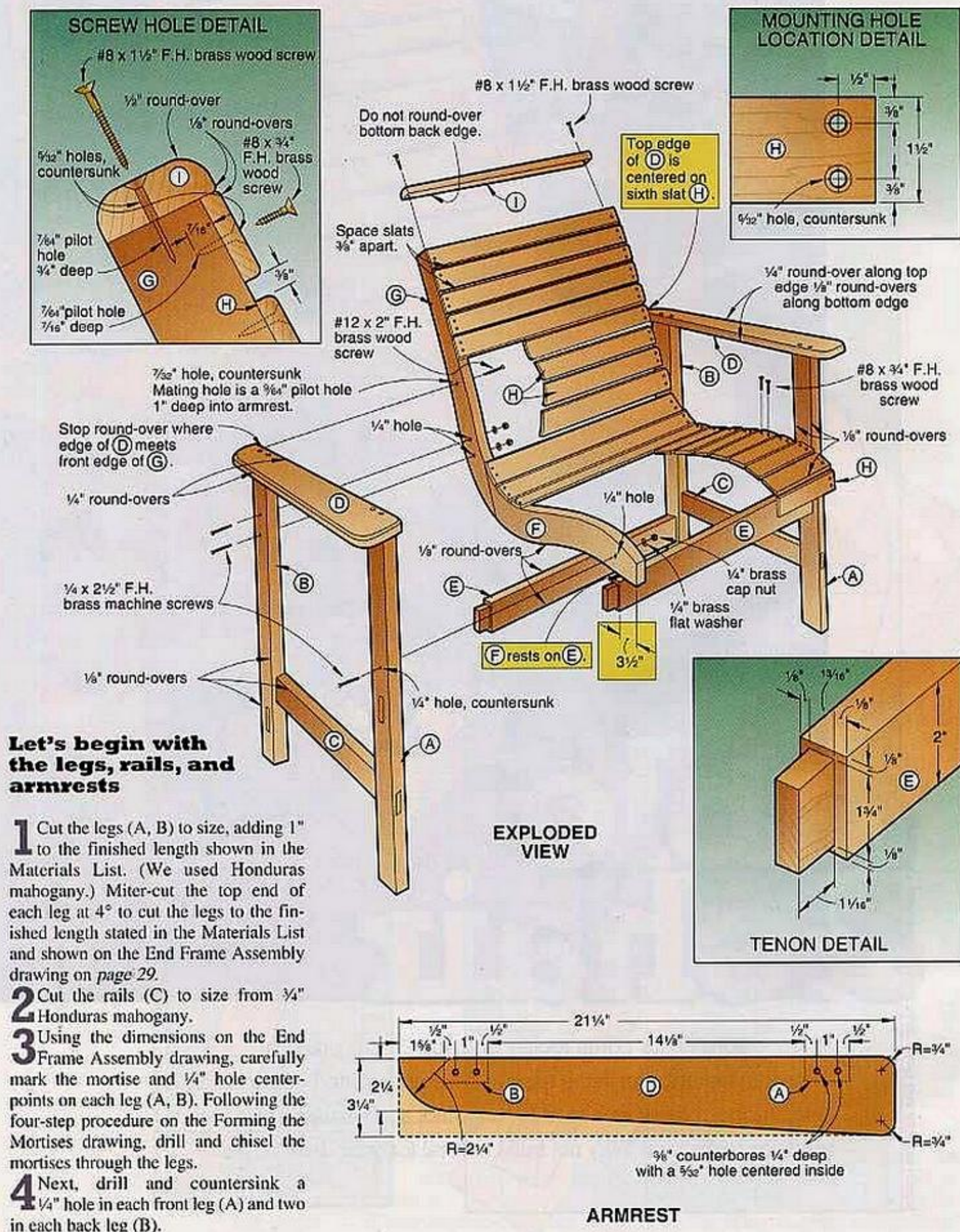
A photograph of a wooden slatted table and chair set on a deck at night. The chair is on the left, and the table is on the right. The table has a glass of lemonade and a red apple on it. A wicker basket filled with fruit sits on the deck between the chair and the table. The background shows a wooden fence and some foliage.

slatted

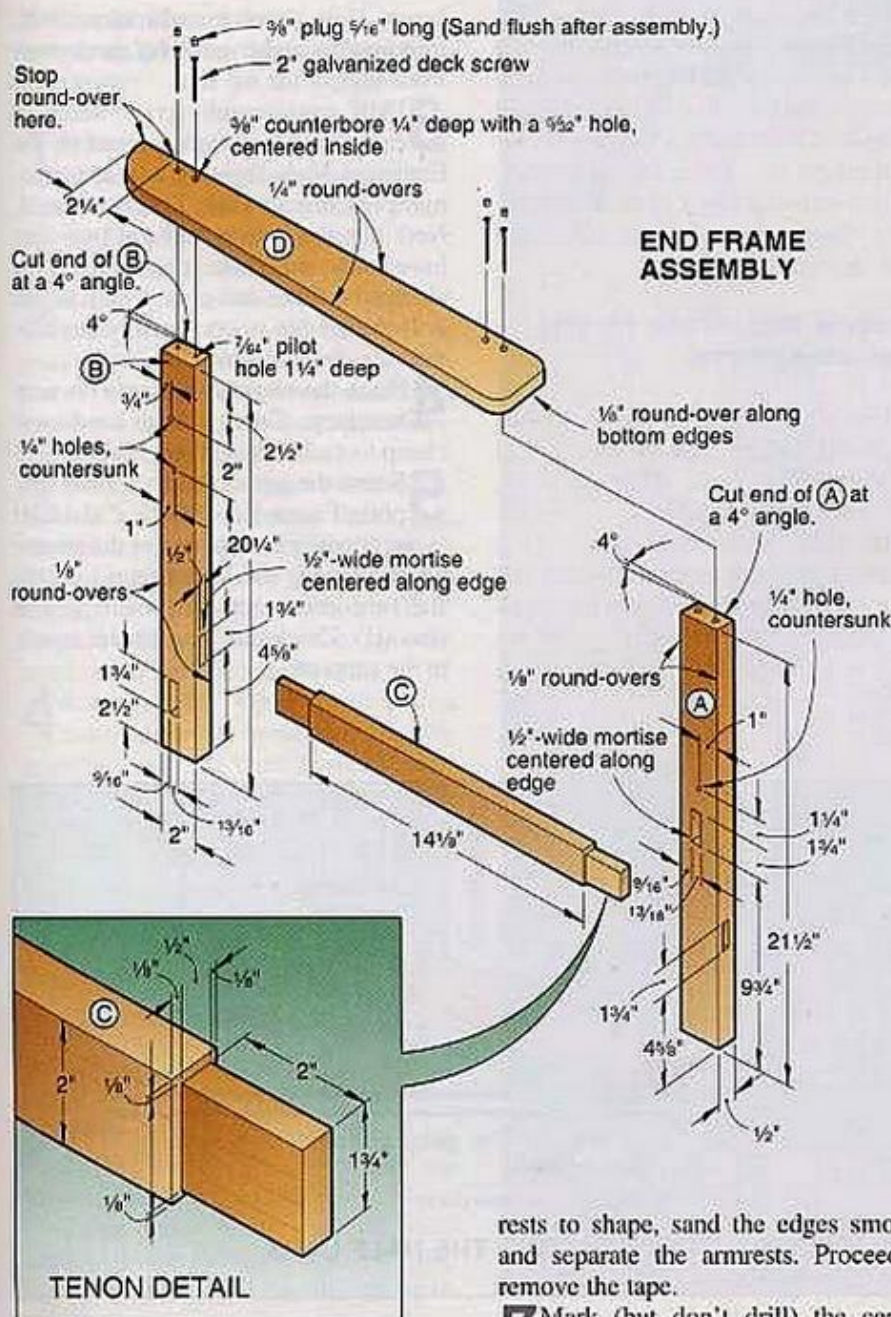
# table & chair

Companions to our porch rocker on *page 20*, this practical twosome features the same easy-to-assemble slatted construction and stubborn resistance to rain, sun, wind, and whatever else nature decides to dish out. Why not build several for your deck or patio?









**5** Mark the tenon locations on the ends of each rail (C). (See the Tenon detail in the End Frame Assembly drawing, above.) Then, cut tenons on both ends of each rail.

**6** Cut two armrest blanks (D) to 3 1/4" x 2 1/4" from 3/4"-thick white oak. Using the Armrest drawing for reference, transfer the outline to one of the blanks. Tape the armrest blanks together (we used double-faced tape), with the edges and ends flush. Bandsaw the arm-

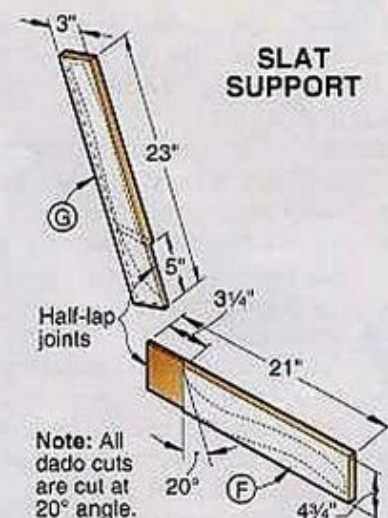
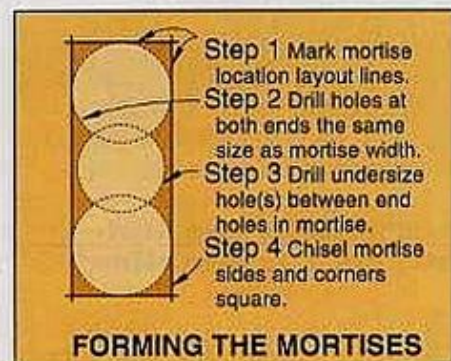
rests to shape, sand the edges smooth, and separate the armrests. Proceed to remove the tape.

**7** Mark (but don't drill) the center-points for two pair of screw mounting holes on the top of each armrest.

### Construct the end frame assemblies

*Note: Construct your chair using Titebond II water-resistant glue, slow-set epoxy, or resorcinol glue so it can stand up to the elements.*

**1** Rout 1/8" and 1/4" round-overs along the edges of parts A, B, C, and D where shown on the End Frame Assembly and Exploded View drawings.



**2** Glue and clamp a rail (C) between a front and back leg. Using a framing square, check that the legs are square to the rail.

**3** Clamp an armrest on the top of each end frame assembly (A/B/C). Verify that the marked mounting holes are located on the top of the legs. Re-mark the holes if necessary.

**4** Drill the mounting holes through the armrests and into the top ends of the legs. Screw the armrests to the leg tops, plug the holes, and sand the plugs flush.

### Now, add the stretchers and join the end assemblies

**1** Cut the stretchers (E) to size. Cut 1 1/16"-long tenons on the ends of each stretcher.

**2** Rout 1/8" round-overs along the edges of each stretcher.

**3** Glue the pair of stretchers between the end frames. (To ensure that the



end assemblies would stay square to the stretchers, we clamped square corner braces in place and left them there until the glue dried.) Sand the chair frame.

### Let's make the slat-support assemblies

**1** Cut two pieces of  $1\frac{1}{2}$ " mahogany to  $4\frac{1}{4}$ "x21" for the bottom-slat supports (F) and two pieces to  $3$ "x23" for the back-slat supports (G).

**2** Using the Slat Support drawing for reference, mark the location of a half-lap joint on one end of each slat support (F, G).

**3** Mount a  $\frac{1}{4}$ "-wide dado blade to your tablesaw and an auxiliary wooden fence to your miter gauge. Elevate the blade to cut exactly half the thickness of your stock. (We used scrap the same thickness as the supports, and made test cuts to verify blade height.) Angle the miter gauge  $20^\circ$  from center, and clamp a stop to your auxiliary miter-gauge fence. Cut a half lap on one end of each of the four slat supports, where dimensioned on the Slat Support drawing.

**4** Dry-clamp the two supports (one F and one G per support) to check the fit. Then glue and clamp each of the two slat supports.

**5** Enlarge the Gridded Porch Rocker and Chair Seat Support pattern supplied on page 26. Tape the assembled slat supports (F, G) together, transfer the pattern outline to them, cut the supports

to shape, and sand the edges. Using a try square, transfer the slat locations to the top edge of each slat support. Separate the pieces, and finish-sand, being careful not to sand away the slat location lines.

**6** Rout  $\frac{1}{8}$ " round-overs along the bottom and back edges of each slat support, where shown on the Exploded View drawing.

### Fasten the slats to the slat supports

**1** From  $\frac{5}{16}$ "-thick white oak (we planed thicker stock to size), cut 20 seat slats (H) to  $1\frac{1}{2}$ "x21". From  $\frac{3}{4}$ " stock, cut the top slat (I) to size.

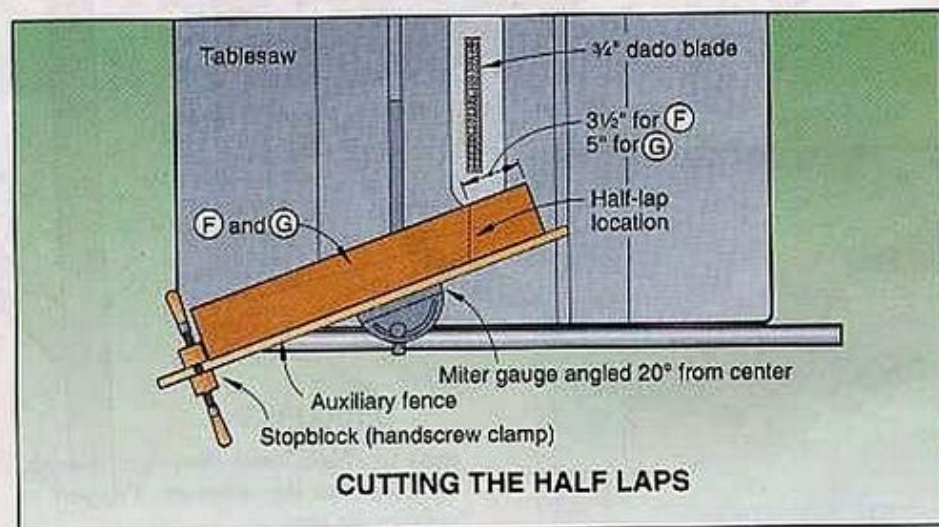
**2** Rout a  $\frac{1}{8}$ " round-over along the top edges and ends of each  $\frac{5}{16}$ " slat (H) and a  $\frac{1}{2}$ " round-over along the top edges and ends of the top slat (I). See the Exploded View and accompanying

Screw Hole detail for reference. Next, rout a  $\frac{1}{8}$ " round-over along the bottom front edge of the top slat.

**3** Drill countersunk screw holes in each slat where dimensioned on the Exploded View drawing and accompanying Mounting Hole Location detail. Note that the bottom and top two slats have only one hole per end. (We clamped a fence and a stopblock to our drill-press table to consistently position the holes from slat to slat.)

**4** Place the two slat supports on your benchtop. Clamp a large handscrew clamp to each to hold them upright.

**5** Screw the top slat (I) to the slat supports. Fasten one of the  $\frac{5}{16}$ " slats (H) to the opposite bottom end of the assembly. Following the layout marks on the slat supports, fasten the remaining seat slats (H). Check that the slats are square to the supports.



### chair materials list

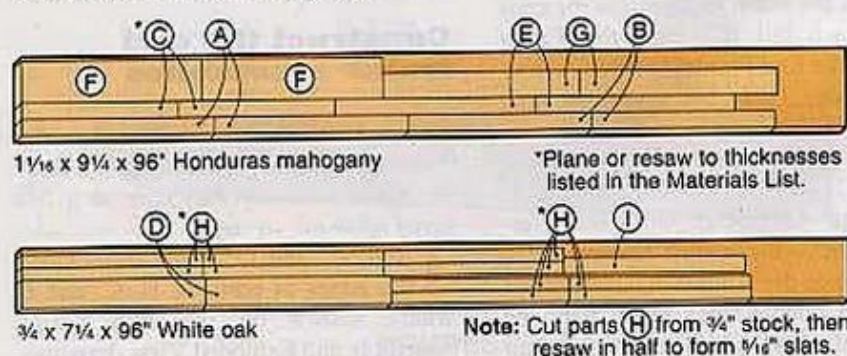
| Chair            | FINISHED SIZE    |                  |                   |       |  | Qty. |
|------------------|------------------|------------------|-------------------|-------|--|------|
|                  | T                | W                | L                 | Matl. |  |      |
| A* front legs    | $1\frac{1}{4}$ " | 2"               | $21\frac{1}{2}$ " | HM    |  | 2    |
| B* back legs     | $1\frac{1}{4}$ " | 2"               | $20\frac{1}{4}$ " | HM    |  | 2    |
| C rails          | $\frac{3}{4}$ "  | 2"               | $18\frac{1}{2}$ " | HM    |  | 2    |
| D armrests       | $\frac{3}{4}$ "  | $3\frac{1}{4}$ " | $21\frac{1}{4}$ " | WO    |  | 2    |
| E stretchers     | $1\frac{1}{8}$ " | 2"               | $23\frac{1}{4}$ " | HM    |  | 2    |
| F* seat supports | $1\frac{1}{8}$ " | $4\frac{1}{4}$ " | 21"               | HM    |  | 2    |
| G* back supports | $1\frac{1}{8}$ " | 3"               | 23"               | HM    |  | 2    |
| H slats          | $\frac{5}{16}$ " | $1\frac{1}{2}$ " | 21"               | WO    |  | 20   |
| I top slat       | $\frac{3}{4}$ "  | 2"               | 21"               | WO    |  | 1    |

\*Initial dimensions shown.

**Materials Key:** HM—Honduras mahogany; WO—White oak.

**Supplies:**  $\frac{1}{4}$ "x2 $\frac{1}{2}$ " flathead brass machine screws with brass flat washers and cap nuts, #8x $\frac{3}{4}$ " and  $1\frac{1}{2}$ " flathead brass wood screws, #12x2" flathead brass wood screws, 2" galvanized deck screws, clear exterior finish.

### CHAIR CUTTING DIAGRAM





## Attach the seat assembly to the chair frame

**1** With a helper, position the seat assembly on the chair frame, where dimensioned in the yellow tinted boxes on the Exploded View drawing. Once positioned, clamp the seat to the frame.

**2** Using the previously drilled  $\frac{1}{4}$ " holes in the front and rear legs as guides, drill  $\frac{1}{4}$ " holes through the supports. Then connect the two assemblies together with  $\frac{1}{4}$ " brass machine screws, flat washers, and cap nuts.

**3** Working from the back of the chair, drill a  $\frac{1}{32}$ " countersunk shank hole through the back seat supports (G) and a  $\frac{1}{16}$ " pilot hole 1" deep into the inside edge of the armrests. Drive a #12x2" flathead brass wood screw through each support and into the armrests.

**4** Remove the wood screws and machine screws to separate the seat assembly from the chair frame. Finish-sand both assemblies, and apply a quality exterior finish. (We applied three coats of spar varnish.) Allow the finish to dry thoroughly, then fasten the two assemblies back together.

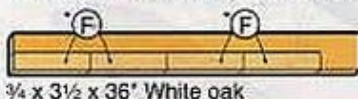
## Build a table to match the chair

To build the matching table, follow the same construction procedure used to build the chair, and refer to the Table Exploded View drawing and the Materials List for the table.

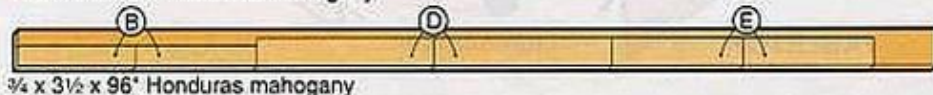
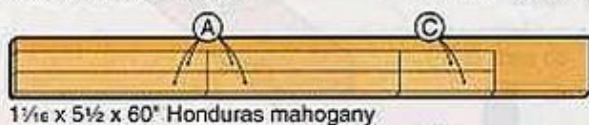
Using your router and a slot-cutting bit, rout  $\frac{1}{4}$ " spline slots  $2\frac{1}{4}$ " long in the mitered ends of the tabletop band-



### TABLE CUTTING DIAGRAM



Note: \*Cut parts (F) from  $\frac{3}{4}$ " stock, then resaw in half to form  $\frac{1}{16}$ " slats.



### table materials list

| Part         | FINISHED SIZE |        |         | Matl. | Qty. |
|--------------|---------------|--------|---------|-------|------|
|              | T             | W      | L       |       |      |
| A legs       | 1 1/16"       | 2"     | 20"     | HM    | 4    |
| B stretchers | 3/4"          | 2"     | 12 1/2" | HM    | 2    |
| C rails      | 1 1/16"       | 2"     | 9 1/8"  | HM    | 2    |
| D bandings   | 3/4"          | 3"     | 18 1/2" | HM    | 2    |
| E bandings   | 3/4"          | 3"     | 13 1/2" | HM    | 2    |
| F* slats     | 1/16"         | 1 1/2" | 8"      | WO    | 7    |

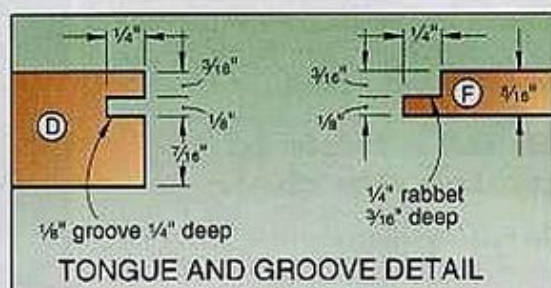
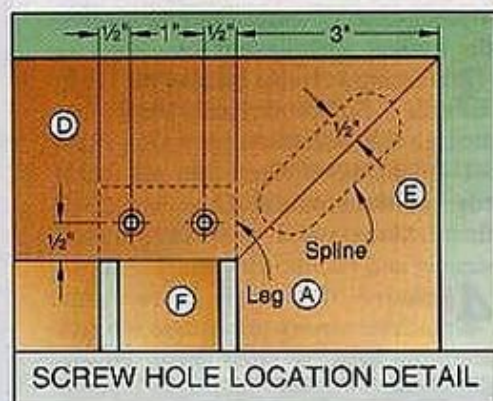
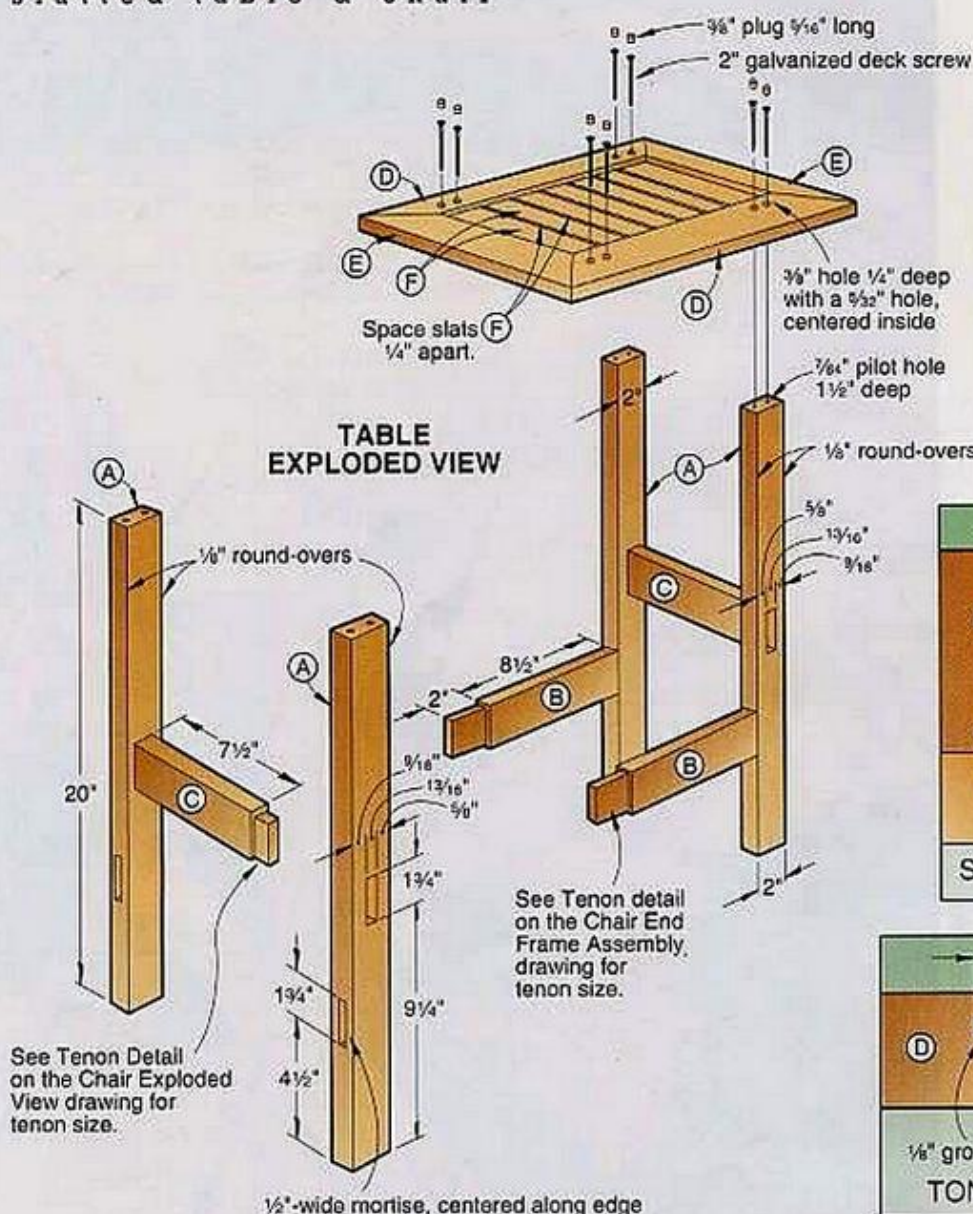
Materials Key: HM—Honduras mahogany; WO—White oak.

Supplies: 2" galvanized deck screws, clear exterior finish.



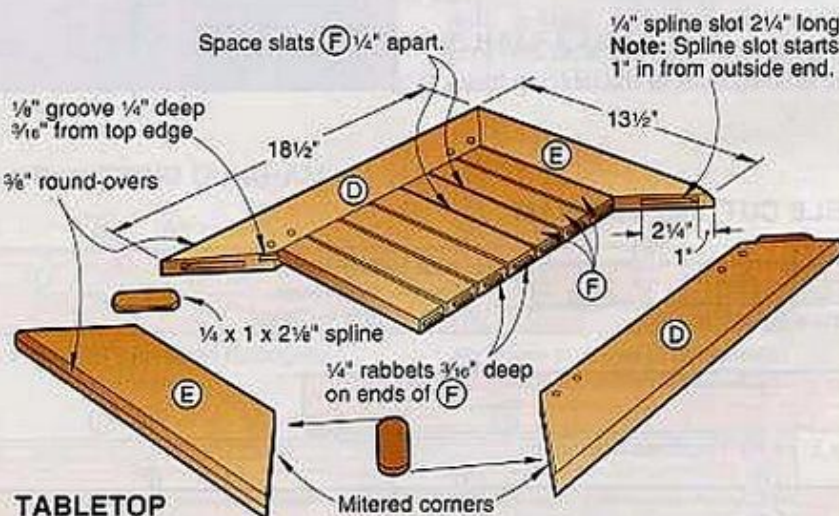
# shopTip

Counterbore holes for screws that secure the top to the legs, as shown here. Cover the screws with plugs and sand them flush with the tabletop.



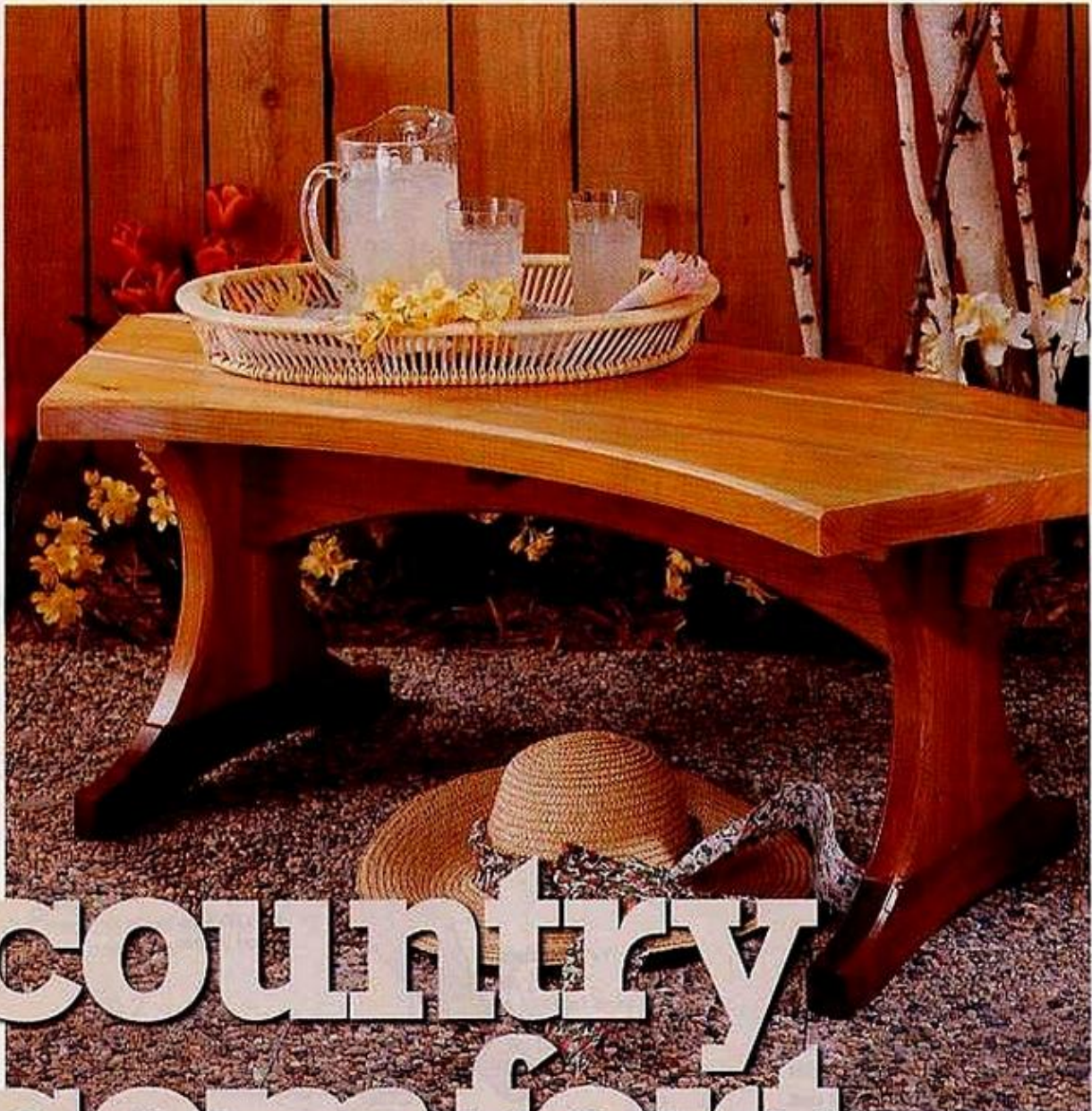
ing pieces (D, E). See the drawing at right for reference. Next, turn the banding pieces on edge, and cut a  $\frac{1}{8}$ " groove along the inside edge of each (to accommodate the slats (F) on your tablesaw. Use your tablesaw fitted with a dado blade and a miter-gauge fence to cut  $\frac{1}{2}$ " rabbets across the ends of the slats (F). Check the fit of the slat ends into the grooves cut in the banding pieces.

Assemble the table base, then the tabletop. Screw the two assemblies together, and complete the project by applying a clear exterior finish. ■



Produced by Marlen Kemmet  
Project Design: James R. Downing  
Illustrations: Kim Downing; Lorna Johnson  
Photographs: Hetherington Photography



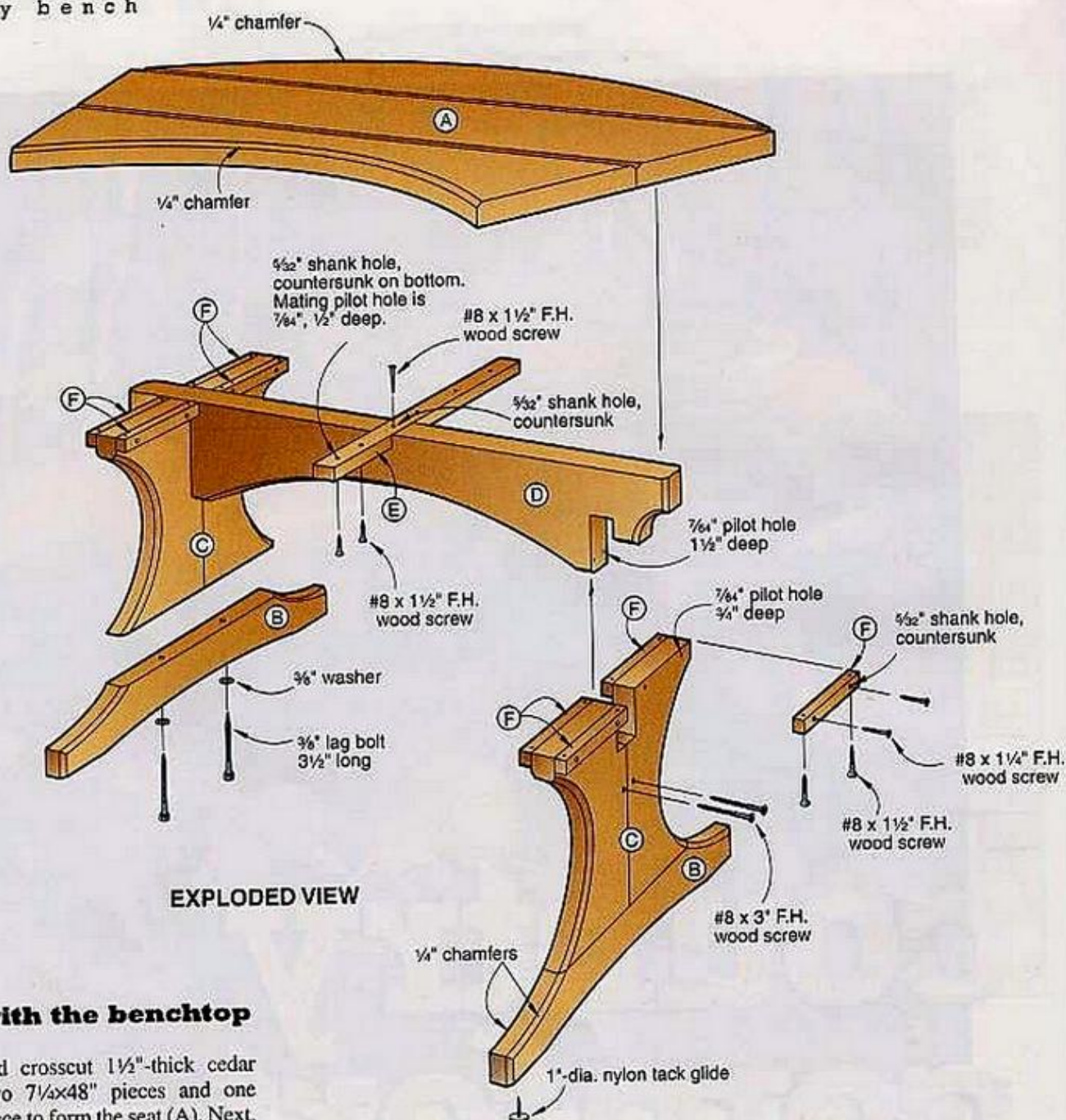


# country comfort

BENCH

Whether you use it indoors as a hall bench or outdoors as a fine piece of lawn furniture, this gently curving cedar seat will deliver the look of solid craftsmanship while performing its function effortlessly.





EXPLODED VIEW

### Start with the benchtop

**1** Rip and crosscut 1 1/2"-thick cedar into two 7 1/4"x48" pieces and one 6 7/8"x48" piece to form the seat (A). Next, chuck a piloted 45° chamfer bit into your table-mounted router, and adjust it to a cutting depth of 1/4". Rout a chamfer along both top edges of the 6 7/8" piece, and one top edge of each 7 1/4" piece. Position the 6 7/8" piece between the 7 1/4" pieces so that the chamfers are adjacent to each other as shown in the Laying Out the Arc drawing, then glue and clamp. (We used a weather-proof glue called Titebond II.)

**2** Mark the final shape of the top as shown in the Laying Out the Arc drawing. Bandsaw the top just on the waste side of the line, then sand to the line.

### Uprights come next

**1** Rip and crosscut blanks for the feet (B) to the dimensions listed in the Materials List. Rip and crosscut four pieces for the uprights (C) to 5 1/2"x11 1/2". Edge-glue the pieces in two pairs to form two 11"x11 1/2" blanks for the uprights, and let dry.

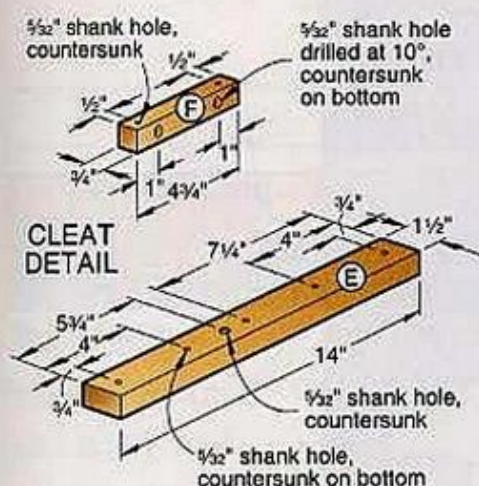
**2** Mark the center on one of the feet. On a sheet of paper exceeding 18x14 1/2" enlarge the Pedestal gridded pattern on page 36 so it is full size. Mark and drill two 3/4" holes 1 3/8" deep into the bottom of the foot, where shown on the

grid. Then, drill 3/8" holes the rest of the way through the foot. Repeat for the other foot, using the same pattern.

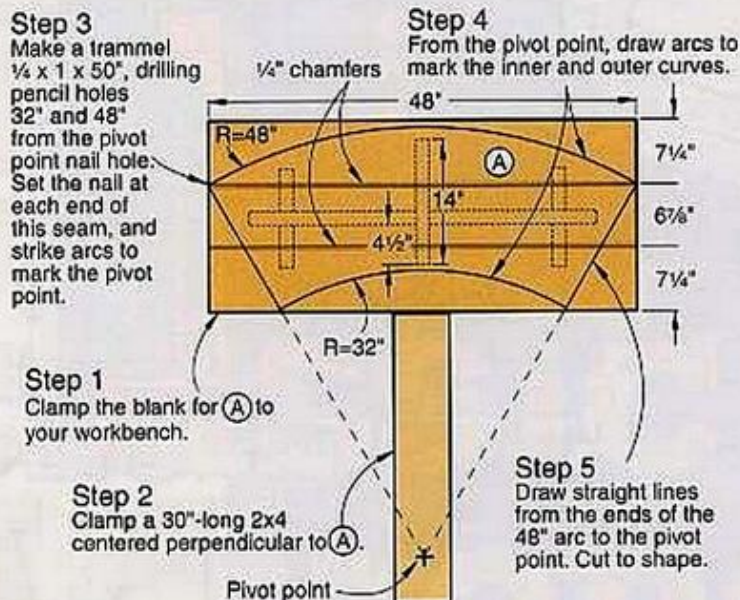
**3** Align the center mark of the foot with the center seam of the upright, and clamp in place. Next, with a 7/32" bit in your hand drill, drill through the holes in the leg into the upright. Unclamp, and continue the holes in the uprights to a depth of 2 3/4". Screw the foot to the upright with 3/8"x4 1/2" lag bolts and flat washers. Do not use glue on this joint.

**4** Make two photocopies of the pedestal (B, C) pattern you have enlarged from page 36. Adhere the





## LAYING OUT THE ARC



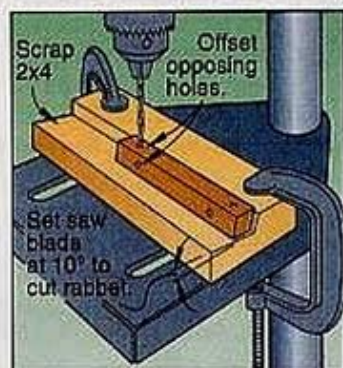
pedestal patterns centered side-to-side on the top of the blanks with spray adhesive. Bandsaw the pedestal assemblies to their final shape (The counterbores in the bottom of the assembly are deep enough for the sawblade to clear the lag bolts.) Drill two countersunk  $\frac{5}{32}$  inch holes, where shown on the patterns. Remove patterns.

**5** Sand the pedestal assemblies to remove any of the rough marks left by the bandsaw. Next, with the  $\frac{1}{4}$  inch chamfer bit in your table-mounted router, rout chamfers along the curved edges of the bench's pedestals, where shown on the pattern.

## Now, make the stretcher assembly

**1** Rip and crosscut a blank for the stretcher (D) to the dimensions listed in the Materials List. Enlarge the Stretcher Gridden Pattern on page 36 to full size, and adhere it to the blank with spray adhesive. Bandsaw to shape, again cutting just to the waste edge of the pattern lines. Sand contours, and chamfer the edges, where shown on the pattern.

**2** Rip and crosscut the cleat (E) from  $\frac{3}{4}$  inch-thick cedar to the dimensions listed in the Materials List. Drill five  $\frac{5}{32}$  inch



## shopTip

To drill angled holes into the cleats, make the drilling jig shown above from a piece of scrap 2x4, and clamp it to your drill press. With pedestal cleat F in the jig, drill another two shank holes through a face perpendicular to the first holes.

shank holes through (E) (countersunk on the bottom), where shown on the Cleat detail, above left. Position the cleat over the stretcher, and drill a  $\frac{7}{64}$  inch pilot hole  $\frac{1}{2}$  inch deep into the stretcher. Next, countersink the hole in the cleat. Now, screw the cleat to the stretcher with a #8x1 1/2 inch flathead wood screw.

## Add cleats to the pedestals, and finish

**1** Cut eight pedestal cleats (F) from  $\frac{3}{4}$  inch-thick stock to the dimensions listed in the Materials List. Drill two countersunk  $\frac{5}{32}$  inch shank holes through one side of each piece, where shown on the Cleat detail. Drill a second set of holes—in this case angled at 10 degrees—through a face of the cleat perpendicular to the first set. See the Shop Tip above



for a jig that will enable you to drill these holes at an angle.

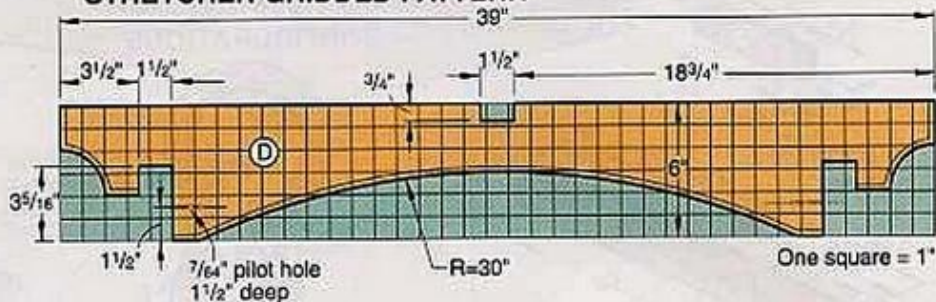
**2** Attach the uprights to the stretcher. Drill  $\frac{3}{4}$ " pilot holes through the shank holes in the uprights into the stretcher, and screw together with #8x3" flathead wood screws. Lay the completed pedestal assembly top down on a table, and temporarily clamp the cleats in place, making sure the offset holes are facing down and away from the uprights. Drill  $\frac{3}{4}$ " pilot holes through the cleats into the uprights, and screw cleats (F) to the uprights (C) with #8x1 $\frac{1}{4}$ " flathead wood screws.

**3** Place the top facedown on your workbench. Center the pedestal assembly on the top, and drill  $\frac{3}{4}$ " pilot holes through the shank holes in the center cleat into the top. Screw in place with #8x1 $\frac{1}{2}$ " wood screws.

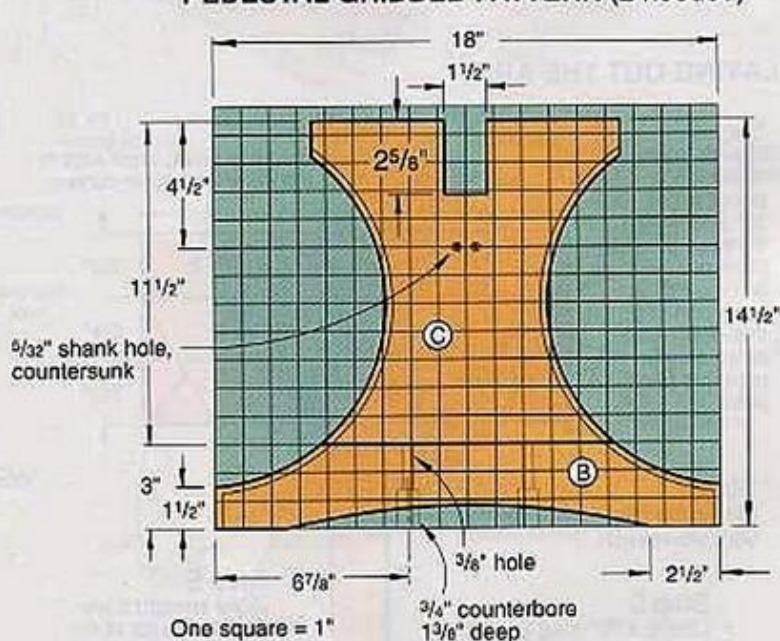
**4** Finish-sand the bench, then apply your finish. Because the bench is intended for outdoor use, apply a durable exterior finish. Install 1" nylon tack glides in the feet of the bench. You can make several benches, and attach them to each other as shown in the Optional Configurations drawing on page 35. Join the benches with  $\frac{3}{4}$ x3x12" cleats screwed on from below. ■

Written by Jon Greising  
Project Design: James R. Downing  
Illustrations: Roxanne LeMoine; Carson Ode;  
Lorna Johnson  
Photograph: Craig Carpenter

STRETCHER GRIDDED PATTERN



PEDESTAL GRIDDED PATTERN (2 needed)



## materials list

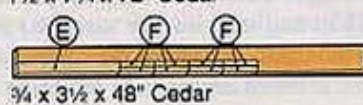
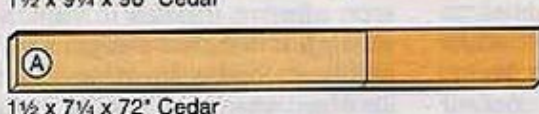
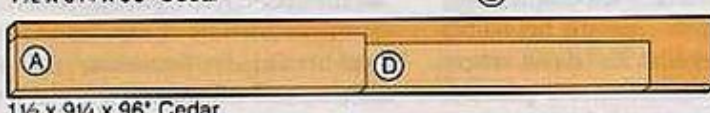
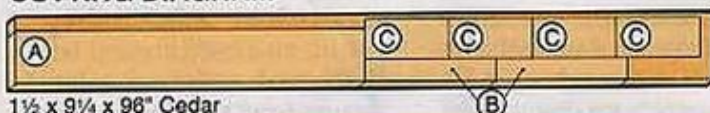
| Bench             | FINISHED SIZE |         |         |    | Matl. | Qty. |
|-------------------|---------------|---------|---------|----|-------|------|
|                   | T             | W       | L       |    |       |      |
| A* top            | 1 1/2"        | 20 1/4" | 48"     | EC |       | 1    |
| B feet            | 1 1/2"        | 3"      | 18"     | C  |       | 2    |
| C uprights        | 1 1/2"        | 11"     | 11 1/2" | C  |       | 2    |
| D stretcher       | 1 1/2"        | 6"      | 39"     | C  |       | 1    |
| E center cleat    | 3/4"          | 1 1/2"  | 14"     | C  |       | 1    |
| F pedestal cleats | 3/4"          | 3/4"    | 4 1/4"  | C  |       | 8    |

\* Construct the top from three pieces, one 1 1/2x5 1/2x48" and two 1 1/2x7 1/4x48". See the how-to instructions for details.

Materials Key: C-cedar; EC-edge-glued cedar.

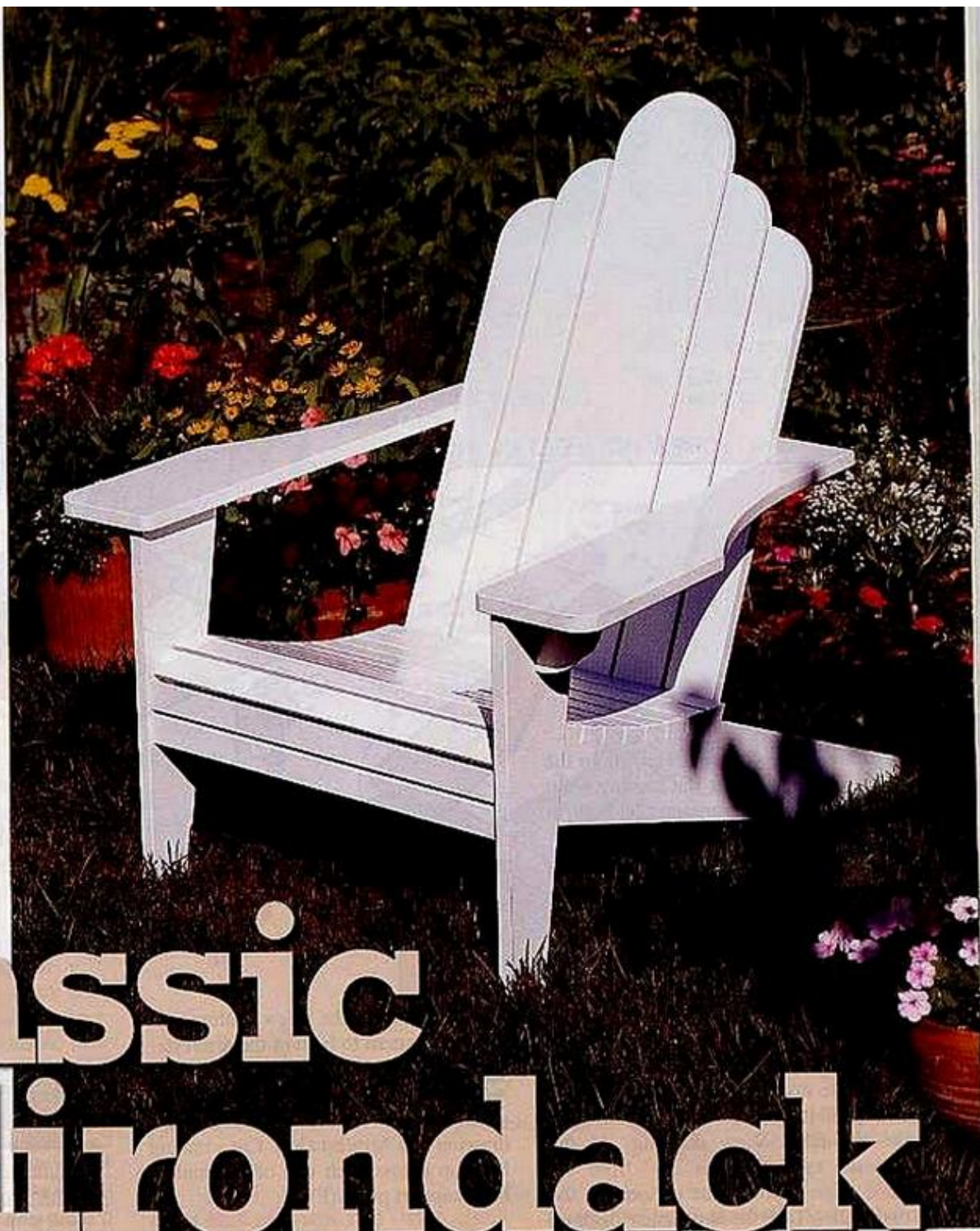
Supplies: flathead woodscrews—#8x3", #8x1 1/2", #8x1 1/4"; 3/4x4 1/2" lag screws; 3/8" flat washers; 1"-dia. nylon tack glides; finish.

CUTTING DIAGRAM





From Hawaii to the Hamptons, this American classic is always in style. Its timeless design is backed by solid wood construction and simple joinery, for quality that lasts season after season. Try mixing one or two with the Adirondack table that comes next.



# classic Adirondack

## First, cut the chair pieces

**1** To form the chair-back splats, rip and crosscut a piece of 1" pine ( $\frac{3}{4}$ " actual thickness) to 7x33" (A), a second piece to 5 $\frac{7}{8}$ x29", and a third to 5 $\frac{7}{8}$ x26 $\frac{1}{2}$ ".

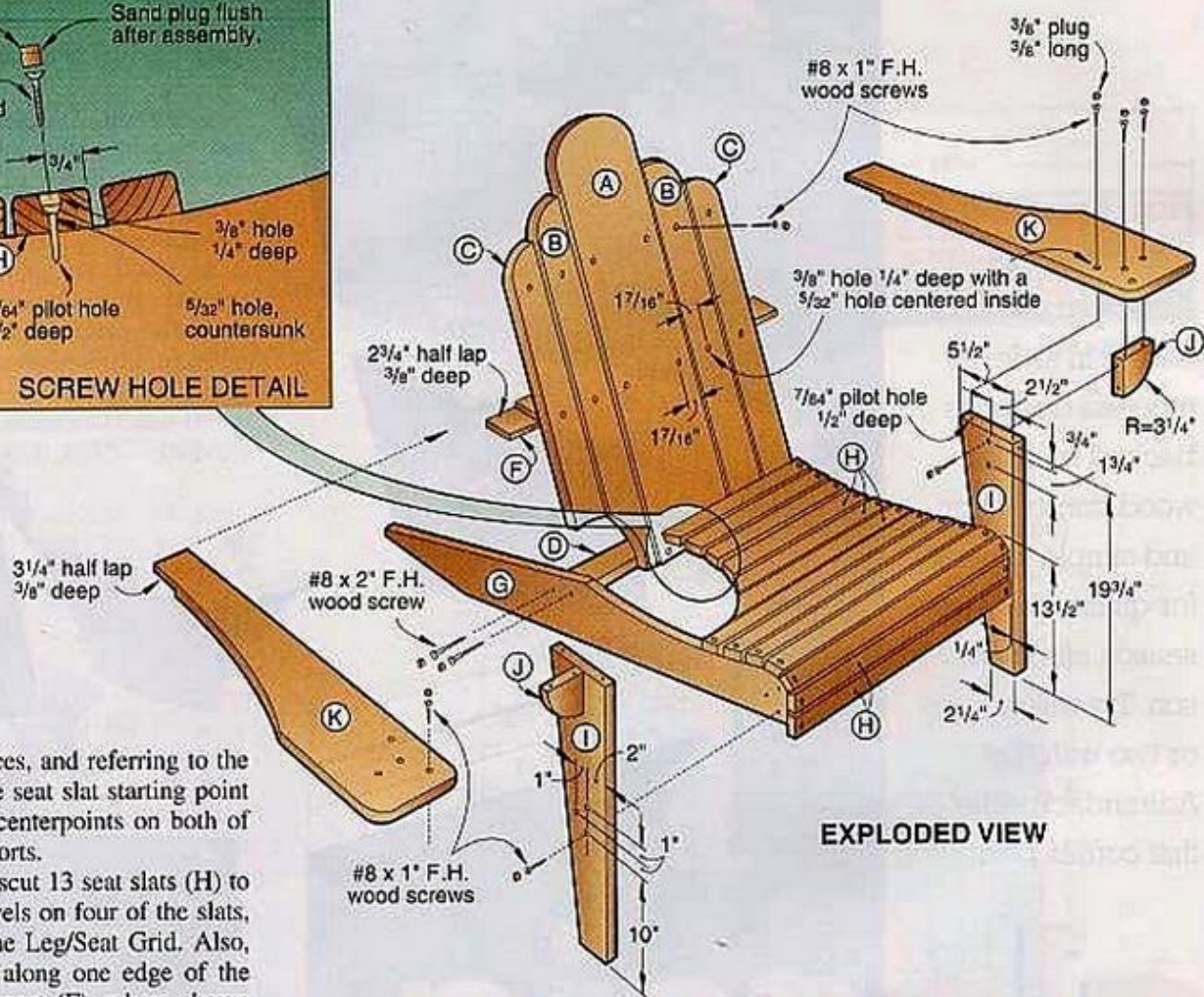
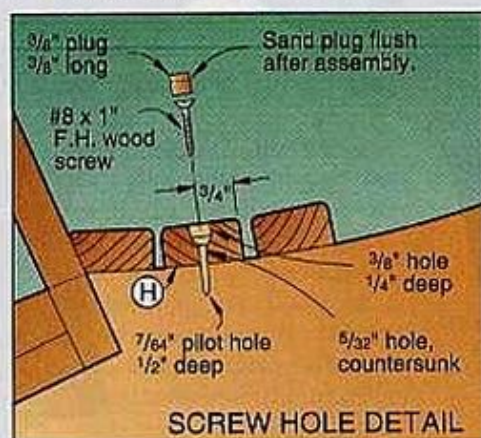
**2** Mark a 3 $\frac{1}{2}$ " radius on one end of A, and a 2 $\frac{1}{16}$ " radius on one end of the other two boards. Using a bandsaw or portable jigsaw, cut the radii on the three boards, and then finish-sand edges and surfaces. (We used a palm sander.) Rip the two 5 $\frac{7}{8}$ "-wide boards in half to make two splat Bs and two splat Cs.

**3** Rip and crosscut the three back support pieces (D, E, F) to the sizes listed in the Materials List. The parts are shown on the Chair Back and Attaching the Chair Back drawings. Cut a piece of scrap the same size as D, and set it aside for use later on.

**4** To form Leg/Seat supports (G), use double-faced tape to tape together (face-to-face) two pieces of 1x6 measuring at least 37 $\frac{1}{2}$ " long. Enlarge and transfer the Leg/Seat support pattern on page 40 onto the top piece, then cut both pieces to shape (We used a bandsaw for this.) Sand the cut edges to remove the saw marks.



## Adirondack chair



Separate the pieces, and referring to the pattern, mark the seat slat starting point and screw hole centerpoints on both of the leg/seat supports.

**5** Rip and crosscut 13 seat slats (H) to size. Rip bevels on four of the slats, as detailed on the Leg/Seat Grid. Also, rip a 25° bevel along one edge of the middle back support (F), where shown on the Screw Hole detail with the Chair Back drawing.

**6** To form the front legs (I), crosscut two 1x6 pieces to 19¼" long. Designate one end the top, and place a mark 5½" in from the edge, as shown on the Exploded View drawing. At the opposite end, mark in 2¼" from the same edge. Draw a line connecting the two marks. Tape the two pieces together, and cut them to shape. Next, plane or sand to the line. (We cut the pieces on our bandsaw, then planed the cut edge flat on a jointer.)

**7**To shape the arm supports (J), cut two 4x4" squares of 3/4"-thick scrap material. From one corner use a compass to draw a 3/4" radius. Cut and sand the two pie-shaped arm supports to shape.

**8** Rip and crosscut two pieces of stock to 6½×28" for the armrests (K). Tape the pieces together face-to-face. Enlarge and transfer the Armrest pattern to the top piece of stock. Cut the armrests to shape. Sand the cut edges, then separate

the two. Transfer the screw centerpoints from the pattern to both of the armrests.

**9** Cut a 3¼" half lap ¾" deep across the bottom side of each armrest, where shown on the Exploded View drawing and Armrest Grid. Cut a mating half lap across each end of the middle back support piece (F).

### Next, counterbore the screw holes

**1** Chuck a 3/8" drill bit into your drill press, and adjust the stop so it drills 1/4" deep in 3/4"-thick stock. (We used a brad point bit.)

**2** Lay the backrest splats (A, B, C) good face up on a flat surface and in the order shown in the Exploded View drawing. Align the bottom ends of the boards. On both Cs mark points  $\frac{3}{8}$ ",  $14\frac{7}{8}$ ", and  $22\frac{3}{8}$ " from the bottom ends. With a straightedge, lightly draw lines across all splats connecting those marks.

## materials list

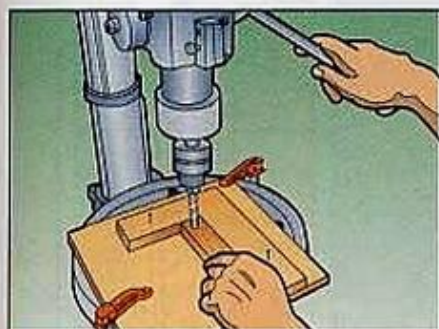
| Chair             | FINISHED SIZE |     |      |       |      |
|-------------------|---------------|-----|------|-------|------|
|                   | T             | W   | L    | Matl. | Qty. |
| A center splat    | ¾"            | 7"  | 33"  | P     | 1    |
| B* inside splats  | ¾"            | 2½" | 29"  | P     | 2    |
| C* outside splats | ¾"            | 2½" | 26½" | P     | 2    |
| D lower support   | ¾"            | 3½" | 19½" | P     | 1    |
| E top support     | ¾"            | 1½" | 18½" | P     | 1    |
| F mdl. support    | ¾"            | 3¼" | 25"  | P     | 1    |
| G seat supports   | ¾"            | 4½" | 37½" | P     | 2    |
| H slats           | ¾"            | 1½" | 21"  | P     | 13   |
| I front legs      | ¾"            | 5½" | 19¼" | P     | 2    |
| J* supports       | ¾"            | 3¼" | 3¼"  | P     | 2    |
| K armrests        | ¾"            | 6¼" | 28"  | P     | 2    |

\*Initially cut parts marked with an \* oversized. Then, trim each to finished size according to the instructions.

**Material Key:** P—pine.

**Supplies:** 3/4" dowel, double-faced tape, #8x1" flathead wood screws, #8x2" flathead wood screws, exterior primer, and paint.





**3** Clamp a fence to your drill-press table  $\frac{1}{16}$ " from the center of the bit, as shown above. Place either edge of pieces B and C and both edges of piece A against the fence, and drill  $\frac{3}{8}$ " holes  $\frac{1}{4}$ " deep centered on the pencil marks. Lay the splats aside.

**4** To counterbore the seat slats (H), find the center at the end of a slat scrap and drill a  $\frac{3}{8}$ " hole  $\frac{1}{4}$ " deep  $\frac{3}{8}$ " in from the end. See the Screw Hole detail accompanying the Exploded View drawing for reference. Next, make the right-angle jig shown above. Using the scrap piece as a guide, position the jig on the drill-press table, and clamp it in place. Drill the holes.

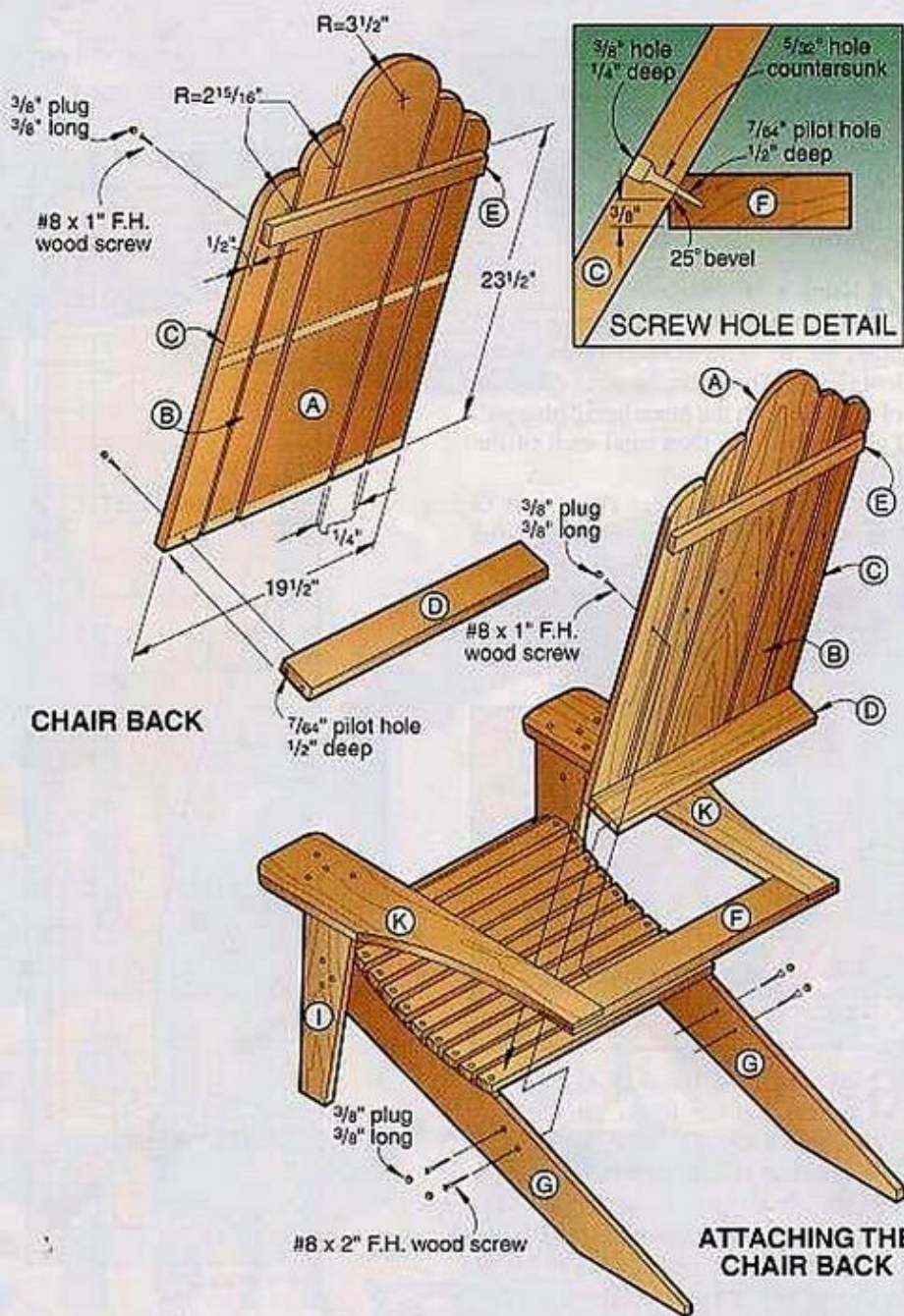
**5** Counterbore the holes in the outside faces of both leg/seat supports (G), where indicated on the grid. Mark centerpoints on the front legs for the three screw holes located on the outside face and the two on the inside face (See the Exploded View drawing for reference.) Counterbore those holes in the front legs.

**6** Counterbore the holes in the top surface of both armrests, using the dimensions on the Armrest grid for centerpoint locations.

**7** Drill  $\frac{3}{32}$ " holes through all of the  $\frac{3}{8}$ " counterbored holes. (We backed the parts with a piece of scrap stock to prevent chip-out.)

## Now it's time to assemble the parts

**1** Place part D and the same-sized scrap piece you cut earlier on edge about 18" apart on a flat surface. Referring to the Chair Back drawing, lay the backrest splats (A, B, C) across part D. Space the five splats flush with the edge and ends of D. Space the five splats



so the back measures  $19\frac{1}{2}$ " wide. Using a  $\frac{3}{64}$ " bit and your portable drill, drill a pilot hole through the  $\frac{3}{8}$ " counterbored holes at the bottom of each splat and  $\frac{1}{2}$ " deep into part D. (See the Screw Hole detail on the Exploded View drawing for details on how all holes are drilled and plugged.) Glue and screw the backrest splats to part D.

**2** Draw a line across the back of the backrest  $23\frac{1}{2}$ " up from the bottom, and make a mark  $\frac{1}{2}$ " in from both edges. Position the top edge of part E on the line, then check splat spacing and total back width ( $19\frac{1}{2}$ "). Drill the pilot holes into E, apply glue, and drive the screws.

*Note: For joints that will stand up to the extremes of Mother Nature, use Titebond II water-resistant glue or resorcinol glue.*

**3** Assemble the seat by standing both part Gs on their bottom edge and parallel to one another  $19\frac{1}{2}$ " (inside measurement) apart (countersunk holes to the outside). Now, place the rear beveled seat slat on top of both part Gs, aligning it with the start point marks. Drill the pilot holes. Then, apply glue to the ends on the underside of the slat, reposition it, and drive the two screws. Next, position the  $15^\circ$  beveled slat at the nose of the seat, and attach it the same way. Square the seat, and attach the remaining slats, spacing them about  $\frac{1}{4}$ " apart.



## GRIDDED PATTERNS

**4** Using a  $\frac{3}{8}$ " plug cutter, cut 70  $\frac{3}{8}$ "-long plugs. Next, glue and insert the plugs in the counterbored holes in the seat slats and backrest, aligning the grain of the plug with the piece being plugged. Let the glue dry, then sand each of the plugs flush.

**5** Clamp the front legs (I) to part G using dimensions on the Exploded View drawing ( $13\frac{1}{2}$ " to top of seat, and  $\frac{1}{4}$ " back from the front edge of the leg). Square each leg as shown below. Adjust if necessary. Drill the pilot holes, and drive the three screws in each leg.

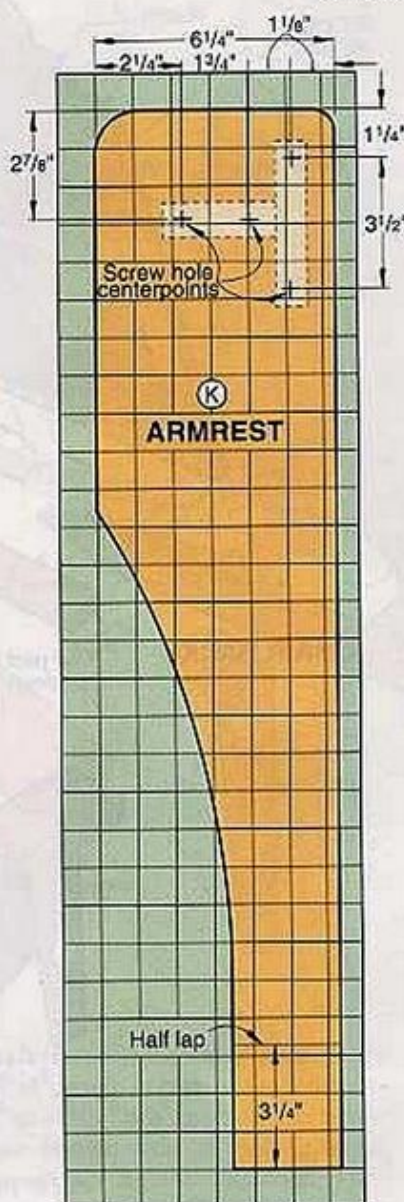


**6** Spread an even coat of glue on the mating half-lap joints on the two armrests (K) and the back support (F). Checking the inside corners for square, glue and clamp the pieces together.

**7** Apply an even coat of glue to the top of the right front leg. Then, referring to the Armrest grid, position the armrest assembly (F/K), lapping the armrests over the legs  $\frac{3}{4}$ " on the inside and  $\frac{1}{2}$ " on the front edge. Holding the armrest steady (we did this with a couple of bar clamps), drill the pilot holes and drive the screws into each.

**8** Attach the armrest supports (see the Exploded View drawing), driving the four screws into each.

**9** Position and clamp the backrest assembly between the armrests and leg/seat supports, checking that the mating surfaces are flush. With the pieces correctly positioned, drill the pilot holes into both parts D and F, and drive the screws, where shown on the Attaching the Chair Back drawing on page 39.



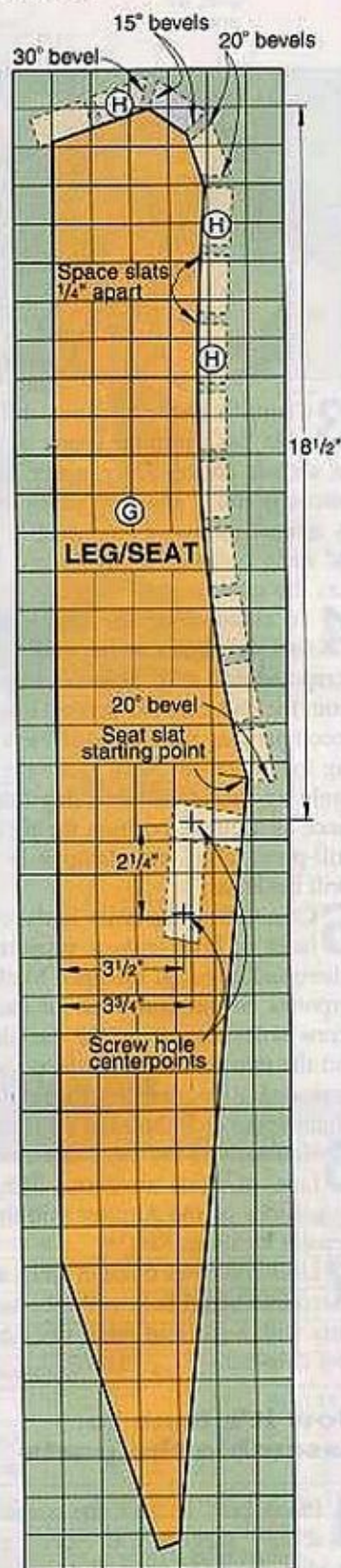
One square=1"

**10** Glue and install the remaining plugs, aligning the grain of the plug with the surrounding wood. Let the glue dry, then sand the plugs flush with the surrounding wood surface.

**11** Finish-sand the entire chair, and apply an exterior finish. (We used an enamel primer and semigloss enamel white paint.) ■

Project Design: James R. Downing  
Photograph: Marty Baldwin

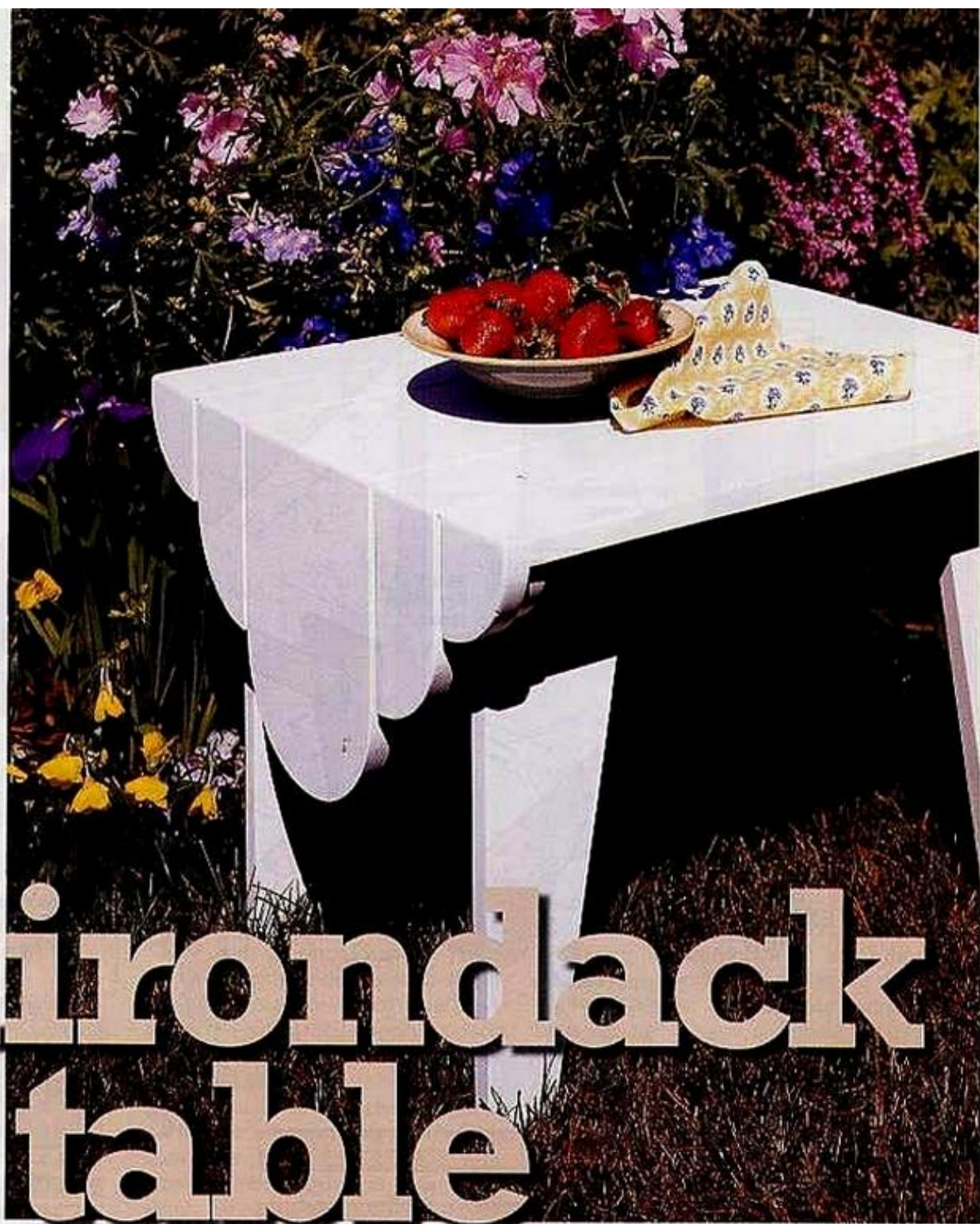
For your convenience, full-size patterns for this project are available through our WOOD PLANS® service. See page 121.



One square=1"



Complement your Adirondack chair with this tapered-leg side table. With the same classic looks and strong but simple joinery featured in the chair, it's the perfect place to rest your drink.



# Adirondack table

## To start, cut and assemble the table frame

**1** To make the tapered legs (A), rip and cross-cut four pieces of  $\frac{3}{4}$ "-thick stock to  $5 \times 17\frac{1}{2}$ ". (Because we planned to paint the chair, we selected clear pine.) Next, lay out and cut the tapered inside edge of each leg on these four pieces, where shown on the Table Exploded View drawing. (We used our table-saw and an adjustable tapering jig, but you can also use your bandsaw.)

**2** Rip and crosscut two side rails (B) and two end rails (C) to the dimensions listed in the

Materials List. Use a compass to mark the  $2\frac{1}{4}$ "-radius pattern shown on the Table End View on page 43 onto both ends of each end rail. Next, bandsaw the ends of the end rails to shape, keeping your blade outside the marked line. Then, sand to the line to complete the shaping.

**3** Lay out the screw-hole centerpoints on the side and end rails, where shown and dimensioned on the Table Exploded View drawing. Then, drill and countersink  $\frac{5}{32}$ " shank holes through the four rails. Sand the rails smooth.

*Note: To withstand the elements, build your table using Titebond II or Weather-Tite water-resistant glues, slow-set epoxy, or resorcinol glue.*





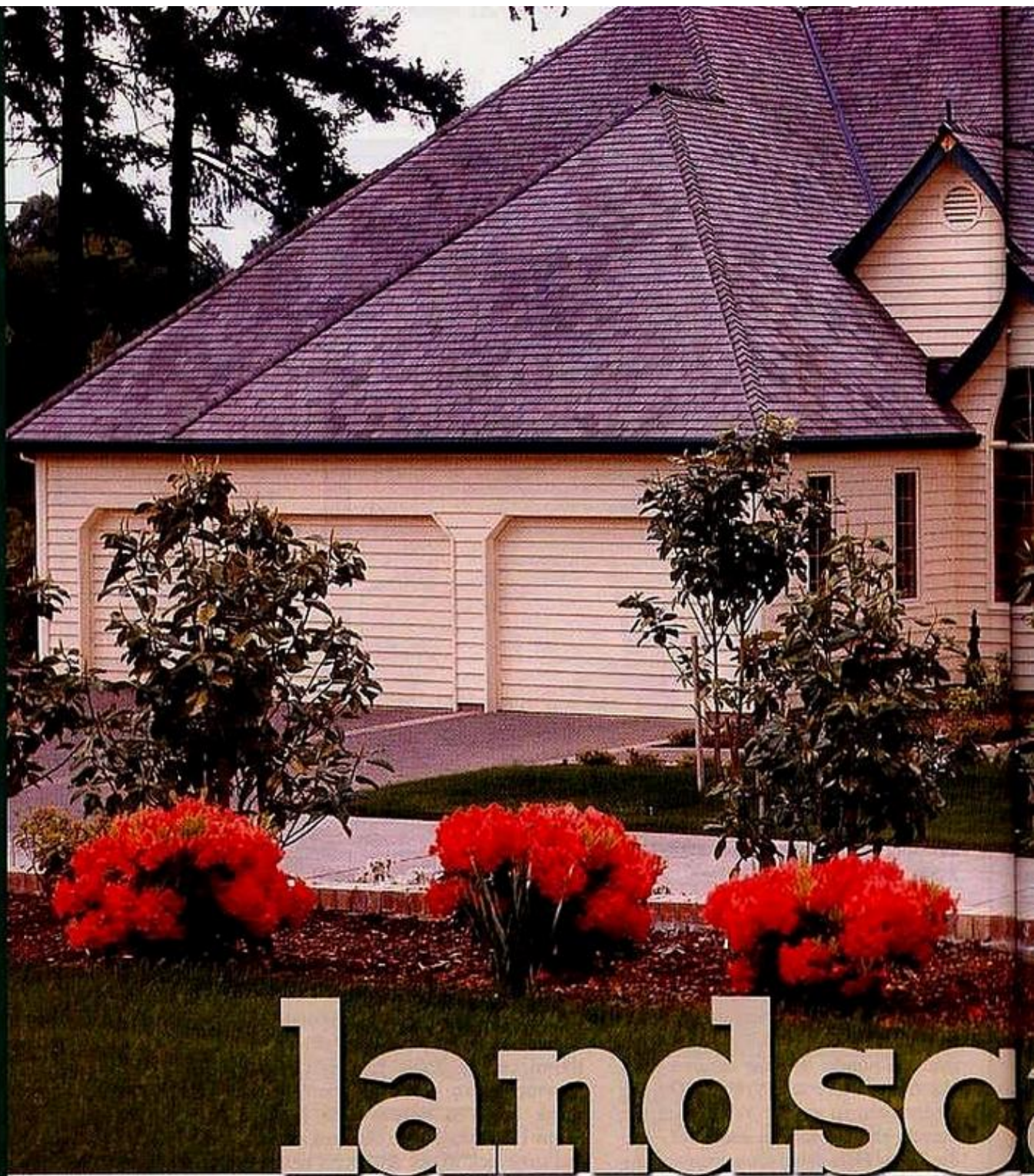






# gardenscapes

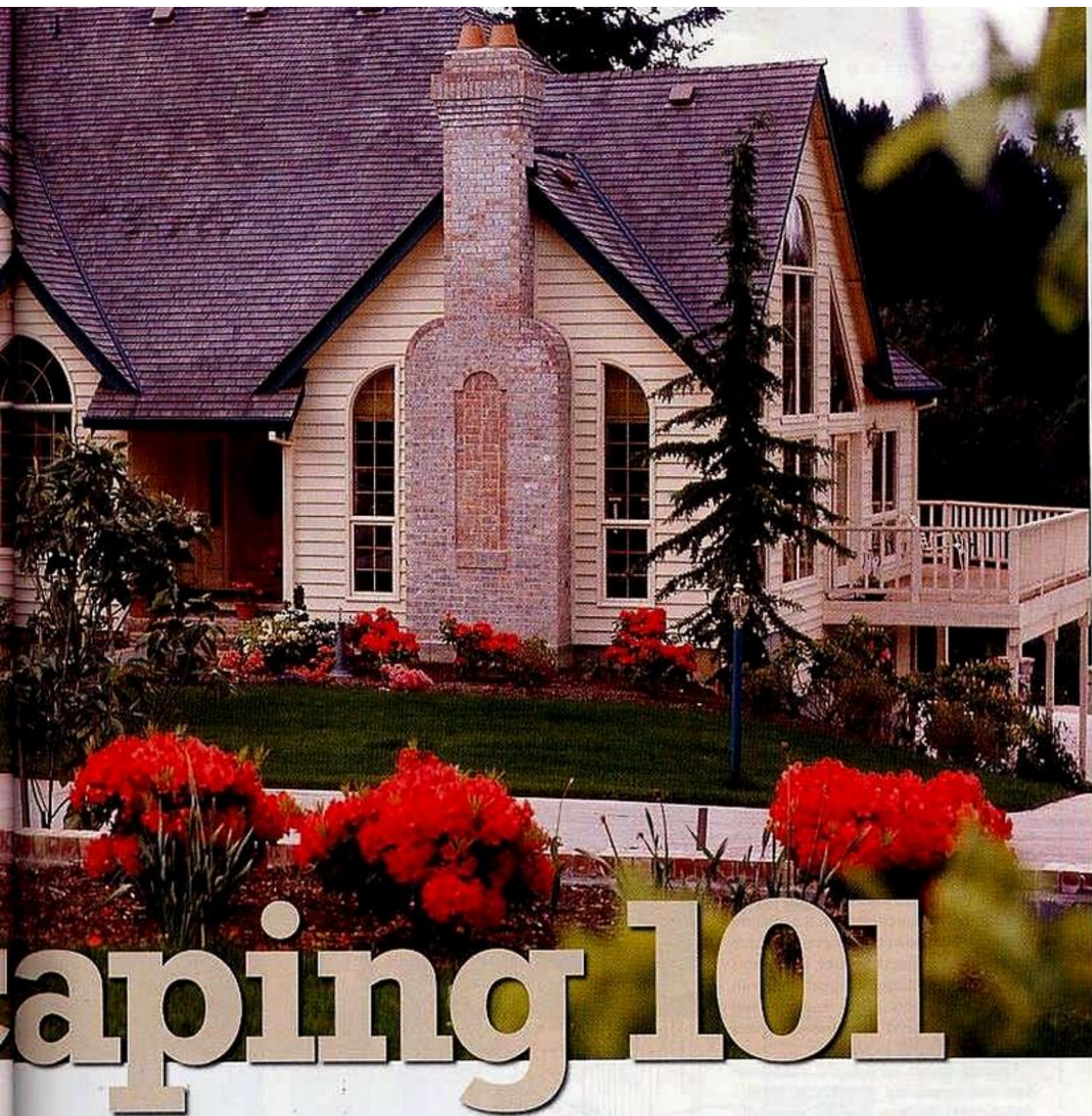
Great gardens result from smart planning and wise planting. Here are some ways to make your outdoor areas as inviting as the important interior spaces of your home.



# landsc

Enlightened landscape design is no longer a matter of plowing the ground and planting anew. Your home can either blend into the existing terrain like a welcome addition, or intrude upon it like a hostile invader. The difference lies in what nature's already provided and how you use the plants and trees you decide to add.





**E**ven if you're all thumbs—and neither of them is green—some thoughtful landscape planning can make your new home the showplace of the neighborhood.

There was a time when many people thought of landscaping as little more than the finishing touch to a new home. A trip to the home center or nursery, a trunk full of sale-item bushes, and a little sweat and fertilizer made you a certified

suburbanite. Trees and shrubs were the obligatory green guardians around America's little pink houses.

But such yards became growing reasons for concern as those neat little rows began to rise. Spruce trees soared over houses like Jack's beanstalk, untended hedges became vine-infested jungles, and mighty oaks strangled the lawn, other trees, and the water pipes as well.

Just as our thinking about the environ-

*The owners of the hillside home, above, in Portland, Oregon, use plants as accents and to create a foliage buffer between the house and lawn.*

ment in general as changed, so has our concept of landscaping. Thoughtful builders, architects and homeowners are now concerned about blending new homes with the existing plants and the terrain of their building sites. Today, landscaping is meant to complement



nature, not alter it, says Connecticut landscape designer A.E. Bye. "The fundamental idea is to preserve the character of the land and design the house of plantings accordingly. This includes using plants that are native to the area," Bye says. The goal is a balanced, interesting, and natural look.

### Plan Early

Harmony, balance, and accents are time-honored elements of good landscaping. The biggest mistake new owners make is in timing—contacting a landscaper or planning their own design too late, according to Diane Cagle, a landscape architect for Creative Spaces in Tulsa. "Landscaping needs to be an integral part of the house design process, incorporating the trees and plantings with outdoor structures such as decks, and the house itself," she says.

Many of today's landscape architects work with the architect or builder to achieve a desired effect, forgoing the rigidity of a traditional shrub-bordered lawn in favor of plants and grasses that are low maintenance and functional.

Landscape designer Neil Diboll, of Troy, Michigan, is an outspoken proponent of these "home meadows." Where high-maintenance lawns were once the norm, seed mixes for perennial plants diced with a few annual flowers can prove to be "an investment that often outlasts the homeowners," Diboll says.

"One of the strengths of the natural prairie is that flowers and grasses share the soil, with flowers sinking deep roots and grasses binding the upper soil with their fibrous roots. This squeezes out weeds, so you need less time and fewer chemicals," Diboll explains.

Ground covers such as ivy, pachysandra, and spreading plants can readily replace a grass lawn and are especially good for awkward slopes that defy mowing anyway. Ornamental grasses—taller, clump-forming relatives of lawn grass—change color and provide ever-evolving beauty in places where the lawn is dormant for the winter.

### Aesthetic Basics

Conventional landscape theory suggests dividing the property into three categories—foreground, service space, and

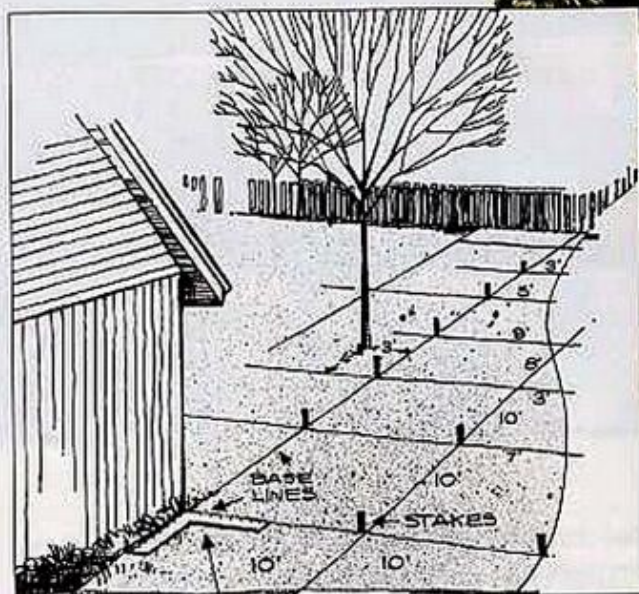
private areas—each of which serves a specific purpose.

Foreground, or streetscape, comprises the lawn, walkway to the entry, foundation plants, and some trees. Service spaces include the house itself, plus outdoor structures or screens that hide trash cans or toys. Private areas generally include the backyard and garden, courtyards, and such structures as gazebos.

### Put it on Paper

Remember that landscaping is created in pencil, not in dirt. Whether you plan to create traditional or "natural" landscaping on your own or plan to oversee a contractor, take a look at your lot objectively. Doodle diagrams showing sun angles during the day and throughout the year, direction of winter winds and summer breezes, privacy, good and bad views, slope, and the closeness of the lot line to the areas you plan to work on.

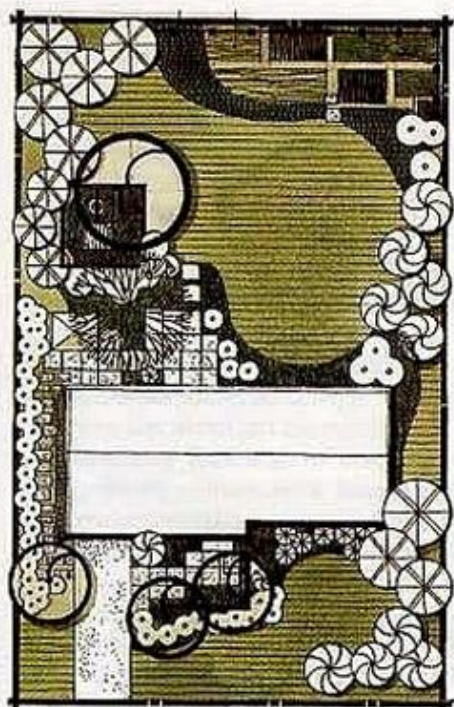
If the house is in a development, the builder may have a detailed site plan for your home that shows the house and lot in scale. An alternative is the loan plat or



Large carpenter's square

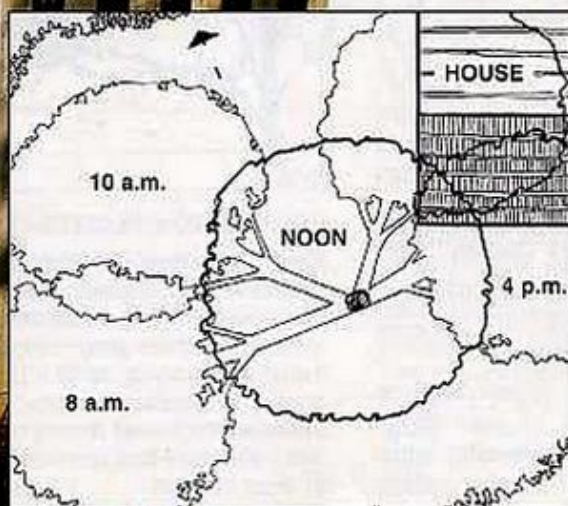
To make a detailed site map, locate your property lines, lay a grid of stakes and string on your yard as shown, above, and mark a sheet of graph paper to match the grid.





The owners of the country house, *left*, set aside an 18x50' section of the yard to create a raised bed for vegetables. This area was once just rock and sand, but large deposits of loam, peat moss, and fertilizer formed a planting bed, now defined by a picket fence.

One way to visualize the landscaping of your site is to create a plan like the one *above*. Circles represent trees, and are marked with patterns to indicate if they are evergreens, shade trees, ornamental trees, or shrubs.



The diagram, *left*, tracks the path of a tree's shade during the day. For summer afternoon relief, plant shade trees 10 to 15' south and 20' west of where the shade is most needed.



survey plat—a map of the property that accompanies the title to the land and is filed at your county courthouse, or with the mortgage holder. The survey plat shows lot lines drawn to scale, structures, and easements. If you can't find one, make one, as shown on page 46.

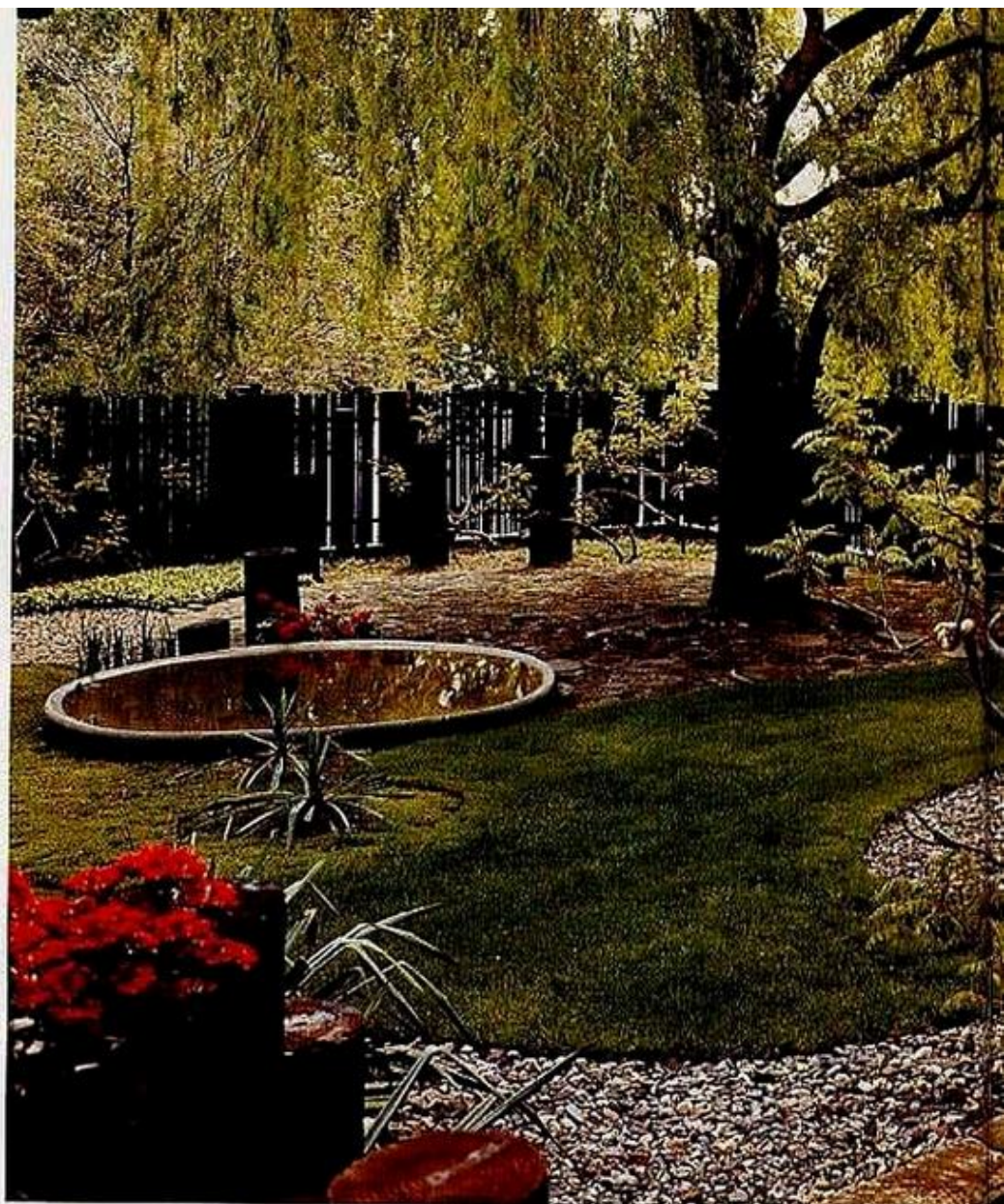
### Creating Unity

The simplest method of unifying your site's different environments is through hedges, fences, or walls for enclosure. These things set the landscape apart and draw attention to it. They will also separate special areas, such as planting beds or vegetable gardens. Unity is also created by using plants that are similar in form, texture, and color.

### Natural Plant Forms

Except for what's done through shearing or clipping, as with hedges, the form of all plants depends on their habitat. Basic forms may be vertical, rounded, horizontal, or weeping or trailing. Vertical plants, such as arborvitae, some cedars, and conifers, help in plant composition because their height creates a strong accent when placed among spreading or lower-growing plants.

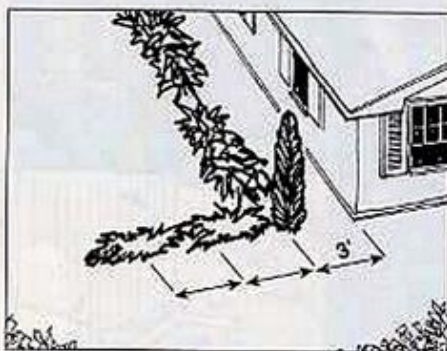
Dogwoods, pin oak, enkianthus, hawthorns, and a few viburnums will develop some strong horizontal lines and provide a feeling of breadth. These



## Placing Trees & Shrubs

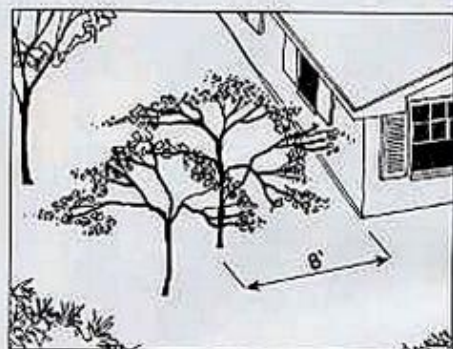
Use graph paper and your home's survey plan to make a scale drawing of your yard. Draw in the yard's plants and structures, then experiment with tracing-paper overlays, adding various combinations of plants onto your graph. Use the plants' size at maturity in your drawings. Never hesitate to erase this trial and error path to your final design.

At right you'll find several ideas to consider in the course of your design planning, and things to remember when you start planting.



#### FOUNDATION PLANTS

Know the size of foundation plantings when they're full grown. Then, locate them carefully to provide adequate room for each to grow without crowding. If you're trying to fill a barren area, don't overplant to fill space. Allow 3' between the house and trunks for most shrubs; plant spreading junipers at least 4' apart.



#### SMALL TREES

Dwarf-type fruit trees and other small trees are ideal for small lots because you can plant them close together without interfering with your other gardening. Place such trees about 10' apart (or far enough that their branches don't entwine when mature), and be sure to keep them at least 8' from the base of your house.





plants work best around horizontally styled contemporary homes.

The drooping lines of such plants as weeping willow, beech, flowering cherries, some forsythia, and jasmine can be used to create softer lines.

Rounded forms, the category in which most plants fall, are useful for creating large masses, borders, or enclosures.

### Shade Trees

Shade trees grow in heights between 40 and 100'. Some shade trees, such as willow and catalpa, grow rapidly and will provide shade in 5–10 years. That quick growth results in weaker wood, however, so these trees are less likely to weather high winds without damage. Slower-growing shade trees, such as red and white oak and sugar and Norway maple, have stronger wood.

### Evergreens

Evergreens grow more slowly than shade trees but offer some advantages. They require very little maintenance and pruning and remain green year-round. The low-growing types fit easily into tight spots, and short evergreens frame windows and doorways nicely.

An established weeping willow *left* serves as the centerpiece of this yard's tranquil design.

### Problems That Grow

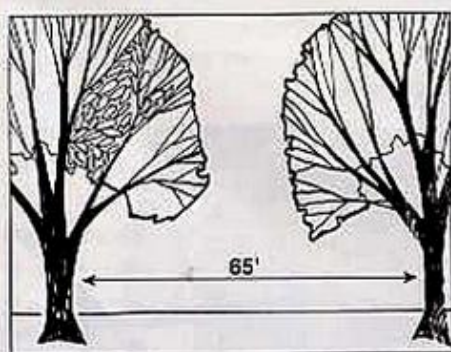
Plant with a vision of the future, especially when working around your home's foundation. Tree roots can exert relentless force against a basement wall.

Many larger plants, such as cedars and certain pines, lose their symmetrical forms with age and the effects of strong winds, and become frayed and ugly. Others—such as most pines, some firs and spruces, and cryptomeria—lose their lower branches with age.

### Existing Trees

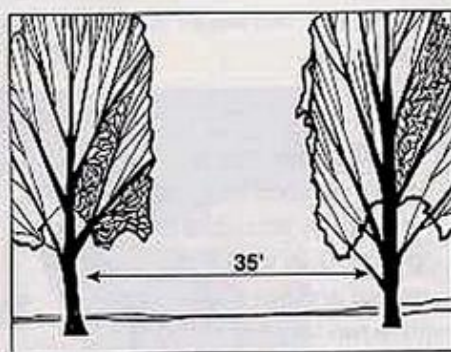
Many people choose their home's site because of the beauty of the lot and its established trees. Designing a home for such a site will be more costly, but can be worth the expense. There is no way to build on such a site without causing some trauma to the trees, especially the broad root systems in the soil compacted by construction equipment.

Distancing the home from tree roots as much as possible will help, says Creative Scape's Diane Cagle. "Protective fencing can be placed around the tree when heavy equipment comes in," Cagle says. That will save trunks from careless scarring. "Plan on a rejuvenation period after construction, to give trees care and feeding until they're healthy again." ■



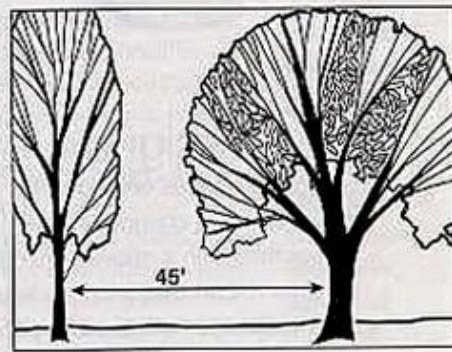
### SPREADING TREES

Large trees with wide-spreading branches, including oaks, lindens, elms, and sweet gums, need at least 65' between their trunks. When they're too close, trees will have uneven branching and there will be too much shade for grass to grow. Plant large trees at least 30' from houses and at least 10' from driveways and patios.



### NONSPREADING TREES

Nonspreading trees less than 35' high, such as hybrid maples, need at least 35' between trunks. Tall and narrow columnar trees (gray birches, white poplars, and Lombardy poplars are a few) can be planted closer together. For uniform growth among these nonspreading trees, be sure that you bury grafted stock.



### NONSPREADING WITH SPREADING TREE

A nonspreading tree planted near a spreading tree can create problems because the larger tree will compete with the smaller one for sunlight and nutrients. Plant such trees at least 45' apart. If your yard doesn't permit this much space, avoid the problem by planting shrubs instead.



Green thumbs actually start in the mind. Taking the time to learn about planting and nurturing your garden will pay off in the long run. Here's a potpourri of expert advice to help your knowledge grow.

# SECRETS TO great gardens

## Dreams and Designs

Sketch your ideas on paper. It's easier to make changes with an eraser than with a shovel. This is the time to consider garden views from inside the house, traffic patterns throughout the yard, and ways your family uses the yard.

Draw permanent structures such as paths, walls, fences, decks, and gazebos, even if you don't plan to build immediately.

Reserve space near hedges, walls, and fences for plants that benefit from the extra protection

and shade. Locate plants an ample distance from one another and nearby structures to allow for growth. Give wide berth to new shrubs and trees; when grown, they can take lots of space.

Remember to leave open play areas for children. Add exercise areas for your pets where they won't trample plants. Leave yourself room to work. If you plan large beds, add space for stepping-stones or a winding path that will allow access to plants in the middle of the bed.





## Editor's Picks

### Cutting Garden

Try these flowers for beautiful bouquets.

- daffodil (*Narcissus spp.*), all U.S. zones except southern Florida
- shasta daisy (*Chrysanthemum superbum*), Zones 5-8
- gerber daisy (*Gerbera jamesonii*), Zone 11, shown left
- yarrow (*Achillea*), Zones 3-9
- Oriental poppy, Zones 3-9

### 13 Best Tools

To anyone starting a first garden, buying all the tools can be intimidating. This list covers the basics you'll need to get started:

- trowel
- spade (for digging and transplanting)
- shovel (for moving earth and mulch, flipping compost, etc.)
- hoe
- pruning shears
- sharp knife
- narrow trowel
- 5-gallon bucket
- cart or wheelbarrow
- hose
- watering can
- hat (for sun protection)
- gloves

### Transferring Container Plants

Plants from garden centers and mail-order nurseries are already potted. You don't have to hurry to plant them; they can be held a long time as is, provided you keep the soil moist. But perennials from a greenhouse are subject to frost damage and need gradual exposure to cold before planting.

When you're ready to plant, slide the soil ball out of the pot and check for circling roots at the bottom. Gently untangle them with your fingers before you plant.



This plant has been in its pot too long; it's root bound.



Before planting, comb the roots loose with your fingers to give the plant the best chance for survival.

### All About Mulch

Mulch is a blanket of anything that covers the soil. Because it holds in moisture and keeps down the sprouting of weeds, mulch is a great garden shortcut.



Shredded bark tucked around plants gives a flowerbed a nice, finished look. The mulch will also hold moisture and cut down on weed growth.

Fabric mulches made of non-woven synthetic material are long-lasting and (unlike plastic) porous. But the best choice is an organic mulch, such as shredded bark, chopped leaves, pine needles, or chemical-free grass clippings. These can be moved aside readily when you want to transplant or fertilize, and they slowly decompose to feed the soil.

Mulch offers climate protection, insulating roots from intense heat or cold. In winter, pile mulch over spent perennials to help prevent heaving caused by alternate thaws and freezes. To avoid fungus problems, remove the mulch in spring as soon as plants awaken from dormancy. If your winters are warm and wet, winter mulching is not such a good idea because it could foster disease.



### TIPS

Wad up a wet nylon potato sack and use it to scrub garden tools clean after every use. Once tools are clean and dry, plunge them several times into a bucket filled with sand and motor oil. This will prevent rust from dam-



# The Dirt on Dirt

In the excitement of spring planting, don't forget the part of the garden beneath the surface. Soil improvement is the most important step for creating a successful garden. A firm foundation will yield the healthiest plants.

## What Kind of Soil Do You Have?

Prepare your planting beds well and your garden will thrive. Loose, crumbly earth that lets in air and moisture and doesn't become waterlogged encourages plant roots to develop. Earth that has become too hard or fungus infected during winter may need to be tilled for grass or plants to thrive.

Be sure your garden has the proper pH (acid-alkaline balance) and fertility. Most county cooperative extension services provide soil testing. Or, you can buy a soil-testing kit at a local garden center for about \$12. It will tell you if your

soil is too acidic (sour) and needs lime, or if it's too alkaline (sweet) and needs sulfur or gypsum. Most perennials like an average pH count of about 6.5.

Soil tends to be acidic in rainy regions, alkaline in desert areas. Midcontinent gardens generally lean toward neutral soil.

Even when very fertile, if soil is too acidic or too alkaline, plants can die of malnutrition because some nutrients don't dissolve as well under acidic or alkaline conditions. The presence of organic matter, such as compost, makes the soils at either end of the spectrum more neutral.



## 6 Steps for Quick Compost

If you want to make compost in a hurry, follow these simple steps.

1. Start with a 6-8" layer of plant material. (Use spent blossoms, pruned trimmings, lawn clippings, and other garden debris. You can add eggshells, fruit and vegetable peelings, and coffee grounds, too.)
2. Add about 1" of manure or a sprinkle of nitrogen fertilizer (such as the kind made for lawns—but not with a weed killer included) to each layer of plant material. This gets the pile "cooking."
3. Cover with a 1" layer of garden soil.
4. Repeat the layers until the pile is about 4' high.
5. Water the compost pile whenever you water the garden.
6. Turn the pile at least once a month so it gets ample oxygen.

### Editor's Picks

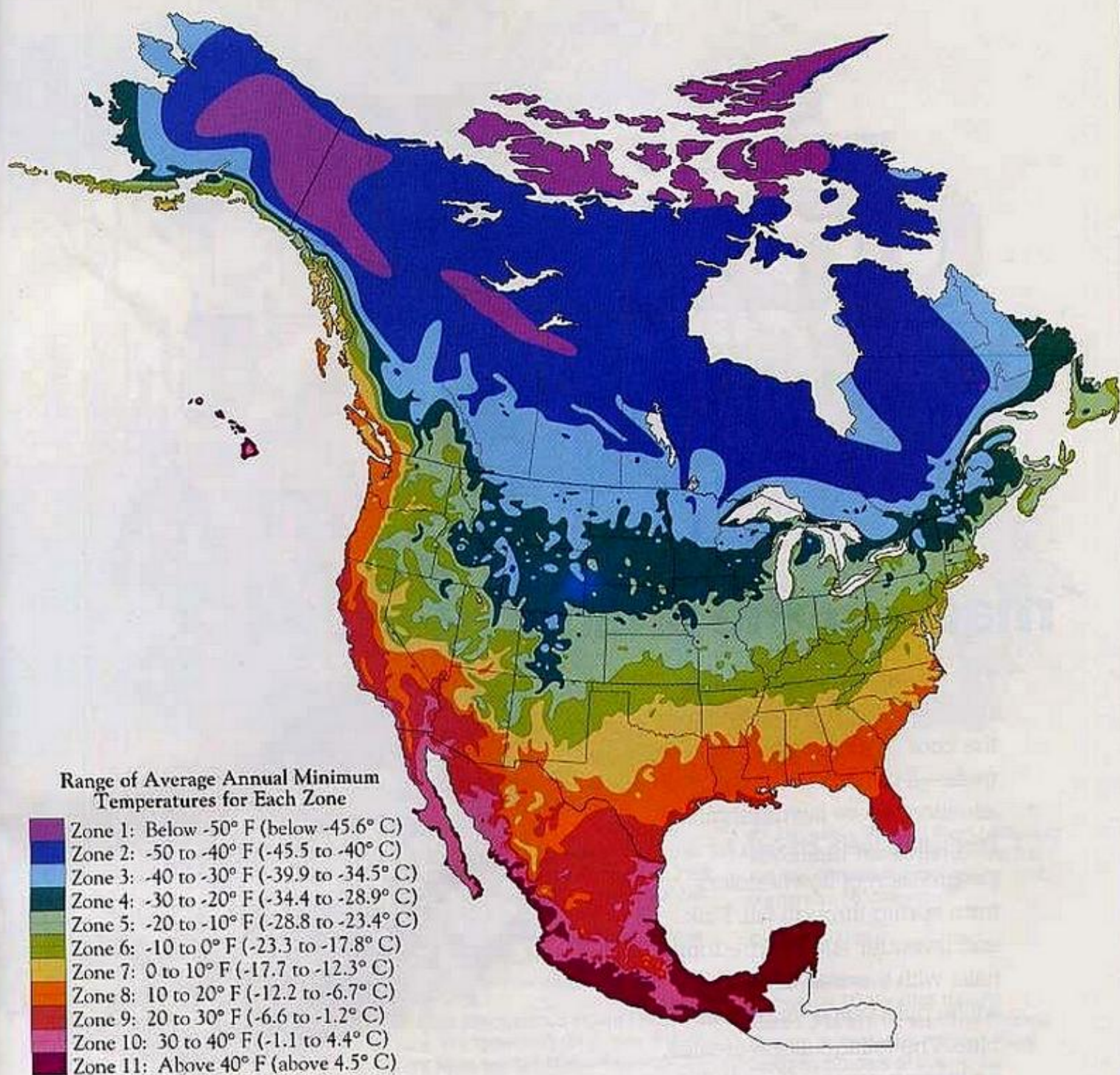
## Hummingbird Garden

Bring in the birds with plants that offer food and shelter.

- trumpet vine (*Campsis radicans*), Zones 5-9
- hibiscus, Zones 5-11
- bee balm (*Monarda didyma*), Zones 4-11
- Mandevilla spp., Zone 10, shown left
- columbine (*Aquilegia* spp.), Zones 3-11
- scarlet lobelia (*Lobelia cardinalis*), Zones 2-11







## Something about Zones

Plants are classified by the amount of cold weather they can withstand. If a range of hardiness zones are listed for a plant, the plant will survive winter in the coldest zone and, most likely, tolerate the heat of the warmest zone.

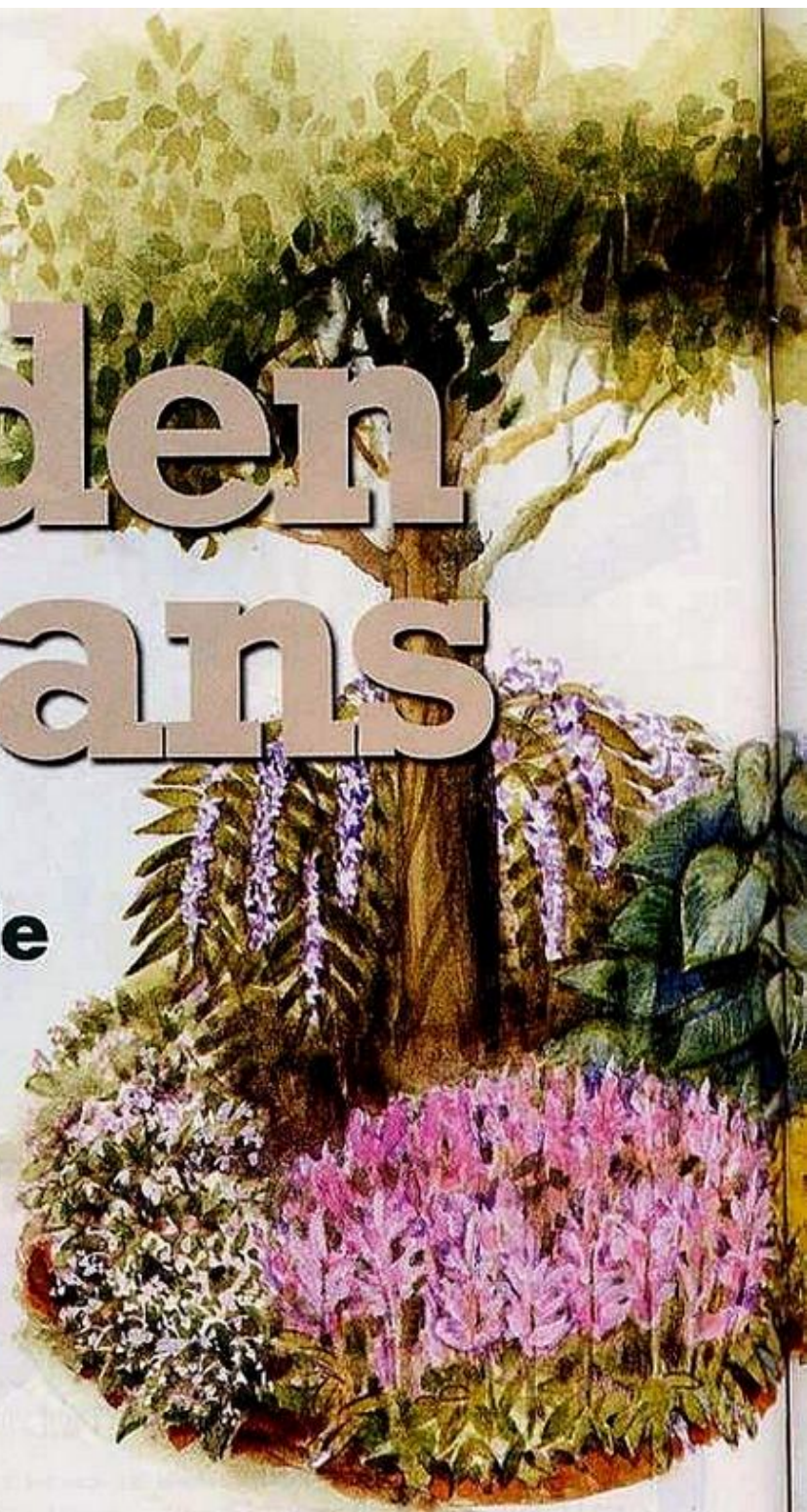
Identify the color shown where you live and match it to the zone chart. ■



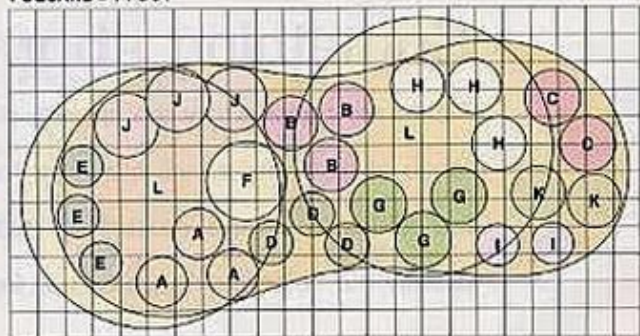
# WINNING garden plans

## made in the shade

The first of our three fabulous garden designs will thrive in the cool shade of mature trees—a difficult growing situation where lawns languish. Perennials were chosen for a progression of flower colors from spring through fall. Pink and lavender shades predominate, with touches of silver, white, pale yellow, and chalky blue. The foliage alone creates a pleasing composition: bold leaves are contrasted with fine, lacy textures and bright leaf patterns. The optional varieties of spring-blooming bulbs at the end of the plant list bloom first to give this garden an early start on the season. Refer to [page 53](#) for planting zones.



1 SQUARE = 1 FOOT







## plant list

**A-** Rheinland Astilbe (*Astilbe x arendsii* 'Rheinland') (3) Zones 3-9. Clear pink plumes in June. 24" tall.

**B-** Purple Lance Astilbe (*Astilbe chinensis* 'Purple Lance') (3) Zones 3-9. Violet-purple, lance-shaped flower-heads. 40" tall.

**C-** Pink Turtlehead (*Chelone lyonii*) (2) Zones 3-9. Rose-pink blooms in late summer. 30" tall.

**D-** Golden Corydalis (*Corydalis lutea*) (3) Zones 4-9. Bright yellow flowers, ferny foliage. 12" tall.

**E-** Barrenwort (*Epimedium x youngianum* 'Roseum') (3) Zones 4-8. Pink flowers, heart-shaped leaves. 10" tall.

**F-** Elegans Hosta (*Hosta sieboldiana* 'Elegans') (1) Zones 3-9. Large frosty-blue leaves, mounded habit. 30" tall.

**G-** Blue Wedgewood Hosta (*Hosta* 'Blue Wedgewood') (3) Zones 3-9. Very blue, wedge-shaped leaves, lavender flowers. 18" tall.

**H-** Sweet Woodruff (*Galium odoratum*) (3) Zones 4-8. Tiny fragrant blooms, spreading. 6" tall.

**I-** Bertram Anderson Lungwort (*Pulmonaria longifolia* 'Bertram Anderson') (2) Zones 3-9. Violet flowers, narrow spotted leaves. 12" tall.

**J-** Japanese Toad Lily (*Tricyrtis hirta* 'Miyazaki') (3) Zones 4-9. Lilac-spotted white flowers in fall. 30" tall.

**K-** Japanese Painted Fern (*Athyrium nipponicum* 'Pictum') (2) Zones 3-8. Fronds mottled in gray, green, and burgundy. 18" tall.

## L- Shade Trees

### Bulb Options:

Snowdrop (*Galanthus nivalis*) Zones 3-8. White, teardrop-shaped flowers in very early spring. Plant bulbs in clusters of five. 4" tall.

Minnow Daffodil (*Narcissus* 'Minnow') Zones 5-9. Tiny white-and-yellow blossoms, borne three to a stem, early spring. 6" tall.

Actaea Poet's Narcissus (*Narcissus poeticus* 'Actaea') Zones 3-7. White flowers with dainty yellow cups in mid-spring. Fragrant. 16" tall.

Tête-à-Tête (*Narcissus* 'Tête-à-Tête') Zones 3-8. Long-lasting yellow flowers in early spring. 6" tall.



## street-side beauty

It takes some pretty tough plants to put up with the harsh growing conditions surrounding a street-side mailbox. Hemmed in by pavement, this location calls for perennials that thrive in full sun and tolerate heat and drought. With the expectation of the billowy ornamental grass, the plants included here stay under 2' in height, so they won't block your view as you back out of the driveway. With a garden like this, you'll enjoy your daily visit to the mailbox, even if your postal carrier has left nothing but bills.







## plant list

**A-** Thread Leaf Tickseed (*Coreopsis verticillata* 'Zagreb') (5) Zones 3-9. Tiny yellow daisies, ferny foliage. 15" tall.

**B-** Dwarf Purple Coneflower (*Echinacea purpurea* 'Kim's Knee High') (3) Zones 3-9. Rose-red flowers with domed centers. Blooms in summer. 24" tall.

**C-** Cushion Spurge (*Euphorbia epithymoides* or *E. polychroma*) (3) Zones 4-9. Chrome-yellow spring flowers, red fall color. 15" tall.

**D-** Creeping Baby's Breath (*Gypsophila repens* 'Rosea') (2) Zones 3-7. Sprays of hundreds of tiny pink flowers in summer. 8" tall.

**E-** Dwarf Iris (*Iris* 'Little Showoff' or a comparable variety) (1) Zones 3-9. Icy blue flowers in spring, sometimes reblooming in fall. 12" tall.

**F-** Candy Stripe Creeping Phlox (*Phlox subulata* 'Candy Stripe') (2) Zones 2-9. Pink-and-white flowers in early spring. Spreading habit. 6" tall.

**G-** Purple Rain Salvia (*Salvia verticillata* 'Purple Rain') (3) Zones 5-8. Spikes of smoky purple flowers, mid-summer to fall. Fuzzy foliage. 24" tall.

**H-** Giant Lamb's Ears (*Stachys byzantina* 'Helene von Stein' or 'Big Ears') (2) Zones 4-8. Gray, woolly foliage. 12" tall.

**I-** Morning Light Fountain Grass (*Miscanthus sinensis* 'Morning Light') (1) Zones 5-9. A clumping, fountain-shaped ornamental grass. Narrow leaf blades, silvery plumes in fall. 4' tall.

**J-** Ageratum (*Ageratum houstonianum*) (12) All zones. A low-growing annual with fuzzy blue blossoms over a long blooming season. Replant every spring. 6" tall.

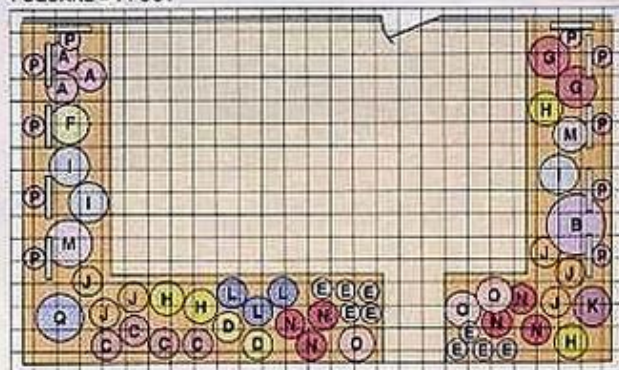




## fragrant patio plan

Flowers and fragrances surround a patio or deck in this garden of perennials. And why not plant your garden right next to where you relax? Many of these perennials boast long seasons of bloom. They're joined by one shrub (the dwarf mock-orange) and flowering clematis vines on lattice panels. This garden is best in a spot with at least six hours of sunlight daily.

1 SQUARE = 1 FOOT







## plant list

**A- Superba Astilbe** (*Astilbe chinensis* var. *taquetii* 'Superba') (3) Zones 4-9. Rosy-purple plumes in mid-summer. 36" tall.

**B- Pink Beauty Boltonia** (*Boltonia asteroides* 'Pink Beauty') (1) Zones 4-8. Pink flowers bloom in late summer. 4-5' tall.

**C- Jupiter's Beard** (*Centranthus ruber*) (4) Zones 4-9. Lasting clusters of fragrant red flowers. 24-36" tall.

**D- Thread Leaf Tickseed** (*Coreopsis verticillata* 'Zagreb') (2) Zones 3-9. Yellow daisy-like flowers, ferny foliage. 15" tall.

**E- Bath's Pink** (*Dianthus gratianopolitanus* 'Bath's Pink') (9) Zones 3-8.

Single, pink, fragrant flowers in late spring. 10" tall.

**F- Gas Plant** (*Dictamnus albus*) (1) Zones 3-8. Fragrant white flowers in early summer. 24-36" tall.

**G- Purple Coneflower** (*Echinacea purpurea* 'Bright Star') (2) Zones 3-9. Rose flowers with dark centers. 24-30" tall.

**H- Cushion Spurge** (*Euphorbia epithymoides* or *E. polychroma*) (4) Zones 4-9. Chrome-yellow spring flowers, red fall color. 15" tall.

**I- Joan Senior Daylily** (*Hemerocallis* 'Joan Senior') (3) Zones 3-9. White with yellow throat, fragrant, mid-summer. 20" tall.

**J- Frosty Coral Bells** (*Heuchera sanguinea* 'Frosty') (6) Zones 3-8. Bright red flowers, white-splashed foliage. 18-20" tall.

**K- Ruffled Velvet Siberian Iris** (*Iris sibirica* 'Ruffled Velvet') (1) Zones 3-10. Deep violet flowers in late spring. 30" tall.

**L- Munstead Lavender** (*Lavandula angustifolia* Munstead strain) (3) Zones 5-9. Grayish foliage, fragrant lavender spikes in summer. 18" tall.

**M- Russian Sage** (*Perovskia atriplicifolia*) (2) Zones 5-10. Aromatic gray-green leaves, lavender-blue flowers, long season of bloom. 48" tall.

**N- Pinafore Pink Summer Phlox** (*Phlox paniculata* 'Pinafore Pink') (6) Zones 4-8. Clear pink, fragrant flowers in summer. 16" tall.

**O- Candy Stripe Moss Phlox** (*Phlox subulata* 'Candy Stripe') (3) Zones 2-9. Moss-like foliage, pink-and-white flowers in early spring. 4-6" tall.

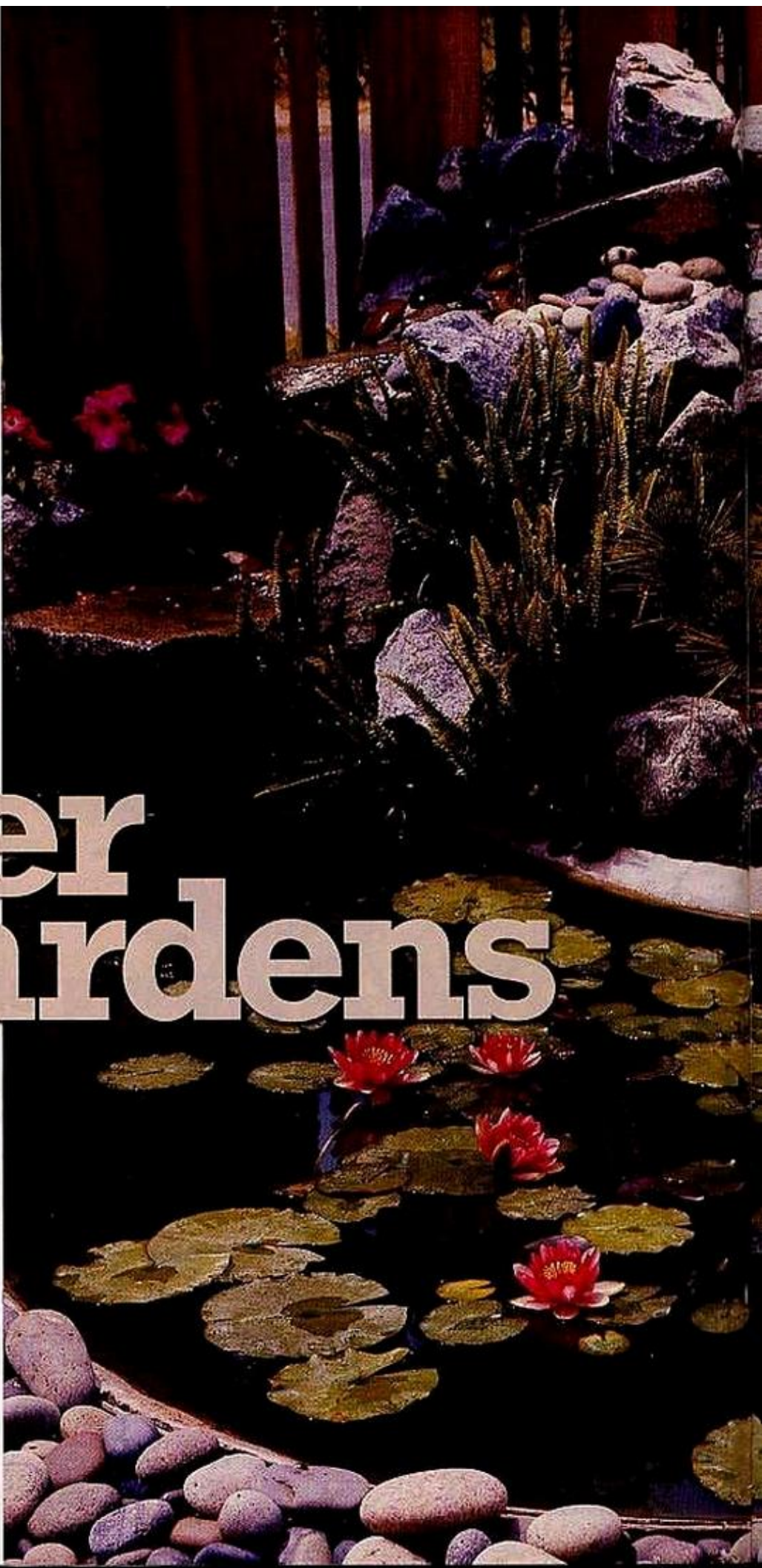
**P- Large-Flowered Hybrid Clematis** (*Clematis* hybrids) (10) Zones 5-8. Summer-blooming vines. Plant below trellises made of 2x4' lattice panels mounted to 2x6' frames.

**Q- Dwarf Mockorange** (*Philadelphus* 'Miniature Snowflake') (1) Zones 5-9. Compact shrub. Fragrant white pom-pom blooms in late spring. 2-3' tall. ■



Beautiful landscaping often means more than a few bags of mulch and some flowering plants. Move beyond the mundane by adding the element of water, and the plants that thrive in an aquatic world.

# wonderful water gardens







A water garden can add a striking new dimension to your home's setting. Any container made watertight can house a water garden, but for a spectacular display, try a pond or concrete pool.

### **Building Basics**

You will need a pool or tub deep enough to accommodate potted aquatics set on the bottom, plus 6–12" of water above the rims of those pots. The final depth should be at least 18" for plants and most fish to cohabit.

When planning a pond or pool, keep size and shape in mind. A small-pond takes less care than a big one. Use a pond shape that will blend with your yard's design. And make sure that you include a system to recirculate water to keep it from stagnating.

Most water plants are grown in soil-filled containers submerged in water. If you use a single large plant in a big tub, plant it directly in the bottom of the container and fill the tub with water. At planting time, fill an appropriate container with garden loam, then incorporate slow-release fertilizer at the rate suggested on the package. Ground covers near the water's edge can soften the lines on a water garden.

To better enjoy a water garden, build a small pier so you can look down on the expanding flower blooms and pond wildlife. Or arrange a series of stepping-stones to guide visitors past prime features of your waterscape.

Use the chart on the following pages to determine the type of plants that will work best for you. ■

Even with a concrete pool, the main goal is a natural look. Here, potted water lilies flourish in a sunken, concrete-lined pool. A system to recirculate the water keeps a backyard pool from becoming a mosquito haven, as often happens in the wild.



# water garden plants



| Name                                                                       | Needs                       | Height | Description                                                | Comments                                                                                                       |
|----------------------------------------------------------------------------|-----------------------------|--------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>ARROW ARUM</b><br><i>Peltandra virginica</i>                            | Moist soil                  | 2"-3'  | Cultivated for bold foliage, mass effect.                  | Best at edge of pool large enough to cope with a fast-spreading mass.                                          |
| <b>ARROWHEAD</b><br><i>Sagittaria latifolia</i>                            | Shallow water               | 1-2'   | Hardy. White flowers in summer.                            | Also will grow in boggy soil at edge of pool.                                                                  |
| <b>BULRUSH</b><br><i>Scirpus sp.</i>                                       | Shallow water               | 3-9'   | Grass-like leaves; chocolate-colored flowers in summer.    | Invasive. Plant where it is easy to control.                                                                   |
| <b>CARDINAL FLOWER</b><br><i>Lobelia cardinalis</i>                        | Marsh or shallow water      | 2'     | Hardy. Fire-red spikes July to September.                  | For border or shallow running water.                                                                           |
| <b>CATTAIL</b><br><i>Typha latifolia</i>                                   | Shallow water               | 1½-4'  | Swordlike blades; dark brown spikes.                       | Effective bordering pool. To restrain, plant in tubs and sink 2-4" in water.                                   |
| <b>CINNAMON FERN</b><br><i>Osmunda cinnamomea</i>                          | Moist soil                  | 3-5'   | Tall fronds in circular masses. Hardy; tropical look.      | Use in partial shade at pool edge as a background for plants in water.                                         |
| <b>FLOWERING RUSH</b><br><i>Butomus umbellatus</i>                         | Shallow water               | 3-4'   | Pink flowers July to September. Hardy.                     | Grow in submerged pot. Divide and re-pot each year or plant won't flower.                                      |
| <b>FORGET-ME-NOT</b><br><i>Myosotis scorpioides</i>                        | Marsh or shallow water      | 2'     | Clear, blue flowers bloom May to October.                  | Needs only 1" of water. Also grows in any ground that stays wet or swampy.                                     |
| <b>GOATSBEARD</b><br><i>Aruncus dioicus</i>                                | Moist soil                  | 4-6'   | Delicate foliage; showy white flowers in June. Hardy.      | For pool border as background. Delicacy contrasts well with heaviness of other plants. Needs a shady location. |
| <b>GOLDEN-CLUB</b><br><i>Orontium aquaticum</i>                            | Shallow water               | 1-1½'  | Tiny, yellow flowers in spring; floating or aerial leaves. | Thrives planted to depth of 8".                                                                                |
| <b>GRASS PINK ORCHID</b><br><i>Calopogon tuberosus</i>                     | Moist soil                  | 1-1½'  | Hardy. Rare, native. Fragrant, pink blooms.                | On conservation list in many states. Needs acid soil and shade.                                                |
| <b>HORSETAIL</b><br><i>Equisetum hyemale</i>                               | Moist soil or shallow water | 1-4'   | Rush-like, ridged, leafless stems.                         | Grow at pool's edge (or in pots submerged nearly to rim). Needs partial shade.                                 |
| <b>LEOPARD PLANT</b><br><i>Liquidaria tussilaginea</i><br>'aureo-maculata' | Moist soil                  | 1-1½'  | Green leaves spotted yellow. Showy.                        | Ideal for lighting up a shady area.                                                                            |
| <b>LOTUS</b><br><i>Nelumbo sp.</i>                                         | Shallow water               | 2-3'   | Pink flowers; shield-like leaves rise 2-3' above water.    | Hardy if roots don't freeze. Plant in containers of soil, then submerge in water.                              |
| <b>MARSH MARIGOLD</b><br><i>Caltha palustris</i>                           | Marsh or shallow water      | 15"    | Buttercup-like flowers appear April through June. Hardy.   | Lovely at edge of pool to reflect in water. Succeeds in moist soil.                                            |
| <b>MEADOW BEAUTY</b><br><i>Rhexia virginica</i>                            | Moist soil                  | 1-2'   | Rosy purple flowers in summer.                             | Provides good color among moist rocks, such as near a waterfall or rock border.                                |



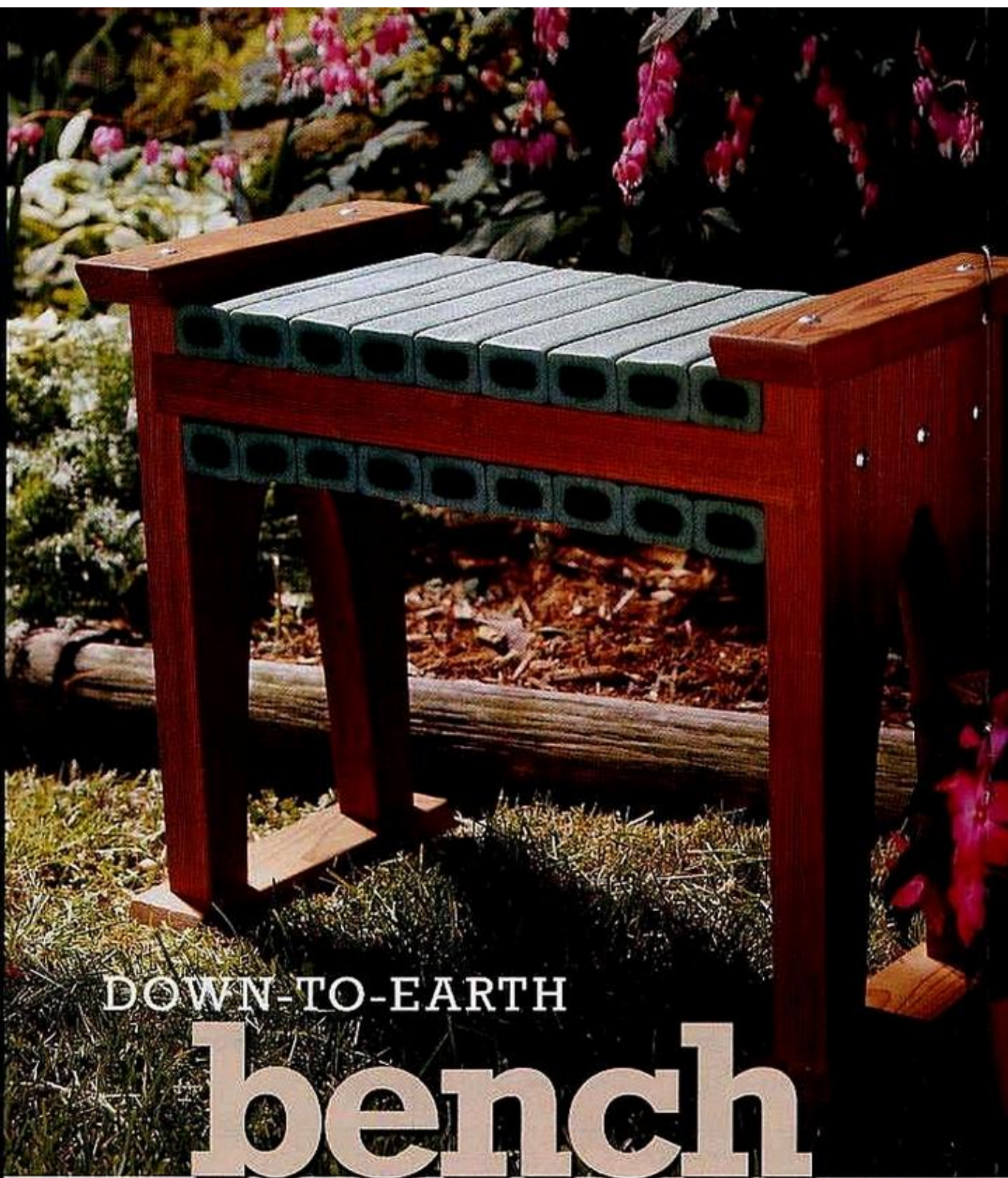


| Name                                                     | Needs                  | Height | Description                                                                              | Comments                                                                                                    |
|----------------------------------------------------------|------------------------|--------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>OSTRICH FERN</b><br><i>Matteuccia pensylvanica</i>    | Moist soil             | 6-9'   | Bold leaves give massive effect. Hardy.                                                  | Can grow in full shade.                                                                                     |
| <b>PAPER PLANT</b><br><i>Cyperus papyrus</i>             | Marsh or shallow water | 4-6'   | Thread-like leaves; triangular stems.                                                    | For large ponds. For smaller ponds, try <i>Cyperus alternifolius</i> .                                      |
| <b>PICKEREL WEED</b><br><i>Pontederia cordata</i>        | Shallow water          | 2'     | Dark green foliage; violet-blue spikes bloom spring to fall.                             | Depth of water shouldn't exceed 1'. Best at pool edge in about 3" of water.                                 |
| <b>RABBITEAR IRIS</b><br><i>Iris laevigata</i>           | Shallow water          | 2'     | Blue or white flowers in June and July. Looks somewhat like Japanese iris.               | Tolerates water year-round, so is preferred over Japanese iris in continuously wet spots.                   |
| <b>SWAMP PINK</b><br><i>Helonias bullata</i>             | Moist soil             | 1-2'   | Leaves in basal rosette; pink, fragrant flowers in spring.                               | Does best in boggy, acid soil.                                                                              |
| <b>SWEET FLAG</b><br><i>Acorus calamus</i>               | Shallow water          | 6"-3'  | Yellow-green blades; club-like green spikes.                                             | Use in water at edge of pool or in moist soil around outside.                                               |
| <b>TARTARIAN DOGWOOD</b><br><i>Cornus alba</i>           | Moist soil             | 6'     | Lovely red stems; dingy, white flowers.                                                  | Prune random stems of this shrub before new growth begins in spring.                                        |
| <b>WATER ARUM</b><br><i>Calla palustris</i>              | Moist soil             | 1'     | Flowers white inside, green outside in late spring.                                      | Does best in mud at pool's edge. Provides good transition to dry-land plantings.                            |
| <b>WATER CHESTNUT</b><br><i>Trapa natans</i>             | Floating               | 2-4"   | Feathery leaves below water and solid rosette above; small, white flowers; edible seeds. | Propagate by dropping seeds to the bottom of the pool and over-wintering them there.                        |
| <b>WATERCRESS</b><br><i>Nasturtium officinale</i>        | Shallow water          | 4-6"   | Hardy. Edible, bright green foliage.                                                     | Thrives in sun or shade, and in cold running water.                                                         |
| <b>WATER HYACINTH</b><br><i>Eichhornia crassipes</i>     | Floating               | 9"     | Glossy, green leaves; violet flowers.                                                    | Tender. Spreads like a weed in the South. Available only in states where supplies already exist.            |
| <b>WATER LILY</b><br><i>Nymphaea odorata</i>             | Deep water             | 3-5"   | Many species, many colors. Spring through summer bloom.                                  | Plant in container of rich soil. Submerge, with 6-12" of water above the container. Divide every few years. |
| <b>WATER PLANTAIN</b><br><i>Alisma plantago-aquatica</i> | Deep or shallow water  | 1-3'   | Heart-shaped, plantain-like leaves; white flowers through the summer.                    | Blooms best in shallow water. Leaves narrower in deep water. Invasive.                                      |
| <b>YELLOW FLAG</b><br><i>Iris pseudacorus</i>            | Moist soil             | 2 1/2' | Yellow flowers in spring.                                                                | For double pleasure, plant at border so plants reflect in the water. This can be a very showy flower.       |



# garden helpers

Make your yard, and your yard work, a lot more pleasant with these practical, decorative projects. They're easy to build and designed to last for many seasons to come.



DOWN-TO-EARTH

## bench

Garden chores can bring you quite literally to your knees and—even worse—force you to crouch awkwardly in the bushes. This combination kneeling and sitting bench is a site for sore patellas and aching back muscles. Made of weather-resistant wood, it will keep you comfortable throughout many growing seasons.





Flip the bench over and the foam cushions make working outdoors easy on the knees, while keeping your pants considerably cleaner as well.

*Note: We used truss head cabinet screws to construct this stool. These specialty screws, often used for cabinet installation, are suitable for outdoor use. They feature a large head for extra holding power. If you can't find them at a hardware store, substitute #10x2½" round-head wood screws with washers.*

### Let's start with the legs

**1** Crosscut a 50" length from a 2x10. (We chose cedar for its light weight and rot resistance. Redwood would be another good choice.) Joint one edge of the stock, then rip the other edge to produce a board that is 8" wide.

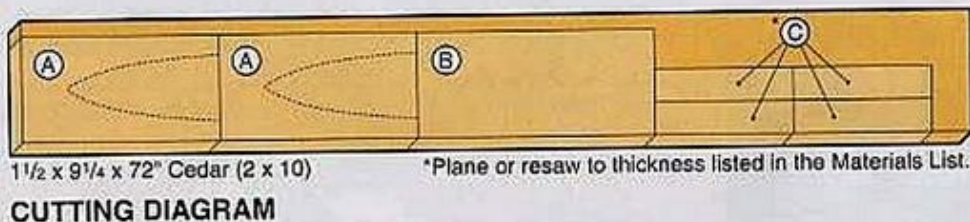
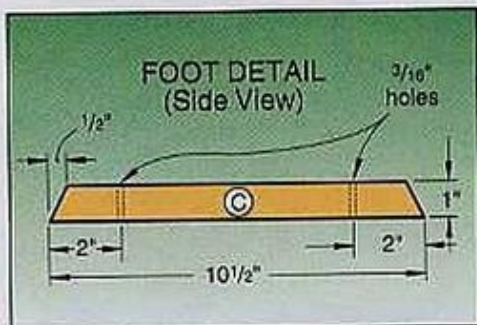
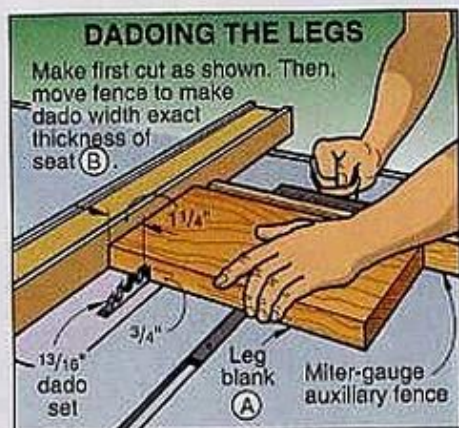
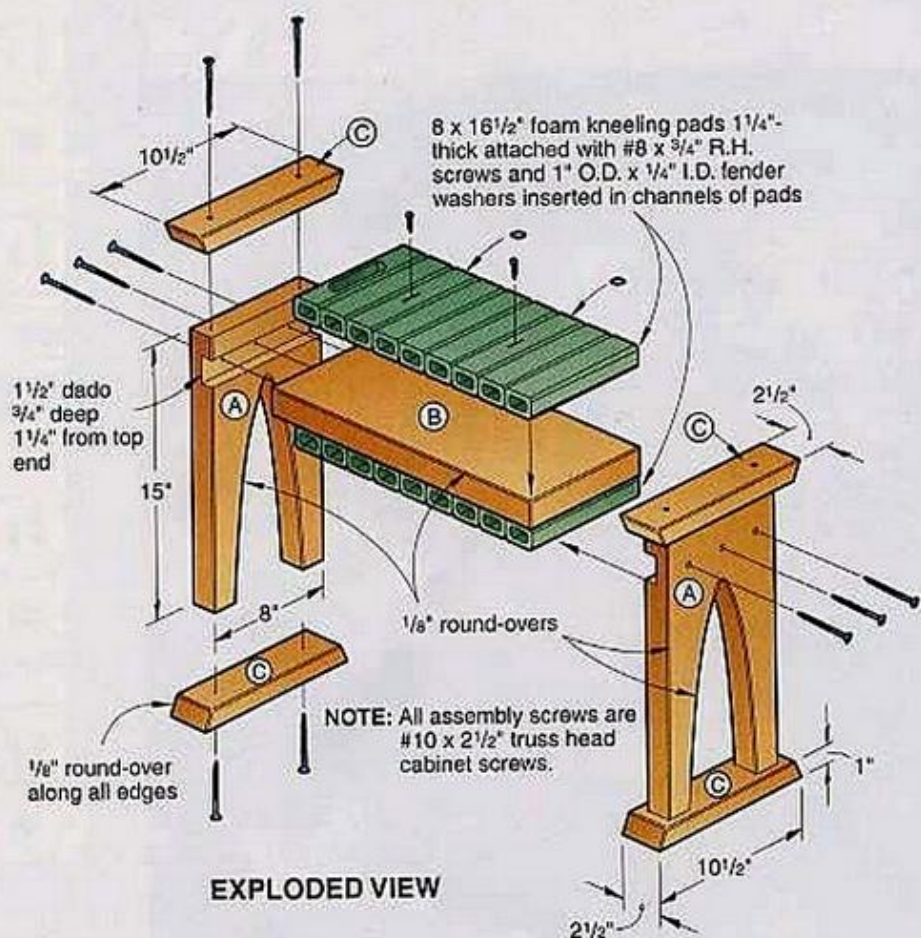
**2** Crosscut two 8"-long blanks for the legs (A), then crosscut the 8"-long seat (B). Set the seat aside for the moment. Mark a centerline the length of one leg blank.

**3** Install a ¼" dado set in your table-saw, and raise it ¼" above the table. Attach an extension to your miter gauge to reduce chip-out during the dadoing operation. Adjust your rip fence 1¼" from the inner edge of the dado set, and make the first dado cut in each leg, as shown in the Dadoing the Legs drawing on page 66. Move the rip fence away from the blade to produce a dado width that is the exact thickness of the seat (B).

**4** Make an enlarged photocopy of the Leg gridded pattern on page 67 on an 8x15" piece of paper, and adhere it to the outside surface of one of the legs. Center the centerline on the pattern with that on the leg blank. Attach the other leg blank face-to-face to the first, with the dados facing and edges and ends flush.

**5** Mark the centerpoints of the holes through the pattern and onto the wood with a scratch awl. Drill the holes.





**6** Bandsaw just to the waste side of the arched pattern lines on the leg blanks, then sand to the line. Sand the cutline, using a sanding block. Separate the legs, and remove the paper pattern from the wood.

**7** Chuck a 1/8" round-over bit into your table-mounted router, and round over the arched pattern line on both sides of each leg.

**8** Apply weatherproof glue (we used Titebond II) to the dado, then glue and screw the legs to the seat.

*Note: To maximize the holding power of the screws in the cedar, we used a power screwdriver without drilling pilot holes into the seat. If you use a denser wood or are driving the screws by hand, you may need to drill 1/8" pilot holes.*

**9** Rout 1/8" round-overs on the leg/seat assembly, where shown on the Exploded View drawing. Do not round over the ends of the legs.

### Make the feet next

**1** Thickness-plane two 6x24" lengths of stock to 1" thick. Rip to 2 1/2" wide, then crosscut four blanks for the feet (C) to 11 1/2" long.

**2** Attach an extension to your table-saw's miter gauge, as shown in the Cutting the Feet drawing. Tilt your blade to 28° from vertical, and miter-cut one end of each foot blank, as shown in the Foot detail accompanying the Exploded View. Also miter-cut a piece of scrap-wood to form a stopblock. Then, clamp

### materials list

| Bench  | FINISHED SIZE |        |         |       | Qty. |
|--------|---------------|--------|---------|-------|------|
|        | T             | W      | L       | Matl. |      |
| A legs | 1 1/2"        | 8"     | 15"     | C     | 2    |
| B seat | 1 1/2"        | 8"     | 18"     | C     | 1    |
| C feet | 1"            | 2 1/2" | 10 1/2" | C     | 4    |

\*Cut to size according to the how-to instructions.

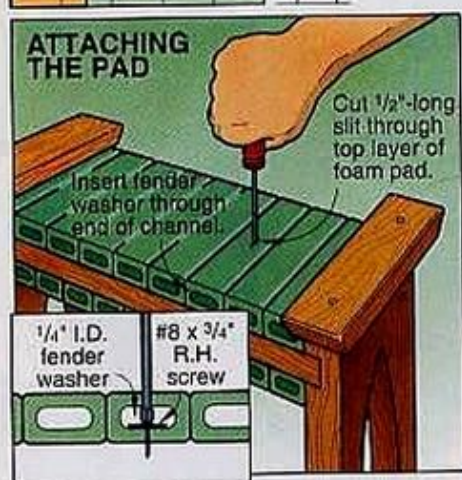
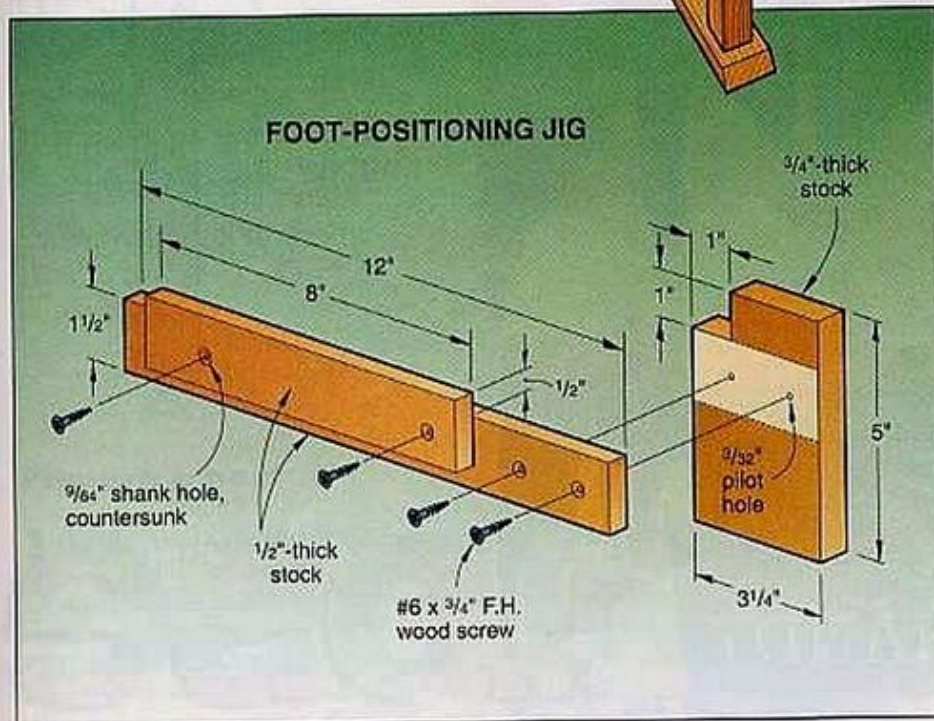
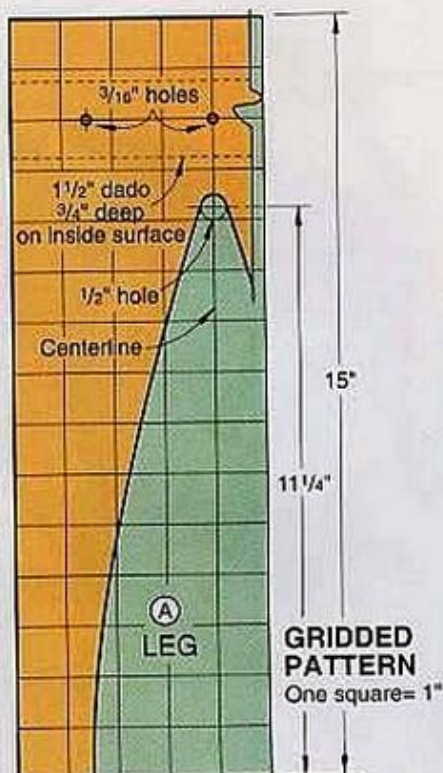
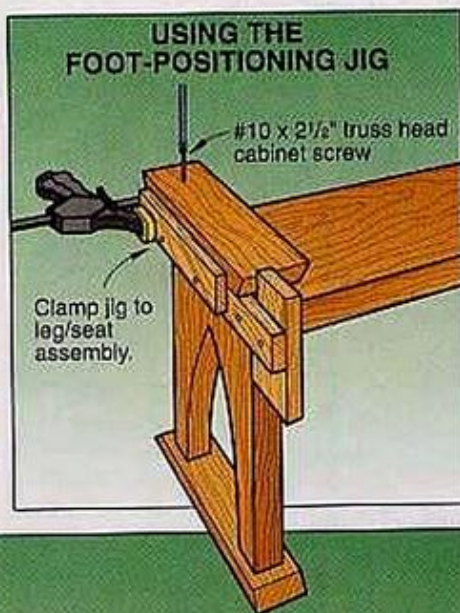
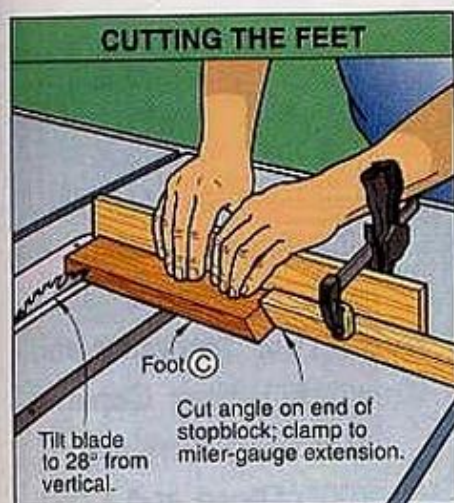
**Material Key:** C-choice of redwood or cedar.

**Supplies:** #10x2 1/2" truss head cabinet screws (or #10x2 1/2" roundhead wood screws (14); #8x1/4" round-head wood screws (4); 1" O.D. x 1/4" I.D. fender washers (4); 1 1/4x8x6 1/2" foam kneeling pads (2) (see Buying Guide below), exterior finish.

#### Buying Guide:

**Foam Kneeling Pads.** We used 1 1/4x8x6 1/2" foam kneeling pads (part no. KP8162), manufactured by the Frost King division of Thermwell Products Co., Inc., which are widely available at discount department stores and home centers. If you can't find a retailer near you, contact Thermwell Customer Service at 800/526-5265.





the stopblock to the miter-gauge extension. Next, miter-cut the other end of each foot blank to a length of 10 1/2".

**3** Mark the centerpoints of the holes in the feet, where shown on the Foot detail. Chuck a 3/16" bit into your drill press, and drill the holes through the feet.

**4** Clamp a fence flush with the bearing of the 1/8" round-over bit in your table-mounted router, and rout all edges and ends of the feet.

### A jig helps you finish

**1** Make a jig from scrapwood, as shown in the Foot-Positioning Jig

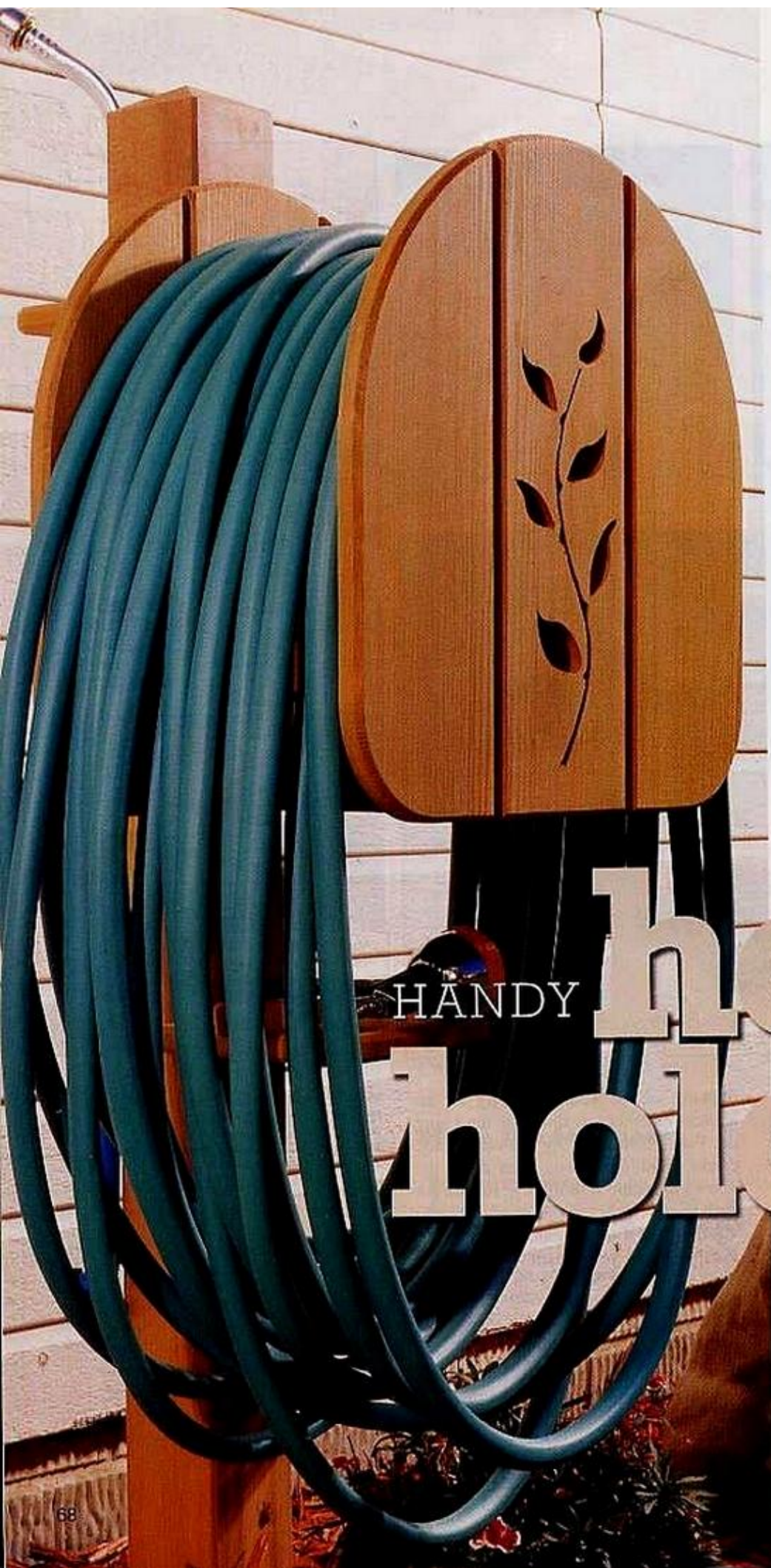
drawing above. Clamp the jig to the leg/seat assembly as shown in the Using the Foot-Positioning Jig drawing at top center. Position a foot, then drive the screws to secure it to the leg. Repeat for each foot.

**2** Do any finish-sanding necessary, then apply your finish. We used two coats of Flood CWF-UV (a clear penetrating oil finish).

**3** With a screwdriver, attach the pads to the stool (see the Buying Guide accompanying the Materials List), referring to the Attaching the Pad drawing above right. ■

Project Design: Donovan Nagel  
Illustrations: Carson Ode, Lorna Johnson  
Project Builder: Charles I. Hedlund  
Photographs: Hetherington Photography



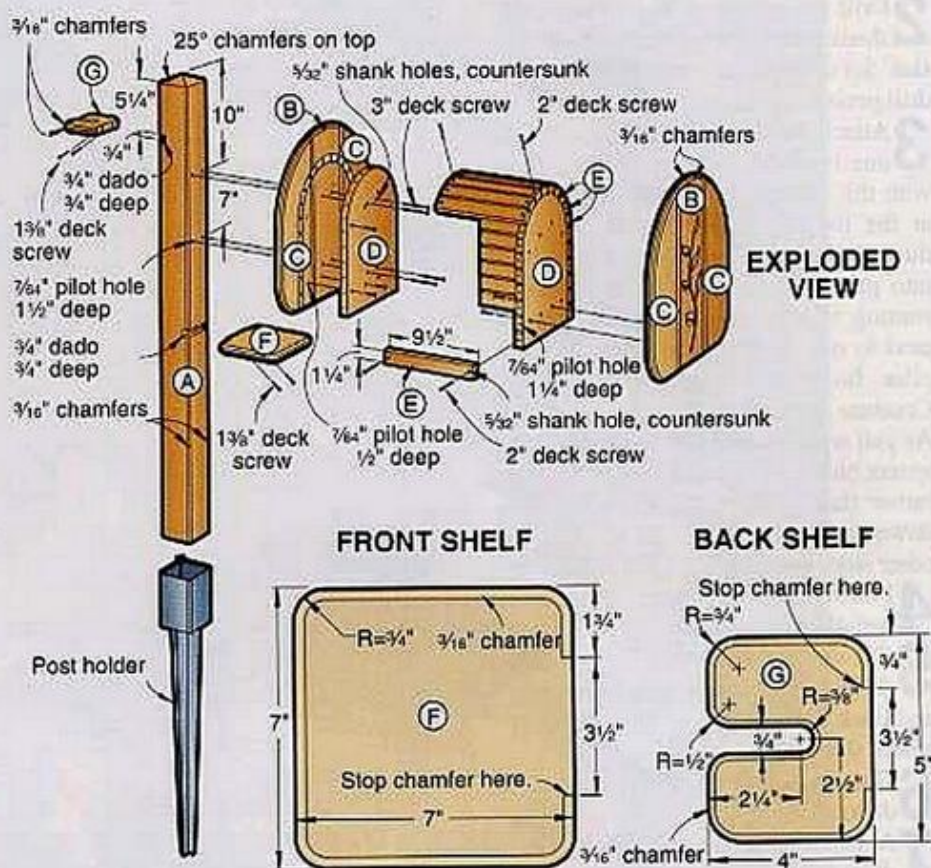
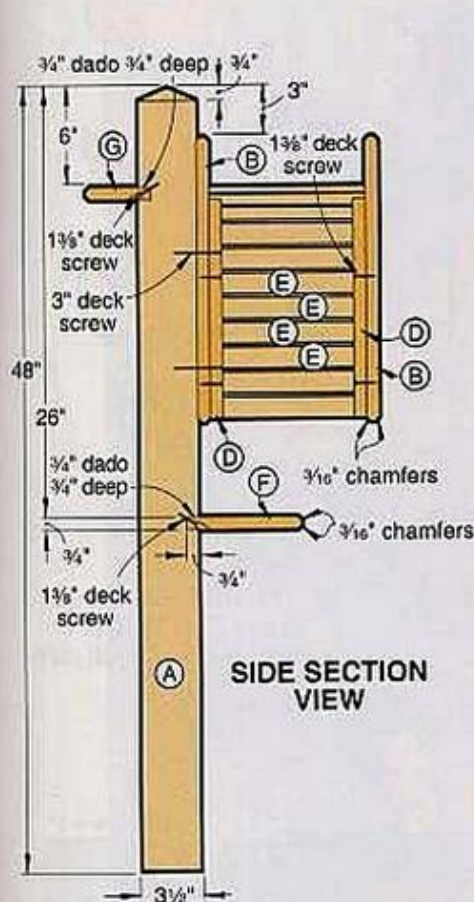


Unkink your garden hose once and for all with our decorative and sturdy hanger. Capable of stowing more than 100' of hose, and a couple of sprinkler heads as well, you can mount it beside the house, directly on a fence, or anywhere that's convenient.

HANDY

# hose holder





## Prepare a post

**1** Cut the post (A) to length. (We cut it on a sliding compound miter saw.) Tilt the saw blade to 25°, and miter-cut a chamfer on each face at the top.

**2** Form two 3/4"x3/4" dados in the post, where shown on the Side Section View drawing above. You can saw them on a tablesaw equipped with a dado blade or rout them.

**3** Rout a 3/16" chamfer along each edge of the post.

## Build a pair of panels

**1** Cut stock for center (B) and side panels (C). (We cut six 18" lengths of 1x6 stock.) Stack the pieces in pairs, aligning the edges and ends flush. Tape each set together with masking tape.

**2** Enlarge the gridded patterns supplied on page 70. Make one full-sized pattern for part B and two for part C. (You'll need one for the right hand side panel and one for the left.) Adhere

the pattern for part B to the top of one stack; a pattern for part C to the top of each of the other two. Align the straight edges of the patterns with the boards' edges. Bandsaw to shape, cutting slightly outside the pattern line. Sand to the line, and separate the pieces.

**3** Scrollsaw the ivy design in the front center panel (B). Drill a 1/8" blade-start hole inside each cutout area, and cut out the pattern on a scrollsaw fitted with a large blade.

**4** Rout a 3/16" chamfer all around the edge on both sides of each piece.

**5** Edge-glue stock to make two 3/4"x13 1/2"x10" blanks for the inner supports (D). (We glued up three pieces of 1x4 cedar for each blank, using polyurethane glue for moisture resistance. A 6'-long board yielded more than enough stock.) Stack the two blanks, and tape them together for stack-cutting.

**6** Make a full-size copy of the gridded Inner Support pattern. Adhere the pattern to the top of the stacked blanks, and bandsaw the two parts. Saw outside

the line, then sand to it. Drill eight 5/32" holes through both pieces where shown. Separate the parts, and drill the four holes for the post screws in the back piece. Countersink the screw holes on the appropriate side.

**7** Attach the face panels (B, C) to the inside supports (D), where shown on the patterns. Space parts B and C 1/4" apart. To accent the cut-out ivy design, apply green paint (we used Krylon no. 2004 moss green) to the area of the inside support face behind the cutout before attaching the center panel (B).

**8** Attach the back assembly (B/C/D) to the post (A) with 3"-long screws.

## You can hang it up

**1** Cut the slats (E) to the size shown on the Materials List on page 70. Set a stopblock on an auxiliary miter-gauge fence for accuracy when trimming each of the parts to length. Cut several 1/4" scrapwood spacer blocks to ensure uniform spacing when you install the slats.



**2** Drill and countersink a centered  $\frac{5}{32}$ " shank hole  $\frac{3}{8}$ " from each end of each slat. Set a fence and stopblock on your drill press to do this.

**3** Attach the slats to the back panel (the one fastened to the post) first. Start with the slats at both lower corners and at the top center on part D. Guiding through the shank hole, drill a pilot hole into part D. After you screw the three starting slats in place, position the slat next to one of the lower ones, drill the pilot hole, and screw it in place. Continue around to the top center slat. As you work around the curve, place the spacer blocks right at the face of the slats rather than pushing them all the way down to part D. Attach the slats on the other side, working from the bottom up.

**4** Following the same procedure, install the front panel.

**5** Cut out the front and back shelves (F, G), referring to the Front Shelf and Back Shelf drawings. Rout chamfers where shown.

**6** Glue and screw the shelves into their dados.

**7** Apply a clear outdoor finish. Then, drive in the post anchor or dig a hole to set the post in concrete. ■

Project Design: Charles I. Hedlund  
Photographs: Hetherington Photography

## materials list

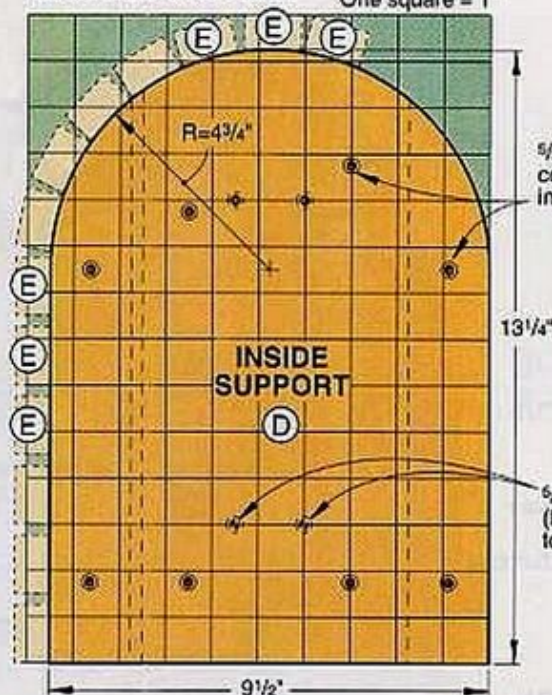
| Hose Holder      | FINISHED SIZE |      |      |       |  | Qty. |
|------------------|---------------|------|------|-------|--|------|
|                  | T             | W    | L    | Matl. |  |      |
| A post           | 3½"           | 3½"  | 48"  | C     |  | 1    |
| B center panels  | ¾"            | 5½"  | 17¼" | C     |  | 2    |
| C side panels    | ¾"            | 5½"  | 16½" | C     |  | 4    |
| D inner supports | ¾"            | 13¼" | 9½"  | C     |  | 2    |
| E slats          | ¾"            | 1¼"  | 9½"  | C     |  | 23   |
| F front shelf    | ¾"            | 7"   | 7"   | C     |  | 1    |
| G back shelf     | ¾"            | 5"   | 4"   | C     |  | 1    |

Material Key: C-choice of redwood or cedar.

Supplies: 1½", 2", and 3" deck screws, post anchor, finish.

## GRIDDED PATTERN

One square = 1"



$\frac{5}{32}$ " shank holes, countersunk on inside face

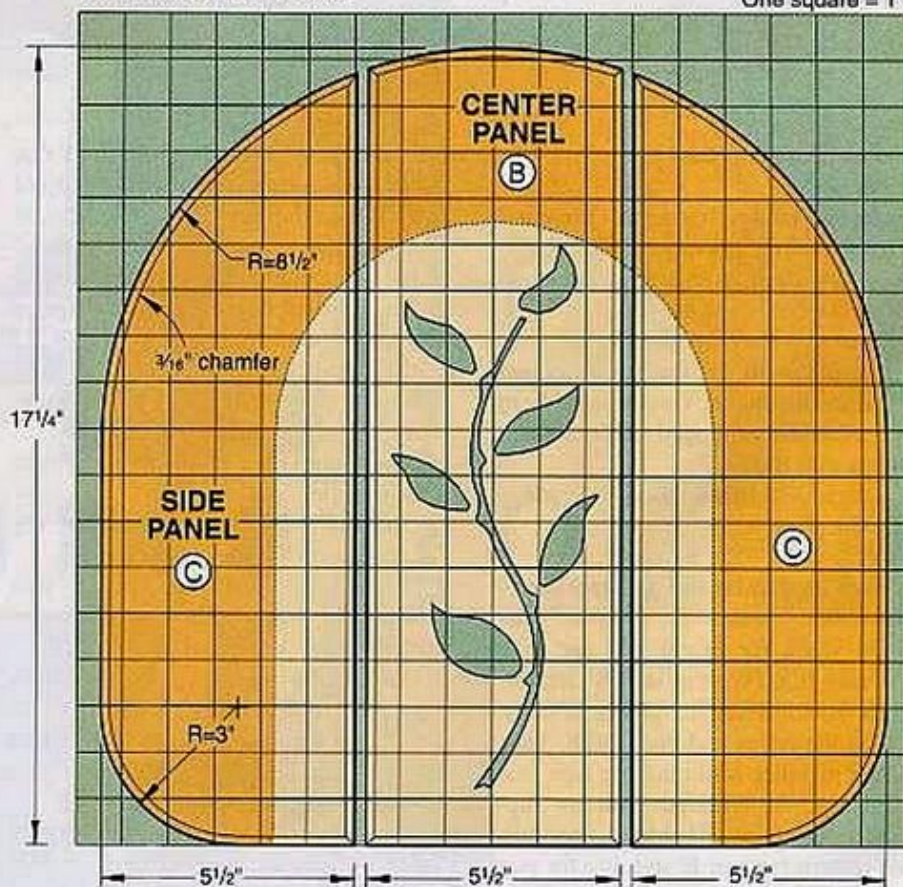
$\frac{6}{32}$ " shank holes, (For mounting to post)



**FRONT PANEL  
IVY PATTERN**  
(Enlarge 400% for full size.)

## GRIDDED PATTERN

One square = 1"



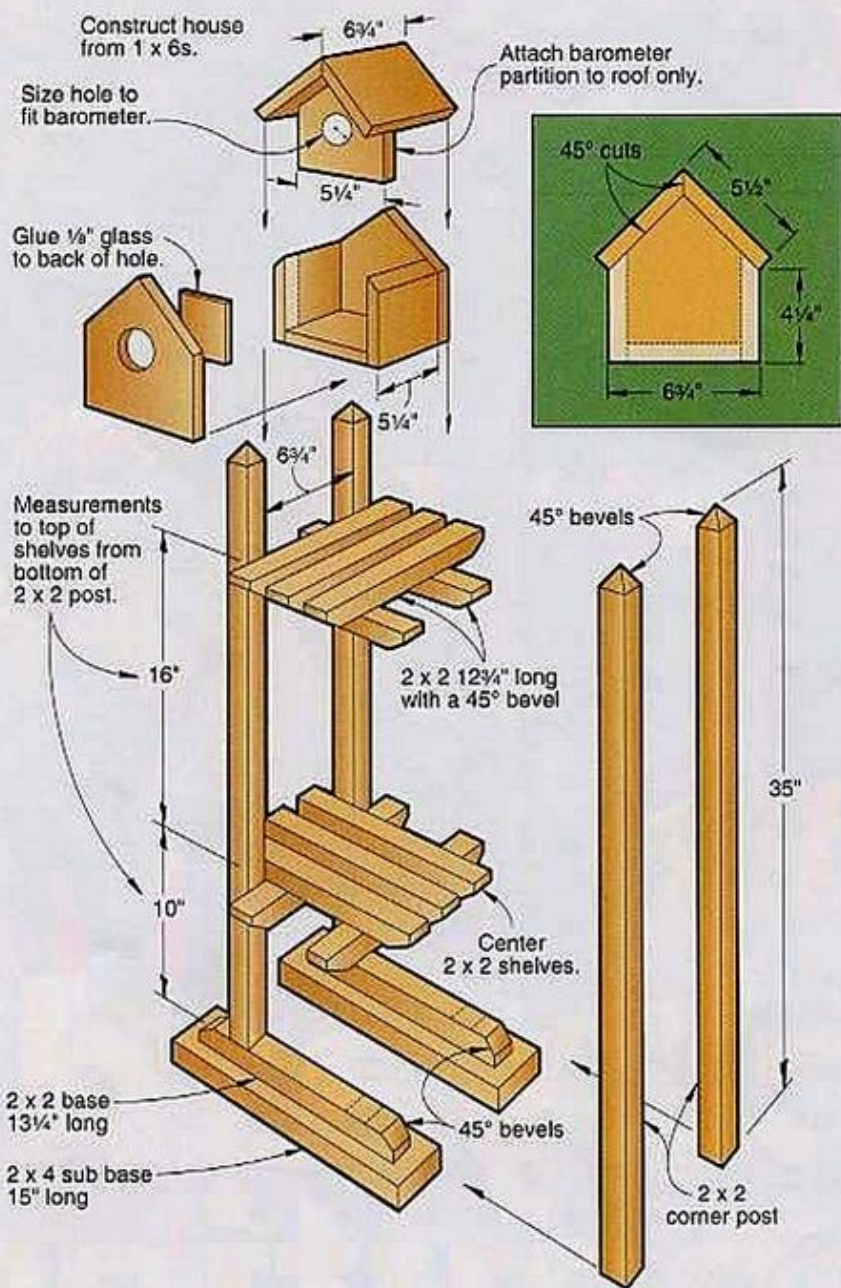




# backyard beauties

Here are some garden accents in wood that will make wonderful gifts, or go right from your workshop to your own backyard to the delight of your existing flora and fauna. Monitor the barometric pressure in rustic style with our colorful barometer stand, or pamper the birds by placing their bath atop a classical pedestal.





## Rustic painted barometer stand

Plant this barometer stand in the midst of your garden, and you'll be forewarned of changes in the weather. This simple project is a great way to get started if you're a woodworking beginner and a fun way to use up odds and ends of lumber.

### Rate your skill

You'll need beginning carpentry skills. Beginners can replace bevel cuts on post tops and shelves with straight cuts.

### Grab your gear

**Materials:** galvanized fasteners, scraps of redwood or cedar, a barometer, clear silicone caulk, 1/8" glass. To figure lumber amount, study the dimensions in the illustration above.

**Tools:** circular saw, jigsaw, power driver/drill, hammer, tape measure, level.

### Get started

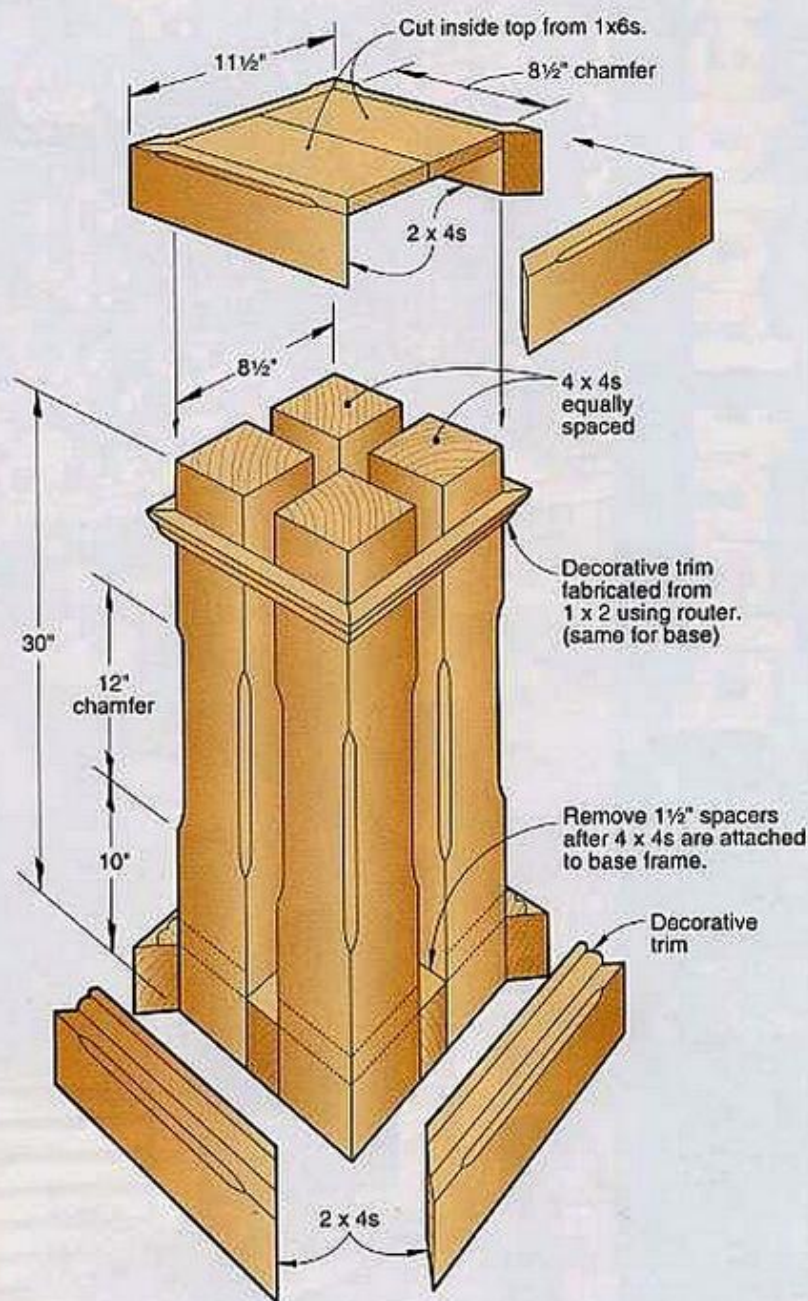
■ Cut four posts from 2x2s, bevel the tops, and mark the location of the shelves. Cut 10 2x2s 12 3/4" long to make the shelves; bevel both ends. Cut two each of the base and the sub base.

Following the illustration, nail and screw the stand together.

■ Cut barometer house parts from 1x6s. Cut 45° bevels in parts, as shown in the illustration above left. Size the opening in the house to fit the barometer. Attach the glass over the opening using clear silicone caulk. Position and toenail the barometer house in place on top of the stand.

■ To finish the project, apply colors or a design of your choice using acrylic craft paints. Finally, seal the project completely with a quality penetrating exterior oil finish for lasting protection.





## Classical pedestal for the birds

Birdbaths rise to new heights with this sturdy pedestal you can make from scraps of 4x4s. You can seal a terra-cotta saucer to use as a birdbath, find one you like at a home center, or simply set a blooming plant on the pedestal.

### Rate your skill

You'll need beginning carpentry skills. Omit the chamfers and the decorative trim if you're a beginner. Instead, use 1x2s for trim.

### Grab your gear

**Materials:** galvanized fasteners, scraps of redwood or cedar. To figure the amount of lumber you'll need, study the illustration dimensions above.

**Tools:** circular saw, router, power driver/drill, hammer, tape measure, level.

### Get started

■ Cut four 4x4s to length. Chamfer the outside edges. Glue and screw them together using 1/2" spacers along the bottom edges.

■ Build the top of the stand from 1x6s enclosed in a mitered 2x4 surround.

Rout chamfers in the 2x4s. Glue and nail the pieces together; attach to the top of posts. Finish the top with decorative trim routed from a 1x2.

■ To complete the bottom, miter 2x4s; nail to the 4x4s. Attach trim routed from 1x2s. Knock out all of the spacers.

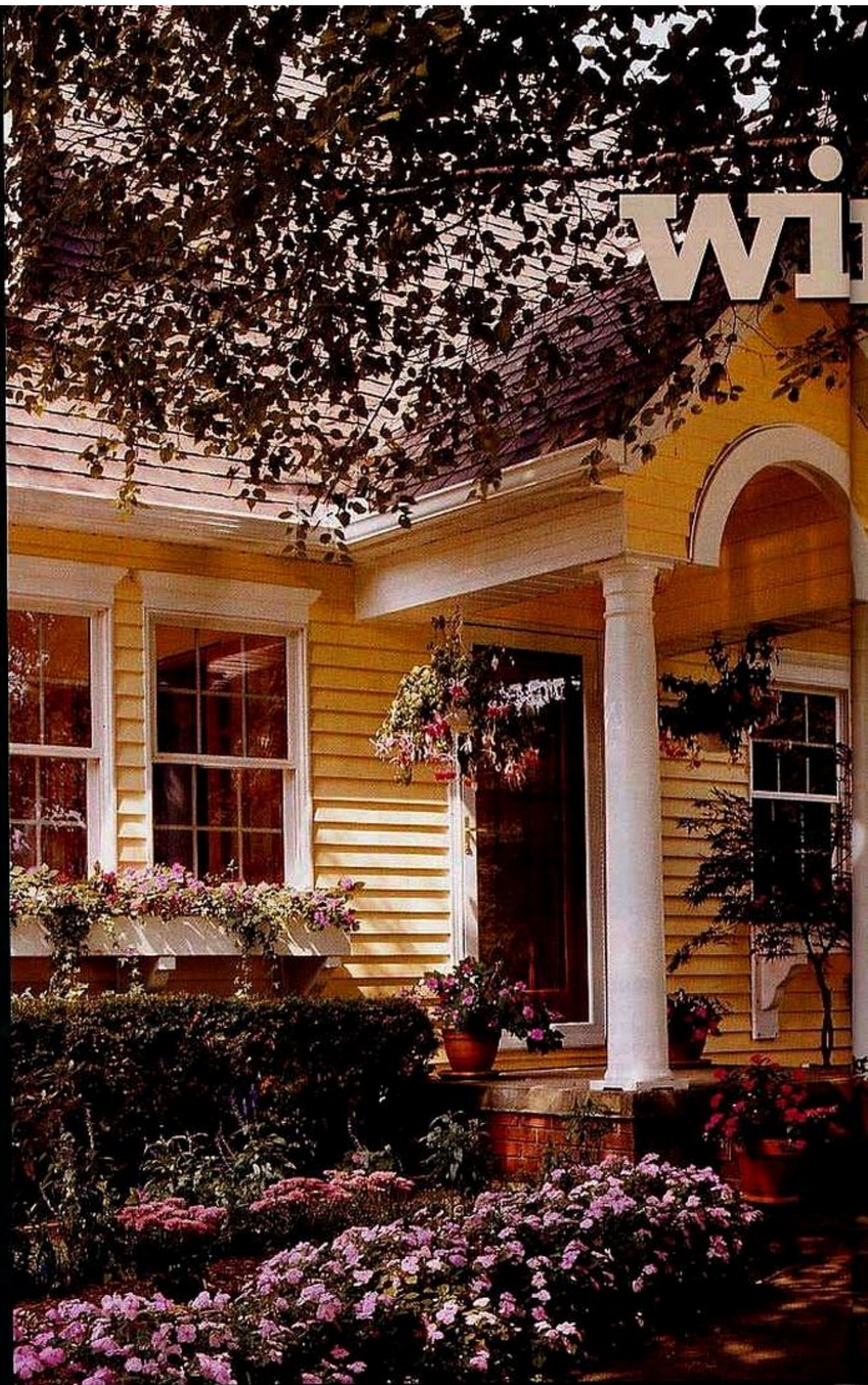
■ To finish, stain the posts. Paint the top and the bottom trim. Add decorative embellishments using a paint pen. Seal with a penetrating exterior oil finish. ■

Writer: Randy Phillips  
Illustrations: Carson Ode  
Photographs: Hopkins Associates



# plant holders

Potted plants are a great way to introduce natural accents to your home's architecture. Here are some containers you can make, plus inspiring ways to fill them in.





# Window box

## GARDENS

Colorful blooms and greenery spilling from every window brighten your home and add sparkle to the season. Here are some flower box gardening tips and a look at how several heartland gardeners use their window boxes as a way to celebrate the joys of summer.

### Complementary Colors

Pink and purple blossoms tumble from the boxes at Douglas and Linda Alsbury's bright-yellow cottage in Macomb, Michigan. The coordinated blooms accent the home with just the right colors throughout the summer.

Because the house faces south, Linda chooses plants that can handle the bright sun and the heat. "I also like plants that attract butterflies," Linda says.

Her window boxes include ivy, geraniums, petunias, alyssum, vinca, and verbena. The same flowers show up along her walkways and in planters placed around her front door.

"Use potting soil to hold moisture," Linda advises. "And don't forget regular deadheading (removing spent blooms) and periodic feeding to keep your flowers happy and in bloom."





## Rhapsody in White

Kim Treadway, of Cincinnati, Ohio, opts for the classic beauty of a window box brimming with an assortment of sparkling-white blooms and lots of glossy, green foliage set off against her white stucco home.

She orchestrates her geraniums, scented geraniums, impatiens, bacopa, ivy and dusty-miller into a sumptuous harmony of green and white. "I like the understated and elegant look of white flowers," Kim explains.

The judges at the Cincinnati Flower Show like the look, too. A few years ago, they awarded Kim's window box a gold medal at their annual event.

Kim grooms her plants daily, pinching back stems while she sips her morning tea. She doesn't use pesticides.

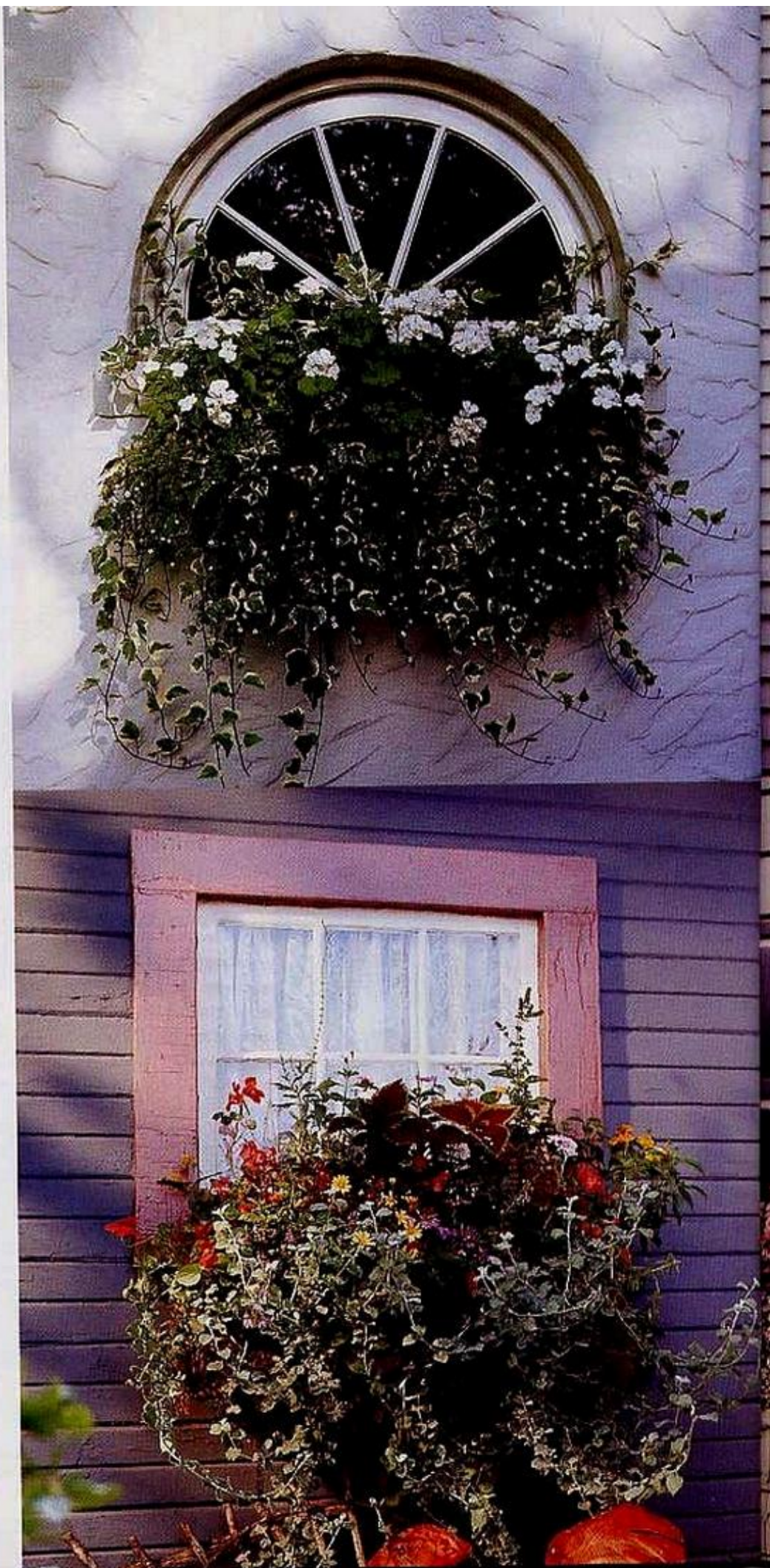
"But there always seems to be a praying mantis living in my window box, eating the bugs," Kim says. "And if there isn't one, I'll find one somewhere in the garden and move it there."

## Artful Arrangement

"I think people take gardening too seriously," Rick Orr says. His flowers and herbs spring joyfully from an antique wire container. But these plants are just part of a larger, whimsical arrangement Rick creates outside his Champaign, Illinois window. The tableau also includes a willow trellis, flagstones, a concrete hen and chicks, and even a folk art tin rooster.

Green sheet moss Rick buys from a florist-supply company forms the first layer just inside his wire window box. Next comes a plastic liner he punches with holes for drainage, layered with  $\frac{1}{2}$ " of pea gravel and topped with soil.

Rick includes licorice vine, chenille plant, parsley, lobelia, begonias, Russian sage, coleus, daisies, asters and Little Blackie sweet-potato vine in his window garden. "I pack them together tightly for a profusion of blooms," he says. "I water every day and try hard to mist the plants in the early morning."





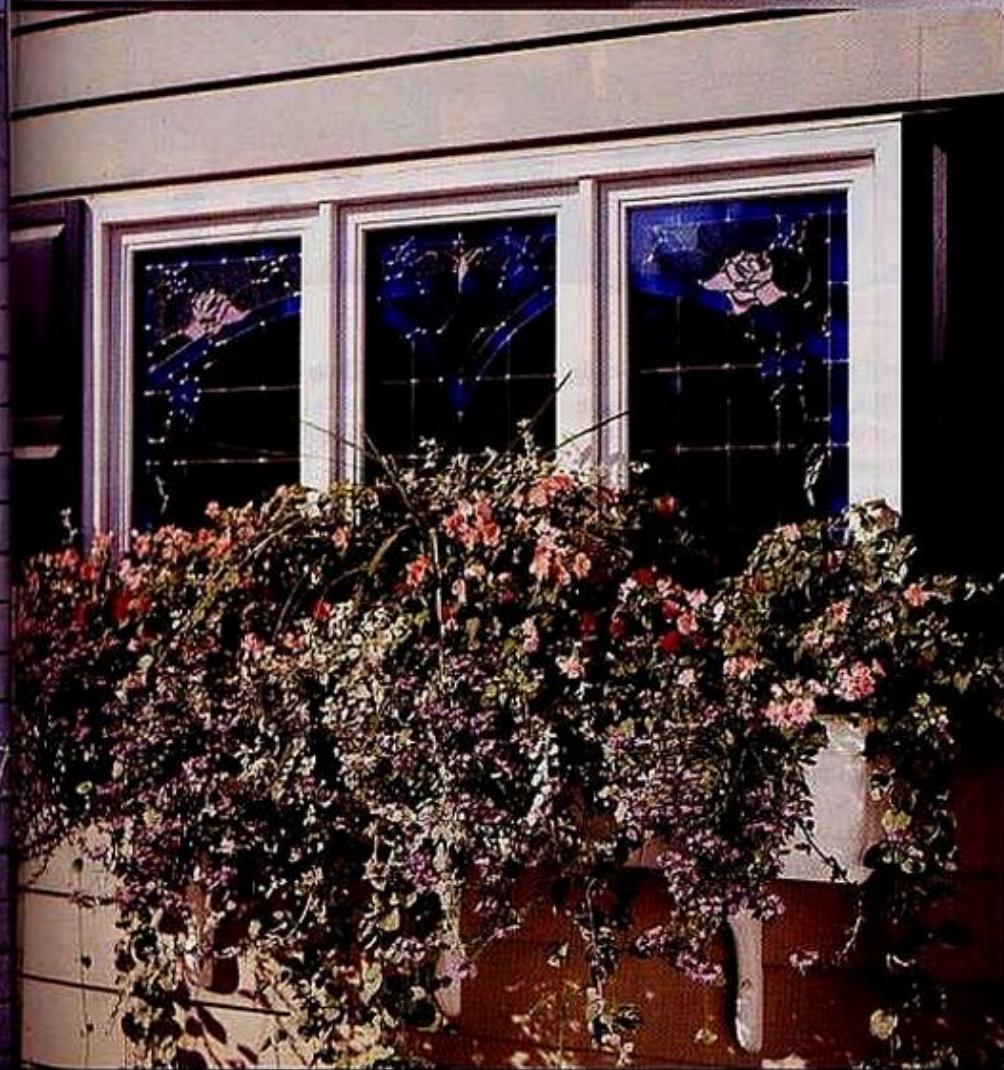


### Bottomless Boxes

Lori Kunch, of State Center, Iowa, is a true do-it-yourselfer. She makes her own lightweight window boxes with plywood. But her containers are bottomless for better drainage. Just two strips of wood support a plastic liner punched with holes.

Lori fills her window boxes with her own custom mix of soil and fertilizers. "Every fall, I load up my compost bin with leaves, cow manure, and peat moss," she says. "By spring, I have the ideal mixture for my window boxes."

Lori's impatiens, which accent the pink trim of her Victorian house, thrive on the home's north side. "Impatiens can get stressed out in full sun or when temperatures climb above 90°," she says. "But with my special soil and some plant food once a week, they thrive even in the heat of full sun."



### Think Big for Impact

Joni Clark approaches window boxes in a big way, using an oversize, 12"-deep container to hold her overflowing collection of scaevola, vinca, licorice, impatiens, and dracaena.

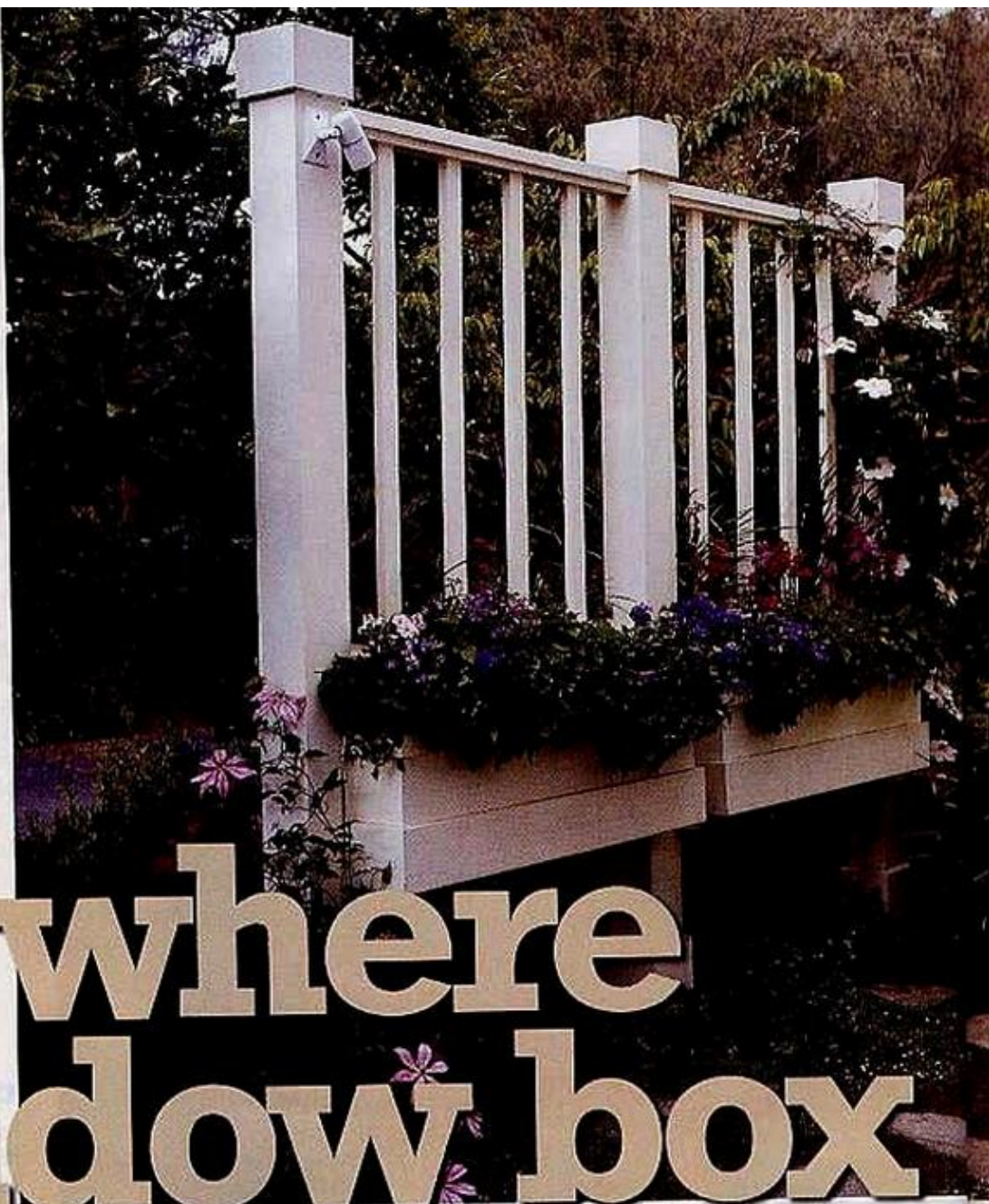
A variety of plants interests Joni more than just one type of flower. Joni also considers the full-grown plants' sizes when she chooses what looks best in the jumbo window boxes outside her Colonial-style Iowa home. "I favor larger plants," she admits. "I let them cascade all the way down to the patio."

Joni keeps her window garden thriving throughout the growing season. She feeds her plants every two weeks, and uses a commercial mix of soil that's specially formulated for outdoor boxes.

A handsome stained-glass window provides a glistening-blue backdrop for Joni's bountiful beauties. ■



No window? No problem. Create a window-box effect anywhere in your yard with this free-standing planter and trellis. Easy to build, it's also a decorative way to subdivide yard space, and separate certain areas for special purposes.



# anywhere window box

**A**lmost every landscape has one: a dull spot, a too-open area, or a view that unrolls into something as desirable as your neighbor's rusted car. This freestanding planter-trellis combination will likely solve your problem, and do so with the beauty of a window box and the practicality of a fence.

By combining the height of a trellis (8') with the color and foliage of a window box, this double planter functions as an attractive privacy screen. The 4'-wide structure can stand outside a window, near a patio or deck, in narrow areas such as alongside a house, or anywhere in the landscape that needs a focal point. Or plant it directly in a flat flowerbed for an exuberant vertical lift.

The size of this project may look a little intimidating, but it's fairly straightforward to construct. Before you start, study the plans. Note the pieces that are duplicated, and make a list of the quantities you need depending upon the number of planter panels you intend to build. You can easily add 4' sections to this design, now or in the future.

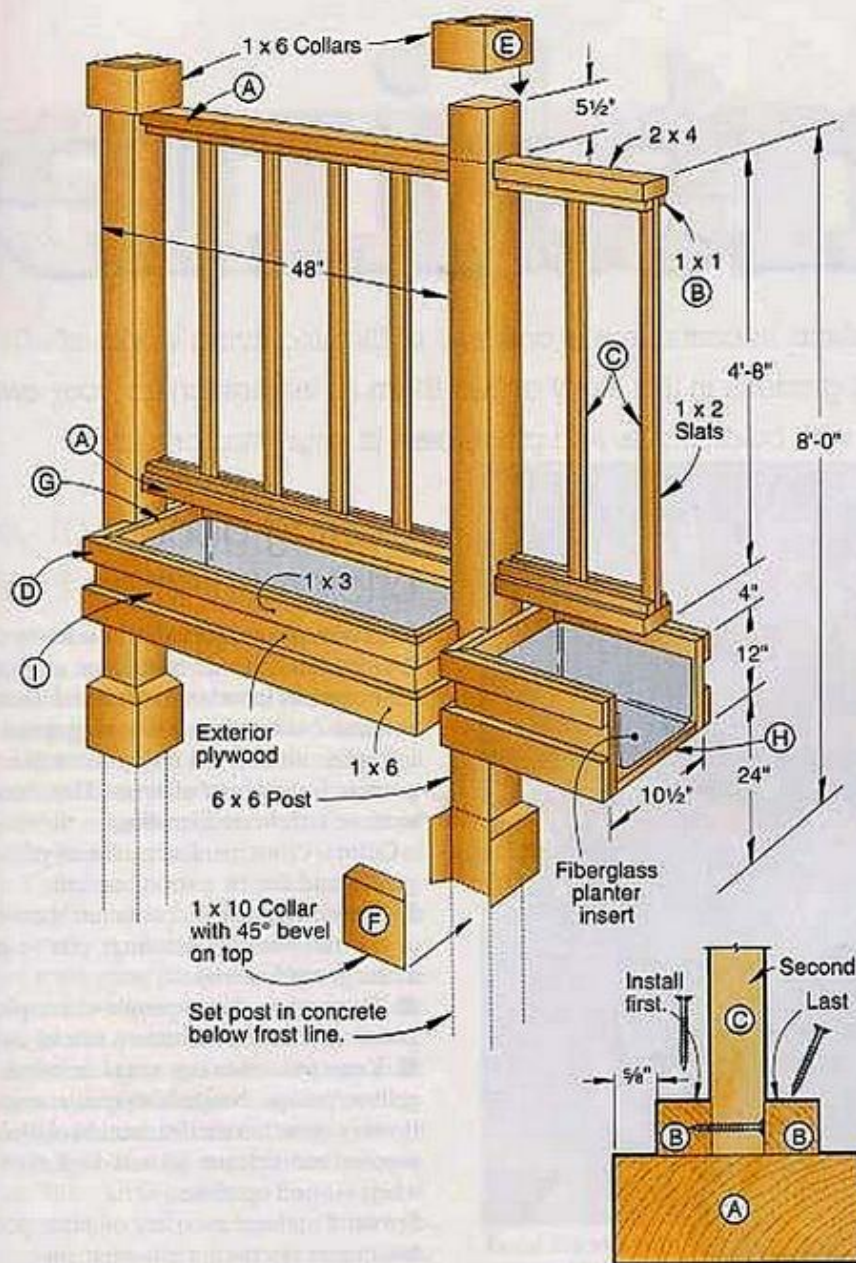
Use a tablesaw or radial-arm saw for rip cuts. (You can also use a circular saw if it has a fence adjustable to a 45° angle.) Additional tools include a power drill with a countersink drill bit, a 3/8" drill bit, and a No. 2 Phillips power screwdriver bit. Wear safety glasses and a dust mask. Predrill all of the screw holes using the countersink drill bit.

## Prepare the pieces

Start this project by determining the location of the planter. Dig the holes at least 1' below the frost line, add 6" of gravel for drainage, then place the 6x6 posts, making sure they are plumb with each other. Pour about 1' of concrete and let it set. Fill the remainder of the hole with soil. Tack the posts together with 2x4s so they hold steady until the concrete is poured and set. If the posts are long, trim them after they are installed.

Cut the top and bottom rails (A) out of the 2x4 material, making sure they fit snugly between the posts. From wide stock, rip to width, then crosscut to length the 1x1 strips (B) that hold the slats and the 1x2 stiles (C). Next cut the





## Materials list

for one 4'-wide section

- (1) 8' 2x4 for top and bottom rails (A)
- (2) 10' 1x10s for bottom collars (F).  
Rip balance into 1x2 dimensions for slats (C) and 1x3 and 1x6 for trim (D)
- (1) 10' 1x6 for top collars (E). Rip balance into 1x1 strips (B)
- (2) 10' or 12' 6x6 posts, depending upon the depth of placement
- (1) sheet of 3/4\" CDX exterior plywood
- (1) tube of wood-tone caulking
- 1/2 pound each of 1 1/4\", 1 1/2\", and 2\" exterior deck screws
- (1) sheet of medium-grit sandpaper
- latex or oil-base exterior paint (optional)

spaced. After all the slats are secured, fasten the other 1x1 strip to the rails by setting the screw at a slight inward angle to tighten the slats (see illustration, left). With the planters and rails finished, glue or screw the collars (E, F) where shown. Sand any rough edges with medium-grit sandpaper.

## Finish it off

If you wish to include lighting, screw wire brackets on the inside edge of the posts, holding the wire in place. Screw the light fixture near the top of the post.

Fill in the screw holes and any voids with a silicon latex caulk/adhesive that matches the wood tone. Stain it or seal it with a wood preservative. For a more stylish look, fill screw heads and voids with caulking, then apply a quality exterior primer, and complete the job with a quality latex or oil-base exterior finish coat in a color of your choice. Follow manufacturer instructions.

Once the adhesive and finish dries, fill your planter with potting soil and your favorite annuals or vines. (For added durability, we lined our boxes.) Once completed, you can enjoy the window-box effect—panelessly. ■

Photograph: Ernest Braun  
Illustrations: Carson Odo  
Planter designer: Warner Design Associates  
Technical writer: Dennis "Bones" Evers  
Field editor: Ann Bertelsen

1x3s and 1x6s (D) for the planter trim, allowing length for the miter cuts. Miter cut the top 1x6 (E) and the bottom 1x10 collars (F) for each post. Cut the 10 1/2 x 12\" plywood ends (G) for the planter boxes and the bottom (H), with the bottom fitting securely between the posts. Cut the sides (I) last, allowing for miter cuts.

## Put it all together

Attach the ends of the boxes (G) to the posts with 2\" screws, making sure the box ends are square and centered. Drill a half-dozen 3/8\" drainage holes in the box bottom (H). Then screw the bottom and the sides (I) to the ends. Keep the tops flush and level. Attach the 1x3 and 1x6

trim pieces (D) to the boxes with 1 1/2\" screws. With the box assembled, set a protective insert inside, if desired. (It will prolong the life of the structure.) Our example features fiberglass inserts. Less costly plastic inserts from a hardware store will work, or have a heating contractor make a galvanized steel liner.

With the box and insert in place, measure and mark the top and bottom rails (A) with a 5/8\" inset where the 1x1 strip (B) lies. Attach the front 1x1 strips (B) to the top and bottom. The rear 1x1 strips will be attached later. Drill at an angle, and use 2\" screws to install the rails (A) to the posts. Then position and install each 1x2 slat (C) with 1 1/2\" screws, making sure the slats are plumb and properly



# CREATIVE container

Combining plants in containers is one way of forming living works of art. Re-create the gardens in this story or use them as inspiration for your own experiments with color, scale, and placement in your yard or patio.

## making good choices

Start with plants that will thrive in the conditions of the site, and make sure all plants in the container have similar cultural needs. Put petunias with other sun-loving plants, for instance, instead of trying to make them grow in a shady pot of ferns. Then move on to more artful considerations.

**Color:** Color reinforces the rhythm of a garden and can be a strong accent.

- Decide whether the container should echo or contrast with the plantings you've placed in the ground nearby.

- Remember that a single-color planting grabs more attention than a mix of colors.

- Keep your viewing range in mind. Red, yellow, orange, hot pink, magenta, and white flowers shine from a distance; cool blues and purples and delicate pastels look their best when viewed up close.

**Form:** Combine a variety of plant postures for a more interesting arrangement.

- Use spiky or upright plants to balance the plant heights within the container, and add vertical interest.

- Consider mounded plants for filling the middle ground of the arrangement, to contrast with upright or trailing plants.

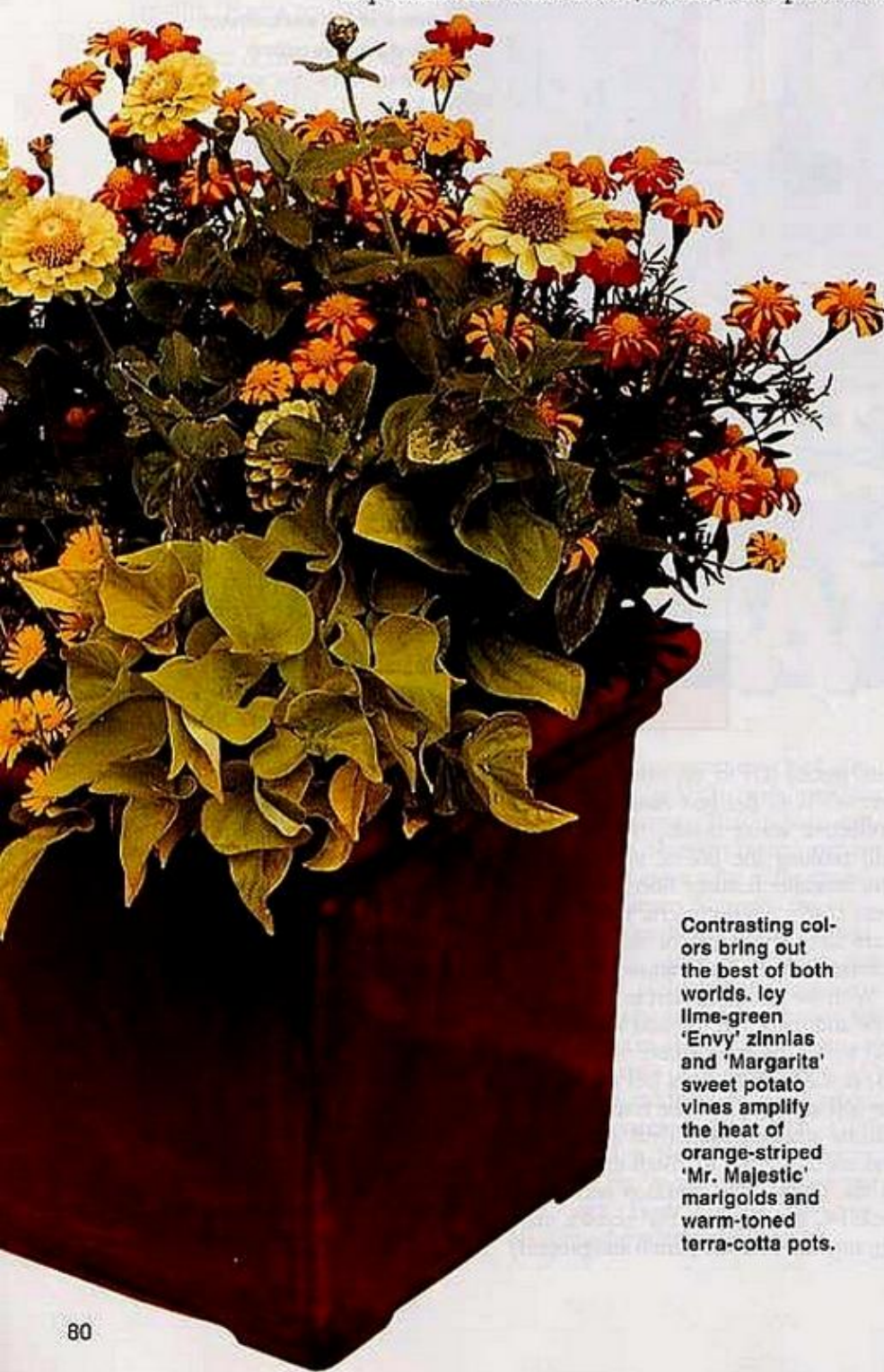
- Let relaxed, sprawling plants and vines spill over the edges to make a transition to the surrounding garden and visually soften the container.

**Texture:** Use contrasting textures to add excitement.

- Mix big, plain leaves with wispy, lacier, or more delicate textures.

- Partner glossy leaves with velvety or crinkled ones.

- Choose plants with flower or foliage texture that contrasts with your nearby in-ground plantings.



Contrasting colors bring out the best of both worlds. Icy lime-green 'Envy' zinnias and 'Margarita' sweet potato vines amplify the heat of orange-striped 'Mr. Majestic' marigolds and warm-toned terra-cotta pots.



# gardens

## how to plant mixed containers

Work on a flat surface that is large enough to hold plants, tools, potting mix, and container. A bench like the one shown on page 64 is ideal because it will protect your knees and minimize stooping. Cover surfaces with a plastic drop cloth to make cleanup easier.

**Assemble supplies:** You will also need tools for planting and a ready supply of water. Your hands make excellent tools for scooping planting holes. A hand trowel also works well. A narrow-bladed trowel is handy for wiggling plants into tight quarters.

Use pruners to snip roots or stems or cut through plastic pots to free stubborn roots. An empty bucket is useful for holding extra potting mix that you remove while planting.

**Arrange plants:** If you're using a design in this book, follow the suggestions for composing the arrangement. For original designs, arrange the potted plants until you are pleased with their look. Young plants will fill out; place them close so you have a better idea of how their color, form, and texture will look beside their neighbors when full-grown.

Place plants according to how the container is viewed. Your aim is to keep plants visible. In a large pot out in the open, put tall plants in the middle so that the container looks attractive from all angles. In containers against a wall or fence, you should try to place tall plants at the rear.

**Fill the container:** Select a planting mix with high porosity (around 80%), a medium or light density, and slightly acidic pH (pH 5.0-6.5). Talk to your garden center about specific plant requirements.

Plant the container from big to little: plants with the deepest root ball first, followed in order by those with shallower roots. Pour in



Settle the plant with the deepest root ball into the container first. Fill in around it with potting mix to the depth of the plant with the next-deepest root ball.



Tamp the mix with your fingers after placing a plant. Lightweight, soilless potting mixes may settle after watering; top off with more potting mix if needed.



The result: one half-gallon pot of cordyline, three 4"-pots of variegated potato vine, and three 4"-pots of ivy geranium have been planted in a 16"-terra-cotta pot.

## Back-Saving Suggestions

Filled containers are surprisingly heavy and awkward to move without damaging the plants. Save yourself chiropractor visits by doing the final planting in place in large containers, or use mechanical aids and ingenuity to move hefty pots.

■ Before moving a heavy container across the yard on a wagon or handcart, position wide boards or plywood over lawn areas and soft paths to prevent ruts.

■ Tilt the pot and slowly roll it, keeping it at an angle and letting the bottom edge serve as a "wheel."

■ To move containers on paved surfaces, place a plant trolley on casters beneath them before filling.

■ Try dragging moderate-sized containers on a child's plastic sled.

■ Use a garden cart or yard wagon to move large containers. Enlist a helper to lift the pot onto the cart.

■ Rent a refrigerator dolly. Tip the pot and slide the edge of the dolly underneath, then strap the pot tightly before moving it.



a few inches of potting mix, remove the first plant from its pot, and settle it into the container, scooping out mix if you need a deeper hole. Fill in around the plant with more potting mix and plants with shallower roots.

Set plants as close together as you can, squishing the root balls if necessary. The extra fertilizer and water you supply will serve to compensate for the limited growing space.

If you change your mind about the arrangement, it's easy to make changes at planting time. Slip your hand or a trowel beneath the root ball to lift the plant, then gently set it aside while you reposition its planting hole. Water generously when done.

## planting techniques

Collect your plants, potting mix, and container on a potting bench, table, or other workspace if the container will be portable. Or plant in place if the container will be too heavy to move when filled.

Open the bag of potting mix; if it is dry, pour in warm water, fold over the bag, and knead. Allow the mix to absorb the water, which can take up to an hour. If you are filling a large container, pour the mix onto a tarpaulin or into a wheelbarrow and add water.

If the container's drainage holes are large, place screening over them to prevent soil from spilling out. The old-fash-

ioned technique of placing broken pot shards at the bottom of containers has been proven undesirable by modern research; this so-called "drainage layer" actually slows drainage instead of improving it.

When the mix is evenly moist, blend in timed-release fertilizer pellets and other amendments if desired. Fill the container half full if you are planting larger plants, or to within a few inches of the rim if you are planting small plants. Set the potted plants into the container to get an idea of how your planned arrangement will look.

## Weight Reduction

If you are filling a heavy, stable container where weight is a serious problem, such as a large pot or a permanent planter box on a balcony or rooftop, use a light or super-light potting mix, which are readily available and inexpensive. Or you can make your own by combining a standard mix with perlite. Measure the mix after it is moistened: one part perlite to three parts moist potting soil. Perlite is expensive and dusty; to prevent it from scattering, pour it into a deep container, such as a 5-gallon bucket, then slowly add the potting soil and stir. Whether you buy it or make it yourself, bear in mind that a super-light mix will need more watering than conventional mixes.

Lightweight plastic pots, tall containers with a narrow bottom, or containers in windy areas need weight for stability. Don't use light or super-light potting mix

if your container garden needs a heavy base to prevent it from tipping.

## Out of the Old Pot

Fill your container one plant at a time, keeping extras in their pots until you're ready to plant them. This will keep their roots moist and undisturbed until transplanting time.

Pop small plants out of their plastic cell packs or pots by pushing on the bottom of the pot while covering the soil surface and supporting the plant between the fingers of your other hand. To get a plant out of a large pot, lay the pot on its side and push firmly against the side. Repeat on the other side, then turn the pot upside down and try to slide the root ball out of the pot. If it resists, use utility shears to cut apart the bottom of the pot and free the roots.

You may find that the roots of each plant are massed into a tangled ball. Gently pull apart the roots to untangle them before planting. If you are planting large plants from gallon-size or bigger pots and you discover that the bottom or sides of the root ball are thick with jumbled roots, make three or four shallow, vertical cuts with a pocket knife around the root ball.

## Into the New Pot

If you're placing large plants, settle the plant on a layer of potting mix that is deep enough to raise the top of the root ball to about 1-3" below the rim of the



Green garden twine is practically invisible among foliage. Tie twine in a figure-eight shape to form a loose loop. This honeysuckle will soon choose its own supports as its stems begin to grow and twine.



## Planting Vines in Containers

Vines are a quick way to soften a deck railing, balcony, or window box, or to add height in a garden bed. Scarlet runner bean, hyacinth bean, and morning glories are fast-growing climbing annuals; vivid pink mandevilla, fragrant jasmines, and sweet-scented honeysuckles are excellent in containers. Support vines with a trellis inserted in the container or mounted nearby where the twining stems can reach for it, or supply a network of strings. Tie the stems loosely to the new support with soft twine. If the potted plant included a small trellis, gently unwind the vine from the old support and fasten it to the new. Be sure to locate these generally top-heavy containers out of the wind.



pot. Add other plants of the same size. Pour potting mix around the root balls, pushing it in gently to fill all empty spaces. Keep the original soil surface of the plant at the same height as the final tamped-down potting mix.

For small plants, add potting mix to about 2" from the top of the container, then scoop out holes for each root ball. Tuck in each plant and pat down the mix.

Always be sure to allow an inch or two at the top of the container to create a reservoir for watering. If you fill the pot to the top with potting mix, water will run over the sides instead of soaking down into the mix.

### After Planting

When you are finished planting, water with a slow, gentle spray. Fill the pot to the top, letting the water sink in until it drips from the drainage holes. Gently bounce the pot to eliminate air pockets. Add soil if necessary and water again.

Place portable containers in a shady area out of the wind. Water lightly whenever the surface feels dry. Move to the final location in a couple of days, after plants have recovered from the initial shock of transplanting. If the plants in large containers you planted in place begin to wilt, rig up a shade structure for a few days by draping a towel across lawn chairs placed on the southwest side of the container.

### Recycled Potting Mix

Some gardeners save money from year to year by reusing potting mix. When removing plants from containers that have finished their show, empty the used potting mix into a large covered storage bin or trash barrel kept for this purpose, cleaning the soil of large roots and other debris. At planting time, premoisten the potting mix with water to which you have added a mild dish-washing detergent at the rate of 1 tsp. per gallon, which will act as a wetting agent. Mix in a timed-release fertilizer according to package instructions, and use as you would fresh potting soil. Do not reuse potting mix that has been contaminated by insects or disease, or when planting especially disease-prone plants such as orchids or roses. ■

### BASIC PLANTING TECHNIQUES



**Step 1:** If you are planting large plants, fill the container half full with moist potting mix. For small plants, fill to within 2" of the rim.

**Step 2:** Press firmly on the pot's sides to loosen the plant's roots.



**Step 3:** Tease apart matted roots with your fingers to encourage them to grow into the potting mix.



**Step 4:** Settle the plant in the pot; make sure the top of the root ball is 1-2" below the rim. Fill in around the plant with potting mix to the top of the root ball.



**Step 5:** Water generously until the potting mix is thoroughly moistened and water runs out drainage holes in the bottom of the pot. If necessary, add more potting mix as it settles.





Fluted legs and a pastel color scheme bring Victorian-era charm to this patio accent. Build a pair of planters and link them with a bench, as shown in the photo—or reach out with additional modules, as shown by the illustrations at far right.



# modular planter &

## Let's start with the legs

**1** To form the 2½"-square legs (A), start by crosscutting nine pieces of 2×6 cedar stock to 18" in length. Then, rip each piece of 2×6 centered down the middle. Using an exterior adhesive, glue the 18"-long pieces face-to-face. *Note: Forming of the legs involves several setups. To eliminate ruining a leg, we used the extra leg to test the cuts before machining the eight good legs.*

**2** After the glue has dried, scrape off any excess, and rip each lamination to 2½" square. Then, trim to 17½" long.

**3** To cut the 15° bevels across the top end of each leg (A), attach a long extension to your miter gauge, and angle

it 15° from your tablesaw blade, where shown on the Cutting the Beveled Top drawing on page 86. Now, attach a stop-block to the miter-gauge extension where shown.

**4** To prevent chipout when making the saw cuts, wrap masking tape around the end of the leg to be mitered. Then, make four miter cuts across the top end of each leg, trimming each to its 17¼" finished length. Remove the remaining masking tape.

**5** Fit your table-mounted router with a ½" straight bit set to cut ⅜" deep. Now, clamp a fence to your router table, then clamp two stopblocks to the fence, where shown on the Routing the Mortises drawing on page 86.





# bench

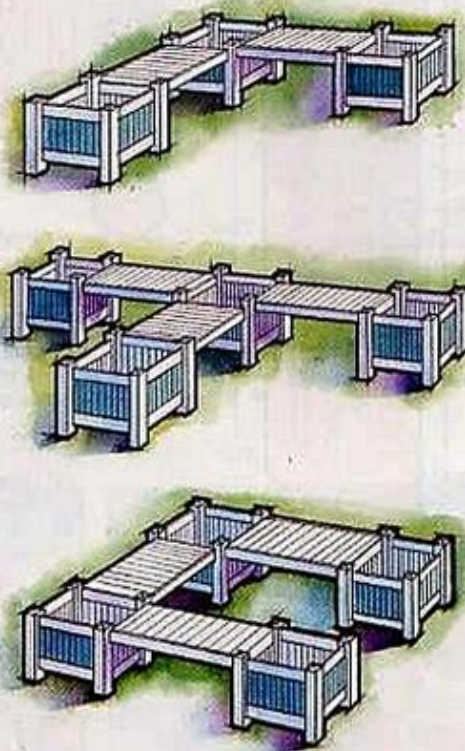
**6** Mark the two inside surfaces of each leg, putting the best two surfaces opposite these. Rout the  $\frac{1}{2}$ " mortises  $\frac{3}{8}$ " deep using the fence and stopblocks for alignment. Raise the bit to cut  $\frac{3}{4}$ " deep, and make a second pass to deepen the mortises to their final depth. Square the ends of the mortises with a chisel.

**7** Fit your tablesaw with a  $\frac{1}{4}$ " dado blade and miter-gauge extension, and cut  $\frac{1}{4}$ " dados  $\frac{1}{8}$ " deep across all four surfaces of each leg, where shown on the Cutting the Dadoses drawing on page 86. The top dado is  $1\frac{1}{16}$ " from the top end of the leg, and the bottom dado is  $1\frac{3}{4}$ " from the bottom end of the leg where shown on the Leg detail drawing on page 86.

**8** Switch to a  $\frac{1}{4}$ " roundnose bit in your table-mounted router. Position the fence and stops, and rout a  $\frac{1}{4}$ " flute  $\frac{1}{8}$ " deep along one surface opposite the surfaces with the routed mortises. Refer to the Leg detail and the Routing the Flutes drawings, shown on page 86, for detailed instructions. Reposition the fence, and rout a second flute along the same surfaces, but along the opposite edge of the leg. Finally, reposition the fence again, and rout the third flute centered between the first two flutes.

**9** Rout a  $\frac{1}{8}$ " chamfer along the bottom edges of each leg. See the Leg detail drawing for reference.

**10** Position all legs (A) side by side, with one  $\frac{1}{2}$ " mortise facing up,



design options

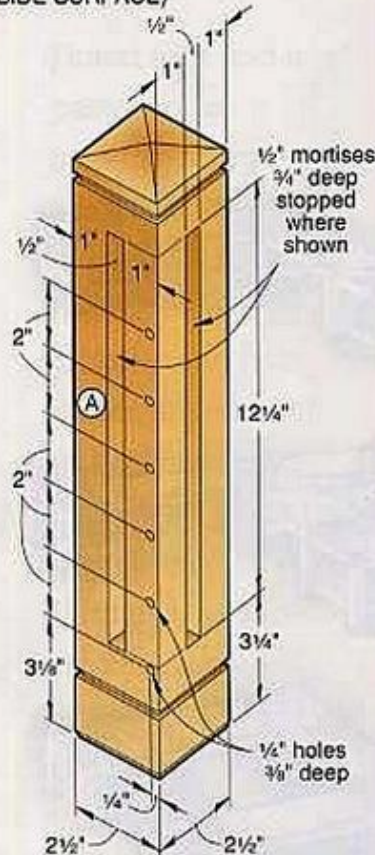
and the other mortises facing you. Using a framing square align the bottom ends of the legs. Now, use the square to measure and mark the  $\frac{1}{4}$ " holes for the shelves on the top face of each leg. Using a fence on your drill press for alignment, drill a  $\frac{1}{4}$ " hole  $\frac{3}{8}$ " deep at each line, as shown in the middle photo on page 89.

## Now, machine the top and bottom rails

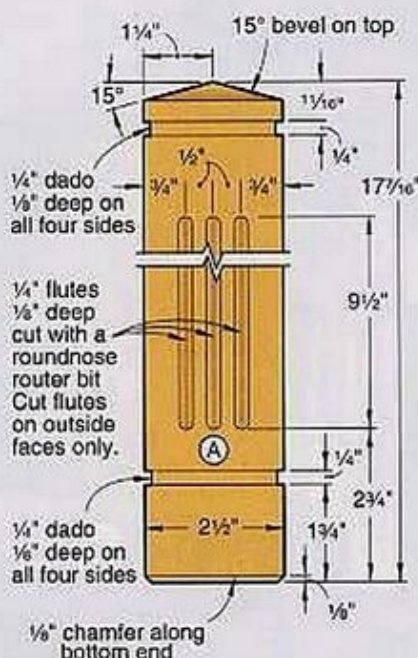
**1** Cut the top and bottom rails (B) to the size listed in the Materials List found on page 87. Rout or cut a  $\frac{1}{2}$ " groove  $\frac{3}{4}$ " deep, centered along one edge of each rail.



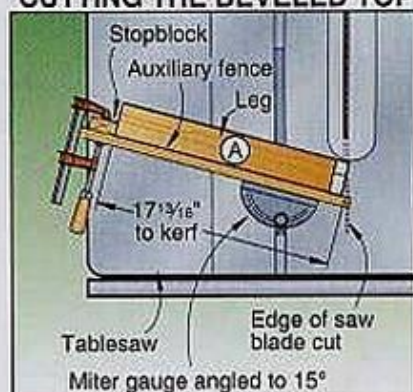
# LEG ASSEMBLY (INSIDE SURFACE)



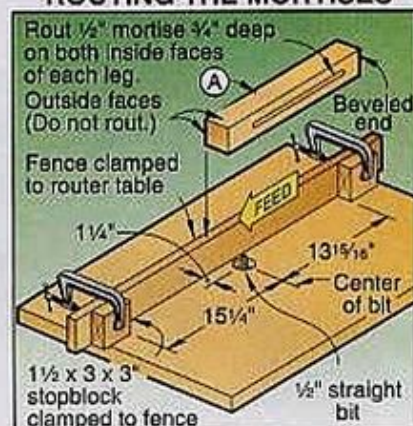
# LEG DETAIL (OUTSIDE SURFACE)



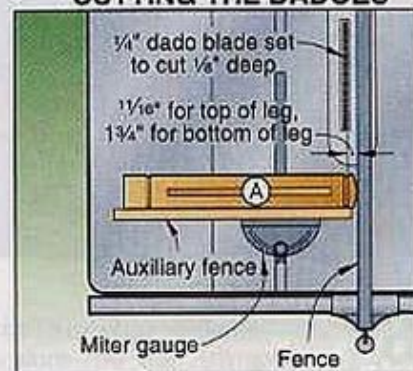
# CUTTING THE BEVELED TOP



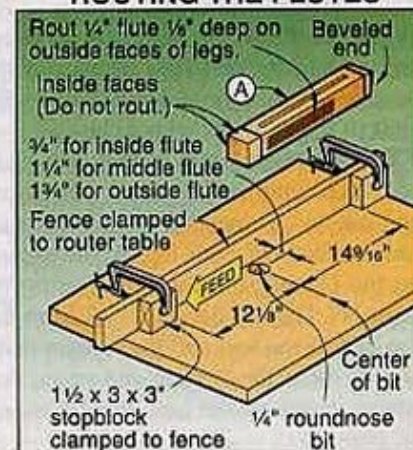
# ROUTING THE MORTISES



# CUTTING THE DADOES



# ROUTING THE FLUTES



**2** Cut rabbets along the ends of each rail to form tenons to fit snugly into the mortises in the legs, as dimensioned on the details shown with the Planter Exploded View drawing.

**3** Rout  $\frac{3}{8}$ " round-overs along the top edges and  $\frac{1}{8}$ " chamfers along the bottom edges of the eight rails (B) that you'll install as the top rails. Rout or saw a  $\frac{1}{4}$ " decorative groove  $\frac{1}{8}$ " deep next to the round-overs on both sides of each top rail, where shown on the Top Rail detail.

**4** Rout  $\frac{1}{8}$ " chamfers along all edges of the bottom rails (B), where shown on the Bottom Rail detail accompanying the Planter Exploded View drawing.

## Cut and secure the slats between the rails

**1** Resaw or plane stock to  $\frac{1}{2}$ " thick for the slats (C, D). Rip them to the widths listed in the Materials List and shown on the Planter Exploded View drawing.

**2** Rout  $\frac{1}{8}$ " chamfers along both edges (not the ends) of each  $\frac{1}{2}$ "-thick slat (C, D).

**3** With a wide slat (C) on each end, fit the slats (no glue necessary) into the groove in the bottom rail. Then, fit the top rail onto the top ends of the slats. Clamp and check for square.

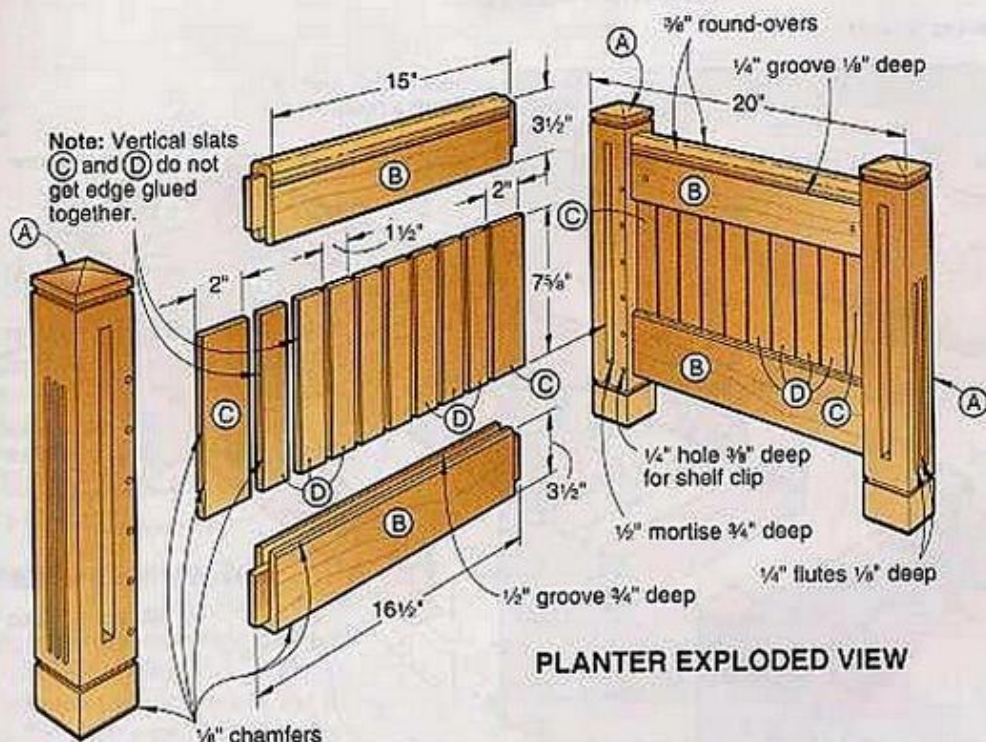
**4** Check the fit of the rail/slat assemblies between the legs. Glue and clamp a rail/slat assembly between two legs as shown in the photo on page 89. Check for square. Repeat for the three remaining end panels.

**5** Glue and clamp the remaining slat assemblies between the planter end panels (A/B/C/D).

## Add the bench assembly

**1** Cut the bench rails (E) to size. Then, rout the round-overs and chamfers, and cut grooves in the rails where shown on the Bench Exploded View drawing.





PLANTER EXPLODED VIEW

## shopTip

If a tenon doesn't have the snug fit necessary for a strong joint, you don't need to trash the undersized member. Instead, cut a few thin shavings from scrap wood with a hand plane. Glue these to the tenon, and sand for a proper fit.

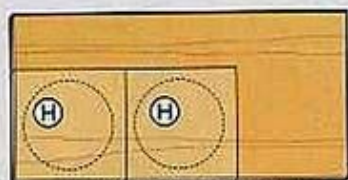
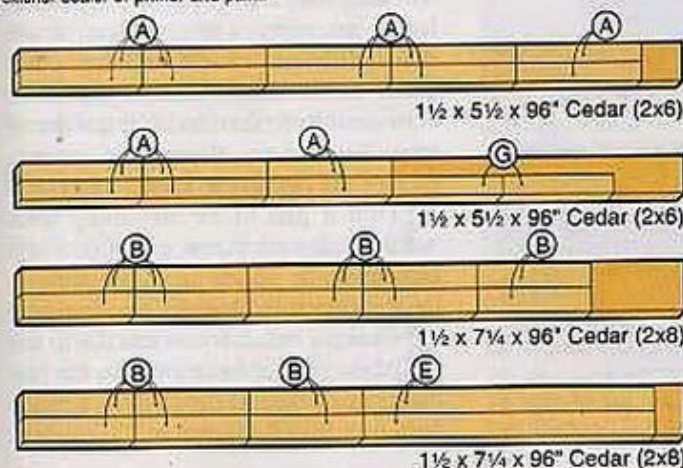
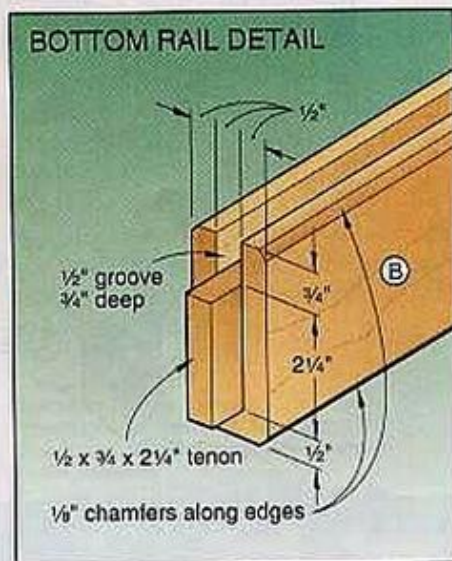
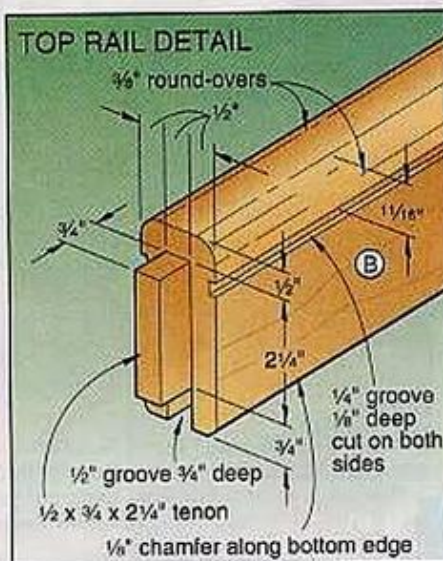
## materials list

| Planter        | FINISHED SIZE |         |         | Matl. | Qty. |
|----------------|---------------|---------|---------|-------|------|
|                | T             | W       | L       |       |      |
| A' legs        | 2 1/2"        | 2 1/2"  | 17 1/2" | LC    | 8    |
| B rails        | 1 1/2"        | 3 1/2"  | 16 1/2" | C     | 16   |
| C slats        | 1/2"          | 2"      | 7 1/4"  | C     | 16   |
| D slats        | 1/2"          | 1 1/2"  | 7 1/4"  | C     | 64   |
| <b>Bench</b>   |               |         |         |       |      |
| E rails        | 1 1/2"        | 3 1/2"  | 41 1/4" | C     | 2    |
| F slats        | 3/4"          | 3"      | 16 3/4" | C     | 14   |
| G frame ends   | 1 1/2"        | 2 1/2"  | 16"     | C     | 2    |
| <b>Shelves</b> |               |         |         |       |      |
| H shelf        | 3/4"          | 15 1/4" | 15 1/4" | EP    | 2    |

\*Initially cut parts oversize. Then, trim each to finished size according to the how-to instructions.

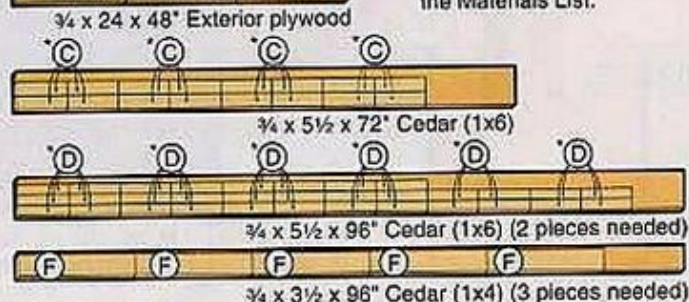
Materials Key: LC-laminated cedar, C-cedar, EP-exterior plywood.

Supplies: four 3/8" carriage bolts 3 1/2" long with nuts and flat washers, eight 1/4" shelf clips, 3 1/2" deck screws, exterior sealer or primer and paint.

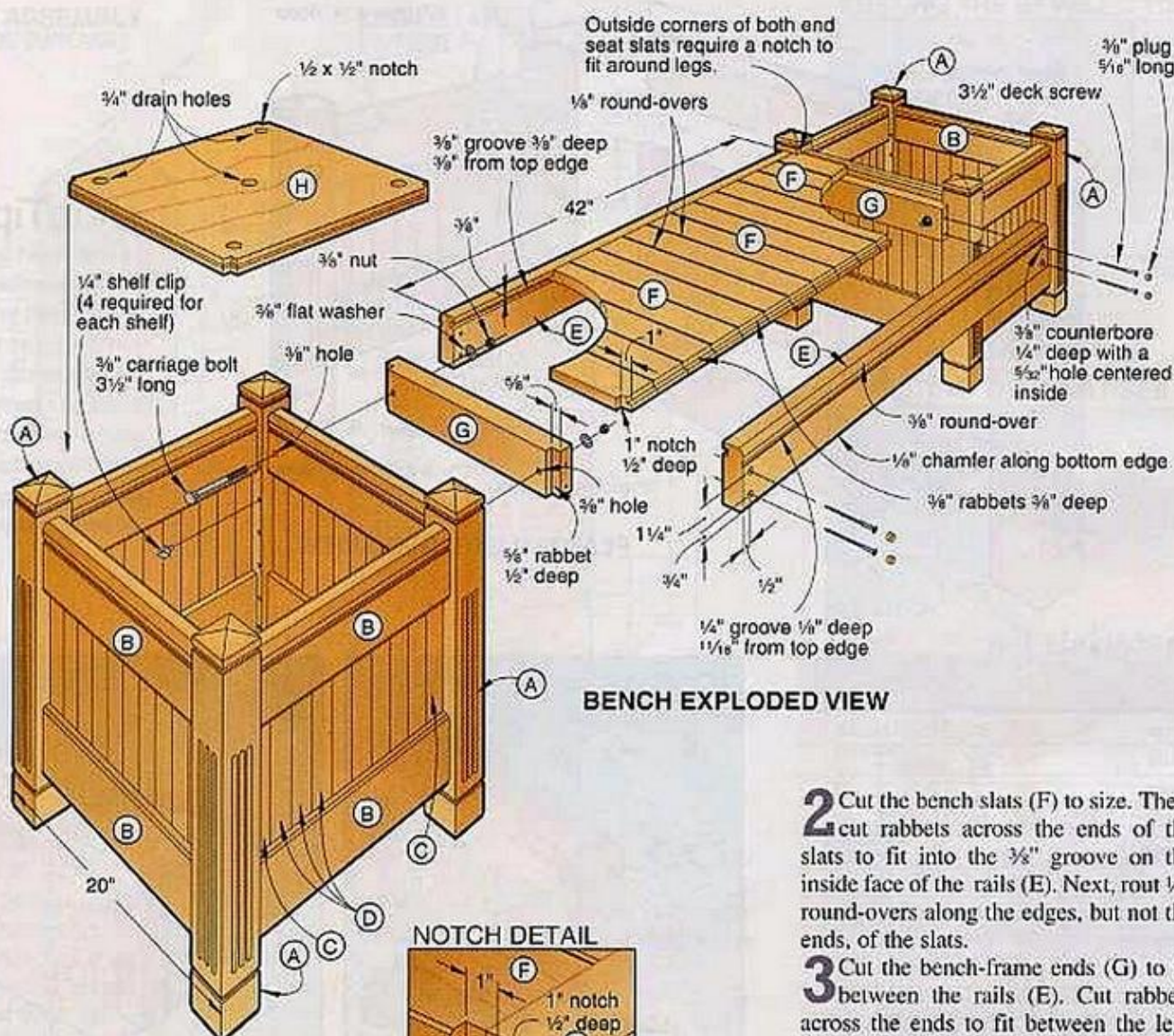


## CUTTING DIAGRAM

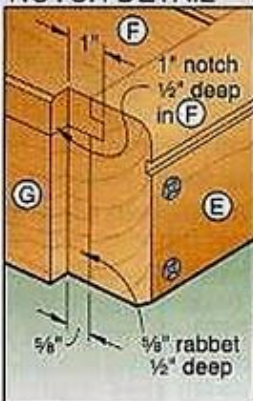
\*Plane or resaw to thickness listed in the Materials List.



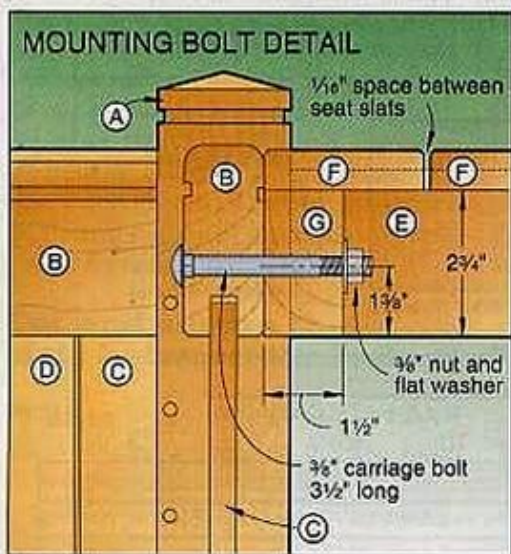




NOTCH DETAIL



BENCH DETAIL (END SECTION VIEW)



**2** Cut the bench slats (F) to size. Then, cut rabbets across the ends of the slats to fit into the  $\frac{3}{8}$ " groove on the inside face of the rails (E). Next, rout  $\frac{1}{8}$ " round-overs along the edges, but not the ends, of the slats.

**3** Cut the bench-frame ends (G) to fit between the rails (E). Cut rabbets across the ends to fit between the legs (A) of the assembled planters, where shown on the Bench Exploded View drawing and Notch detail.

**4** Dry-clamp (no glue) the bench assembly (E, F, G) together. Cut notches on the slats (F) at each end of the bench assembly where shown on the Bench Exploded View drawing. Now, check the fit of the clamped-up bench between the planters, and adjust if necessary. Remove the clamps and separate each of the pieces.

**5** Drill a pair of  $\frac{3}{8}$ " mounting holes through each frame end (G), where shown on the Bench detail accompanying the Bench Exploded View drawing.

**6** Clamp a bench-frame end (G) to one of the planter assemblies so the bottom edge of the end (G) is flush with the bottom edge of the top rail (B) where



shown on the Mounting Bolt detail accompanying the Bench Exploded View drawing. Use the previously drilled holes in the end (G) as guides to drill the same-size holes through the rail. Repeat for the other frame end and remaining planter.

## Assemble the bench

**1** Fit the slats (F) into place between the rails (E), using  $\frac{1}{16}$ " strips as spacers between the slats to test the fit and check for equal gaps. Trim if necessary. Then, glue and clamp the slats in place, wiping off any excess glue immediately. (We used a  $\frac{1}{4}$ " acid brush to apply the glue to the grooves in the rails.) Glue and clamp the end rails (G) in place. Check the assembly for square.

**2** Drill a pair of counterbored mounting holes at each end of the bench rails (E) and into the ends of the mating rails (G). Drive deck screws to secure each joint.

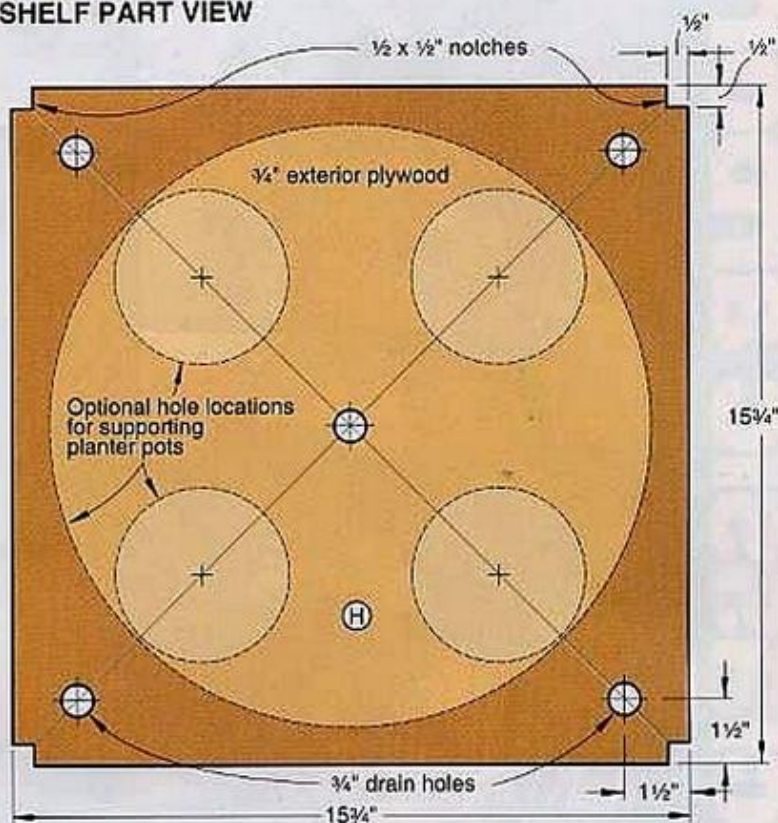
**3** Cut  $\frac{3}{8}$ " plugs  $\frac{3}{8}$ " long, and glue them into the counterbores over the deck screws. Sand the plugs flush.

**4** Cut the planter shelves (H) to shape using the Shelf Part View drawing for reference. Now, drill five  $\frac{3}{4}$ " drain holes in each shelf. You can either set your pots directly on the shelves in the planter boxes, or cut holes into the shelves to fit your particular pots. To extend the life of the planters, put potted plants in the planter boxes on the shelves. We do not recommend filling the planter boxes directly with soil.

## Finish and enjoy

**1** Completely seal the project with a clear exterior finish, or prime and paint the planters and bench as desired. Pay particular attention to sealing the bottoms of the legs (A). (We used True Value's Tru-Test colors from their Exterior Historical Collection of

### SHELF PART VIEW



Drill  $\frac{3}{4}$ " holes where marked on each leg for the shelf pins. A fence on your drill press ensures alignment.



When assembling the planter endframes, be sure to square them as you tighten the clamps. The slats float in the frame.

Victorian Era Colours. We used sedge for the main color, seahurst for the panels and post caps, and cameo rose for the top of the rails and flutes.)

**2** Bolt the seat assembly between the planters. Determine the shelf height, and add the shelf pins and shelves. Finally, add the potted plants and have a seat. ■

Written by Marlon Kemmet  
Project Design: James R. Downing  
Illustrations: Kim Downing; Brian Jensen;  
Lorna Johnson  
Photographs: Hetherington Photography

## shopTip

A series of holes in the inner face of each leg lets you quickly adjust the plant shelf's height to accommodate different size pots. To raise or lower the shelf, just lift it out and move the shelf clips to a different level.



# classic arbors

Timeless wood structures bring an element of lasting style to gardens and yards. Build these beauties yourself and become the envy of the neighborhood.







Nothing looks more charming than whitewashed wood against a sea of green spotted with nature's springtime palette. Set the stage for your own garden paradise with this...

# trellised treasure

**A**ny landscape designer will tell you that it takes more than flowers, fruits, and vegetables to create a beautiful garden. It takes charming trellises for plants to climb, gates to invite exploration, fences to contain flowers or to serve as backdrops, benches and chairs to provide seating, and free-standing planting boxes to call attention to special plants.

Our classic Adirondack Chair (page 37), Adirondack Table (page 41), Backyard Beauties (page 71), and Anywhere Window Box (page 78), are all functional embellishments that will beautify your yard. Now build a true showpiece—this fabulous free-standing trellis as a permanent yard structure.

If winter is lingering where you live, start the trellis in a garage or basement workshop, and assemble it when the weather warms.

Our easy-to-follow directions will keep you busy in your shop for a while, but the end result will make your garden or yard a showplace for generations to come.



### Rate your skill

You'll need moderate to advanced carpentry skills. Experience with construction plans, trammel points, and setting posts in concrete is helpful. If you're uncertain, have someone experienced help you.

### Grab your gear

**Materials:** galvanized fasteners including 3d, 4d, 6d, and 8d finishing nails; 16d common nails; 8d casing nails; 2" deck screws;  $\frac{3}{8}$ "x2" dowel pins; carpenter's glue; one 4x8-foot sheet of  $\frac{1}{4}$ -inch diagonal lattice; four 2"-diameter finials; ready-mix cement; CCA-treated Southern pine. To figure lumber amount, study the dimensions on the illustration. The overall cost of the project using pressure-treated pine will be less than \$400 depending on your region.

**Tools:** circular saw, saber saw, handsaw, power driver/drill, router with chamfer bit, hammer, tape measure, level, trammel points, compass, protractor, wood chisel, framing square, combination square, bar clamps, posthole shovel, hoe, wheelbarrow for mixing ready-mix cement.

### Just a few reminders

Choose a fairly level area; a sloped grade only complicates construction. Incorporate the structure into your landscape to act as an entrance to part of your yard or garden.

Study the illustrations before you begin. Whenever possible, make duplicate cuts by stacking and clamping boards together. This will ensure consistency and make assembly easier. This method is faster, but inexperienced woodworkers should cut and assemble sections separately to avoid costly and time-consuming mistakes.

Use a carbide-tip combination blade on your circular saw, and set the depth of each cut  $\frac{1}{2}$ " thicker than the lumber for cleaner cuts on finished surfaces.



### Get started

First, locate and set the posts:

■ Stake posthole locations (see illustration). To determine the location of the wing posts (B) to main posts (A), cut curved railings (D) first. With a posthole shovel, dig holes below the frost line and 8–12" in diameter.

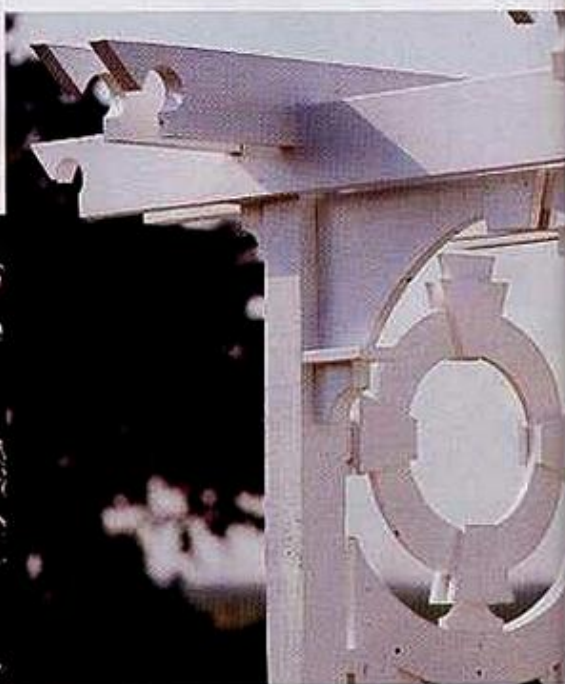
■ Using a router, chamfer the edges of four 10'-long 4x4 posts (A). When laying out the chamfers, take into account the portion of the posts that will be set in concrete.

■ Use 6' 4x4s for wing posts (B) and (C). Nail 1x2 spacer blocks on B; clamp C in place using bar clamps.

■ Place posts in holes; fill holes with ready-mix concrete. Remove air pockets by working the concrete around the posts with a 2x2. Check each post for plumb, making sure they are the correct distance apart. Use temporary 2x4 bracing to hold the posts in place.

■ After concrete cures for 48 hours, cut each 4x4 post to its finished height. First, cut one post to height, then use a level on a length of 2x4 to establish the height of the other main posts (A). Repeat process for wing posts.

■ Toenail the curved railings (D) in place using 8d casing nails.



### Put a lid on it

■ Cut four crossbeams (E) from 8' 2x6s. Lay out end cuts with a compass and protractor. Using a saber saw, cut the designs; chamfer bottom edges of each board. Attach sections (E) to main posts (A) using 16d common nails.

■ Cut four rafters (F) from 6'-long 2x6s. Make end cuts identical to the crossbeams (E). Using a saber saw, cut notches in bottoms of the rafters (F) to fit snugly over the crossbeams (E); chamfer bottom edges. Nail F to the posts (A).

■ Using a saber saw, cut two side panels (G) from 1x10s. Cut trim pieces (H) from  $\frac{3}{4}$ " stock. Rout edges; attach trim to (G).

■ Cut pieces I from 1x6s and (J) from 2x4 blocking. Attach to G.

### Dress it up

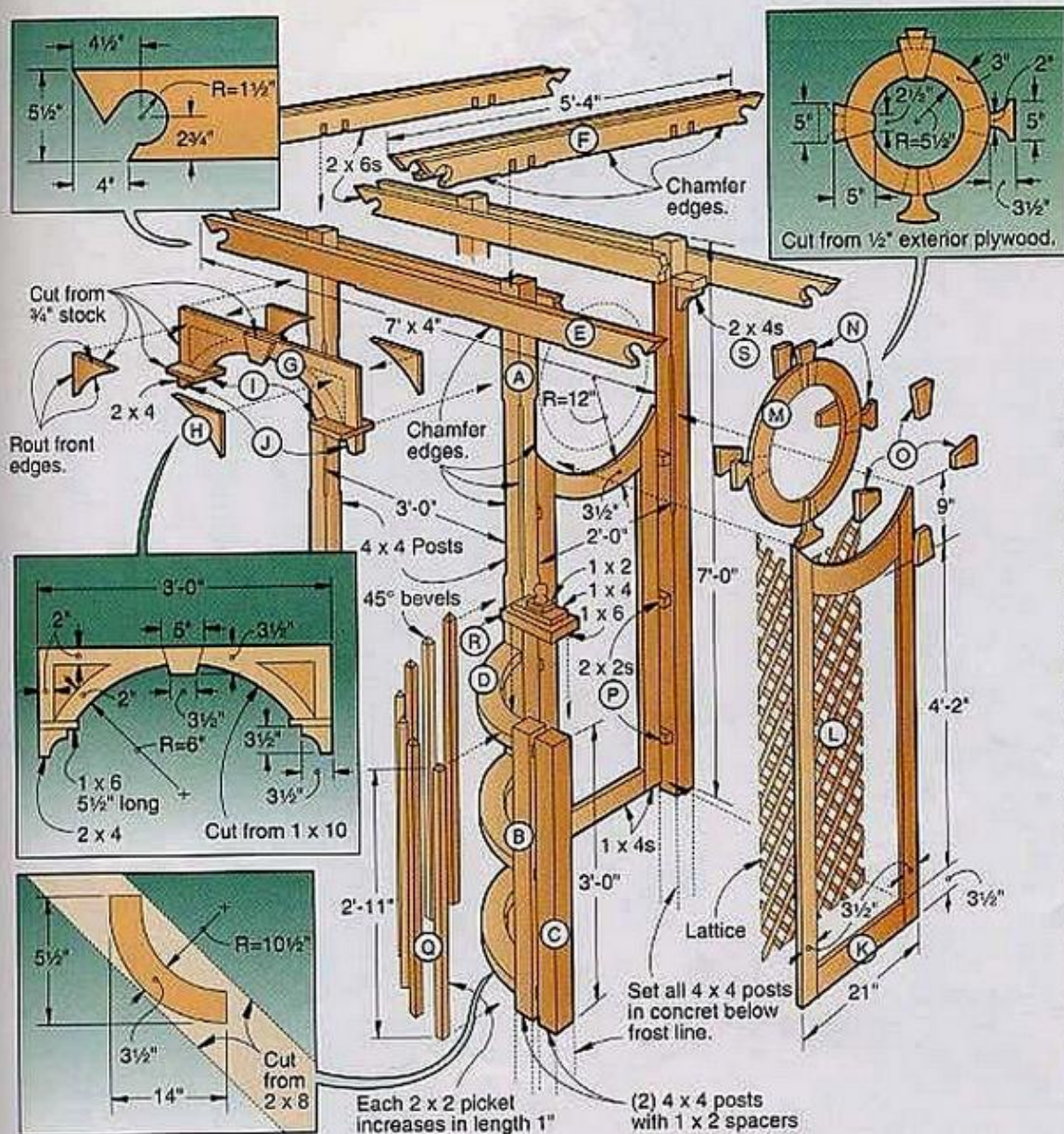
■ To make lattice frames (K), cut the bottoms and sides from 1x4s; use 1x10s for the top curved pieces. Cut the curved pieces with a saber saw. Dowel frames together using  $\frac{3}{8}$ "x2" dowel pins and carpenter's glue.

■ Cut lattice (L) from a 4x8 sheet of  $\frac{1}{4}$ " diagonal lattice. Lay lattice frame (K) over the sheet and cut it cut 1" smaller than the outside of the frame.

■ Attach 2x2 blocks (P) to post (A); toenail one lattice frame to the blocks. Hold lattice in place; secure other frame piece over it. Use deck screws so the lattice can be easily replaced if damaged.

*Note: The lattice should fit loosely*





## shopTip

When handled properly, treated wood presents no health risks.

### How to handle

- Wear eye protection and a dust mask when sawing or machining treated wood.
- Avoid prolonged inhalation of sawdust from treated wood.
- Wash skin that comes in contact with wood or sawdust before you eat or drink.
- Dispose of treated wood by ordinary trash collection or burial. Do not burn treated wood.

### How to finish

- Apply a sealer. Although treated wood is protected against mold, mildew, and termite attack, a water-repellent sealer applied every year or two to exposed wood surfaces will control surface checking and enhance appearance.
- Apply a paint or stain. Wait a week to two months before finishing wood that was not kiln-dried after treatment. Apply two coats of a good-quality acrylic latex paint to vertical surfaces and semitransparent or opaque stain to horizontal surfaces.

### How to fasten

- Select fasteners that will last as long as treated wood—up to several decades. Use hot-dipped galvanized or stainless-steel nails and fasteners. Joist hangers, hinges, and post anchors should be galvanized.
- Use coated ringed or spiraled shank nails and screws designed for use with treated lumber.
- Apply construction adhesive formulated for treated wood at structural joints.

between the frames to allow for swelling during humid conditions.

- Lay out the circle designs (M) on exterior 1/2" plywood. Using a saber saw, cut two half-circles with an inside radius of 5 1/2" and outside radius of 8 1/2".
- Using 3/8x2" dowel pins, dowel half-circles (M) together and dowel 1/2" plywood trim pieces (N) into circles (M). Secure O to N with 4d finishing nails.
- Slip lattice frames (K) between trim pieces N and O; secure with deck screws. Toenail side trim pieces (N) to posts (A).

### Final touches

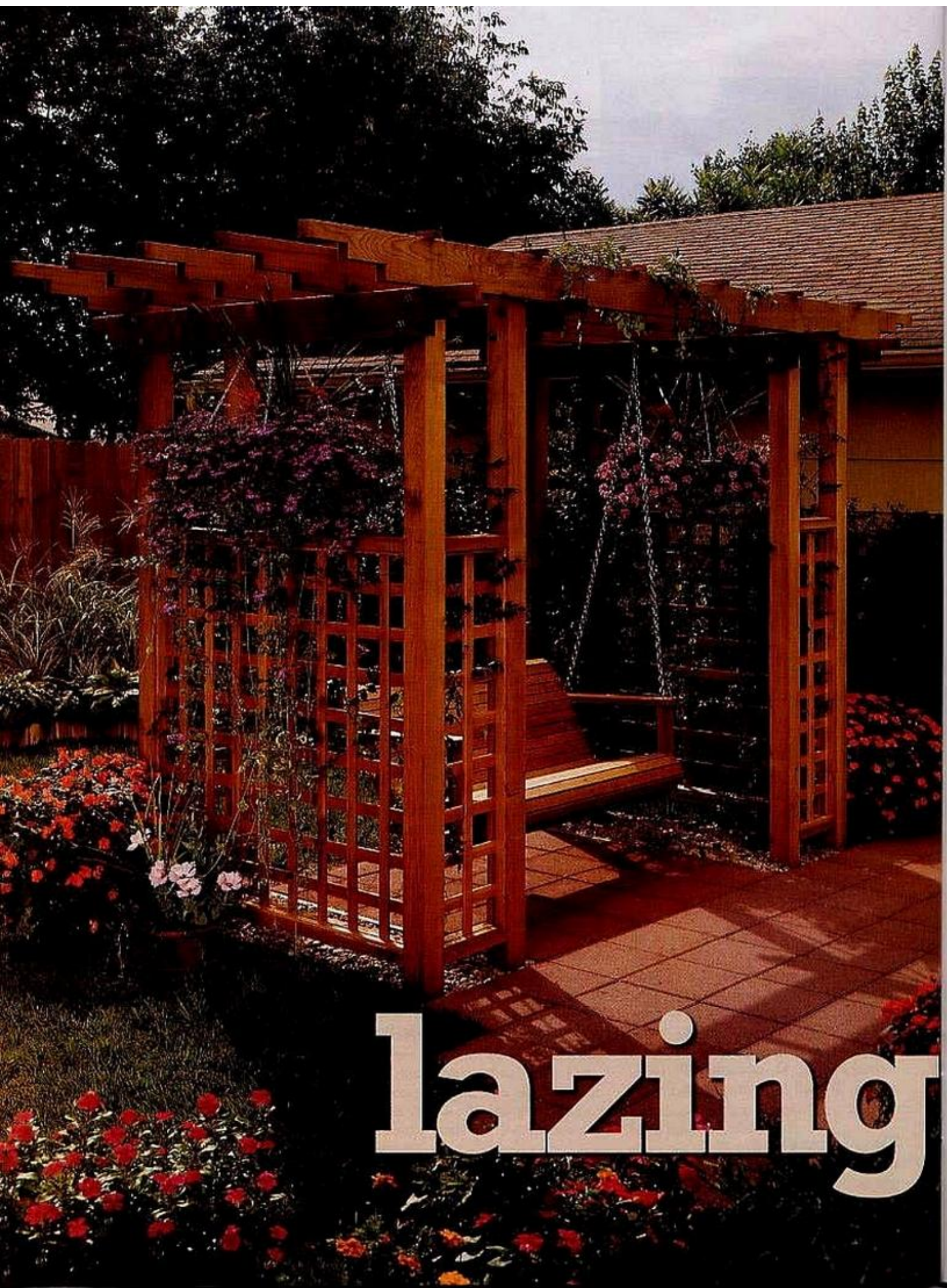
- Cut pickets (Q) from 2x2s. Make 45° degree bevel cuts at top of each picket.

Fasten pickets to curved rails (D) using 6d finishing nails.

- Cut post caps (R) from 2x6s. Attach to posts (B,C); leave a 1" overhang per side. Nail 1x4s and 1x2s on top; make each piece 1" smaller per side to give a pyramid effect. Top the caps with a 2"-diameter finial.
- Form trim pieces (S) from 2x4 blocking. Attach to posts (A) with 8d finishing nails. ■

Photographs: Hopkins Associates  
Designer: Bruce Pierce, Concepts in Design.  
Photographed at Dancing Lady Gardens

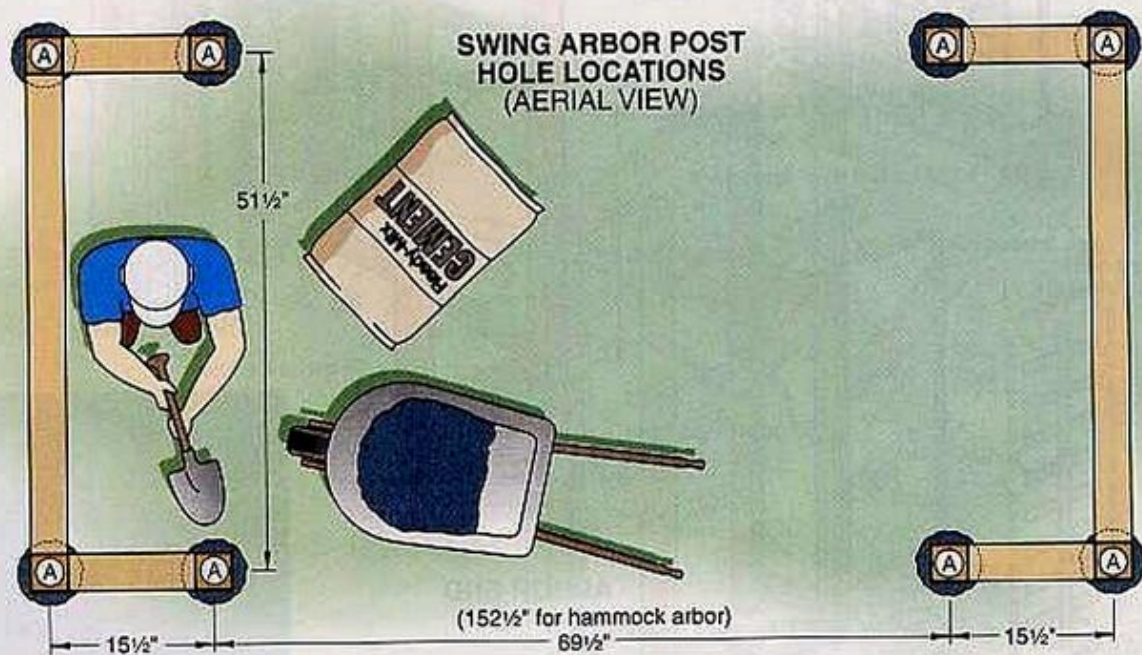




lazing



For pure relaxation, nothing beats a garden swing, and this beautiful arbor is designed to house one in style. But if you like snoozing more than swinging, you can modify it to hold a hammock, so you can nap away to your heart's content.



### Start out on solid footings

**1** Lay out the locations for the eight post footings. The drawing *above* shows where to put the footings for the swing arbor. For the hammock arbor, change the 5' 9 1/2" center-to-center distance shown on the drawing to 12' 8 1/2".

**2** Dig holes, and pour the concrete footings, taking care to level and align them. Incorporate provisions for attaching 4x4 posts to the footings.

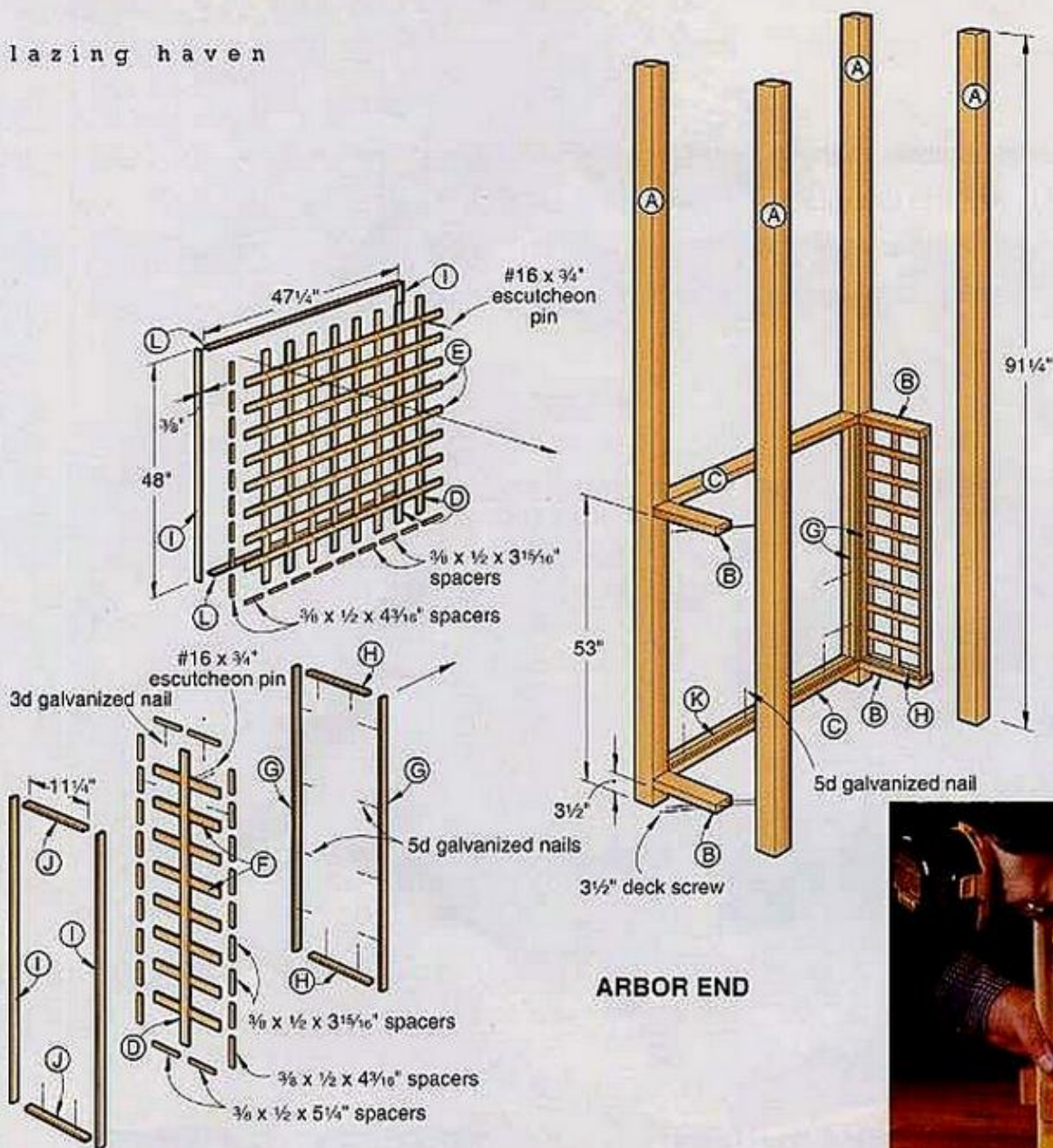
### Lumberyard shopping list

All wood is redwood or cedar

| Size                                                                 | Quantity          |
|----------------------------------------------------------------------|-------------------|
| 4x4x8'                                                               | 8                 |
| 2x4x8'                                                               | 8                 |
| 2x6x6'                                                               | 5                 |
| plus                                                                 |                   |
| 2x8x12'                                                              | 5 (swing arbor)   |
| or                                                                   |                   |
| 2x8x14'                                                              | 5 (hammock arbor) |
| 2x8x8'                                                               | 5 (hammock arbor) |
| Pick good, clear 2x4 and 2x6 boards because you'll rip some of them. |                   |

# haven





ARBOR END

## Begin your restful retreat by putting posts and rails together

**1** Cut the 4x4 posts (A) and 2x4 rails (B, C) to the lengths specified in the Materials List.

**2** Mark the locations of the side rails (B) and the end rails (C) on the posts. (See the Arbor End drawing above.)

**3** Drill two pocket holes in the underside of each end of each rail (B, C). Set the pocket-hole jig back 1" from the end as shown in the photo, right top. This centers the screw on the end of the 2x4 rail, allowing use of longer screws.

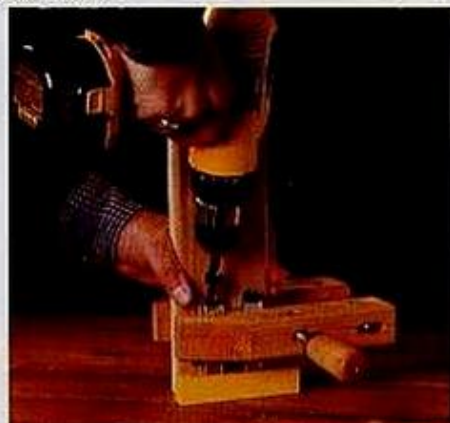
**4** Assemble two posts and two side rails (B) with screws, as shown in the Arbor End drawing. (We drove a 3 1/2"-long deck screw into each pocket-hole.)

To make assembly easier, brace the rail against a handscrew clamped to the post, and clamp it in position, as shown in the photo, right bottom. Construct three more A/B assemblies this way.

**5** Rip 3/8" strips for the lattice (D, E, F) from the 2x4 stock. The thickness of the 2x4 yields the proper width for the strips. Cut the lattice to length.

**6** Rip more 2x4 stock to 3/8" for the lattice stops (G, H, I, J, K, L). Rip and crosscut the resulting 3/8 x 1 1/2" stock to the dimensions shown for the stops.

**7** Rip and crosscut enough stock for the spacers shown on the Arbor End drawing. You'll need 112 of the 3 15/16"-long spacers, 32 of the 4 3/16"-long ones, and 16 of the 5 1/4"-long pieces. Stack the stock, and cut several stops at a time to speed the job.

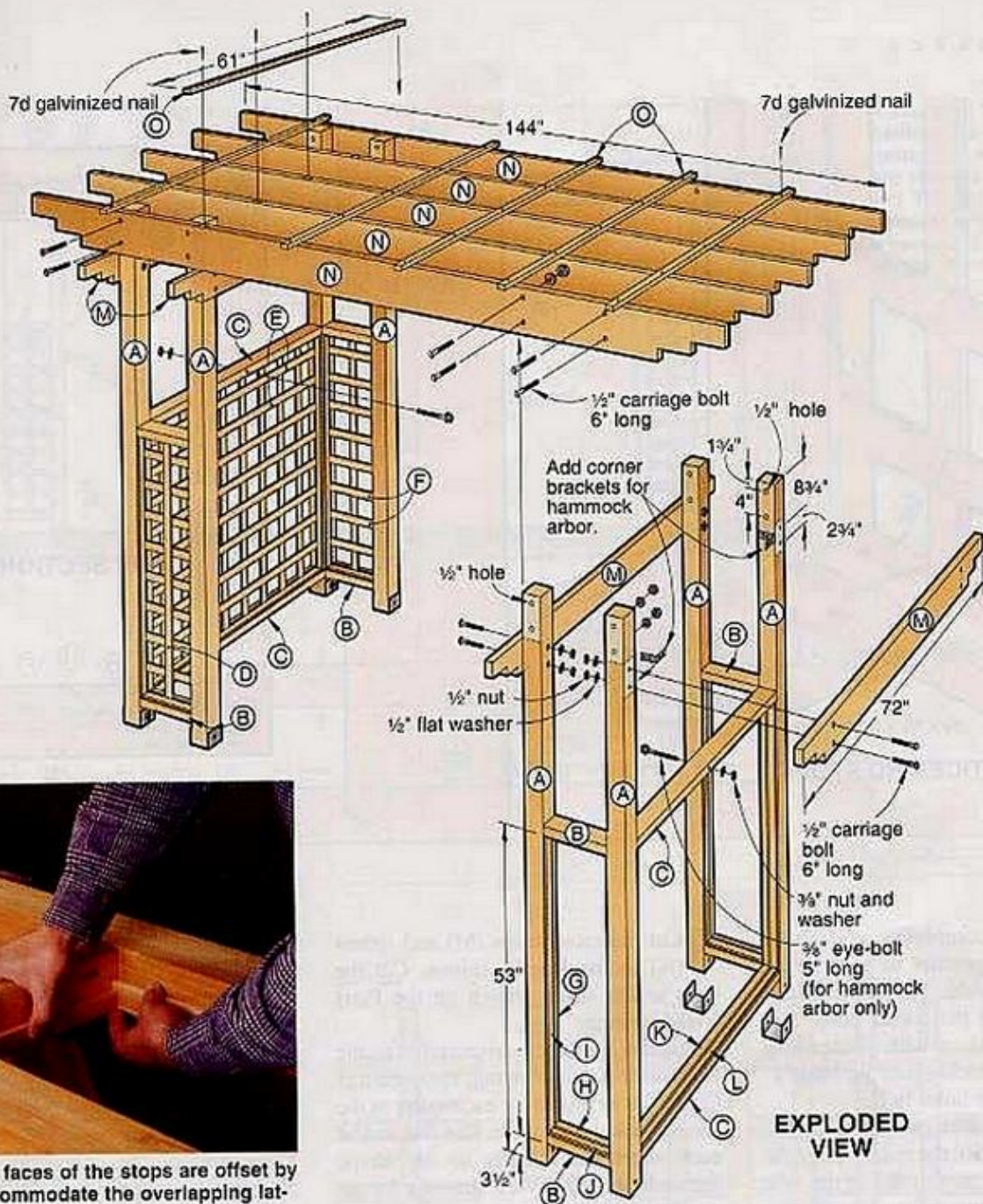


A piece of scrapwood 1" wide (painted yellow here) serves as a spacer when drilling the rails with the pocket-hole jig.



A handscrew and a bar clamp help hold the rail (B) in position when attaching it to the post (A).





The inner faces of the stops are offset by  $\frac{3}{8}$ " to accommodate the overlapping lattice strips.

### Now, build a pair of arbor ends

- 1** Lay one post-and-rail assembly (A/B) flat on sawhorses, outside face up.
- 2** Position the inside stops (G, H) in the opening where shown. The stops are two different widths to allow for the overlapping lattice slats. Place the stops so the outer edges of the stops (those facing down) are flush with each other, as shown in the photo, above. Nail the stops to the posts (A). (A pneumatic brad nailer speeds this task.)
- 3** Lay the cross lattice strips (F) in position. Work from the center of the

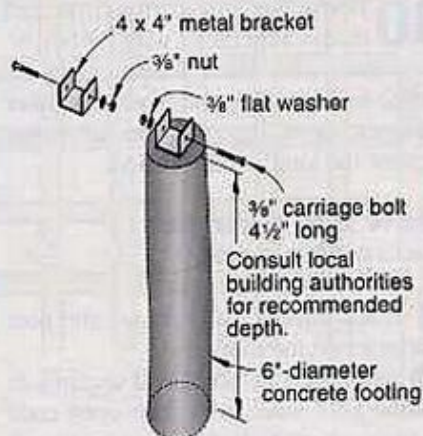
opening toward each end, placing the spacers between the strips. (You should find a gap of  $\frac{1}{32}$ " between the  $\frac{4}{16}$ " spacers and the ends of the opening.)

- 4** Lay the vertical lattice in place, centering it along with its  $5\frac{1}{4}$ " spacers.

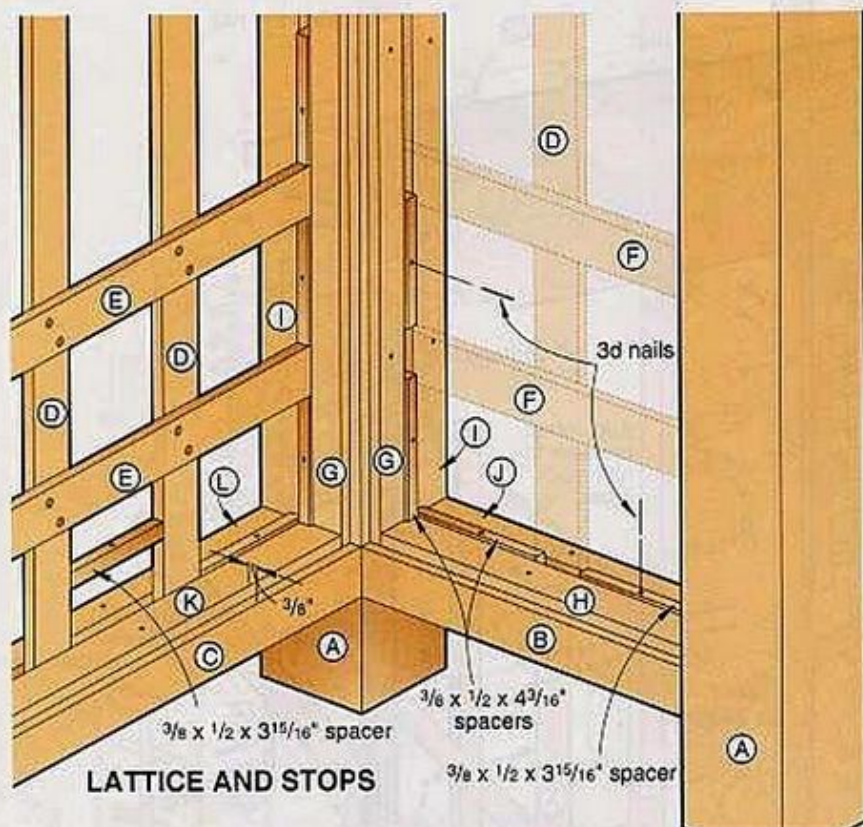
**5** Nail the lattice spacers in place with 3d galvanized finishing nails. (A pneumatic brad nailer does a great job here, too.)

- 6** Position the outside stops (I, J), and nail them in place. Press them snugly against the lattice while nailing.

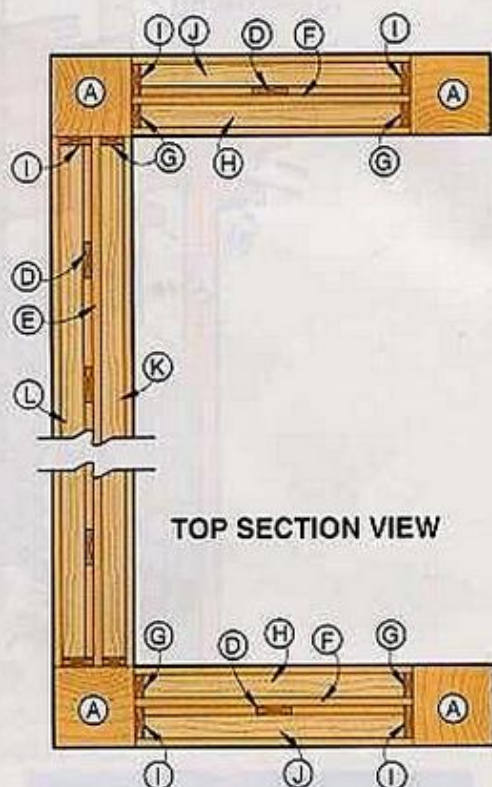
**7** Install the stops, lattice, and spacers in the remaining three A/B assemblies, following the same procedure.







LATTICE AND STOPS



TOP SECTION VIEW

**8** Stand two completed assemblies upright and parallel to each other, inside facing inside. Position the end rails (C) between the corner posts, and fasten them in place with pocket-hole screws. Set the pocket-hole jig back 1" when you drill the holes in C.

**9** Install the inner stops (G, K), the lattice strips (D, E), the spacers, and the outer stops (I, L) as you did in the side panels. In the same way, assemble the other end and install the lattice.

**10** Where the lattice strips cross, nail them together with #16x3/4" escutcheon pins. Drive the pins from the inside while holding the head of another hammer or a heavy piece of metal against the joint on the outside.

### Now it's time to raise the roof

**1** If not already done, install the post bases on the footings.

**2** Stand the assembled end sections in the post bases, with their open ends facing each other. Ensure they are plumb and level, then secure them to the bases.

**3** Cut the crossbeams (M) and rafters (N) to the lengths shown. Cut the ends to the shape shown on the Parts View drawing.

For the hammock arbor, refer to the Hammock Arbor drawing, *opposite top*. Cut the three pieces for each rafter to the dimensions shown there. Cut one end of each short outer rafter to the shape shown in the Parts View drawing for the single-piece rafter.

**4** Drill 1/2" bolt holes in the four crossbeams and two of the rafters. The rafters with holes drilled in them will go on the outside of each arbor end, as shown in the Exploded View drawing.

**5** Position the crossbeams (M) where shown on the posts (A). Make sure they're level and aligned across the tops; then clamp them in place. Drill 1/2" holes through the posts, guiding through the holes in the crossbeams.

**6** Position the two outer rafters (N) where shown. Drill bolt holes, and bolt the rafters to the posts. For the hammock arbor, first position the long central rafter section. Then, install the two ornamental end pieces on each rafter.

### materials list

| Swing Arbor        | FINISHED SIZE |        |         | Mtl. | Qty. |
|--------------------|---------------|--------|---------|------|------|
|                    | T             | W      | L       |      |      |
| A post             | 4"            | 4"     | 9 1/4'  | C    | 8    |
| B side rail        | 2"            | 4"     | 12'     | C    | 8    |
| C end rail         | 2"            | 4"     | 48'     | C    | 4    |
| D vertical lattice | 3/8"          | 1 1/2" | 48'     | C    | 20   |
| E cross lattice    | 3/8"          | 1 1/2" | 48'     | C    | 16   |
| F cross lattice    | 3/8"          | 1 1/2" | 12'     | C    | 32   |
| G lattice stop     | 3/8"          | 1"     | 48'     | C    | 12   |
| H lattice stop     | 3/8"          | 1 1/2" | 11 1/4' | C    | 8    |
| I lattice stop     | 3/8"          | 1 1/2" | 48'     | C    | 12   |
| J lattice stop     | 3/8"          | 1"     | 11 1/4' | C    | 8    |
| K lattice stop     | 3/8"          | 1 1/2" | 47 1/2' | C    | 4    |

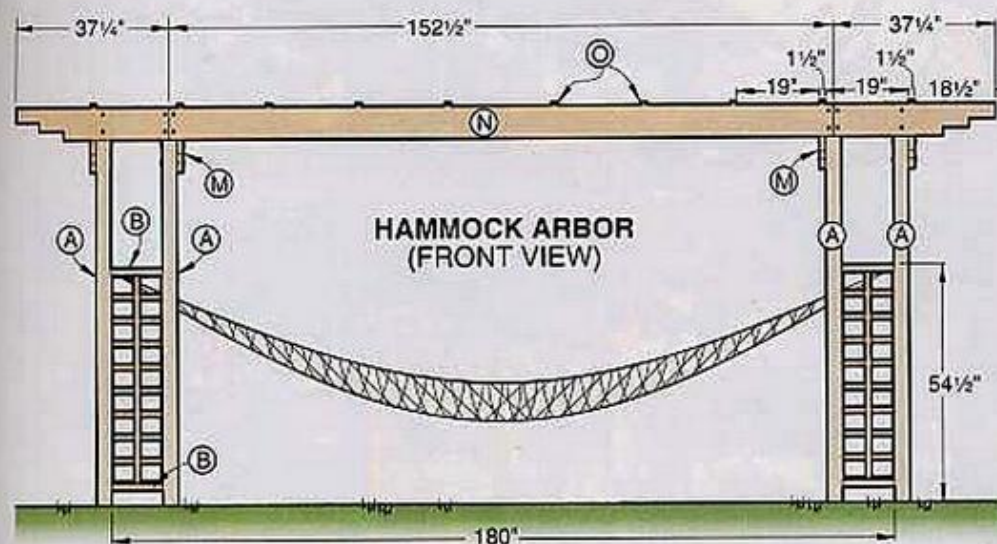
\*Nominal dimension \*\*Swing arbor only. Hammock Arbor rafters comprise three sections; see the Hammock Arbor Front View drawing.

Material Key: C—choice of redwood or cedar.

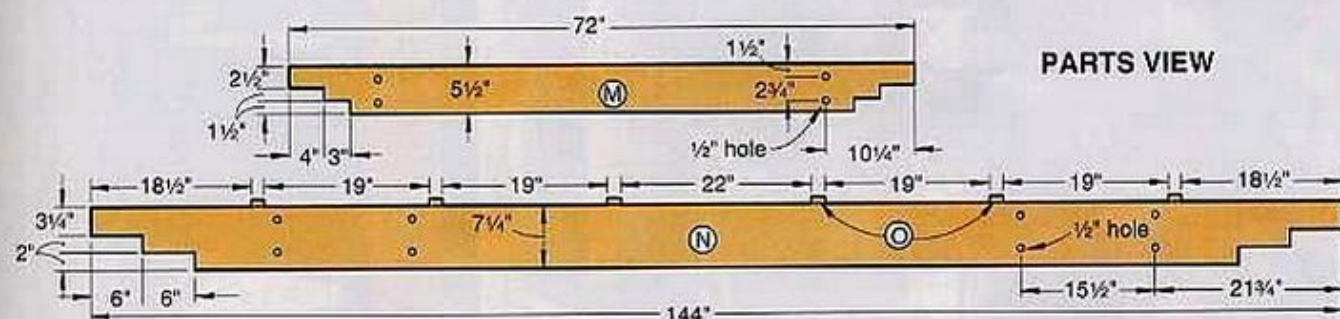
Supplies: 1/2x6" carriage bolts with nuts and washers, 3 1/2" deck screws, 5d, 7d galvanized nails, #16x3/4" escutcheon pins, anchors.

**7** Space the remaining three rafters evenly across the top of the crossbeams. Toenail them to the crossbeams, or attach them with screws in pocket-holes, drilled from the back side.





If you want to hang a hammock instead of a swing, the end assemblies are identical, as shown at left. The only difference between a swing arbor and a hammock arbor is in the length of the rafters.

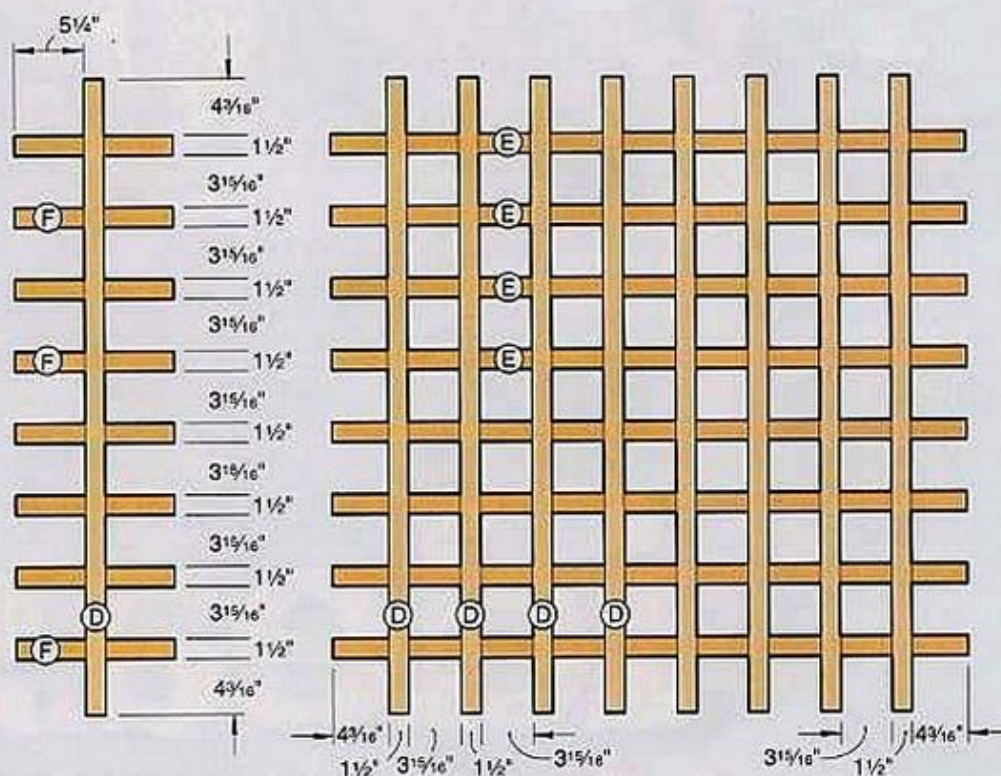


**8** Cut the top cleats (O) to the dimensions shown. (We cut them from the remaining 2x6.) Position them across the tops of the rafters where shown on the Parts View drawing. Attach the cleats with screws, driving one into the top of each rafter.

**9** Install the necessary hardware to hang your swing or hammock. For the hammock arbor, drill holes in the top end rails (C) where shown, and install 3/8" eyebolts through them. If you want additional strength, install heavy steel corner brackets between rails B and C on the inside. ■

For your convenience, the porch swing shown on page 94 (OFS-1002), \$10.95, is available through our WOOD PLANS® service. See page 121.

Photographs: Hetherington Photography  
Designer: James R. Downing  
Illustrations: Roxanne LeMoine; Kim Downing;  
Lorna Johnson





# decks & fences

Outdoor areas can be more than places to set a grill or hang a hose. These homeowners have carried their lifestyles right into their outdoor spaces.

# ideas on

Turn a boring deck design into a beautiful outdoor room with arbors, benches, and planters that give blooms the platform they deserve.



## Splashy Retreat

Lisa and Doug Lambert didn't want a small, mass-produced deck stifling their backyard fun. So they made sure the structure built onto their Issaquah, Washington, home was geared for dining, hot-tubbing, and visiting with friends. But Lisa and Doug didn't just settle for more space. "We wanted something loaded with interest, something that would wow you," Doug says. "So many decks are flat and symmetrical with very little going on except for the foundation structure."

Two arbors—made of redwood, like the rest of the deck—deliver the vertical impact the Lamberts sought. The arbors are functional, too, providing shade and a place for climbing roses or clematis to someday grow. Planters filled with annuals provide the colorful blooms.

Built-in benches tie into the planters and the deck rails, providing plenty of seating for guests. Chairs pulled up to a round table work for small gatherings. "The best part of the deck is its generosity," Doug says. "We can fit loads of people outside and never feel cramped."

One end of the deck even holds a spa (see plan, below right), which the Lamberts usually treat as a dunking pool for playing with D.J., their toddler son. "What I love about the tub is that it can animate the deck and bring people to life—or calm them down," Doug says.



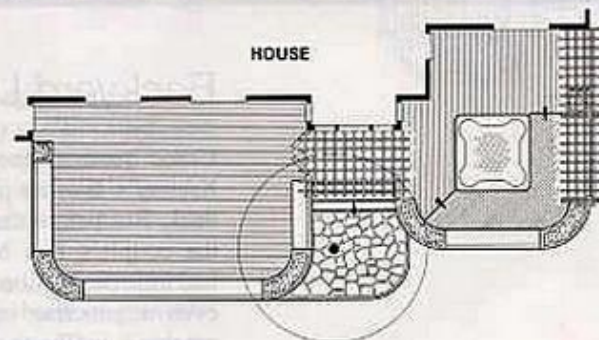
Railings, steps, and planters break the deck into smaller, more intimate spaces like a place to sit and relax beside the spa, left.

Hefty arbors join with a cherry tree to provide the deck with spots of shade, opposite. The Lamberts also incorporated gates to help keep their young children and dogs out of the spa area, right.



The deck offers plenty of room for a table and chairs, where Lisa and Doug like to visit with neighbors, left. Despite its roominess, the structure is scaled appropriately to the house.

# deck







## Backyard Lounge

Come summertime, Cathy and Mark Kramer's favorite place to relax is their deck. But before the structure was built, the couple's Des Moines, Iowa, home had little connection to the outdoors—not even a concrete stoop. "There wasn't anything to draw you into the yard," Cathy recalls.

Although the spacious deck makes the

most of the yard, groups of steps and a pergola subtly split the structure into intimate outdoor rooms. The scheme works just as well for a quiet breakfast as it does for a weekend cookout. "Because of the deck's three different areas, people can gather in small groups," Cathy says. "But they're still tied together closely enough to chat back and forth."

The deck layout ensures there's always a place to sit and visit (see plan, *far right*).



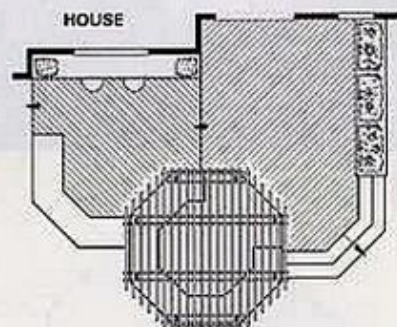


Angled corners, above, made the deck more difficult to build, but they complement the octagonal pergola.

Built-in benches, left, wrap the edge of the pergola. Nearby maple and oak trees provide cool shade come late afternoon, but a ceiling fan helps stir up the air on warm days.



Built-in step lights, left, safely illuminate the deck floor at night. They also provide an ambient glow that's softer than the back door's light fixture.



The kitchen window serves as a convenient pass-through to the deck, left. The ledge beneath the window doubles as a snack bar/potting table; gardening supplies tuck into the space below.

But these conversation areas can accommodate other activities too. Cathy and Mark like to pull a table up to the pergola benches, for instance, to set up board games. The bar-height table next to the kitchen window, which features a built-in footrest, gives visitors a place to relax on stools while sipping drinks. Lounge chairs at one end of the deck yield a shady spot to kick back with a book.

Lush plants surround the scheme. "We

wanted a softening agent rather than a railing," Cathy says. "Because you won't see the landscaping down below until it grows higher, we built ledges for pots to rest on, and large rectangular plant boxes."

The deck is brushed with a redwood stain, but is actually built of pressure-treated southern pine. The Kramers chose this type of lumber because of its low cost and decay resistance.





## Garden Getaway

Family vacations to Hilton Head, South Carolina, inspired the design of Carol and Bob Nemo's Atlanta deck. "We loved the environment there so much—the shrubbery and the trees," Carol says. "We tried to replicate that feeling here."

The Nemos chose to build the deck from pressure-treated pine, most of which was left to weather naturally. The resulting scheme—gray wood planks combined with potted plants—is reminiscent of a coastal boardwalk. It was a deck

across town, however, that inspired the railing. "I drove all around the city of Atlanta looking at decks," Carol says. "When I found one I liked, I knocked on the door of the house and asked the lady to tell me about it. That's where I got the Chippendale idea."

The ornamental motif extends to the deck floor, where planks are laid on the diagonal. The pattern changes to differentiate dining, lounging, and potting areas—although the Nemos use the entire structure for displaying plants and whimsical garden sculptures.





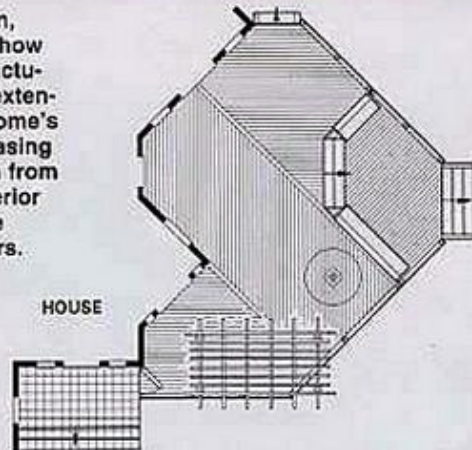
Potted plants, including lantana, coleus, and a small grapefruit tree, merge the garden with the deck, far left. "We wanted a deck for communing with nature," says Bob Nemo, relaxing with wife Carol, daughter Roberta, and son-in-law Andy, left.



Carol and Bob use the deck for cooking out and entertaining. All-weather wicker furniture, built-in benches, and deep steps provide plenty of sitting room. An arbor on one end of the deck shades a table where the couple enjoy meals in milder weather. Beneath the arbor is also where the Nemos celebrate Sukkoth, the Jewish harvest holiday that commemorates shelter. ■

The deck's built-in benches, above, feature angled backs for comfortable seating. Chinese Chippendale-style railings contrast with the simple bench design.

The deck plan, right, shows how the arbor is actually a direct extension of the home's main floor, easing the transition from enclosed interior spaces to the open outdoors.



Photographs: Michael Jensen; Mary Carolyn Pinder; William Hopkins  
Illustrations: Carson Ode







# the abc's of deck building



No matter how you slice it, a deck offers a welcome portion of outdoor life. Armed with lots of inspiration and a little basic knowledge, building one won't seem like such a daunting task.

**P**erhaps your home is brand new, with an annoyingly unfinished look to the rear entry and yard. Or maybe you want to devote less time to the lawn and more time to cooking out, relaxing where part of a lawn once was. The answer in both instances is probably a deck. And with some basic guidelines in hand, there's no reason why you should put off building one any longer.

The average 12x24' deck can be built in a couple of weekends by anyone—man or woman, young or old—with modest carpentry skills and a few able-bodied friends. But before you race to the local lumberyard or home improve-

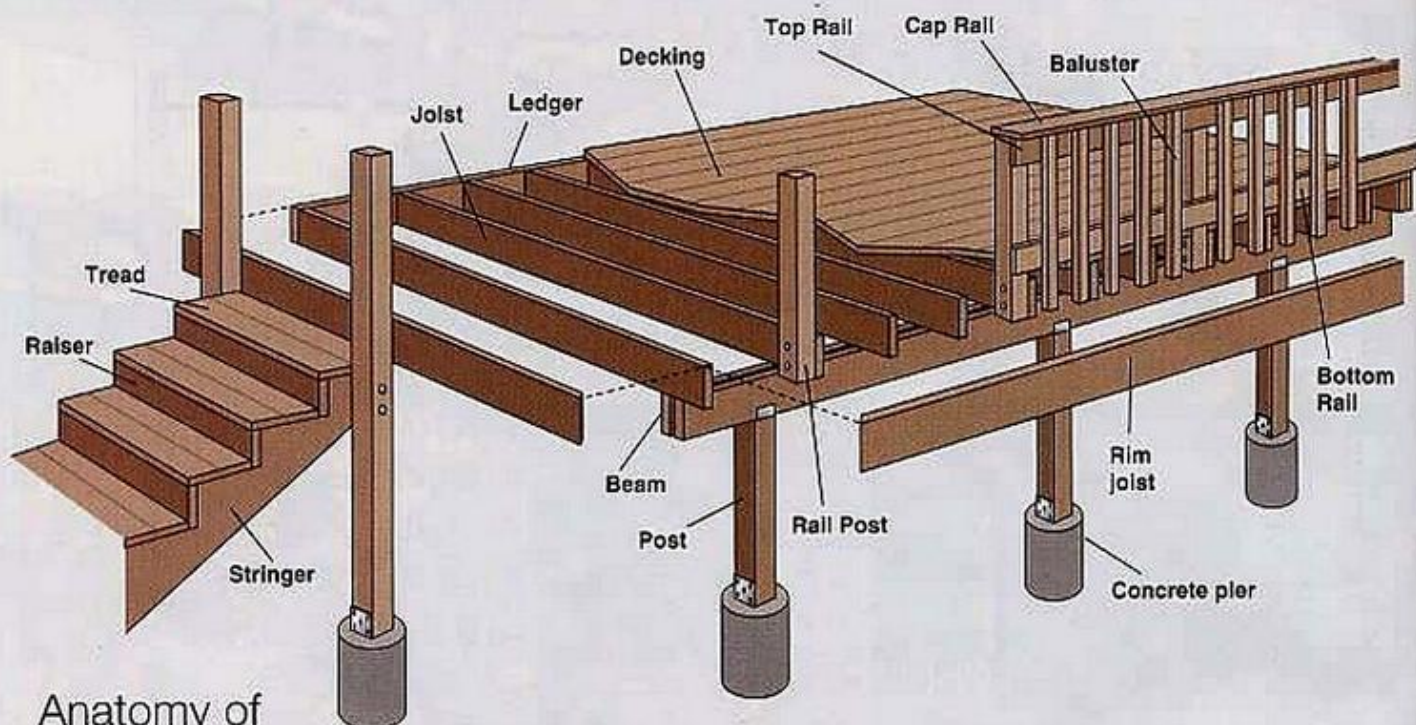
ment store, attend to the following details first. You need to make some decisions before you even pull out the tape measure.

## Where to locate a deck

Most decks are attached to the rear or side of the house, often just off the kitchen or dining area. For a small house or a first deck, this location makes the most sense because it extends your eating and entertaining area. You can also build a free-standing deck out in the yard, though it's not as easy to access.

Observe the amount of sun and shade your proposed deck will receive.





## Anatomy of a deck

Just like the floors, doors and stairways in your home, a deck is made of parts that each have a specific name. Studying the diagram above will help you talk the talk when buying materials or discussing plans with your suppliers.

A north-side location will probably mean less direct light, though you can offset that with landscape or exterior lighting. Such a location may also be exposed to winds and seasonal chills; you'll be less likely to tarry in the spring and fall on such a deck.

Siting the deck on the south side, however, is also less than inviting because this location is subject to extreme summer heat, especially if there's no wind circulation or tall trees to provide shade.

Often there's really only one logical spot for your deck. If it's less than ideal, don't despair: You still can make it an inviting outdoor room with a little extra effort. If it's directly in the line of sight of the neighbors' deck, for example, you might consider adding privacy panels. Or build an attached pergola with lattice walls for climbing vines; the greenery will screen the view and provide wel-

come shade. Your problem solving is limited only by your design ingenuity.

## How big should I make my deck?

Keep it in proportion to your house—and your construction skills. Some builders recommend that a deck should be as large as the largest room inside the house (typically the living room).

Here's another tip: Most decks are built in increments of 2'. That's because building materials are usually sold in even lengths of 8, 10, or 12' or longer. Check the cost per linear foot of the lumber you're considering; typically 12' boards are the most cost-effective. In other words, the cost per linear foot of a 12'-board is likely to be several cents less than the cost of either an 8' or a 16' board. When you're buying a lot of lumber, this cost savings can add up, and it's





the reason the average deck is 12x24'.

If you dream of an elaborate, multi-level deck but have neither the funds to hire the work done nor the skills to make it yourself, remember that you can always start small. Plan the complete project, but build only the first level this year; add other tiers in subsequent years.

### **Are their restrictions on building a deck?**

As with most remodeling projects, first you'll need to check local building codes, regulations, and restrictions. You may have to get a building permit from the local building department.

Also call utility companies to identify the locations of underground lines. Buried cables will affect where you place your footings, while overhead cables may interfere with a sunshade. Lot restrictions may limit how close

your deck can get to neighbors' properties, and the location of a well, septic tank, or drain field may affect the location of your deck in relation to the house.

### **What am I forgetting?**

You'd be surprised at the little details you need to consider before you can actually begin the deck. For instance, if your house doesn't offer immediate access to the deck location, you'll want to install a sliding door or pair of French doors—something that gives you a view of your new outdoor room and opens directly onto it. It's generally best to install the door before the deck.

You'll also want to consider other deck access points. Besides the one from the house, there's typically one or more from the yard. You'll need steps for yard access, perhaps even a patio to form a transition between the deck and the yard.

The deck above was designed to incorporate several matching benches and create an outdoor sitting room. The entire deck is raised to the width of one rim joist, making it level with the grade of the house. One portion is further raised, providing a visual break and two-level seating.



Naturally, you need to consider railings and built-in seating, too. And you may want to think about incorporating a planter box or two, or even a water garden. Careful planning now will make it easier to integrate all the elements into one cohesive, attractive whole.

### Estimating Materials

Estimating materials properly is the key to saving money on your deck.

■ **Posts.** Use 4x4s for posts up to 8' tall and 6x6s for posts taller than that.

■ **Decking.** Check with local ordinances, but most codes require that decks support at least 40 pounds per

square foot. To achieve that, if you're using 2x4 decking, your joists should be placed 2" apart. If you purchase wider deck boards, such as 2x6s, you can plan 36" between joists.

■ **Joists.** The heavier the lumber you use for joists, the longer the joists can span between supports, based on how close the joists are to each other. For instance, 2x6 joists spaced 24" apart can run 6' between supports; 2x10s, on the other hand, can span 10' when spaced 24" apart. Heftier lumber will cost more, but it can cut construction time and save on hardware costs. A good book about deck building can clarify this concept.



Decks that go beyond the concept of a basic platform are shown *above* and *above right*. Replacing the builder's obligatory concrete steps down to the yard, these elevated decks incorporate lattice to cover crawlspaces, stairs, and railings chosen to match the style of the house.



■ **Lumber sizes.** Be aware that lumber actually has two sizes—its nominal size (such as 2x4) and its actual size (a 2x4 is actually 1½x3½"). When you're graphing out a deck, draw in the nominal size; when you're estimating for materials, think in actual size. Figure the square footage of your deck (width multiplied by length). For 2x4 decking, multiply by 3.2 to get the linear board feet you need; divide by the length of boards you will purchase, such as 8, 10, or 12'. The result is the number of boards you'll need for decking. With 2x6 boards, multiply the square footage by 2 instead of 3.2.





## Alternatives to Outdoor Lumber

In the not-so-distant past, when you shopped for decking material, you had three choices: redwood, cedar, or pine. But environmental concerns and technological advances have inspired a host of new options. Many are just reaching the market; watch for more to arrive soon.

For example, decking boards made from recycled materials, such as plastic milk jugs or tires, offer next to no upkeep, outlast wood, and are extremely weather resistant.

The common drawback for the synthetic products is that none can be used for structural support. You will still need to go to a lumberyard to pick out good old treated lumber for the deck's substructure. Because some recycled products are so new, it is difficult to tell how they will stand up over time in terms of warping, appearance, heat-retention, and the ability to hold hardware.

Also, unless you live in a metropolitan area, you may find limited choices. The price estimates are generally for 2x6 dimensions, but some products (vinyl for instance) are more likely to be available in a 2x4. When it comes to traction, check that the product you are buying meets the standards of the Americans with Disabilities Act (ADA).

### Plastic lumber

**Appearance:** There are many versions of this product, but it generally has a very smooth surface (no splinters) and a grain that looks a little like wood. Standard colors include gray, brown, beige, black, and white; custom colors may also be available.

**Pros:** It is basically maintenance-free—impervious to insects, water, and rot. It is environmentally friendly because it uses recycled plastic bottles and no trees. Most types can be installed by the homeowner using standard tools and common deck clips. It is lighter weight than rubber or solid-composite boards but has a sturdy feel.

**Cons:** Like vinyl and rubber, it lacks the warmth of wood and is not recommended for structural components. Fluctuations in temperature cause more expansion and contraction than wood, so proper installation with sliding clips is important. Brands without a textured surface can be slippery when wet—check for ADA standards.

**Trade names:** DuraBord by Metro Plastics, Durawood PE by SmartDeck, Earthcare Recycled Plastic Marketing, Carefree Decking System by U.S. Plastic Lumber Ltd.

**Price:** \$2.20–\$3.50 per linear foot.

### Rubber lumber

**Appearance:** Looks better than it may sound. Available in gray, dark gray, or terra cotta.

**Pros:** It helps solve the insidious problem of used automobile tires. Tires and plastic are mixed in about a 50:50 ratio and extruded into boards. Scrap is mixed into the next batch. The lumber is virtually impermeable to UV rays, insects, and water. It's used commercially, such as for flooring in livestock trailers.

**Cons:** The color is not warranted, and the product cannot be used for structural lumber. The six-year track record is not

■ **Hardware.** Decks consume nails by the pound. For every 40 square feet of deck, plan to use at least 1 pound of 16d common nails for joists and 2 pounds of galvanized spiral nails, which stay down better than regular nails. Buy a few extra pounds for insurance. If you're not planning to seal your deck, use wood screws instead of nails; they'll cost more but will hold down the boards better if the wood warps in time.





Recycled materials and composite boards create new, colorful decking options with lasting potential.

as proven as other products, but 80-year simulation tests found no appreciable deterioration.

**Trade name:** Rumber by Rumber Materials

**Price:** \$2.20–\$2.50 per linear foot.

### Vinyl lumber

**Appearance:** Though thicker, it looks similar to polyvinyl chloride (PVC) vinyl siding. It is often available in white, ivory, tan, or gray; some custom colors are available.

**Pros:** Fire-resistant. Never cracks, rots, warps, or fades. UV inhibitors keep the surface cool and also help prevent cracking and warping. Nonskid surface. Although a relatively new decking product, it is based on more than 50 years of PVC research and is widely available. (Vinyl fencing and railings have been in use for more than 20 years.)

**Cons:** It cannot be used structurally. Some vinyl decking creaks underfoot. Ensure that UV inhibitors are impregnated in the vinyl, not simply sprayed on after production.

**Trade names:** Teck Deck by Heritage, Country Estate Decking by Nebraska Plastics

**Price:** \$2.50–\$3.50 per linear foot.

## Add a Picket Fence Deck Rail

Give your outdated deck a style boost with a great-looking custom rail design. Our design takes a typical picket fence motif, shown *below*, then updates it and add custom details you typically won't find on a builder's deck.

The materials list following the instruction is for one 4'-long railing and one post. The letters are keyed to the instructions and plans that follow. An asterisk\* indicates you need to determine length on the job site.

### Tools

Tape measure, pencil, level, circular saw, jigsaw, router with carbide router chamfer bit, power driver/drill, Phillips-head bit, 1" boring bit, pocket square, combination square, framing square, hammer, and nail set.

### Instructions

**To make the post (A),** cut a 6×6 to 38½" above deck floor. Make ½" chamfers on each corner. Use a 2×8 for post cap B and a 1×6 for post cap C. Make cubes (D), rectangles (E), and the trian-

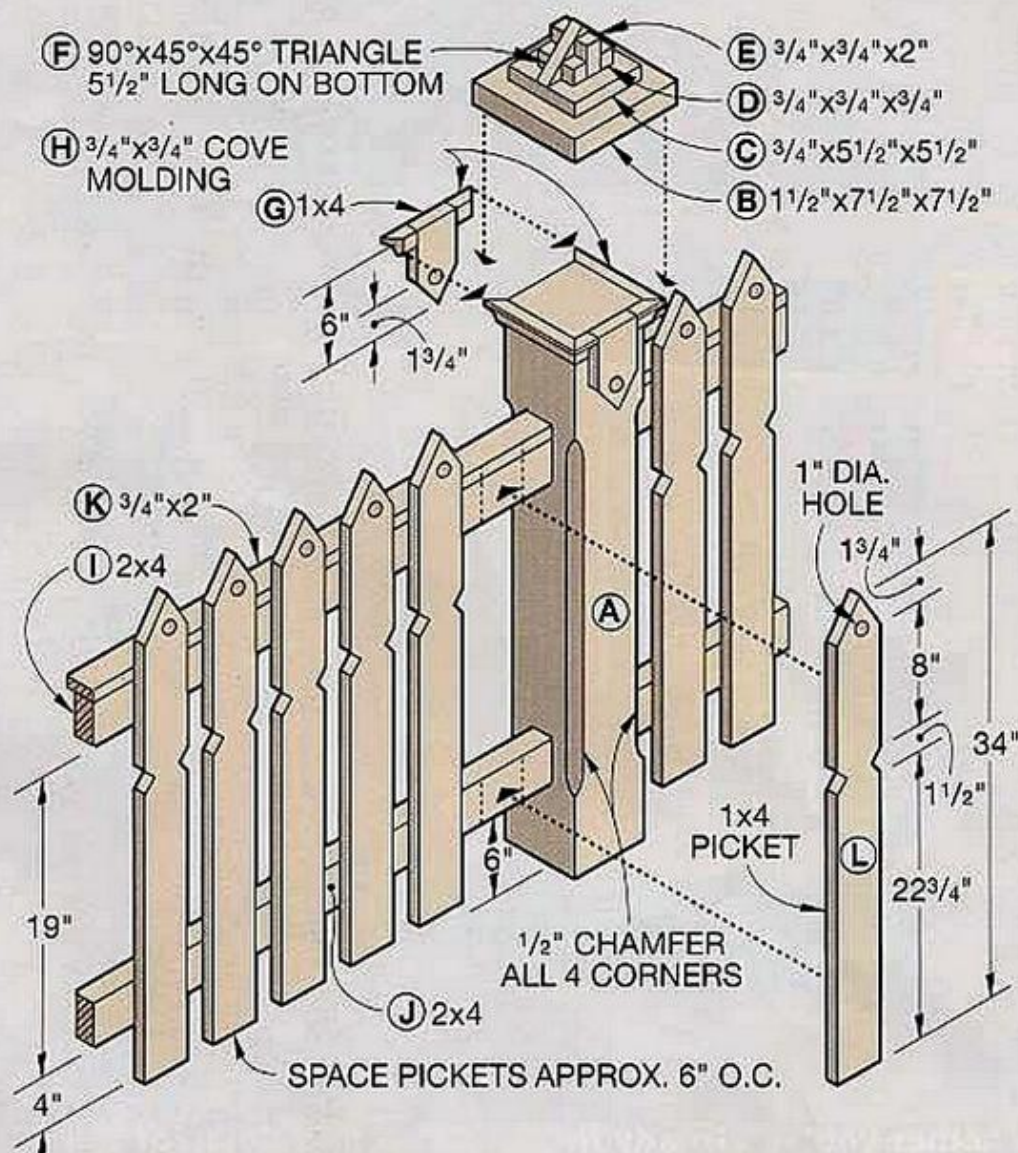
gle (F). To make two post ornaments, cut a 1×4 (G) to shape and drill hole. Add cove molding (H).

**To build the railing,** cut two 2×4s to equal lengths to form the top rail (I) and bottom rail (J). Hold rails (I, J) side by side; use a pencil and combination square to mark the locations for pickets (L). Rip a 1×4 to 2" to form the rail support (K). Attach it to the top rail (I) using 1½" galvanized deck screws. On the bottom of top and bottom rails, attach corner irons to fit rails flush to the post (A).

**Cut pickets** from 1×4s. Cut 45° angles to create points. Notch the sides, and drill a hole at the top.







**To assemble,** attach the pickets (L) to the rails (I, J) using four 1 1/2" galvanized deck screws and a power driver/drill. Attach the rail section to the post (A), with corner irons on the top rail (I) and bottom rail (J). Center the cap (B) on top of the post (A), and nail with No. 8 galvanized finishing nails. Center cap section C on cap section B and nail in place using No. 6 galvanized finishing nails. Nail the triangle (F) onto the cap (C) with No. 6 galvanized finishing nails. Attach the cubes (D) and rectangles (E), where shown, using carpenter's glue or epoxy. ■

### Materials List

A) 1 post: 5 1/2" x 5 1/2" x 38 1/2"

B) 1 cap: 1 1/2" x 7 1/2" x 7 1/2"

C) 1 cap: 3/4" x 5 1/2" x 5 1/2"

D) 4 cubes: 3/4" x 3/4" x 3/4"

E) 2 rectangles: 3/4" x 3/4" x 2"

F) 1 triangle: 3/4" x 2 1/2" x 5 1/2"

G) 2 post ornaments: 3/4" x 3 1/2" x 6"

H) 4 cove molding pieces: 3/4" x 3/4"

I) 1 top rail: 1 1/2" x 3 1/2" x "

J) 1 bottom rail: 1 1/2" x 3 1/2" x "

K) 1 top-rail support: 3/4" x 2" x "

L) 8 pickets: 3/4" x 3 1/2" x 34"

No. 3, No. 6, and No. 8 galvanized finishing nails

1 1/2" galvanized deck screws

3 x 3/4" rust-resistant corner irons



A photograph of a wooden deck railing system. The railing features a horizontal rail and vertical balusters, all made of wood. A planter box filled with red flowers sits on the deck. The background shows a wooden fence and some foliage.

**Whether you've already invested in a new deck, or are still in the dreaming stage, think about adding this fabulous railing. Our system uses tenoned rails and stiles for strength and support, and features lighted posts that accent your handiwork at night, while keeping your outdoor retreat safe for your family and friends.**

**night &**





### Determine the part sizes needed to fit your deck posts

**1** Cut your 4x4 posts so they protrude 28½" above the surface of the deck where shown in *Step 1* of the Railing Installation drawing on page 117.

**2** Attach a porcelain light fixture centered on the top of each interior post (not the corner posts). Have the fixtures wired as shown on the Deck Wiring drawing located on page 116. Put bulbs in the fixtures and test the wiring. Then, unplug the system and remove the bulbs until the construction is completed.

**3** Measure the thicknesses and widths of your posts, and adjust the size of the post covers (A, B, C) accordingly. Then, cut the post covers to size to fit your posts. Our posts measure 3½" in thickness and width. Note that only the corner posts incorporate part C.

**4** Cut a ¼" groove ⅜" deep, centered along the inside face on one part A for each post, to house the wiring. (We did this on our tablesaw fitted with a dado blade.)

**5** Lay out and cut the mortises in parts B and C, where shown on the Railing Installation and Exploded View drawings and the Mortise detail accompanying the Exploded View. (We used a ¼" drill bit to drill a blade start hole. Then, we cut the mortise to shape with a jigsaw.) Mark the hole centerpoints, and drill the holes for screwing the louvers in place later.

**6** Tape parts A, B, and C to the posts as shown in *Step 1* of the Railing Installation drawing.

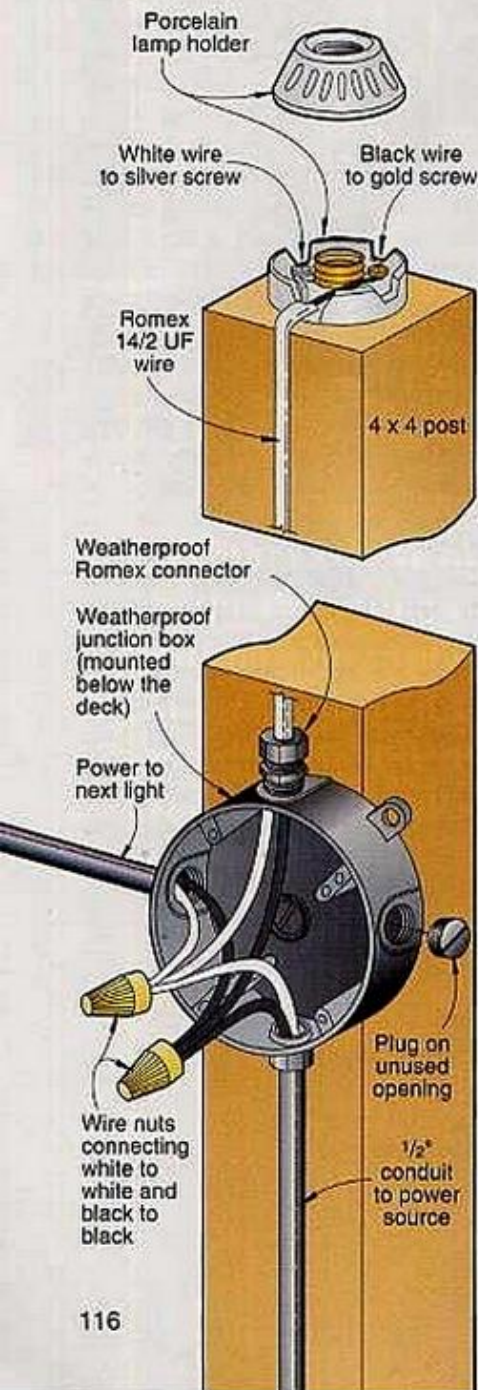
# eday RAILING



**Note:** If you're building a new deck, install the 4x4 corner posts first, then center the other 4x4 posts between the corner posts. We kept our posts at or below 4' on center. Then, whether using new or existing posts, review the four-step Railing Installation drawing and the instructions in this article for the overall method of fitting the railing system between the posts before you begin crosscutting the rails (D, E) to length.

We recommend having a licensed electrician install the wiring for your deck lighting to meet codes in your area.

## DECK WIRING



## Add rails and balusters between posts

**1** Using Step 2 on the Railing Installation drawing for reference, determine the lengths of railing parts D and E. Cut the rails (D, E) to the determined lengths.

**2** Cut a 1x3" tenon on each end of the mid and bottom rails (E) to fit snug into the previously cut mortises in the post covers B and C.

**3** Use the equation in Step 3 of the Railing Installation drawing to determine if you'll need an even or odd number of balusters (F) between the posts. Next, locate and mark the centerpoints for the balusters (F). Drill a 1" hole at each centerpoint. (To speed up the process, we used a fence on our drill-press table to keep the holes centered.)

**4** Crosscut the balusters (F) to length. (We ripped our balusters to thickness and width from 2x8 stock. We also cut a few extra balusters for making test cuts when forming the tenons on the ends in the next step.)

**5** Fit your tablesaw with a dado blade, and cut 1"-square tenons 3/4" long on the ends of each baluster. Attach a 45° support to your miter gauge, and cut a chamfer on each tenon of the balusters as shown in photo A below. Test-cut the extras first to verify the setting. The octagonal ends on the balusters should fit snug inside the 1" holes in the rails (E).

**6** Clamp the tenoned balusters between the rails.

**7** With the post covers still taped in place, screw the As and the non-mortised Cs to the posts. Don't secure any mortised pieces to the posts yet. Remove the mortised pieces (B, C), and glue and screw each section of railing together in the configuration shown on Step 4 of the Railing Installation drawing. Slide each railing section between the 4x4 posts, and screw sections in place.

**8** With the post covers (A-C) and railing (D-F) in place, bevel-rip one face of the stock that will be used for the base pieces (G) at 20°. Then, miter-cut the post base pieces (G) to length from the long strip. Drill mounting holes, and secure pieces to the cedar-covered posts.

## Try a jig for mass-producing the louvers

**1** To make the louvers, start by cutting the louver sides (H) to size. Cut a few extra for verifying the dados cut with the jig later.

**2** For ease in cutting the dados in the side pieces, build the jig shown in the Louver Jig drawing.

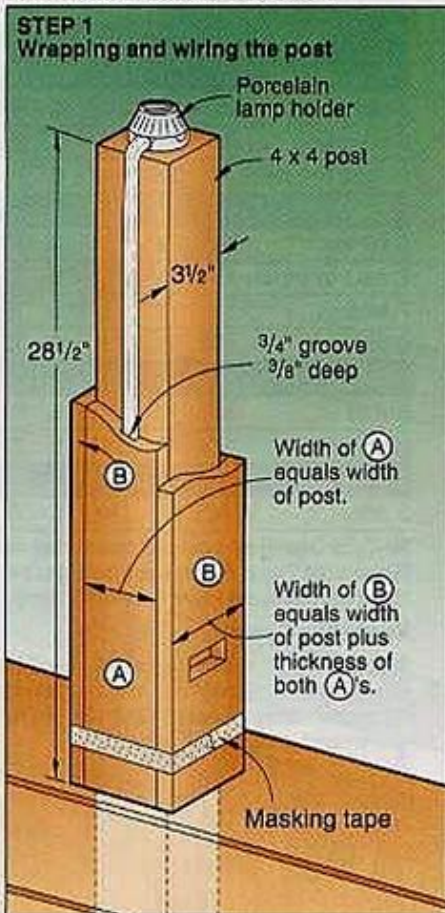
**3** Fit your tablesaw with a 1/4" dado blade, and raise it 1/8" above the surface of the saw table. Angle your miter gauge 45° from the blade, clamp (no screw yet) the jig to your miter gauge, and make the cut for the index pin.



Using a 45°-angled support secured to your miter-gauge extension, trim the corners off the square-cut tenons to fit into the 1" holes in the rails.



## RAILING INSTALLATION

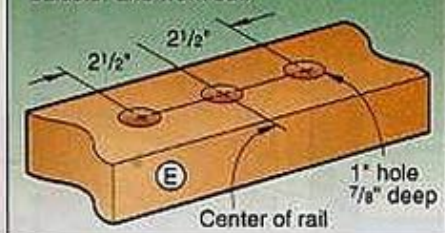


### STEP 3 Locating the balusters

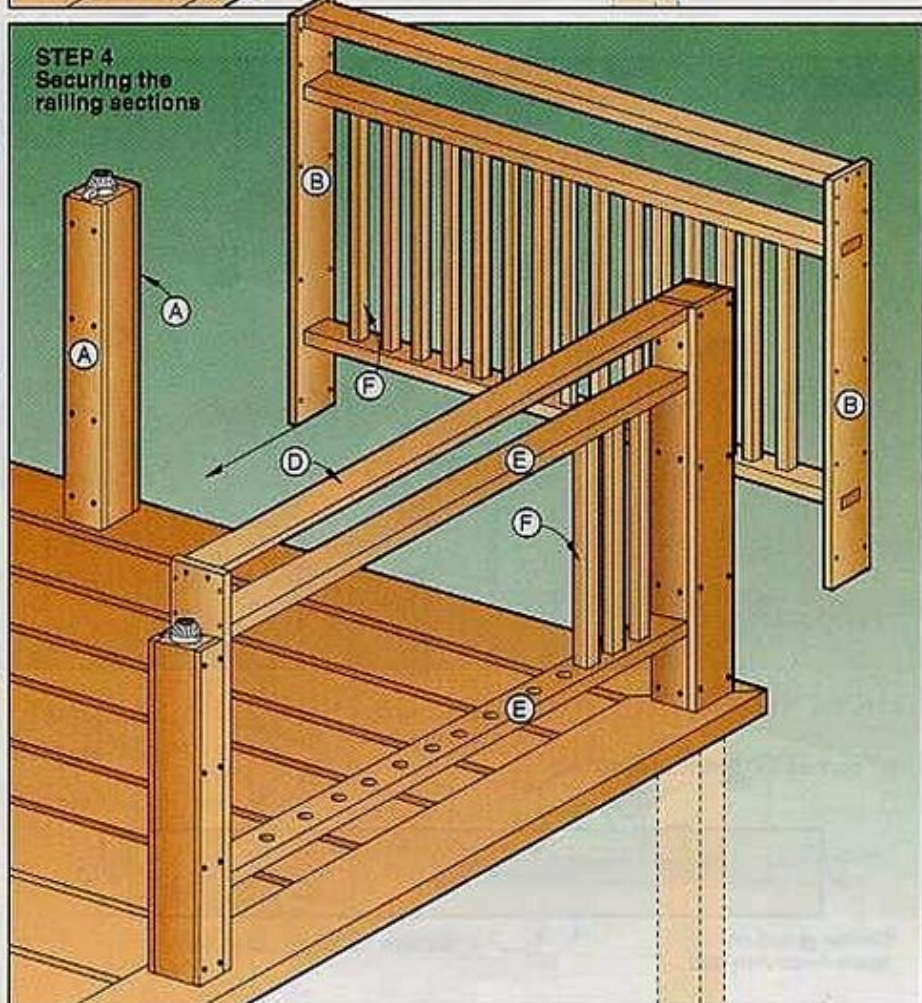
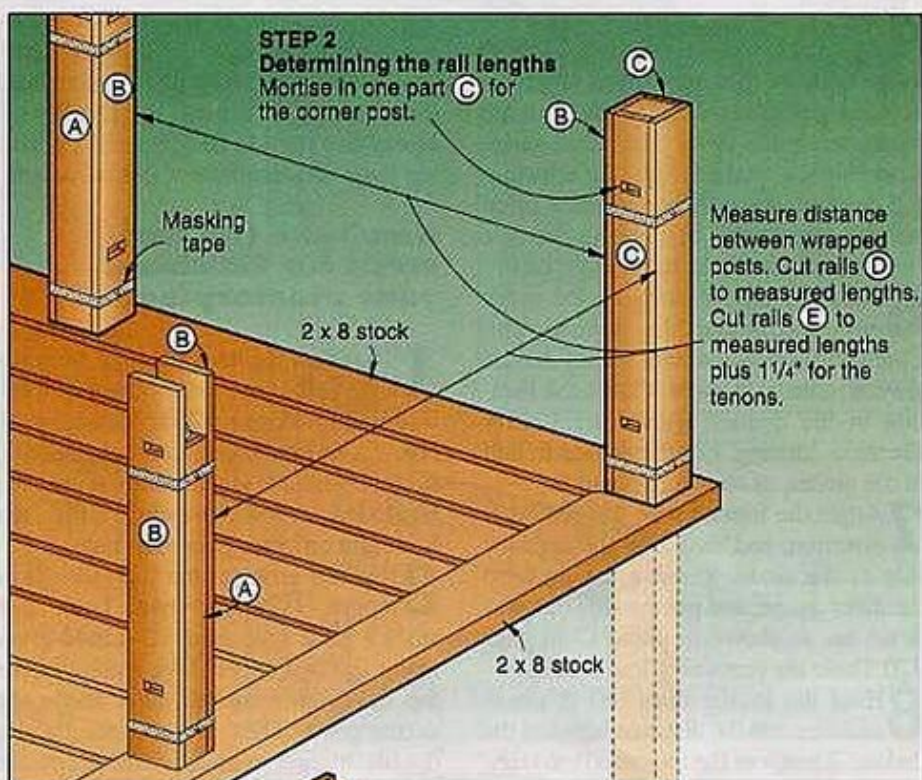
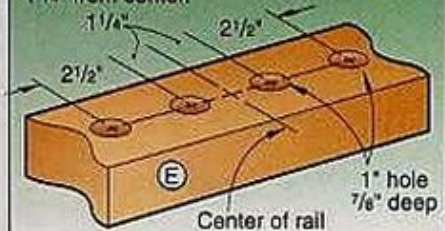
Determine the number of balusters by using the following formula.

$$\frac{\text{measured length} - 9.25}{2.5} = \text{number of posts rounded to nearest whole number}$$

If you have an odd number of balusters, start with the center baluster and work out.



If you have an even number of balusters, start baluster centerpoints 1 1/4" from center.





**4** Remove the clamp, and position the jig so the second cut will be  $\frac{3}{32}$ " away from the first cut. Once you have accurately positioned the notch from the blade, screw the jig to your miter gauge where shown on the Louver Jig drawing.

**5** Position one end of one side piece (H) against the stop. Make the first cut as shown in photo B, on page 120.

**6** Place the angled dado on the index pin, and make the second cut. Continue the process until all six dados are cut in the side piece. Check the location of the dados against the Louver Location drawing. Cut the dados in half of the pieces, as shown in photo B.

**7** Angle the miter gauge  $45^\circ$  the other direction, and switch to the opposite side of the blade. Remove the jig from the miter gauge, and put the side that was down up, as shown in photo C on page 120. Dado the remaining louver sides.

**8** Hold the louver sides (H) in place, and measure the distance between the dados. Then, cut the louvers (I) to size.

**9** Nail each louver assembly together, checking for square. Screw (no glue) the louver assemblies in place between the post cover pieces B. The louver assemblies need to be removable, allowing you to replace burned-out bulbs later.

### Now take the final steps for finishing your masterpiece

**1** To reflect the heat and light from the light bulbs (don't use more than a 60-watt bulb) make a reflector for each light box. To do this, bend aluminum flashing in a U-shape, where shown on the Exploded View drawing. Fit the heat/light reflector over each bulb.

**2** Rip and crosscut the top rails (J) to length. (We cut them from 2x8 stock.) Rout and sand  $\frac{1}{2}$ " round-overs along the top edges. (We miter-cut the top rails, centering the miter above the corner posts. Then, we cut and glued a double biscuit joint to connect straight

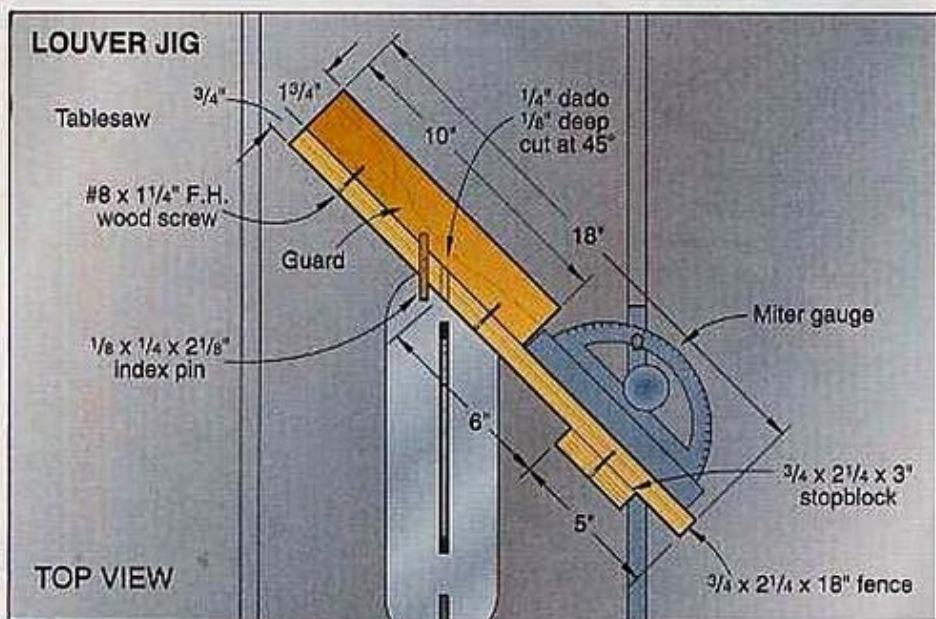
### materials list

| Post Covers          | FINISHED SIZE    |                  |                   | Matl. | Qty. |
|----------------------|------------------|------------------|-------------------|-------|------|
|                      | T                | W                | L                 |       |      |
| A post covers        | $\frac{3}{4}$ "  | $3\frac{1}{2}$ " | $28\frac{1}{2}$ " | C     | TD   |
| B post covers        | $\frac{3}{4}$ "  | 5"               | $34\frac{1}{2}$ " | C     | TD   |
| C corner post covers | $\frac{3}{4}$ "  | $3\frac{1}{2}$ " | $34\frac{1}{2}$ " | C     | TD   |
| <b>Railing</b>       |                  |                  |                   |       |      |
| D top rails          | $1\frac{1}{2}$ " | $3\frac{1}{2}$ " | TD                | C     | TD   |
| E mid & bottom rails | $1\frac{1}{2}$ " | $3\frac{1}{2}$ " | TD                | C     | TD   |
| F balusters          | $1\frac{1}{4}$ " | $1\frac{1}{4}$ " | TD                | C     | TD   |
| G post bases         | $1\frac{1}{4}$ " | 2"               | $7\frac{1}{2}$ "  | C     | TD   |
| <b>Louver</b>        |                  |                  |                   |       |      |
| H sides              | $\frac{3}{4}$ "  | $\frac{3}{4}$ "  | 6"                | C     | TD   |
| I louvers            | $\frac{3}{4}$ "  | 1"               | $3\frac{1}{4}$ "  | C     | TD   |
| <b>Top Rail</b>      |                  |                  |                   |       |      |
| J rails              | $1\frac{1}{2}$ " | $6\frac{1}{4}$ " | TD                | C     | TD   |

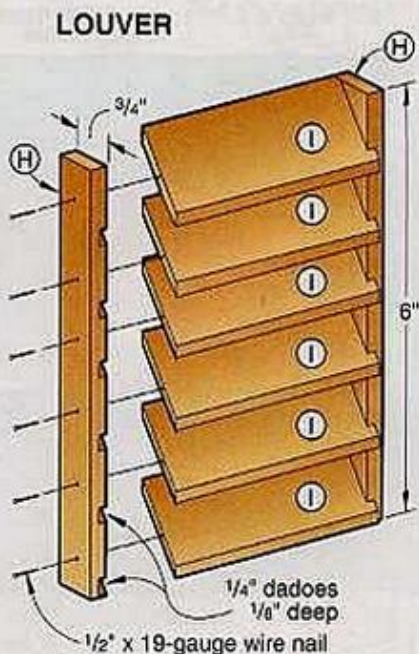
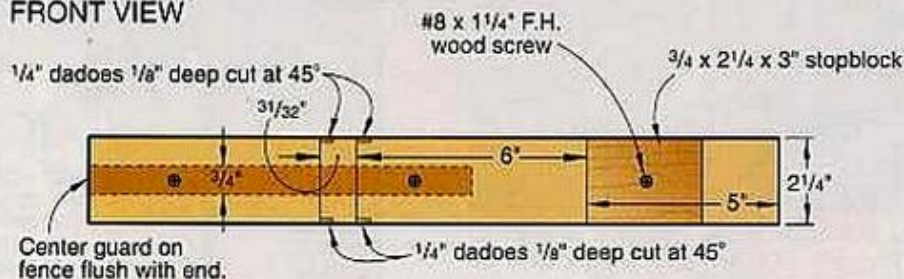
TD—To Be Determined. Initially cut parts marked with a TD oversized. Trim to finished size according to the how-to instructions and Railing Installation drawing.

Material Key: C—cedar.

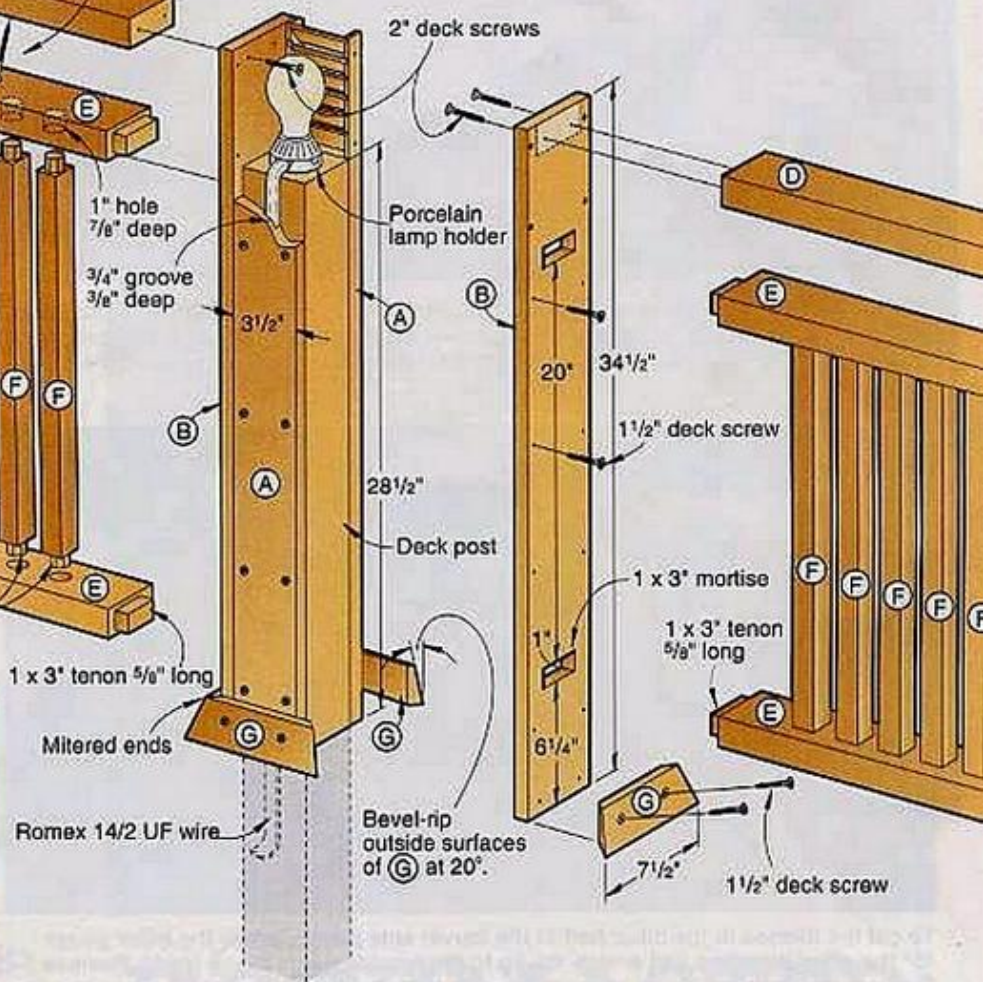
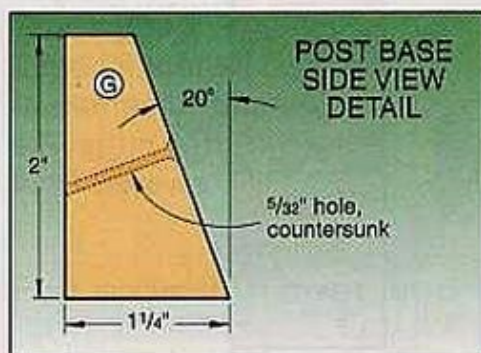
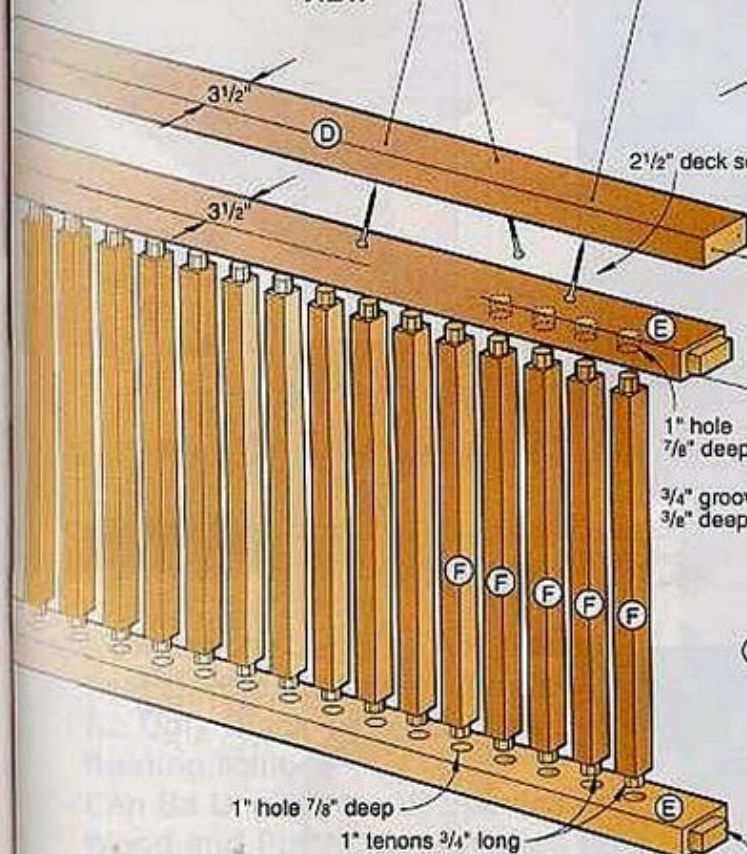
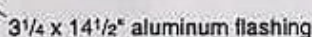
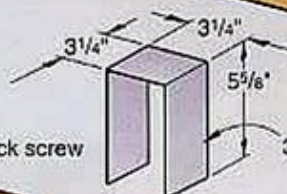
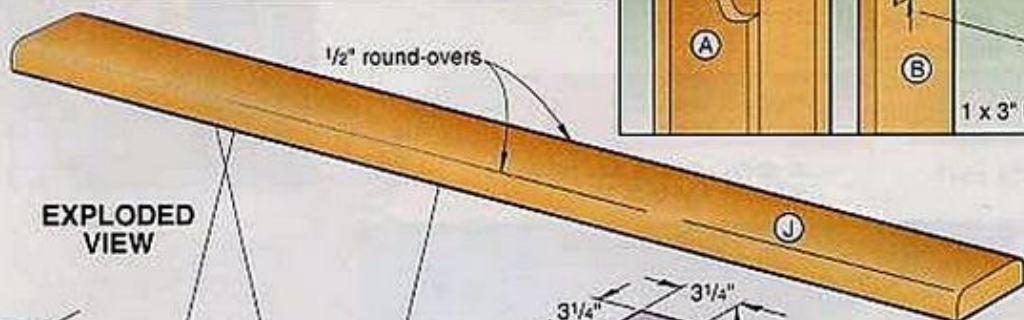
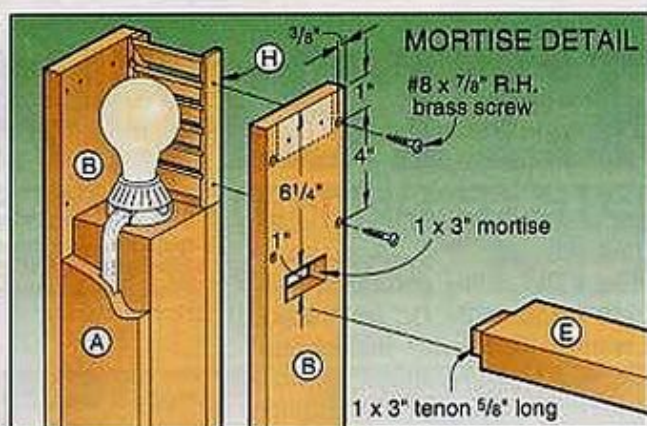
Supplies:  $1\frac{1}{2}$ ", 2", and  $2\frac{1}{2}$ " deck screws; #8x $\frac{1}{4}$ " brass wood screws;  $\frac{1}{8}$ "x19-gauge wire nails; aluminum flashing; porcelain fixtures; Romex 14/2 UF wire; wire nuts; weather-proof junction boxes; exterior finish.



#### FRONT VIEW









lengths of the top railing and also to join the mitered corners.)

**3** Drill angled holes through the D rails, and screw the top rails in place. The holes need to be angled, allowing you access to work from the bottom side of the D rails.

**4** Leave the railing unfinished and it will age naturally. Or, seal the posts and railing with a quality outdoor finish. (We recommend a penetrating oil finish. A good finish will also minimize splitting and cracking.)

**5** When a bulb burns out, simply remove one of the louver assemblies and replace the bulb. ■

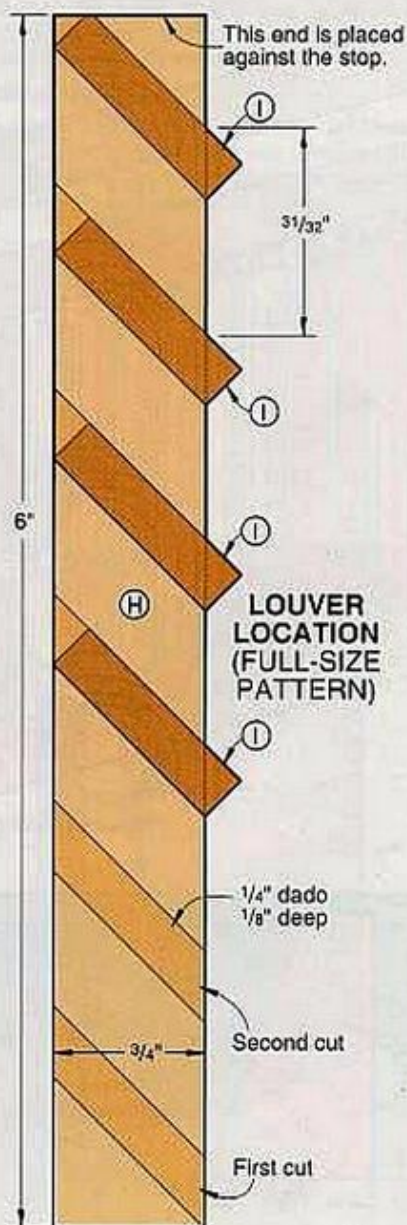
Written by Marlen Kemmet  
Project Design: James R. Downing  
Illustrations: Lorna Johnson  
Photographs: Bill Hopkins; Hetherington Photography



Position one end of a louver side piece against the stop, and make the first cut. Place the angled dado on the index pin, and continue making the cuts until all six dados are cut in half of the louver sides. Check the location of the dados against the drawing at right.



To cut the dados in the other half of the louver side pieces, angle the miter gauge 45° the other direction and switch the jig to the opposite side of the blade. Remove the jig from the miter gauge, and put the side that was down in photo B up as shown in photo C.





Build for privacy, or block out eyesores with one of our elegant lattice projects. They're easy to make and can be completed in just a weekend or two.

# criss-cross cover-ups

Lattice accents work well as visual barriers and look good from inside and out. They demand no special expertise to build, and require only simple workshop tools. Low-cost prefab lattice panels, in 4x8' units are the easiest to install. Watch for inferior wood and staples that fall out easily.

You can make your own lattice panels using simple hand tools, or you can also build a project using long-lasting polyvinyl chloride (PVC) lattice. These panels come in colored 4x8' panels and can be cut with a saw and repainted. Be sure to buy hardware that will withstand moisture.

Tools you will need include a hammer, handsaw, jigsaw, circular saw, framing square, drill, screwdriver, tape measure, and a chalk line.

## Oriental Gate

Make a grand entrance for your yard with the grid-inspired gate, shown at right. You can also build additional panels to serve as a fence.

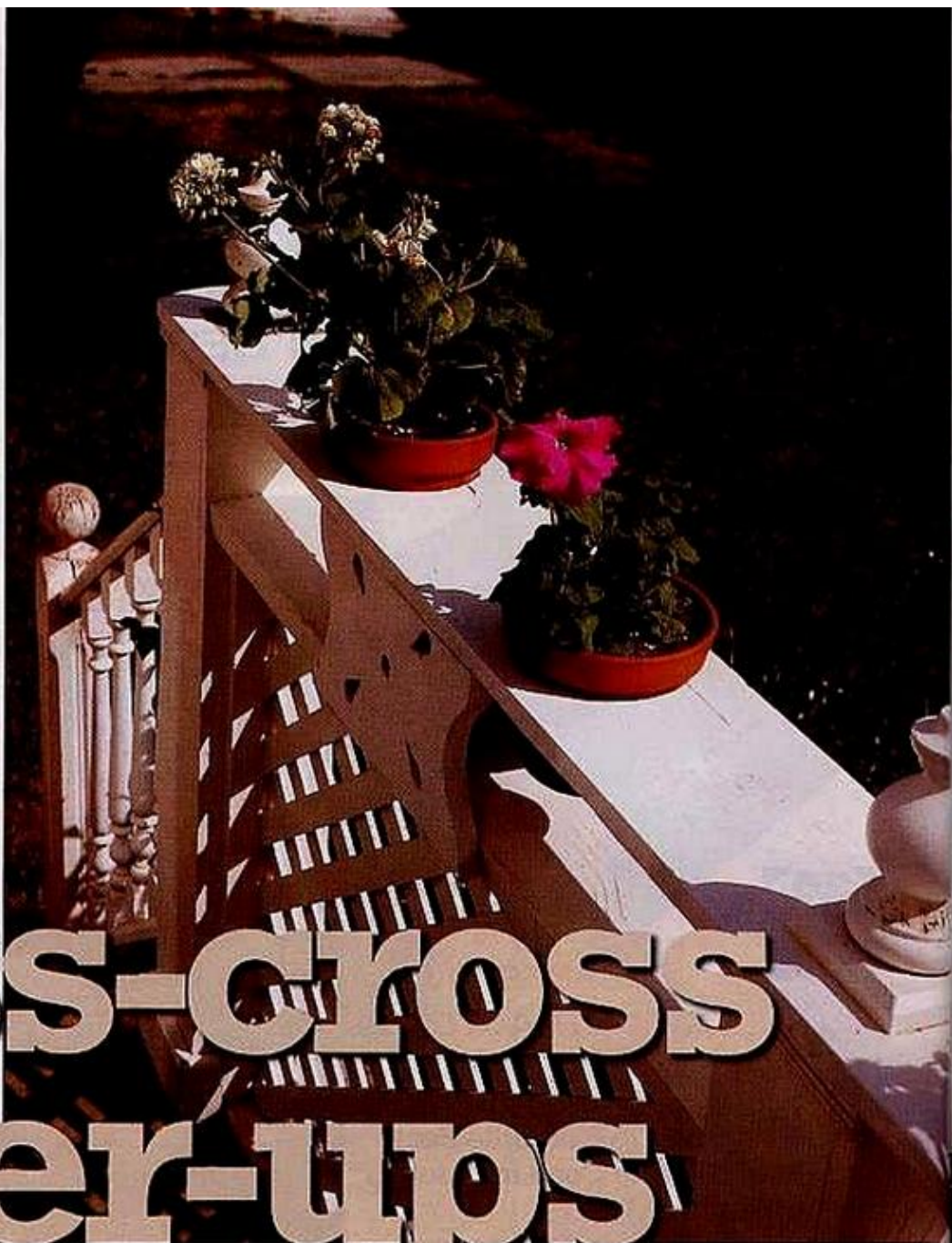
For the gate, buy 4x4s for the posts; 2x4s for the rails, diagonal fencing, and a gate stile; 1x4s for the bottom trim; 1x2s for the side trim; a 2x6 for the cap rail; nails; 1/4x1 1/2" wood strips for panels; ready-mix concrete; a self-closing

spring hinge; and a latch.

See the illustration shown, *far right*. To begin, set the 4x4 posts in concrete. Brace the posts until the concrete sets. Then build a frame for the gate. Use 2x4s for the bottom and sides of the frame. Temporarily brace the frame to keep it square while you work.

Nail the 1x4 bottom and top trim in place. Add the 1x2 side trim. Nail the 1/4x1 1/2" wood strips to the trim; allow 3" of spacing between strips.

After the lattice is in place, brace the gate with a diagonal 2x4. Next, cap the gate with a 2x6 that has a 3/4", 30° bevel on both top edges. Remove the bracing.





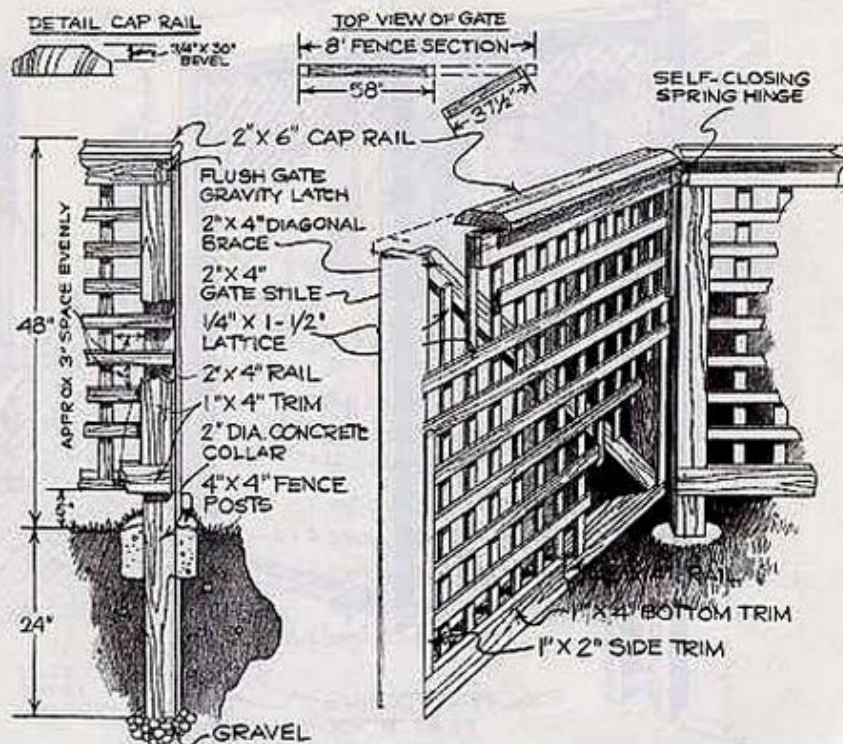
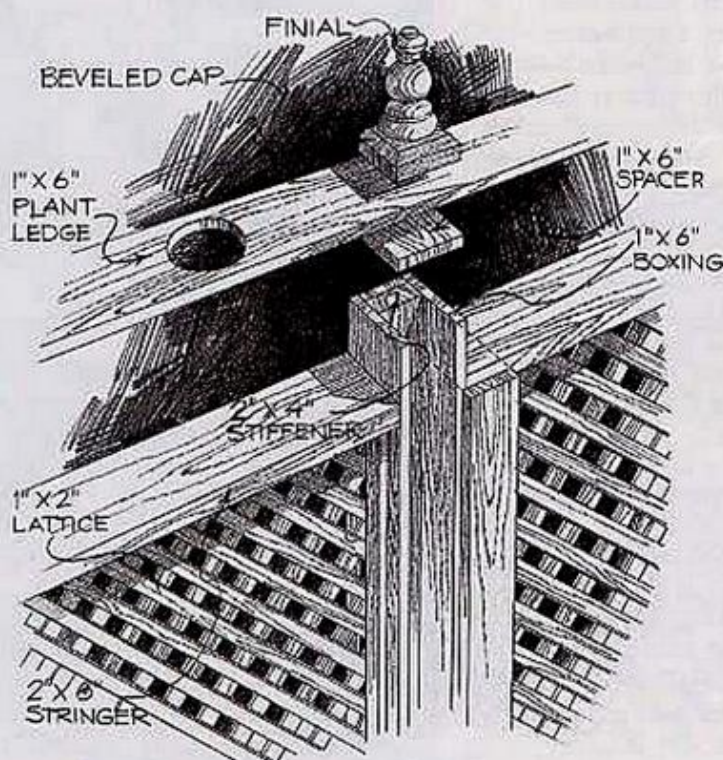
## Victorian Railing

Romance the back entry of your home with the plant-topped railing, shown at left. To build it, you'll need 1x6s for spacers, plant ledge, and boxing; 2x6s for stringers; 2x4s for stiffeners; 1x4s for posts; 1x2s for lattice; 1x2 molding; beveled cap; finial; glue; and nails. Use cedar, redwood, or pressure-treated wood that will withstand moisture. Study the illustration shown at right, and build the posts first. Use galvanized nails. Nail 2x4 stiffeners to the inner side of the porch framing. (Cut them long enough to overlap the full depth of the framing.) Form posts around the stiffeners with 1x6s and 1x4s. Nail 2x6 stringers between posts.

Top each post with a 1x6 spacer, then add 1x6s to form the plant ledge; the plant ledge can span up to three posts. Cut a series of holes in the ledge to accommodate pots.

Build the lattice panels of 1x2s (or purchase ready-built panels). Nail 1x2 molding under the stringer, on the posts' sides, and on the porch floor to form a nailing base for the lattice.

Using moisture-proof glue, glue a finial to a beveled cap. Then toenail through the cap's base into the ledge.





## Arched Screen

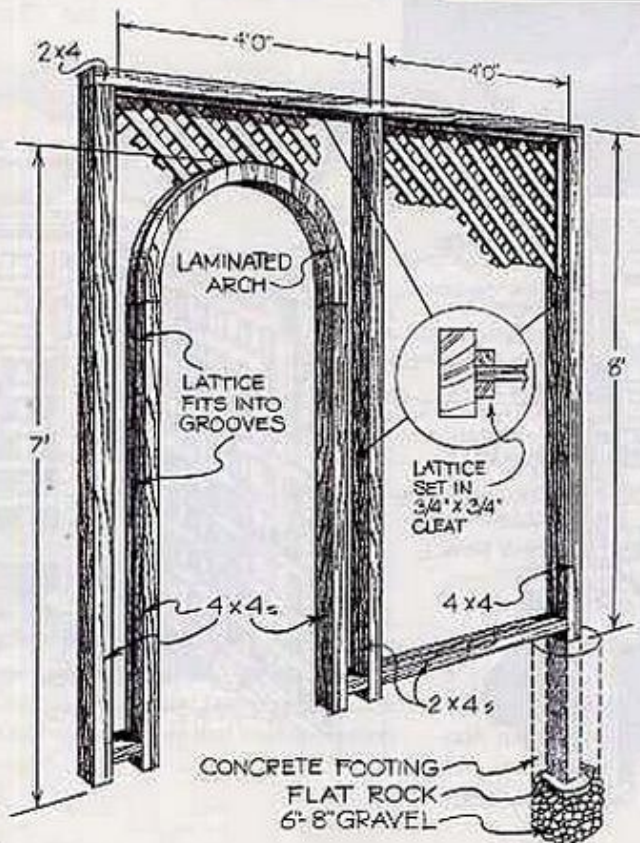
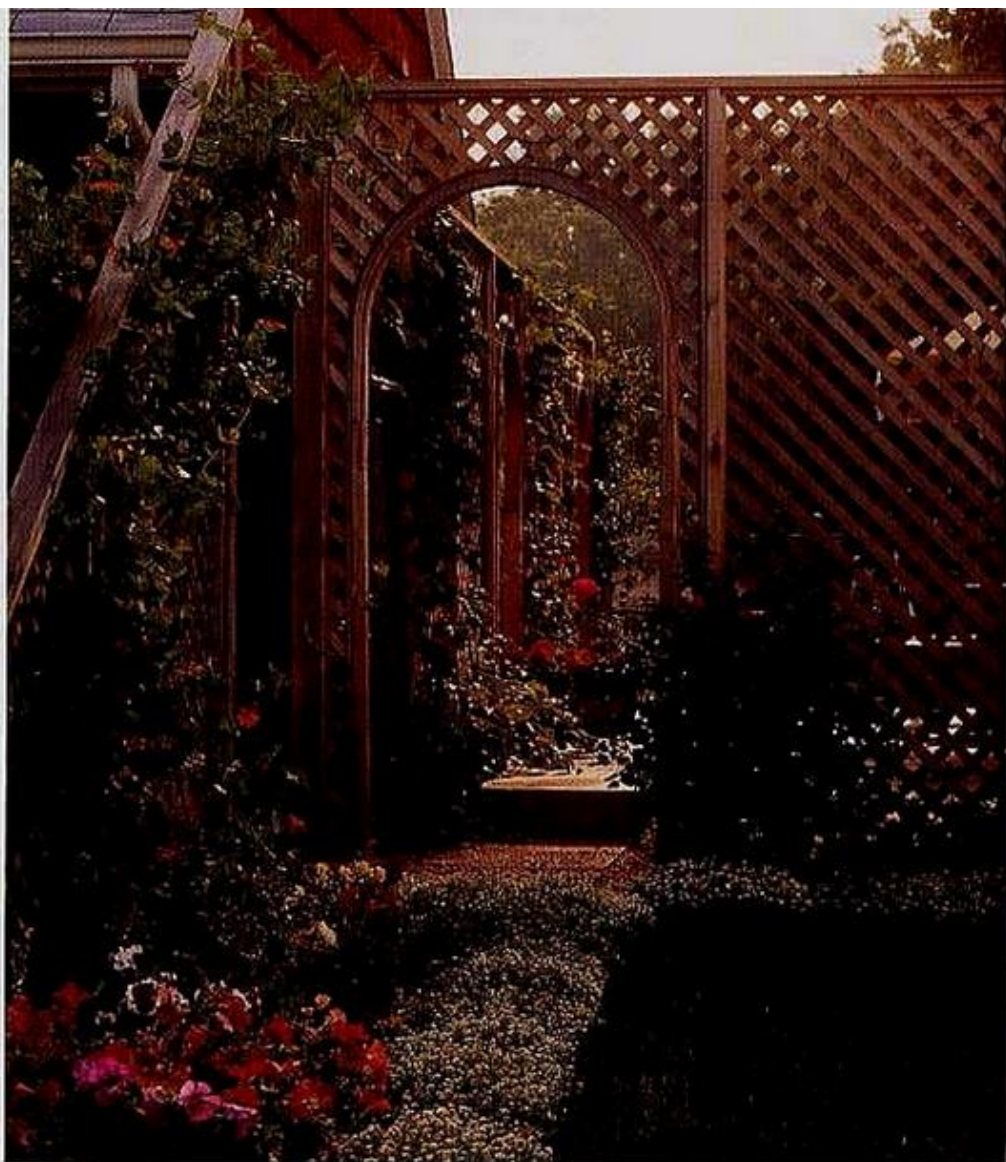
Here's what you'll need to build the lattice screen, *right*: 4x4 posts, 2x4s for the frame,  $\frac{3}{4}$  x  $\frac{3}{4}$ " cleats, prefab lattice, plywood, nails, and dry-mix concrete.

See the illustration *below*. To build the arch, cut two semicircular arches from  $\frac{3}{4}$ " plywood; the arch has an 18" outside radius and a 14 $\frac{1}{2}$ " inside radius. Cut two more arches, but extend the ends 4".

From  $\frac{1}{2}$ " plywood cut one semicircular arch with a 17 $\frac{1}{2}$ " outside radius and a 14 $\frac{1}{2}$ " inside radius. Nail and glue all arches together with the extended  $\frac{3}{4}$ " arches on the outsides and the  $\frac{1}{2}$ " arch in the center. Because the center arch is narrower, it forms a groove that holds the lattice panel.

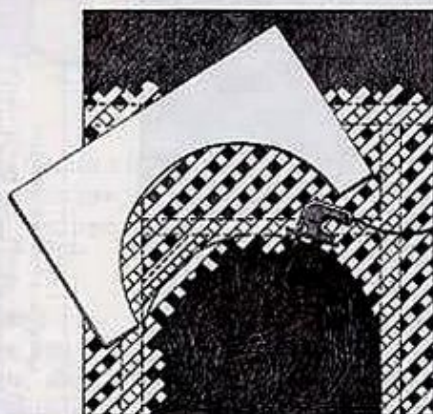
Rout a  $\frac{1}{2}$  x  $\frac{1}{2}$ " groove down the sides of each of the 4x4s that form the bottom part of the arch. Route a  $\frac{3}{4}$ " deep, 4" long piece from opposite sides of the top of the 4x4s. Join the arch to the 4x4s, lining up the grooves and notches.

Set the posts and arch frame in concrete; add 2x4 framing. Nail cleats to the inside of the frame. Nail prefab lattice panels to the cleats.



## shopTip

To cut an arched opening in lattice, make a cardboard template of the shape you want to duplicate. Mark the arch. Then cut the lattice to match the template. Be sure to paint or stain the raw edges that are exposed by cutting. You can use the same technique to cut any shape in the lattice. The edges will need to be reinforced with a framework. In the arch, *left*, a groove routed into the center of each 4x4 post holds the lattice in place and serves as the framework.





## Grill Cover-Up

Keep your grill handy but out of sight with the cedar hideaway shown at *right*. A low front panel even lets you check on your food without opening the gate.

You'll need prefab lattice panels, 6x6 posts, 2x2s for rails and stiles, wood strips for the lattice cap, ready-mix concrete, nails, gravity gate latch, and 3" butt hinges.

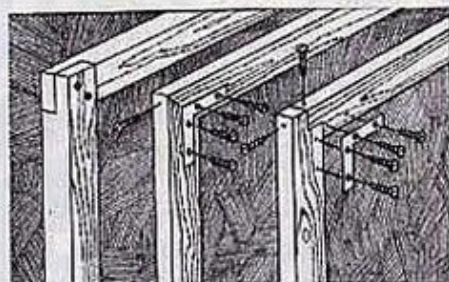
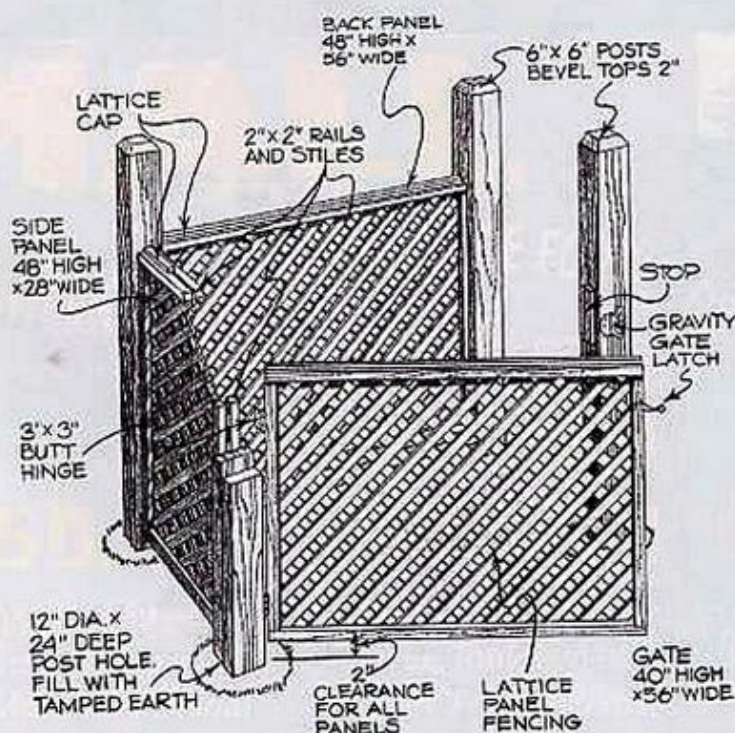
See the illustration *below*. Bevel the tops of the 6x6 posts. Cut the posts to 7' and set the bottom 2' in concrete. Brace the post plum until the concrete hardens.

Nail the inside vertical 2x2s to the posts that hold the fixed panels. Nail the lattice panels to these 2x2s. Then place the outside 2x2s over the lattice edges, and nail the 2x2s to the posts. Attach the top and bottom rails (2x2s) with screws. Nail a lattice strip, removed from a prefab panel, to the top to cover the seams.

Make the gate by screwing through the lattice panel into 2x2s with screws; countersink the screws. Screw lattice strips to the back side of the gate to cover the lattice edges.

Install the gate with two 3" butt hinges and a gravity latch.

Photographs: Ernest Braun; William N. Hopkins; Maria/Semel; Rick Taylor  
Illustrations: Jim Stevenson; Carson Ode



## shopTip

Add strength to the frame of the lattice panels you build by bolstering the corner joints. Shown *above*, from *left*: The first, a rabbeted joint, requires expertise with a saw; the second method adds a metal angle bracket to a mitered joint (in exterior applications, make sure any metal you use is rust-resistant); the third example combines the two techniques for a superstrong frame.



### Garden Arbor

Create passageways in the midst of your yard with a garden arbor, *right*. To build it, you'll need 1x6s and 1x4s for the posts, 1x4s for the crossbars, 2x8s for the arbor top beams and support beams, 1x3s for the top of the arbor, 1x1s for lattice and molding, screws, nails, and ready-mix concrete.

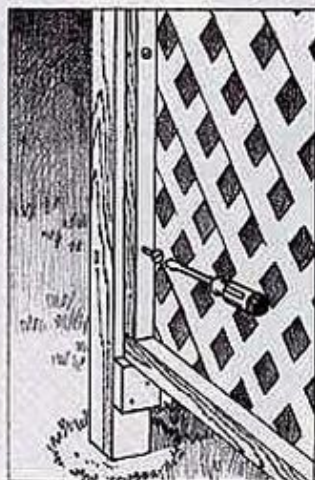
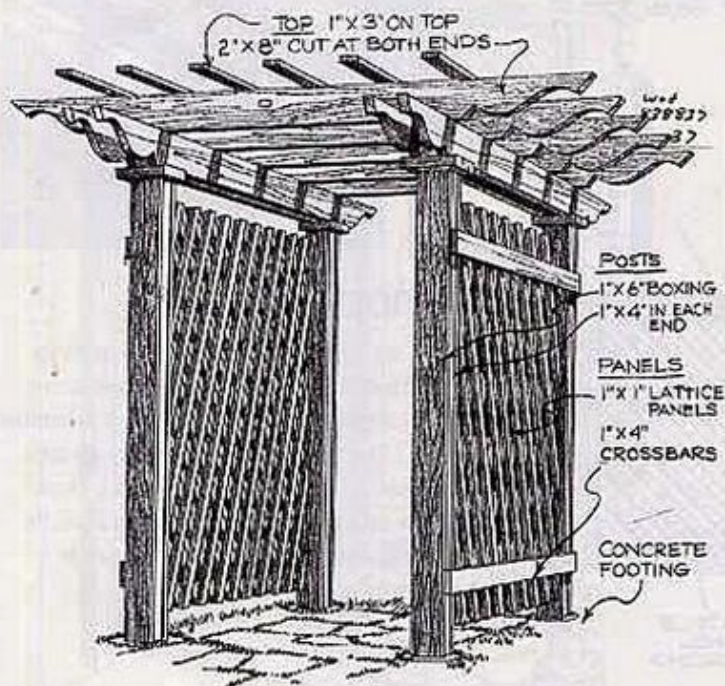
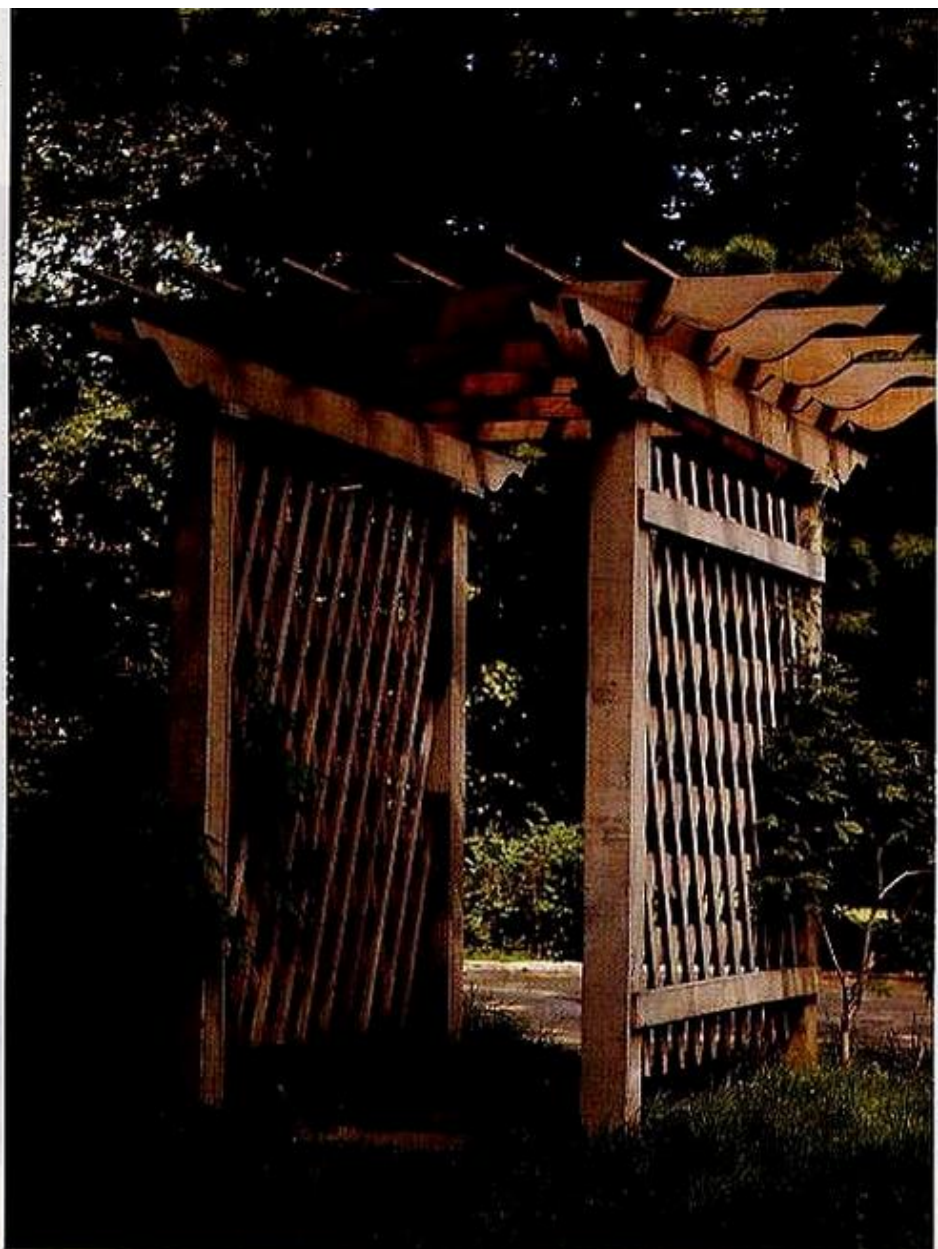
Study the illustration *below*. Then begin by pouring concrete footings for the posts. Use the hole as a form. Place a pin or metal dowel in the concrete to secure the post to after the concrete sets.

Build the posts by butt joining and nailing two 1x6s and two 1x4s. Nail a base in place inside the post to anchor the post to the footing; top the post with a cap. Add 1x1 molding to the post top. Nail the crossbars in place at the top and bottom.

Build the lattice panels of 1x1s; screw the 1x1s together at every other intersection. Drive screws at an angle to secure lattice to posts.

Cut a cardboard pattern for the curved ends of the arbor top and support beams; cut the boards with a jigsaw. Assemble the pieces following the illustration. Top the arbor with 1x3s.

*continued on page 128*



### shopTip

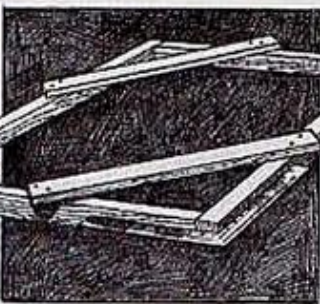
Secure lattice panels to the fence posts using rust-resistant wood screws. Using screws is better than nailing the lattice. Screws grip the wood tighter than nails and are less apt to work loose.



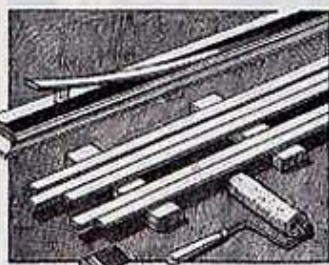
## How to Make Your Own Lattice Panels

**1** Begin by building a lightweight 2x2 frame to fit exactly in between your fence posts. Use string to measure each distance between posts individually. They may vary if the fence posts aren't level.

To keep the frame straight while you are working, tack scraps of wood diagonally on the back, *below*. Turn the frame over to apply the wood strips. Remove the temporary braces after you have applied the strips.



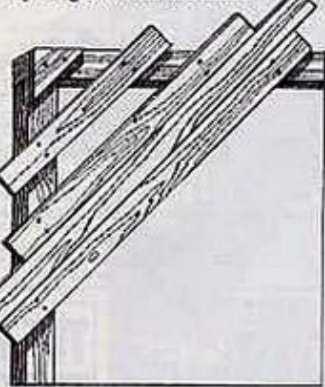
**2** Painting is much easier before the lattice is assembled. The quickest way to paint is by dipping, *below*. A length of galvanized gutter stopped at both ends make an ideal dipping tank. You can also paint by



laying the lath perpendicularly across several scraps of wood and using a roller to paint each side, *above right*, letting it dry between coats. Touch up the edges with a brush.

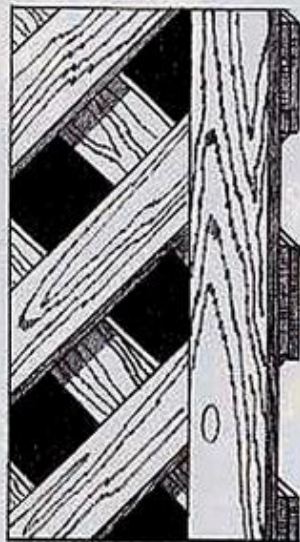
Paint lattice with a roller if

it is already in place. Touch up edges with a brush.



**3** To assemble the lattice panel, lay the strips of lath solidly against the frame in a diagonal pattern. When you have covered a space, nail every other strip. Then remove the pieces that are not nailed, *above*. Repeat this process for the second course of lattice starting in the opposite corner.

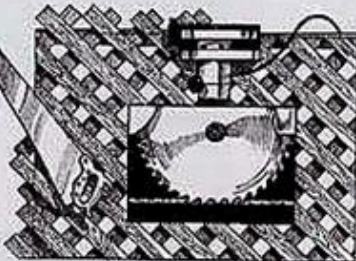
When building lattice panels for exterior use, use galvanized box nails. Hot-dipped nails are ideal because their rough surfaces grip the wood better. Plan on using 1/2 pound of No. 3 nails to assemble a 4x8' section of lattice.



**4** Check to be sure that each piece of lath is securely fastened to the

frame at both ends. Unlike prefab lattice panels that are fastened with staples at every intersection, made-from-scratch lath panels need only be fastened on the frame.

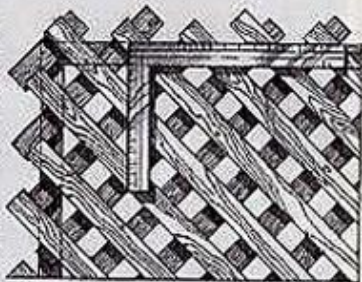
After attaching the lath to the frame, use a straightedge or chalk line to mark across the top and bottom of the lattice panel, flush with the outer edge of the frame. Double-check to make sure no nailheads will be in the path of the saw. The frame serves as a cutting guide.



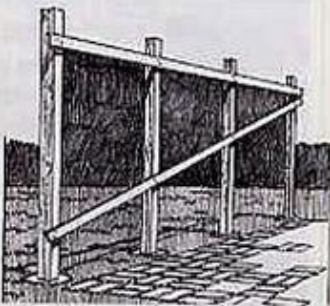
**5** After solidly positioning the panel on sawhorses or other raised base, cut the lattice flush to the frame. You will be cutting through two layers of lattice.

You can trim the lattice with a circular saw or with a handsaw with a wide blade, *above*. If you are using a circular saw, adjust it to cut no deeper than the layers of the lath. With a handsaw, you should be able to just graze the edge of the frame as you trim. Choose a saw with a fairly fine-toothed blade for easy cutting and a smooth edge.

**6** Adding trim around the top and sides gives the lattice panel a more finished appearance, *left*. It also sandwiches the lattice to the frame, adding rigidity. Any molding with a 90° corner that will fit flush against the lattice can be used for trim. A strip of lath is the most common treatment.

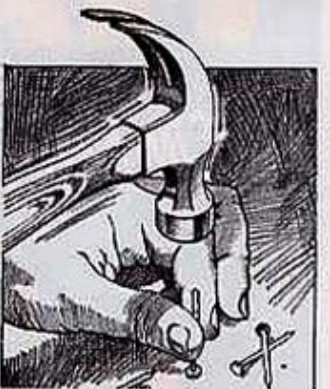


To retard rotting, drill a small hole through the bottom of the lattice frame and through the stringer to allow water to drain.



## shopTip

When you build a framework for a lattice-paneled fence, you'll find that diagonal braces running to stakes or other stable nailing points will help you level the supports. The braces will also keep everything square until you have time to firmly attach the panels. In high-wind areas, run horizontal stringers (2x4s) across the top and bottom.



## shopTip

An old carpenter's trick to prevent splitting the pieces of lattice while nailing them is to first dull the nail point by rapping it firmly with a hammer. ■