

Best-Ever

Outdoor Projects

2012

Extend Your Living Space!

23 Projects

- ▶ Arbors
- ▶ Seating
- ▶ Planters
- ▶ Brick Walk
- ▶ Stone Patio
- ▶ Retaining Wall
- ▶ Dry Creek-Scaping

Top Tricks for Working with Treated Lumber

26 Envy-inducing Deck Enhancements

Complete Guide to Deck Materials

p. 95

You can build it yourself: Outdoor Projects

Building outdoor wood projects has never been easier, thanks to a tool called the Kreg Jig®. The Kreg Jig® simplifies outdoor projects by making each joint as easy as "Drill. Drive. Done!"



Planters or Benches



Potting Benches



Outdoor Chairs

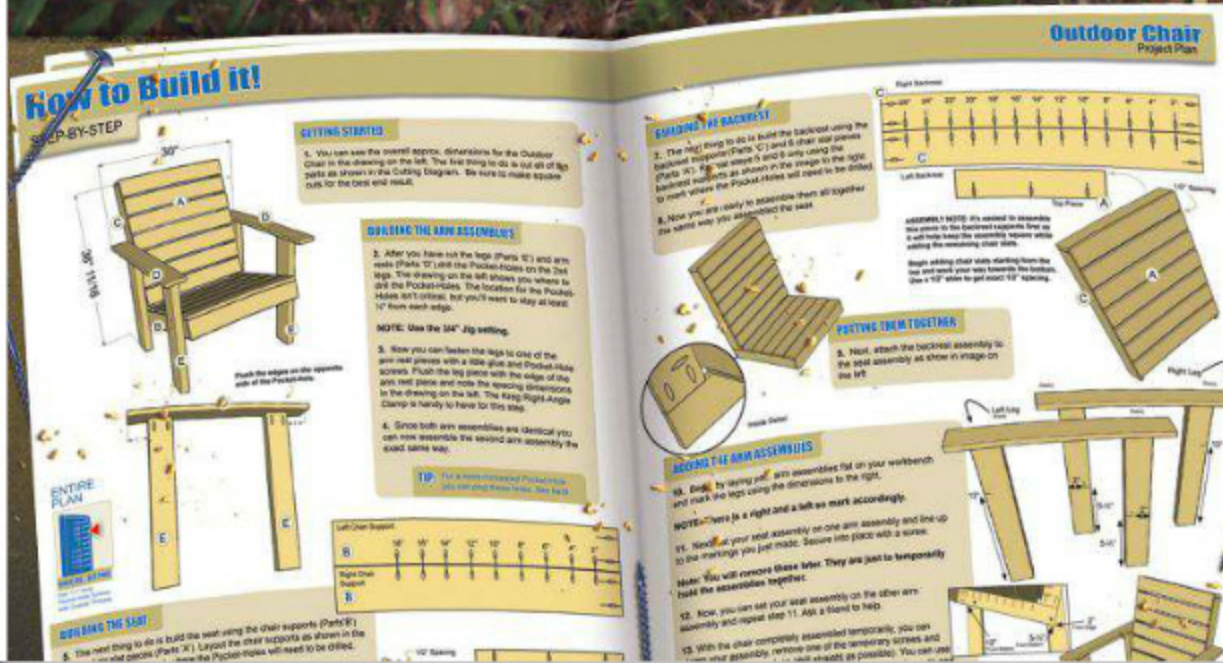


Much More...

Whether you want to start by building a few planter boxes, outdoor seating, a potting bench, or maybe just a simple adirondack chair for your deck, the Kreg Jig® can help you build it quickly and easily!

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Plan it inside... enjoy it outside

Very few things give do-it-yourselfers a greater sense of accomplishment than completing the perfect project. Unless, of course, it's enjoying your hard work once it's done. Outdoor projects are perfect for this, whether you're relaxing on a warm summer day in your cedar glider, *above*, or adding a splash of color from flowers nurtured in an array of handmade planters, *bottom right*. And when it comes to projects geared to the outdoors, we realize that wood isn't always the main material you'll be working with, so we've included projects involving brick, stone, and concrete, such as the landscape-enhancing retaining wall, *bottom left*. With lots of demands on your time, it may take a lot to lure you out of the house, but we're betting this collection of projects—coupled with a beautiful day—will do just that!



Marlen Kemmet

Marlen Kemmet
WOOD® Magazine Managing Editor



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Best-Ever Outdoor Projects 2012

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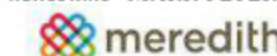
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From Generic to Jewel p. 82

Penny-Pinching Curb Appeal

Save money while you update your home's look by putting your dollars to work on areas that need the most help.

Even the most intrepid do-it-yourselfer can freeze up while sorting out how to improve a home's curb appeal. But get the details right, and the big picture will come into focus almost automatically. Break the project down into specifics, such as plantings, hardscaping, driveway cleanup, and the facade. This makes the process more manageable, helping you see what needs your attention the most so you get the best return for your energy and money. These 18 ideas produce affordable results. As you make your plans, look for these cost-estimate symbols: \$ for projects up to \$250, \$\$ for up to \$500, or \$\$\$ for up to \$1,000. These estimates are for do-it-yourself projects, so expect costs to double or even triple if you decide to hire professional help.

Landscape with Plants

Create a welcoming environment with a well-designed front garden.

1 Get a healthy lawn.

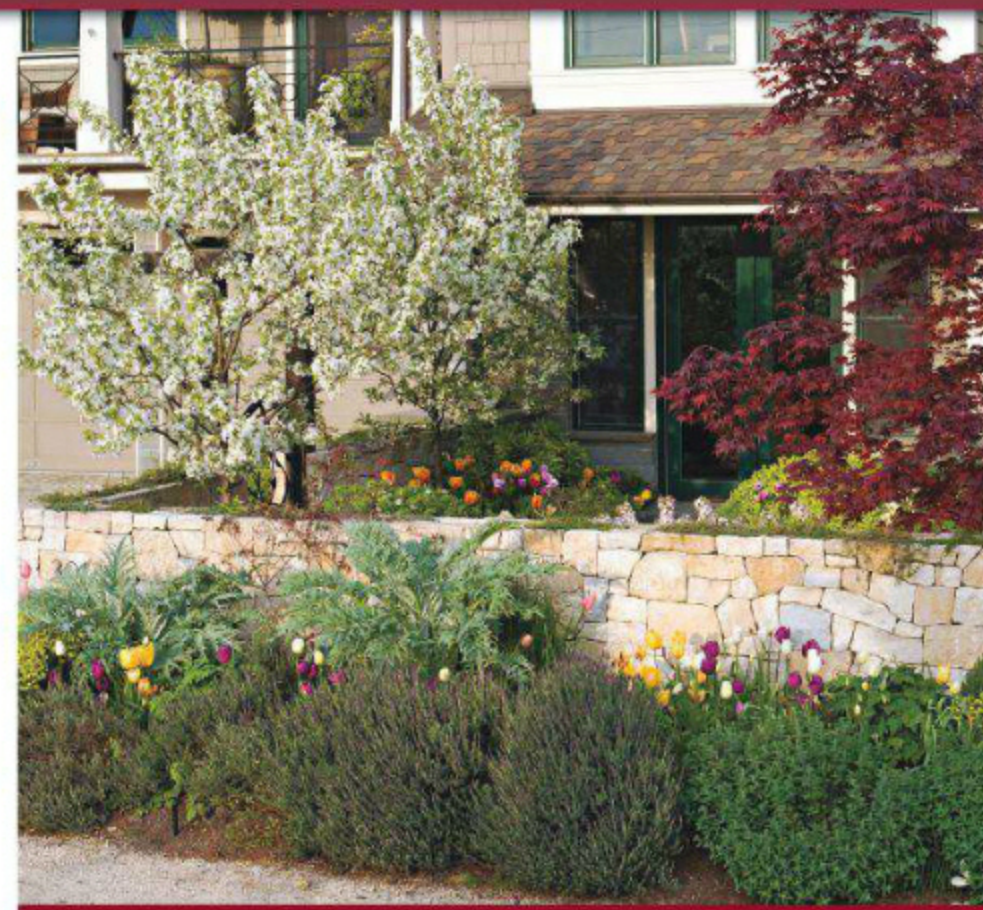
One of the least-expensive improvements, a great lawn takes just three simple steps. First, apply a weed-and-feed treatment so the grass has the nutrients it needs and doesn't have to compete with weeds. Second, sharpen mower blades regularly and cut grass at or near the mower's tallest setting; cutting grass short or with a dull blade stresses it. Finally, give grass enough to drink: Turf grasses require about 1" per week in warm weather. \$

2 Add container plants.

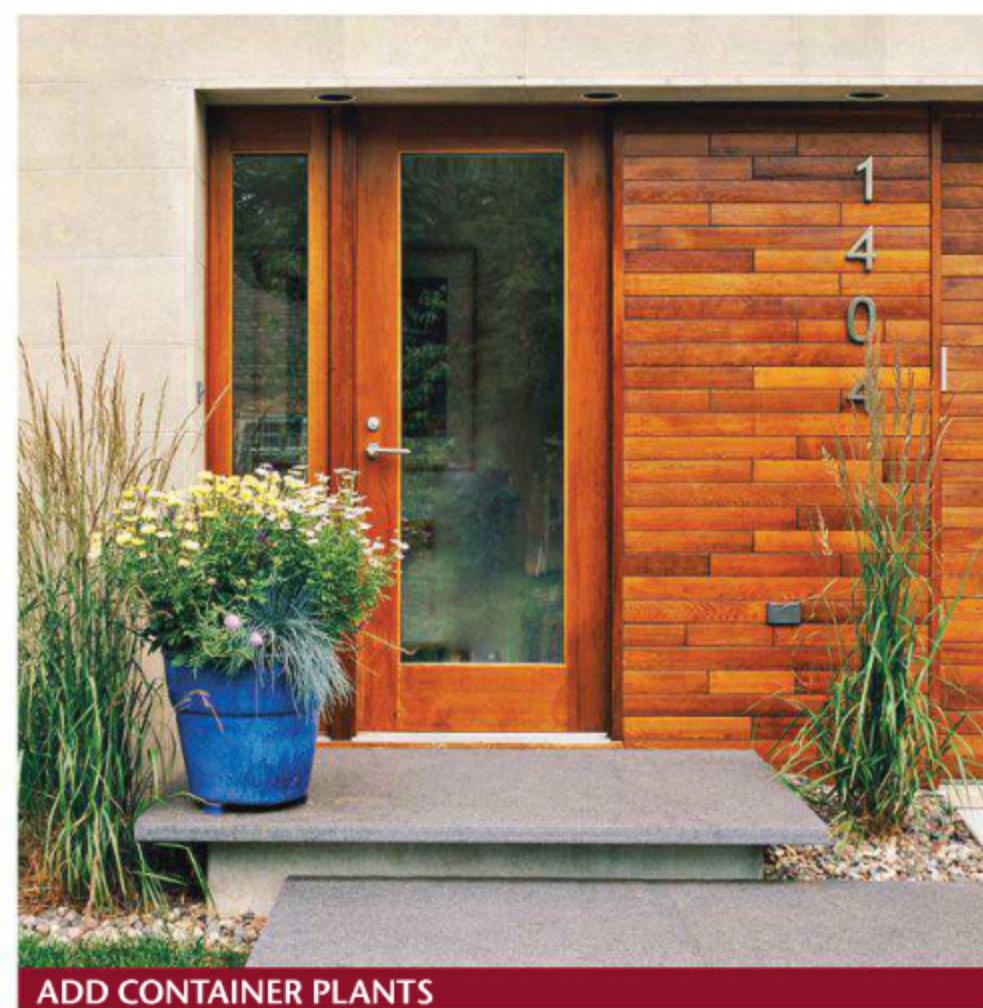
Your home's entry should be an inviting focal point, and a few well-chosen and nicely arranged plants on or near the front porch create an inviting effect. Vary the plant and container sizes and arrange containers on multiple levels. \$

3 Renew existing planter beds.

Add or replace perennials and sprinkle in flowering annuals for color to bring a mix of texture, form, and scale. Be sure to allow adequate space to accommodate the plants as they grow to mature size. Add new mulch often to keep the look fresh. \$



PLANT DECORATIVE TREES



ADD CONTAINER PLANTS

4 Plant decorative trees.

Put in small ornamental varieties if you're preparing the house for sale soon. If you're staying put, think long-term and try oaks, maples, honey locusts, or other large and strong species suitable for your region. Consider species that are fast-growing, or small ornamental trees such as pagoda dogwood, redbud, flowering pear, river birch, and Japanese maple; these can add dramatic interest without requiring years to get established. \$\$-\$\$\$

Add Hardscaping

Use natural or engineered materials to contrast with your home's vegetation.

5 Remove railroad ties.

Cheap-looking materials detract from a yard's overall appearance. For sloped areas that still need terracing, use cut stone or decorative wall blocks for a cleaner look. \$-\$\$

6 Introduce stone or brick edging.

A shallow trench filled with pea gravel or sand makes a simple bedding surface for stones or bricks, which add a hint of both color and texture. \$

7 Add low-voltage or solar lighting.

Highlight pathways and trees with landscape lighting. It will yield dramatic effects for your home's nighttime appearance and add a welcome measure of safety. \$

8 Replace old walkways.

If a concrete walkway is in bad shape or is as dull as dirt (especially if it is just dirt), replace it with a contoured path made entirely of stone or brick. \$\$-\$\$\$

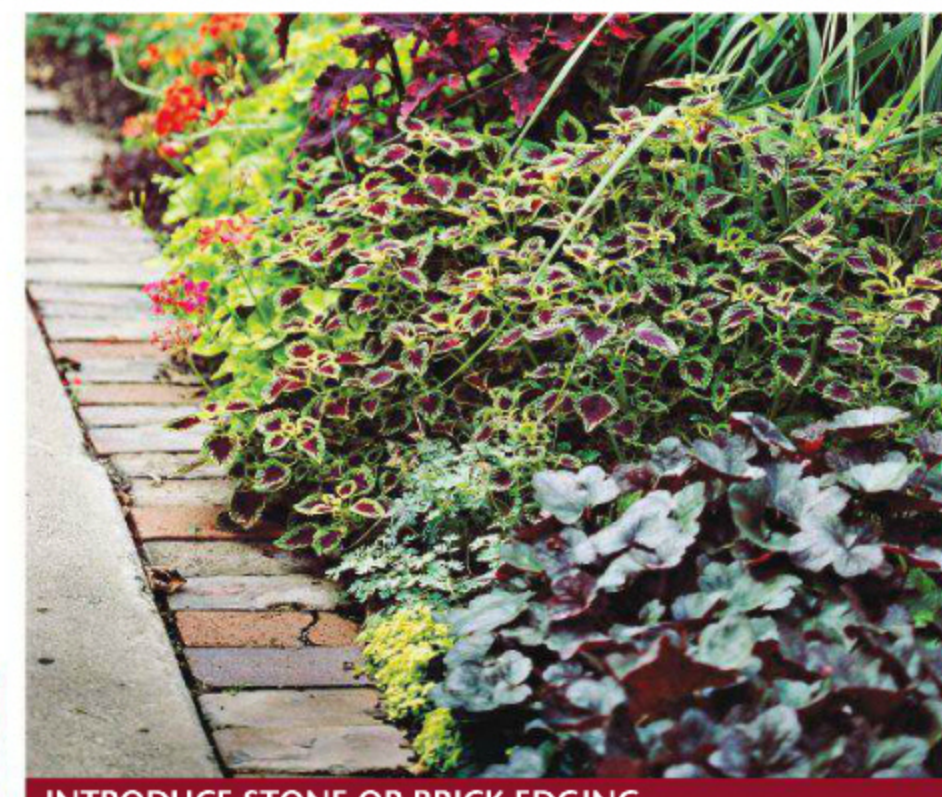
9 Install a trellis or arbor.

These simple structures give more form to your yard and complement plantings. Buy a prefab unit or make your own with plans found at woodmagazine.com/arbor. \$-\$\$

USE LOW-VOLTAGE OR SOLAR LIGHTING



REMOVE RAILROAD TIES



INTRODUCE STONE OR BRICK EDGING



INSTALL A TRELLIS OR ARBOR

Dress Up the Drive

Seize the opportunity to make a great statement with your driveway.

10 Restore an asphalt driveway.

Patch and seal the surface, filling holes and cracks with asphalt patch. Apply fresh sealer to make a tired asphalt driveway look new again. **\$**

11 Play with water.

Install a water feature to mask traffic noise with the sound of trickling water. The selection of styles and sizes has grown over the years, and wall or tabletop fountains make the most of tight quarters. **\$-\$\$**

12 Install flowerbeds or plantings.

The colors and textures of plants soften a driveway's expanse and help make it look a bit less utilitarian. Ground-covers or low-growing plants draw the eye from stark driving surfaces. **\$-\$\$**

13 Frame with masonry columns.

Add pedestals or columns at the driveway entrance scaled to your home's size and stature; in most cases that's no more than waist-high. Include an address marker to make a great first impression. **\$\$-\$\$\$**

PLAY WITH WATER



INSTALL FLOWERBEDS



Help the Facade

Pick from improvements in all price ranges.

14 Spruce up the paint.

This might mean simply touching up trouble spots or prepping and repainting the entire house. When repainting, choose fresh colors and add some accent color to the overall paint scheme. Paint test patches before committing to a color scheme; some colors look great on a sample card but prove too intense for the large surfaces on a house. **\$-\$\$\$**

15 Replace exterior hardware.

Address numbers, mailboxes, locksets, and porch lights are all perfect for upgrades. Smaller elements, like those, add a lot of sparkle to your home's look. Keep the finishes consistent so the pieces look like an ensemble of accessories, and not a batch of mismatched hardware. **\$\$-\$\$\$**

SPRUCE UP THE PAINT



REPLACE EXTERIOR HARDWARE



16 Upgrade the garage doors.

Many sectional doors now feature windows in upper panels; some higher-end versions even mimic the classic look of traditional carriage-house doors. **\$\$-\$\$\$**

17 Hang a new storm door.

Inexpensive aluminum screen doors often hide an attractive entry door. Newer storm-door designs offer larger glass panels, sturdier frames, and far more color choices. If a storm door isn't practical (or you just don't want one), make sure the entry door features an accent paint color or clear varnish on wood. **\$\$-\$\$\$**

18 Prep the porch.

If you're lucky enough to have a home with a sizable front porch, use it to fashion a simple but inviting outdoor room. Group a comfortable bench and chairs to create a conversation nook. And don't let a wonderful porch become a catch-all for stuff better stored elsewhere. **\$-\$\$\$**

Written by **Bill LaHay**

UPGRADE THE GARAGE DOORS



A Simple Way to Make a Splash

Add the pleasant burble of flowing water to even the smallest niche in your yard or patio with this simple spherical fountain.

This easy fountain project takes only 2 or 3 hours to finish, but may foster a lifelong interest in water gardening. The project shown carries a price tag of about \$200, but most of that goes into the 12" stone sphere and pump. (You'll find both at many larger home and garden centers.) You could cut the cost in half by opting for a less expensive alternative, such as a stack of squared stones or an inverted composite or ceramic planting pot.

One-Day Fountain Project

STEP 1 Dig a hole deep enough to place a 5-gal. plastic bucket inside so its rim is about ½" higher than the ground. Level and firm the ground around it.

STEP 2 With a hacksaw, cut out a 3x3' section of hog fencing.

STEP 3 Use wire cutters or tin snips to cut a section of ¼" or ⅜" hardware cloth, **Photo A**, the same size as the fencing (3x3'). Cut a hole in the center of the hardware cloth large enough to smoothly run the tubing through. (Hardware cloth comes in tight rolls, so you may need to place pavers on it to keep it flat.)

STEP 4 Place a pump in the bucket, with tubing connected. Cut a notch in the rim of the bucket large enough to accommodate the pump's power cord, **Photo B**, which will run beneath the hog fencing and to the power source.

STEP 5 Run the tubing through the hog fencing and the hardware cloth, **Photo C**, then lay these sections down over the bucket, centered over the opening. Pull excess tubing up through the fencing and cloth, **Photo D**; leave a little slack, but make sure the tubing doesn't kink or coil.

STEP 6 Insert the tubing into the hole in the sphere, **Photo E**, pulling it through as you lower the sphere onto the panels over the center of the bucket.

STEP 7 Place 12x12" pavers around the sphere in your desired pattern. Fill the area between pavers and sphere with ½" or larger slate chips and gravel, **Photo F**. Use a strip of landscape edging if necessary (visible in **Photo D**) to separate gravel from the adjacent lawn.

STEP 8 Fill up the bucket with clean water, **Photo G**.

STEP 9 Cut the tubing flush with the top of the sphere, and push it down just enough to conceal it. Plug in the pump.

Produced by: **Eric Liskey**
Photographer: **Marty Baldwin**

Troubleshooting Tips

■ The water should bubble up and flow over the surface of the stone, **Photo H**, then drain back through the slate chips into the bucket. If the water squirts too high into the air, the water in the bucket will quickly be depleted. Try pushing the tubing down into the sphere another inch or two. If that doesn't work, place a small rock over the opening of the sphere to divert the water's flow down over the sphere. Be sure the rock is not so small

that it falls down the tubing. If your pump has a flow control, you also can disassemble the fountain and reduce the flow at the pump. ■ If the water flow is too low, first confirm that the tubing is not kinked. If it is straight, check to see if it fits well in the sphere's channel. If the tubing is too small in diameter, you can wedge a bit of plumber's putty into the space between the tubing and the channel in the stone to keep the water from flowing down the channel.

MAINTENANCE

Be sure to check the water level in the bucket after each full day of operation, and refill if needed. You should never allow the pump to run dry. In winter, be sure to drain the fountain and remove the pump if you live in a climate where the water may freeze.



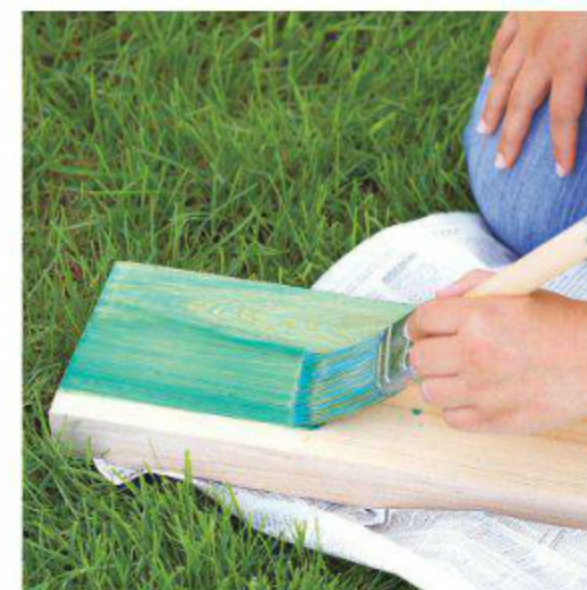


Build a Raised Vegetable Garden

Create your own aboveground beds to raise lots of fresh produce in a limited amount of space.



1 Cut 2x6 lumber to 48" lengths and lay the boards in place to determine the feasibility of your chosen location. We used rot-resistant cypress, but you could also select redwood or cedar. Avoid using pressure-treated lumber around food-producing plants. You'll need 10 pieces to construct a two-tier bed such as this one.



2 We stained the boards to complement the shed in the background, but this is an optional step based on personal preference. Sealing the ends of the lumber adds another level of protection from the elements.



3 Attach boards to metal raised-bed corners with stainless-steel screws. We used eight corners and two in-line connectors, available in a kit from Gardener's Supply Company (gardeners.com).



4 Check positioning of the frame with a level. Adjust height with shims if needed. Secure the frame to the ground with raised bed stakes (included in the corner-bracket kit), then cover with plastic caps (also included in kit).



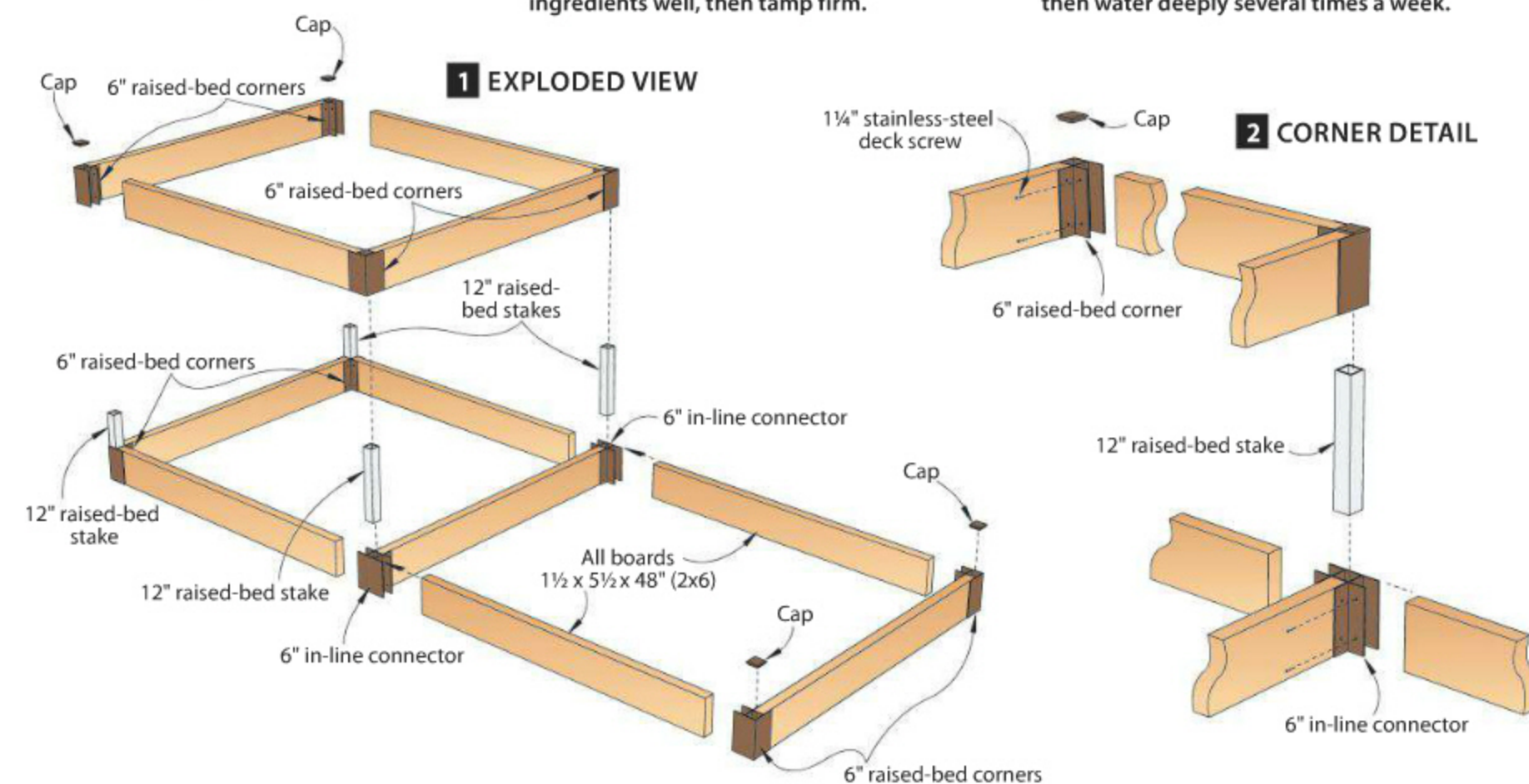
5 Excavate sod inside the frame to a depth of 6" to free up space for root growth. Remove sod from the shallower front tier; simply turn sod over in the deeper tier in back.



6 Fill beds with soil mix. We created a fluffy mix using two parts garden soil with one part each mushroom compost, peat moss, and composted cow manure. Mix soil ingredients well, then tamp firm.



7 Fill the bed with your choice of plants. We used an assortment of vegetables and herbs, but let your imagination run wild. Scratch in some slow-release fertilizer, and then water deeply several times a week.



Raised Bed on a Slope

Here's a simple solution to installing a raised vegetable bed on uneven terrain.



1 With a flat-edge spade, slice a narrow trench to accept the base board. The trench will need to be deeper toward the top of the slope than at the bottom.



2 Place the base board in the trench and measure to make sure it is level. Dig the trench deeper if necessary. Repeat Steps 1 and 2 with the two other sides of the bed.



3 Backfill around each base board with stones or crushed rock. We used cedar in two beds and recycled plastic lumber (see Source below left) in another.



4 Stack boards and connect with corner joints (see Source list). Anchor the joints in the ground. Stain the wood (optional), then fill the bed with your choice of soil mix.

QUICK TIP

Raised beds allow you to customize your soil. Save money by lining the bottom of the bed with dead leaves or straw, then mix equal parts topsoil, peat moss, compost, and composted manure. Vegetables will flourish in this rich mixture.



Written by **Luke Miller**
Photography: **Marty Baldwin**

Source

Raised-bed corners, in-line connectors, adjustable-angle corner joints and plastic lumber: gardeners.com



Make Your Bed ...

...Under a Tree

Reclaim valuable real estate beneath trees by turning it into a garden. Build raised-bed planters, and you won't disturb tree roots.

Anyone can appreciate a nice shade tree, especially on a sultry summer day. But not all shade trees are created equal. Some hog so much sunlight that grass doesn't stand a chance under them. Others cast their roots so shallow that they cause fits for lawn-mower wheels and blades.

Take heart, homeowners. The solution to both of those problems can be found in raised-bed planters.



Decide on the size and number of planters you wish to use. Commercially available planter boxes similar to these come in a variety of sizes, or make your own in whatever sizes you need by referring to the illustration on [page 14](#).

5 Steps to a Tree Bed



1 Coat wooden planters, inside and out, with exterior stain for color and protection. We used rot-resistant cedar, so this step was optional, but we chose a latex-based russet stain for a dash of color throughout the season. The semitransparent stain allows the wood grain to show through.



2 Cover the area beneath the tree with a permeable landscape fabric, available at garden centers and home-improvement stores. If there is vegetation beneath the tree, such as the grass shown here, mow it short first or dig it up. Stake the fabric in place with metal rods.



3 Cover the landscape fabric with an inch or two of pea gravel, then level the area. The pea gravel and landscape fabric prevent weeds from taking root and help keep mud from splattering on the planter boxes during hard rains. The gravel also lifts planters off the soil, thereby extending the wood's life span.



4 Lay out the planter boxes in a pleasing pattern. Line each box with several inches of potting soil. Add plants, then top off with more potting soil. There will be a gap between the tree trunk and the planter boxes; you can leave it, or you can place additional potted plants in the space, as we did. Keep the potted plants in their nursery containers; the planter boxes will hide the pots.



5 Water plants well upon planting. Remember that the canopy of the tree provides shelter from the heat of the midday sun, but it also impedes the flow of rain. Prevent your plantings from drying out with regular watering through the growing season. Fertilize every two weeks with a balanced water-soluble fertilizer or once a year with a slow-release granular formulation.



Raised-bed planters create an instant landscape under this hawthorn tree. Pea gravel fills the gaps for easier mowing.

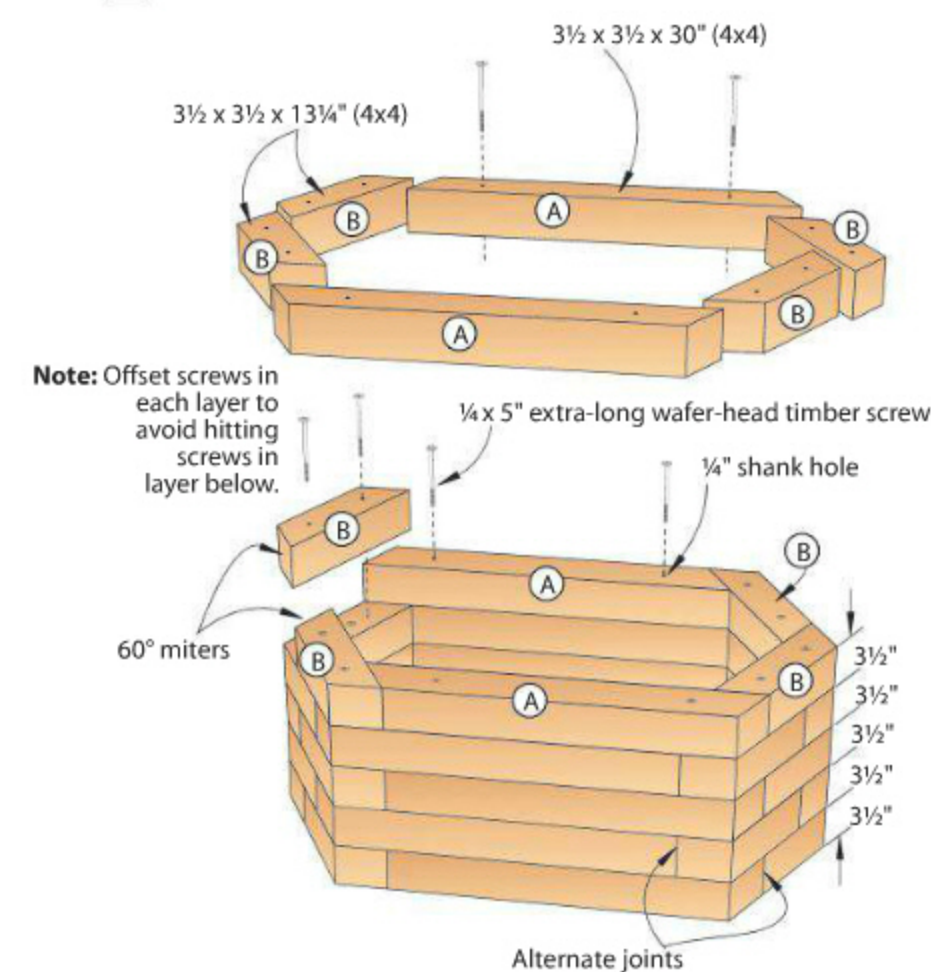
The planters we made for this project offer several benefits. Their hexagonal shape allows easy circular placement around trunks. You can stain them for color or leave them bare. And, best of all, they won't stress the tree, unlike other options, such as digging, which disturbs tree roots, or piling soil on top of roots, which can suffocate them. With boxes like these, it's a simple task to create an instant garden under your shade tree (or trees) in the space of an afternoon or two.

We made our planters in two widths (12" and 16"), but that's easy to adjust for accommodating your planting needs by altering the length of part B. The diameter of the circle enclosed by the planters is determined by the length of individual planters—to enclose a larger area, just make the planters longer.

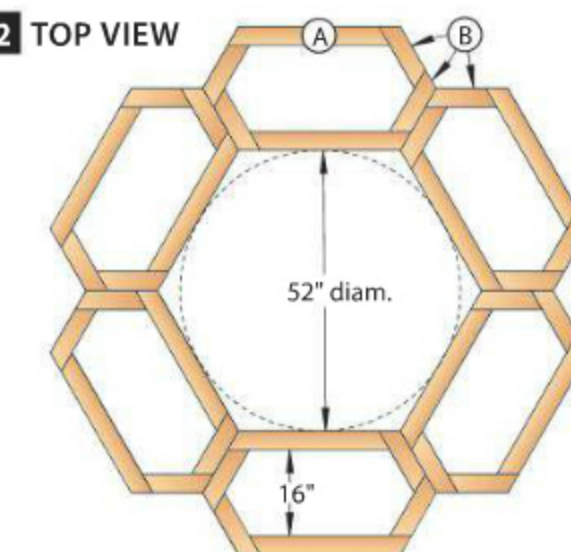
Source

1/4 x 5" extra-long wafer-head timber screws spider drive: No. TMR-4050 \$16.80/pack of 25, McFeely's, 800-443-7937, mcfeelys.com.

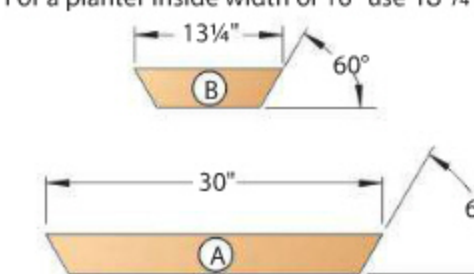
1 EXPLODED VIEW



2 TOP VIEW



For a planter inside width of 12" use 11" long B's.
For a planter inside width of 16" use 13 1/4" long B's.



For an inside diameter of arranged planters of 26" use 15"-long A's.
For an inside diameter of arranged planters of 35" use 20"-long A's.
For an inside diameter of arranged planters of 43" use 25"-long A's.
For an inside diameter of arranged planters of 52" use 30"-long A's.

Materials List

Part		FINISHED SIZE			Matl.	Qty.
		T	W	L		
A	narrow post cores	1½"	3½"	120"	PT	4
B	wide post cores	1½"	5½"	120"	PT	4
C	post fascia	1½"	9¼"	84"	PT	4
D	spacers	1¾"	*	5½"	P	4
E	crown caps	1½"	7¼"	14½"	PT	4
F	top caps	1½"	5½"	11"	PT	4
G	post cleats	1½"	5½"	8"	PT	2
H	crown molding	**	**	**	P	8
I	header beams	1½"	11¼"	144"	PT	2
J	planter shelf	1½"	5½"	***	PT	1
K	divider blocks	1½"	5½"	5½"	PT	4

*Cut width to fit behind crown molding

**Cut crown molding to fit

***Length determined by length of plastic planter boxes used.

Materials key: PT—pressure-treated 2-by pine; P—pine.

Supplies: 12x48" concrete form tubes (2), crushed rock/gravel, concrete mix (quantity depends on footing depth), 2½" galvanized or stainless-steel deck screws; 3½" galvanized or stainless-steel deck screws; 5d galvanized finish nails; 3 or 4 rectangular plastic planter boxes to fit between headers; latex solid-color exterior stain in desired colors; low-voltage lighting kit (optional).

Bits: ⅝" with countersink; 1" spade bit.

Additional tools: posthole digger, sawhorses, tape measure, builder's level (4' or longer), mixing hoe, wheelbarrow, round-nose shovel, angle square or combination square, nail set.

MORE RESOURCES

ONLINE ARTICLE

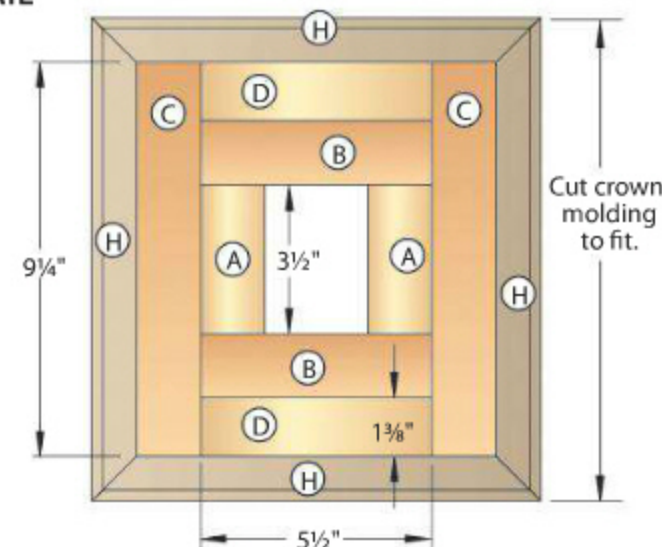
■ Wrangling large posts and getting them placed just right requires a few tricks. You'll be "digging" it in no time with this comprehensive article woodmagazine.com/postmaster



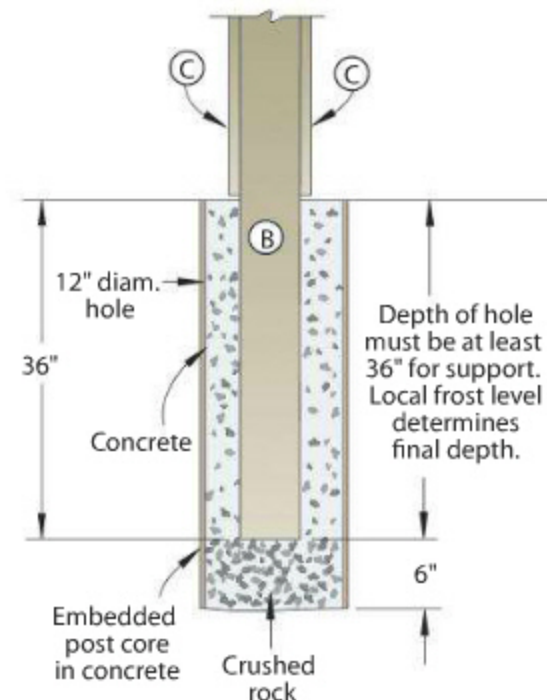
VIDEO

■ Working with crown molding can be intimidating; find some great tips at woodmagazine.com/moldingvideo

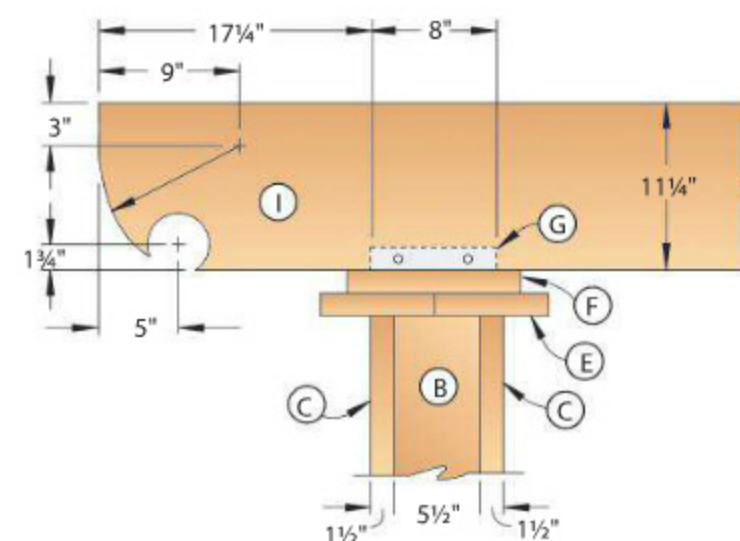
2 POST-ASSEMBLY DETAIL (TOP VIEW)



3 FOOTING DETAIL



4 HEADER DETAIL



The facts are hard to ignore.

Titebond® III outperforms polyurethane glues.



Reference Guide

Glue comparison

What woodworkers need to know!

	Titebond III	Polyurethane Glues
Higher Bond Strength	✓	✓
Exterior Use – Waterproof	✓	✓
Easy Water Cleanup	✓	✓
Much Safer To Use	✓	✓
Shorter Clamp Time	✓	✓
No Foam – Less Mess	✓	✓
Shorter Open Time	✓	✓
Doesn't Stain Skin	✓	✓
Bonds Most Materials	✓	✓
Bonds Oily / Exotic Woods	✓	✓
Lower Cost – Better Value	✓	✓
Longer Usable Shelf Life	✓	✓

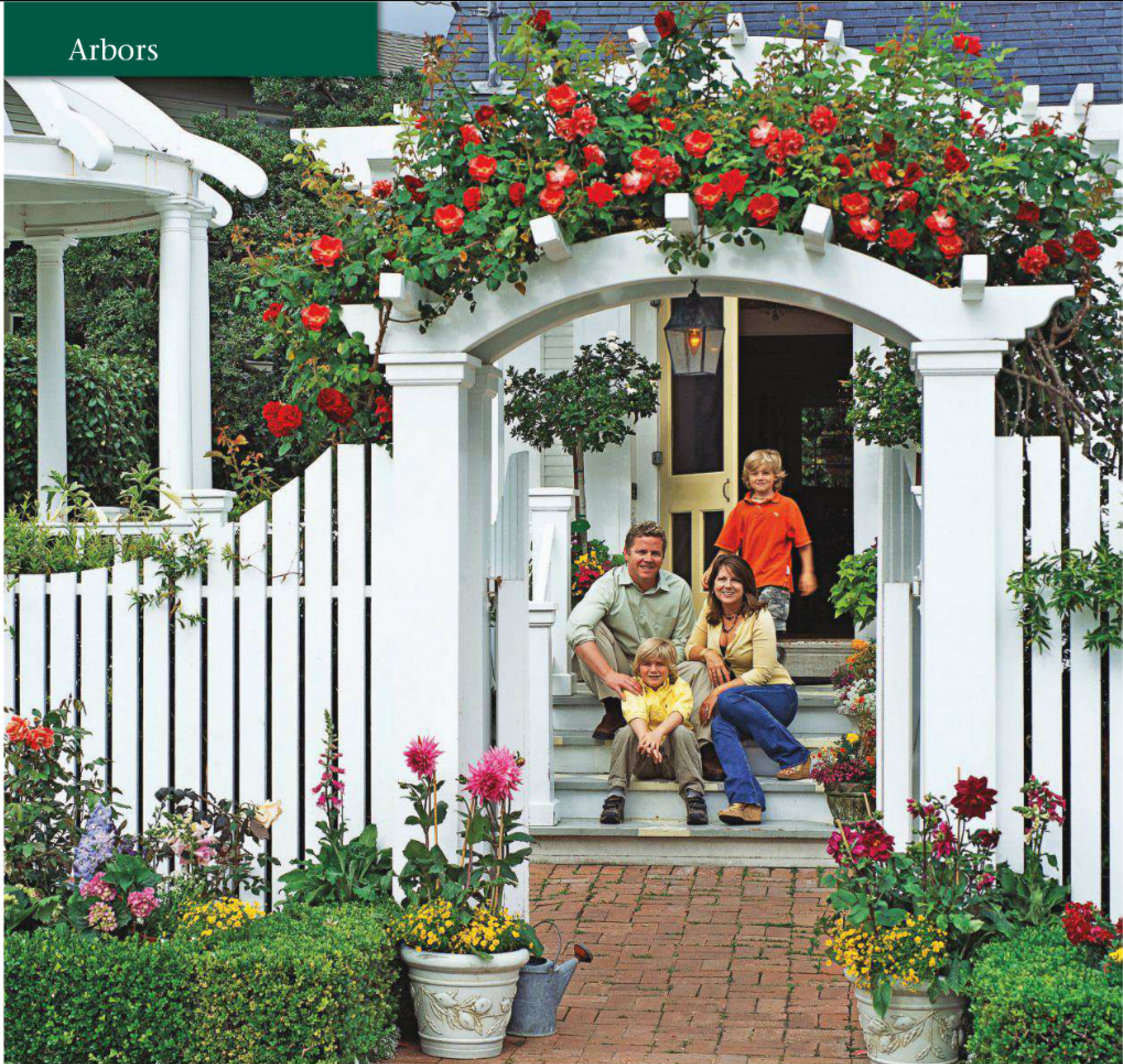
As the leader in wood glues, we want you to know the truth about polyurethane glue and woodworking. A straightforward comparison between Titebond® III Ultimate Wood Glue and polyurethane glue tells the story.

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For more information and a detailed comparison, please visit www.titebond.com/TBIIIvsPolyurethane

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Great and Glorious Arbor Gallery

Whether used as support for vines or other greenery, to frame an entrance, or just for its beauty, there's an arbor right for you.

Webster's *New World Dictionary* has three entries for "arbor." Oddly, not one of them describes the familiar structure we know as one of the most popular outdoor constructs. Even stranger, look up "pergola" in the same dictionary, and guess how they define it: an arbor. Odder still, look up "trellis" in the same source, and it'll tell you it's from the French word *treille*, which means, you guessed it: arbor.

They're all arbors, but what you call them is usually tied to how you use them. Any structure with posts framing a central opening can be an arbor, but add latticework for climbing plants and it's typically referenced as a trellis. Make it large enough for people to congregate beneath, and you'll usually hear it called a pergola.

Endless options

Your arbor can be a single, stand-alone structure, or you can incorporate it into larger structures. Matthew and Bettina Osborne of Coronado, California, did just that. Their 1904 cottage *on previous page* features a rose-covered gated arbor that functions as a formal entry for their yard, with the arched top of the arbor mirroring the one on the front porch. The fence off each side of the arbor blends with railings on a gazebo, which has columns exactly matching those in the home's entry hall. A deck connects their front porch and gazebo for a perfectly integrated appearance.

While the Osbornes' arbor enhanced an already-attractive home, arbors also make the difference between bland and beautiful. When James and Shannon VanHemert of Denver wanted to make the front of their plain-brick cottage more inviting, they turned to a trellised arbor as the focal point of the walkway. With the arbor in place, they extended attractive fencing from each side to enclose their yard. Window treatments matching the style of arbor and fence add the finishing touch.

Whatever your home renovation needs, consider an arbor a perfect starting point. From simple to elaborate, and a lot in between, you may be surprised at the difference one makes. The three arbors that follow (plans available for purchase at woodmagazine.com/arbors), will get your creative juices flowing.



The VanHemerts' ranch-style brick home needed a serious facelift. After clearing their yard, they began their new look with an arbored entrance over their walkway, integrated a fence of matching construction and details, and then planned the rest of their landscaping around it. A companion arbor in the backyard lends symmetry to the view.



Garden bench/trellis

One of the easiest-to-build arbors in our gallery, this small structure can tuck anywhere into your yard or garden. It also offers some welcome seating to your outdoor gathering area that doesn't have to be dragged out of the garage or shed every time you need it.

Off-the-shelf dimensional lumber makes up the bulk of this arbor's materials. The main structure is 4x4 pressure-treated posts set into concrete, while dimensional cedar lumber and decking make up the rest of the supplies.

If your outdoor needs run more to privacy than to seating, eliminate the bench portion of this arbor and instead install a full-height lattice inside the frame. Placed as an anchor or wall behind landscaping, the trellis version of this arbor plan delineates your outdoor area, and provides a scaling surface for climbing vines.

Overall dimensions are 80½" wide x 41¾" deep x 92¼" high. (Height doesn't include underground portion of posts, which should reach at least the local frost line.) The optional bench measures 24x54½".

You'll find plans—with full-size patterns for the curves of the upper members—at woodmagazine.com/gardenbench.

This garden bench/trellis is a perfect stand-alone arbor for compact spaces, and offers the option of seating or privacy, depending on which version you build.



Build-to-suit pergola

No two homes have the same outdoor living spaces, so this pergola is designed for infinite adaptability. As shown at left, the pergola measures 168" wide x 131" deep, and stands 107¾" above the ground, but you can easily increase or decrease any of the dimensions as needed. Build it as a freestanding structure with its four 6x6 cedar corner posts sunk into the ground and embedded in concrete, or incorporate it into the design of an existing deck or patio.

When altering the size of this pergola, the basic rule of thumb is to start with your desired footprint, measured from the outside of each corner post. Now, to account for the 10" overhang of the upper members, add 20" to the footprint's width and length to arrive at the correct lengths for the top joist pairs. We kept the spacing between joist pairs as close to 24" as we could, so adjust the number of joists on your rescaled pergola accordingly.

Get the plans at woodmagazine.com/pergola.



Trellised arbor

Our trellised arbor combines two of Webster's descriptions into a single structure, with ready-made lattice included as part of the design. The project is easy to build despite its deceptively intricate appearance. Two straightforward joinery methods make up most of the work: biscuits, and interlocking notches you can make on a table saw or with a portable circular saw.

Materials include 4x4 cedar corner posts along with dimensional cedar components for the top members; while the arches at front and back and the ring assemblies on each side are medium-density overlay plywood. You'll find the PVC lattice in large 4x8 sheets at your local home center; just cut them to size on a tablesaw or with a jigsaw to fit. We've painted our arbor for a bright look in the garden.

As shown, this 88" wide x 64" deep x 96" high arbor isn't embedded into the ground. Rather, we mounted it on concrete footers using the same type of bolt-down standoffs you might use for decking posts. The standoffs are attached with hex-sleeve anchors embedded into the concrete.

Find the complete plans, which include info on finishing cedar and plywood for outdoor projects, at woodmagazine.com/trellisedarbor.

Written by **A.J. Hamler**

Photography by: **Ed Gohlich; Emily Minton; Marty Baldwin**

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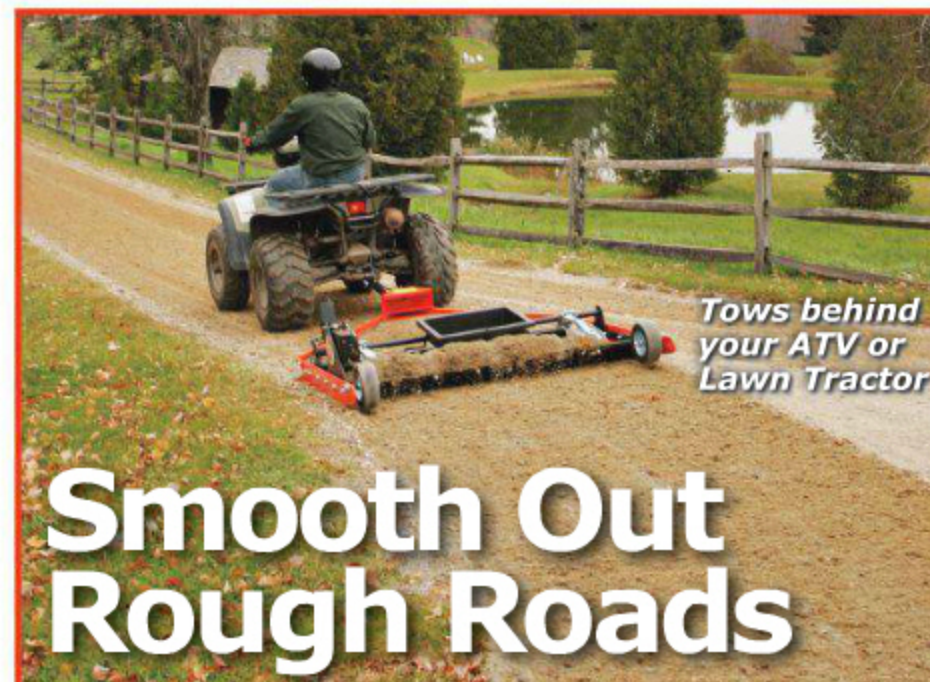
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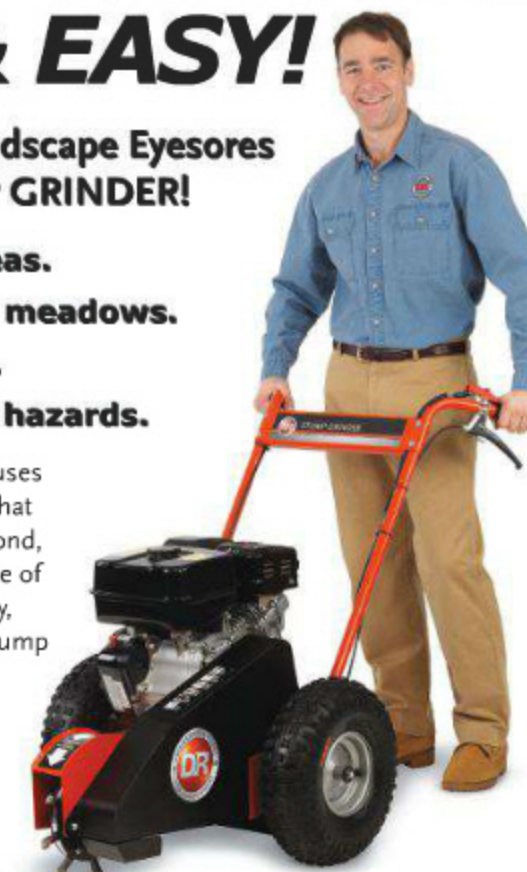
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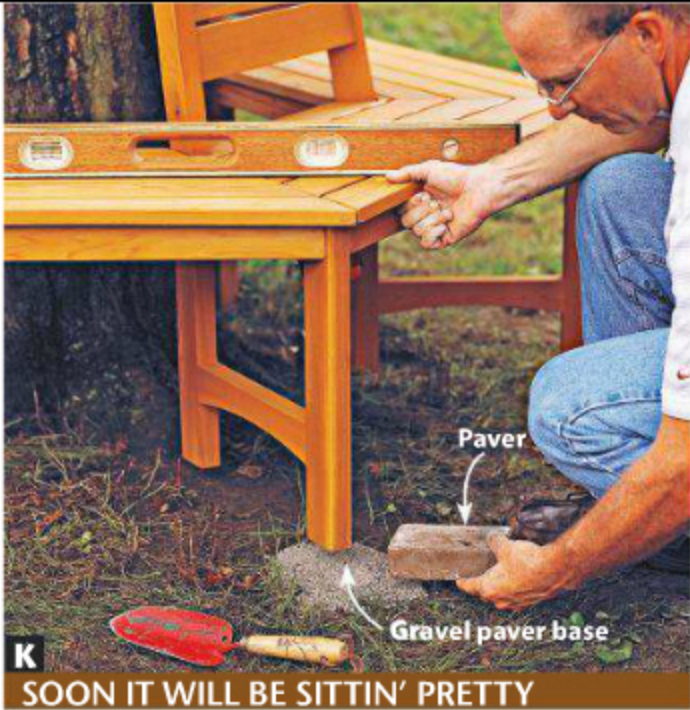
4 Level the bench by digging soil from under some legs with a trowel or setting pavers under others [Photo K]. For the most solid setting, place pavers under all the legs. Placing pavers can help minimize damage to tree roots near the surface by reducing digging, too.

5 When the bench is sitting solid and level, make reference marks on the bench and tree to indicate position. (Tape or surveyor's flagging will do the trick.) Unclamp and remove the two seat assemblies (D–N), then remove the double-bench assemblies (A–Q).

6 We spread landscape fabric over the area to create a bed slightly larger than the diameter of the bench. Install edging, if you wish.

7 Replace the double-bench assemblies (A–Q) and seat assemblies (D–N) in their original positions. Attach the seats to the benches.

8 Install the two back support/splat assemblies (P/Q). Place the spacers (SG9) on the bench seat, and center the



K SOON IT WILL BE SITTING PRETTY

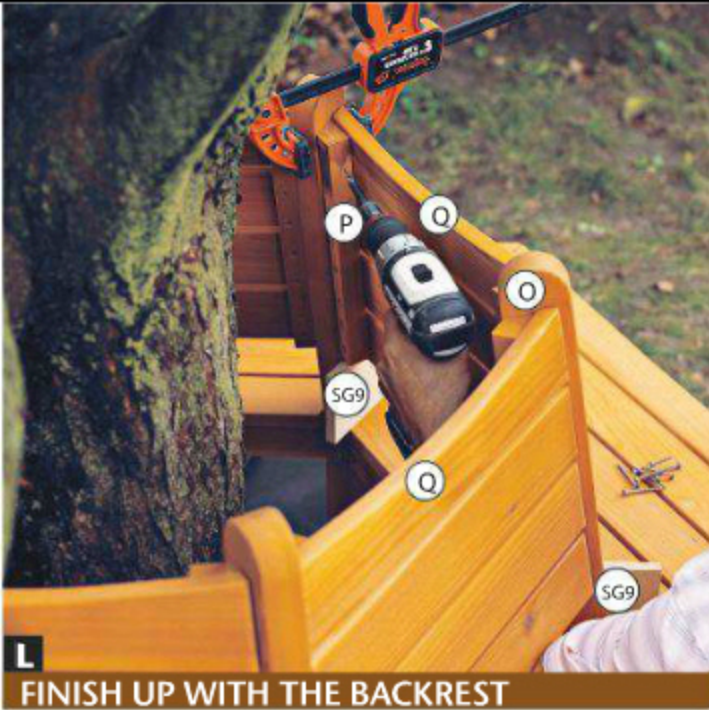
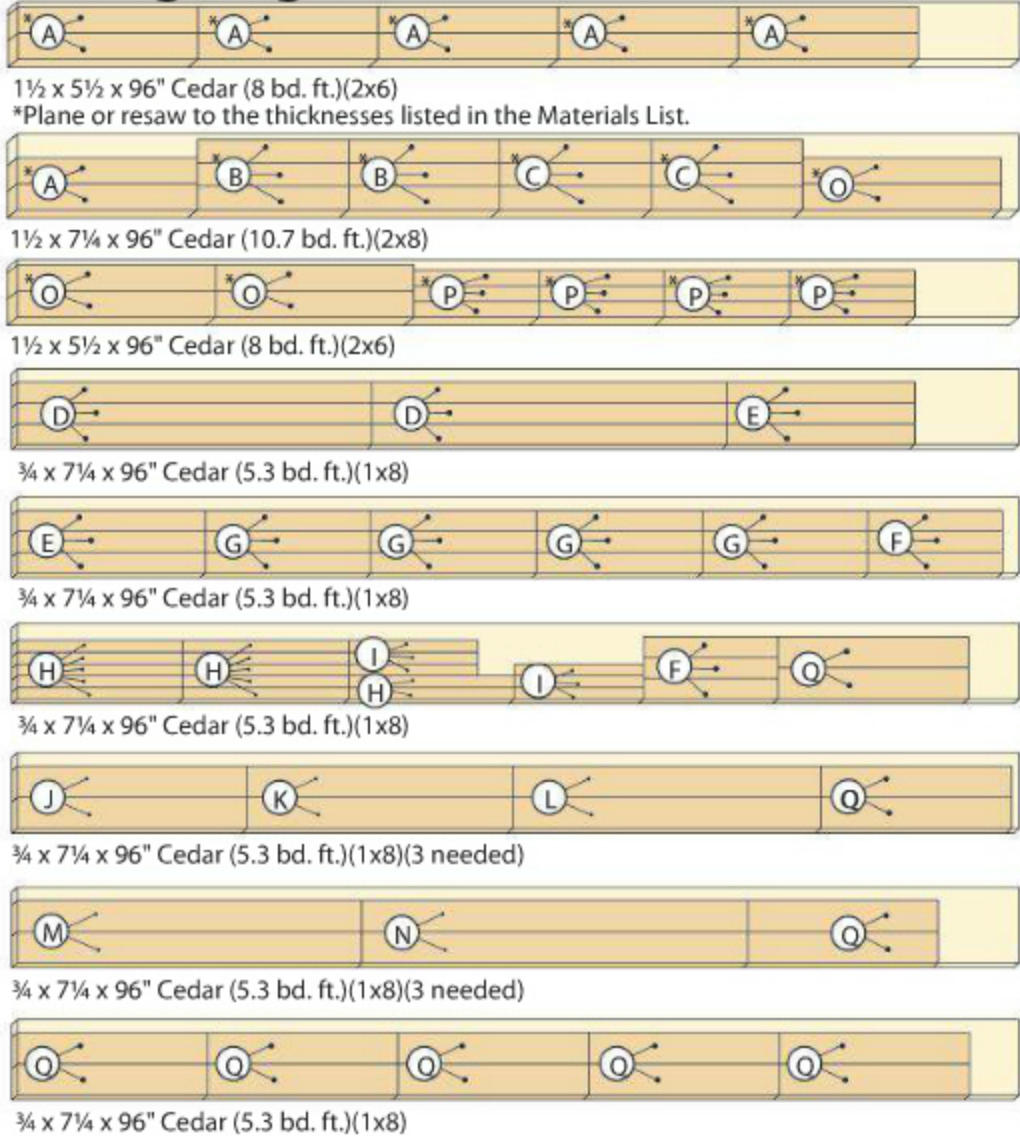
Dig or shim under the legs to level the bench. Paver blocks set in sand or gravel paver base under the legs minimize shifting and settling.

back assembly on them between the uprights (O). Attach the back [Photo L]. Repeat for the other back assembly.

9 Add plants if you wish. Then, spread mulch or ground cover on the landscape fabric. Now, grab your favorite outdoor beverage, plop down on your new bench, and relax.

Written by **Larry Johnston** with **Jeff Mertz**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine; Lorna Johnson**

Cutting Diagram



L FINISH UP WITH THE BACKREST

Drill screw holes through the supports (P) into the uprights (O), and drive screws to attach the back assembly (P/Q).

MORE RESOURCES

FREE VIDEOS

- Installing the tree bench at woodmagazine.com/treebench
- Making and using a fairing stick at woodmagazine.com/fairingvideo

FREE ONLINE ARTICLE

- What fasteners are best for outdoors? Find out at woodmagazine.com/fasteners

Materials List

Part	FINISHED SIZE			Matl.	Qty.	
	T	W	L			
Leg assemblies						
A	legs	1¼"	2½"	17¼"	C	12
B	upper rails	1¼"	2¼"	14½"	C	6
C	lower rails	1¼"	2¼"	14½"	C	6
Frames						
D*	frame fronts	¾"	2"	33½"	C	6
E*	frame backs	¾"	2"	17¾"	C	6
F	frame centers	¾"	2"	12⅞"	C	6
G*	frame sides	¾"	2"	15⅝"	C	12
Seats						
H*	side cleats	¾"	1⅞"	15⅝"	C	12
I*	center cleats	¾"	1⅞"	12⅞"	C	6
J	seat slats	¾"	3"	22"	C	6
K	seat slats	¾"	3"	25½"	C	6
L	seat slats	¾"	3"	29½"	C	6
M	seat slats	¾"	3"	33"	C	6
N	seat slats	¾"	3"	37"	C	6
Backs						
O	back uprights	1¼"	2½"	19"	C	6
P	back supports	1"	1½"	12"	C	12
Q*	back splat blanks	¾"	3"	18¾"	C	24

*Parts initially cut oversize. See the instructions.

Material key: C—cedar.
Supplies: 1 1/8" and 2" deck screws; 3/8x4" steel mending plates.
Blade and bit: Stack dado set, 3/8" round-over router bit, 3/8" plug cutter.



Rustic Bench

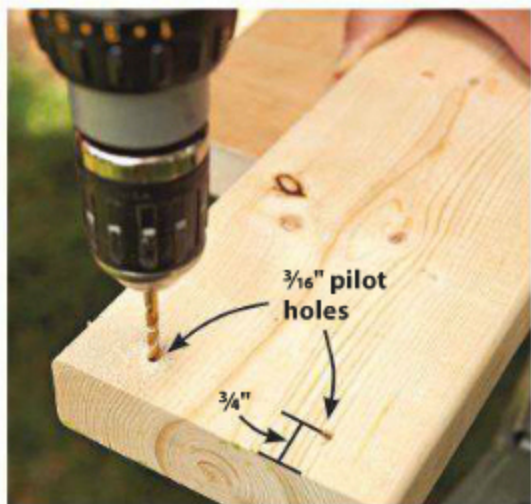
Construct an inexpensive and easy-to-make seat for your garden sanctuary.

Distinctive seating adds the ideal finishing touch to any cozy garden spot or outdoor gathering area. This rustic bench was inspired by 19th-century rural workshops, where sturdy furniture was created with little more than lumber, a hammer, and a handful of nails. Used as a bench or low table, the piece looks great standing alone or paired with bent-willow or Adirondack chairs.

For the construction of our bench, explained on the *next page*, we used standard 2x4 and 2x6 No. 2 framing lumber, to which

we've added exterior stain and a protective coat of wood sealer. Or, choose weather-resistant wood such as pressure-treated, cypress, redwood, or Western red cedar.

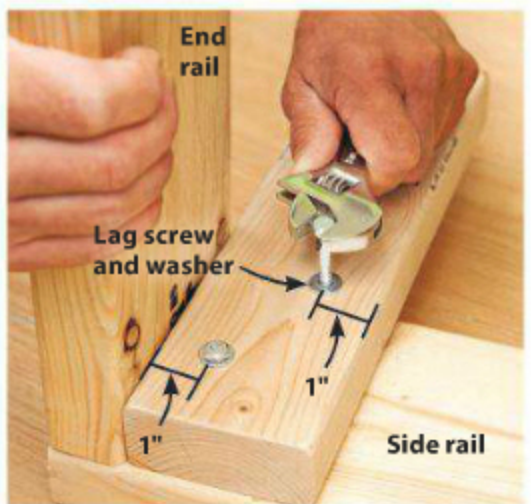
We topped it all off with cultured-stone concrete hearthstones, available at larger garden centers, measuring 18" to 20" on each side. Natural stone in similar sizes is another option. But whichever you choose, it's best to enlist a helper when you put them in place—they're heavy. Expect to pay about \$20 to \$40 for concrete or \$35 to \$55 for natural stones.



1 Drill a pair of 3/16" pilot holes through the ends of the side rails. Locate the holes 3/4" from the ends, and about 11/2" from the tops and bottoms. These holes ensure that the nails will go in straight.



2 Drive 4" long (20d) nails through the pilot holes and into the end rails, keeping the corners as square as possible. (Temporarily clamping the corners will help.)



3 Drill two staggered 1/4" holes in one end of each leg. Locate holes over side rails, 1" in from edges. Mark pilot-hole locations in side rails; drill 1/8" pilot holes 1/2" deep. Attach legs to rails.



4 For a distressed look, rub wood with a steel-wire brush in the direction of the grain. Use an awl or ice pick to create "wormholes." Smooth all wood edges and distress marks with 100-grit sandpaper. Remove dust.



5 Apply exterior stain with a brush or rag; wipe off excess. Repeat to darken stain to your preference, waiting 12 hours between coats. Wait 24 hours after the final coat of stain, and then brush on your choice of wood sealer.



6 Treat benchtops with an appropriate sealer to prevent staining if your bench is used in a manner where food spills are likely. Center stones over wood base. If stones wobble slightly when in place, level with modeling clay or shims.

Written by **Mark Chervenka**
Photography: **Jay Wilde**

Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A end rails	1 1/2"	5 1/2"	12"	FL	2
B side rails	1 1/2"	5 1/2"	35"	FL	2
C legs	1 1/2"	3 1/2"	12"	FL	4

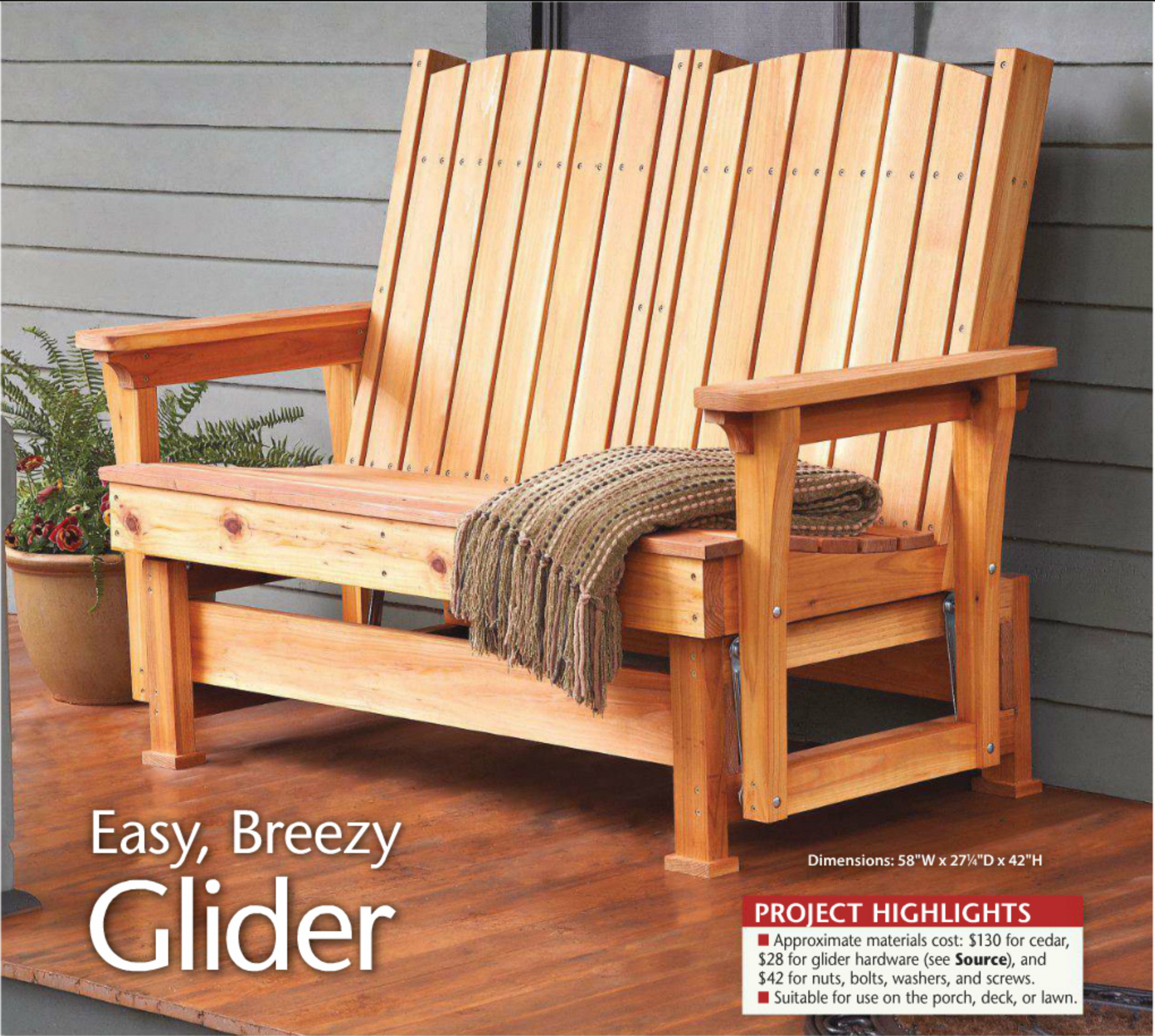
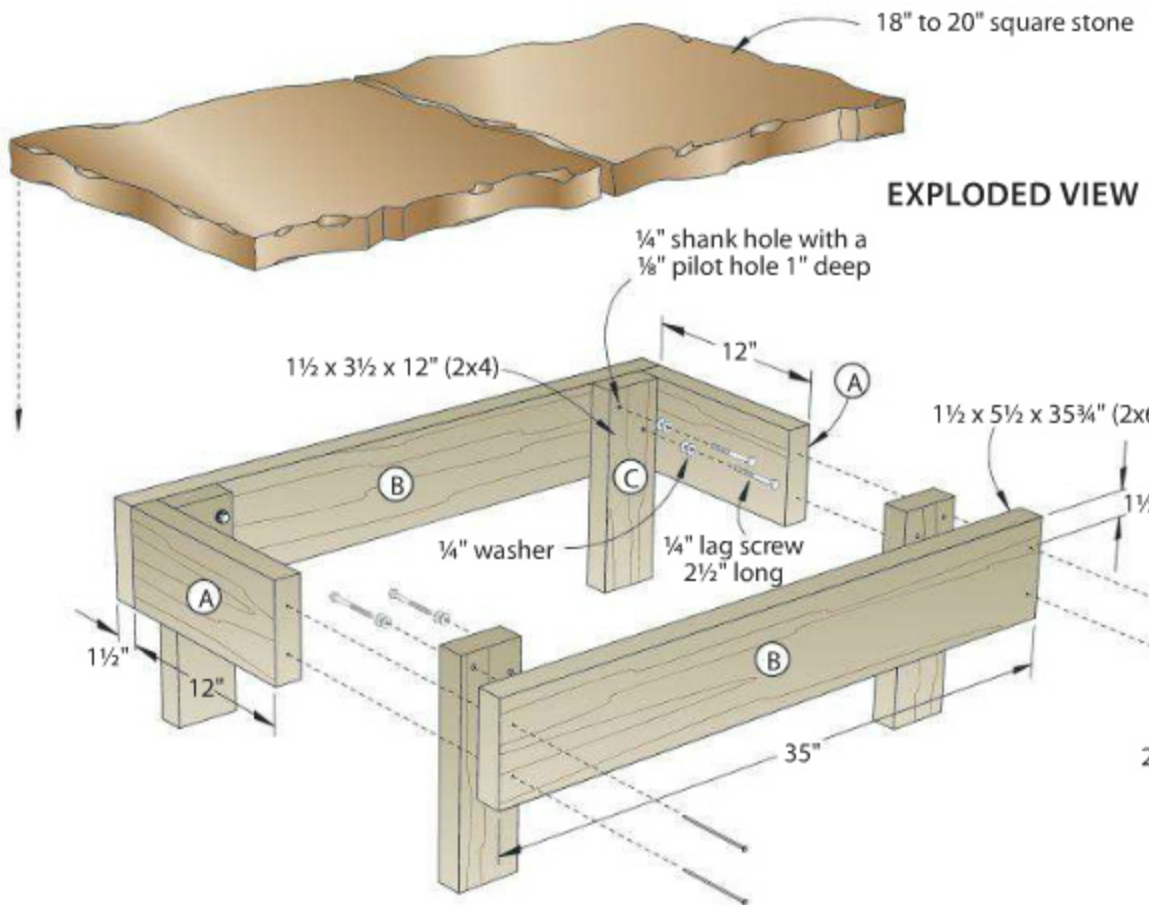
*All wooden parts from dimensional framing lumber (2x4 and 2x6); actual dimensions shown.

Materials key: FL—No. 2 framing lumber.

Hardware: 20d nails; 1/4x2 1/2" lag screws (8); 1/4" washers.

Bits: 3/8", 1/4" & 3/16" drill bits

Supplies: exterior stain and sealer; natural stone or cast-concrete hearthstones (2).



Easy, Breezy Glider

Dimensions: 58"W x 27 1/4"D x 42"H

PROJECT HIGHLIGHTS
■ Approximate materials cost: \$130 for cedar, \$28 for glider hardware (see **Source**), and \$42 for nuts, bolts, washers, and screws.
■ Suitable for use on the porch, deck, or lawn.

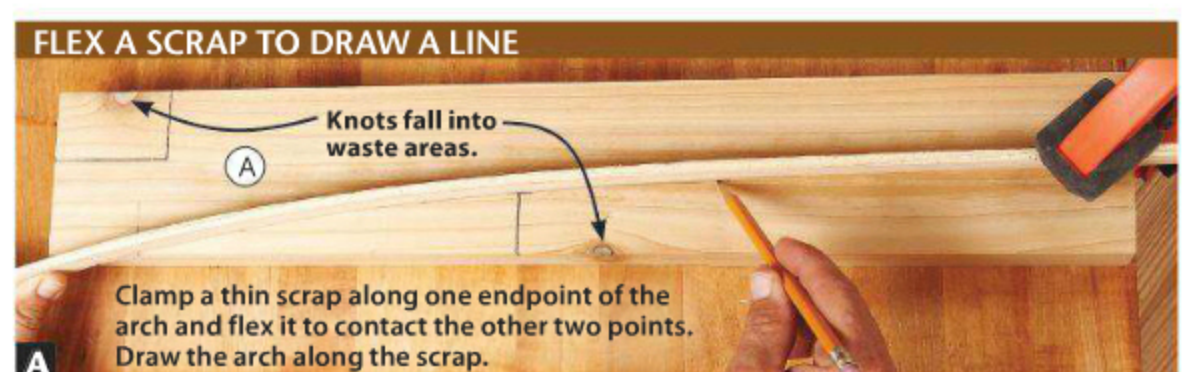
What better way to enjoy a warm summer evening with friends or family than in a comfy glider? To build it, all you need are "one-by" and "two-by" cedar boards, screws, and the glider hardware sourced on [page 41](#).

Build two side frames for the seat

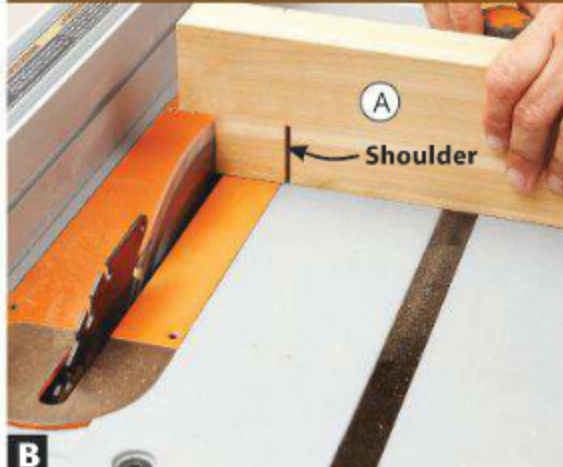
1 On the clearest areas of 1 1/2"-thick dimensional cedar, lay out parts A–K 1/2" longer than listed [**Materials List**, [page 41](#); **Shop Tip**, [next page](#)]. Crosscut and rip the pieces to rough lengths and finished widths. For now, set aside all parts but the legs (A).

2 Crosscut the legs (A) to length, then lay out the notch to receive the arm rail (C) [**Drawing 1**]. On one leg only, lay out the three points that define the curve and draw the curve [**Photo A**].

3 Set your tablesaw blade 1 1/2" above the table and position the rip fence 2 1/2" from the *outside* of the blade. Make repeated passes to cut the notch in each leg (A) [**Photo B**]. Bandsaw or jigsaw the

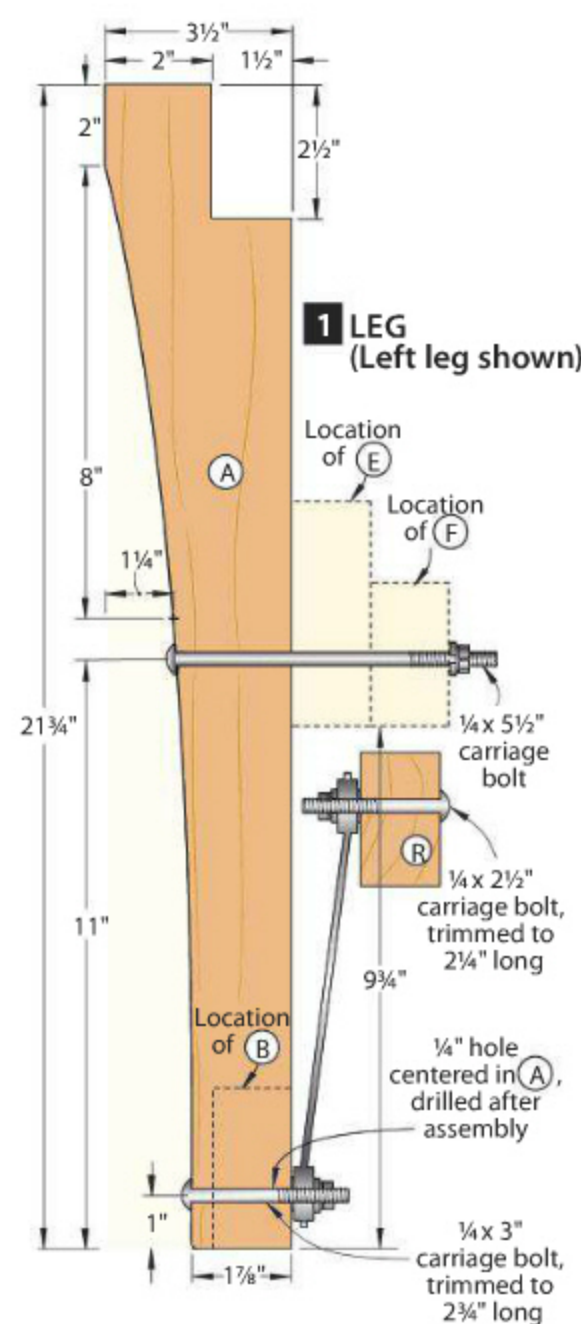


NOTCH THE ARMS

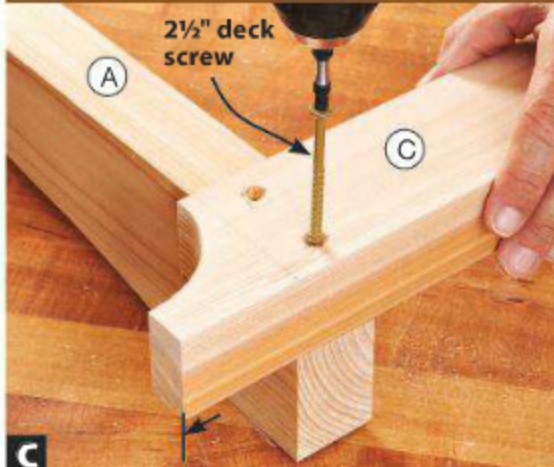


B Establish the shoulder of the notch first, then remove the remaining material with repeated passes over the blade.

curve in one leg and sand it smooth. Using this leg as a template, transfer the curve to the other legs. Cut the curves, then stack and clamp all four legs together to sand them to final shape. Start with 100-grit sandpaper and end with 150-grit.



SECURE THE ARM RAILS



C Overhang the arm rail (C) 2" past the front face of the front leg (A). Make two mirrored leg/rail assemblies (A/C).

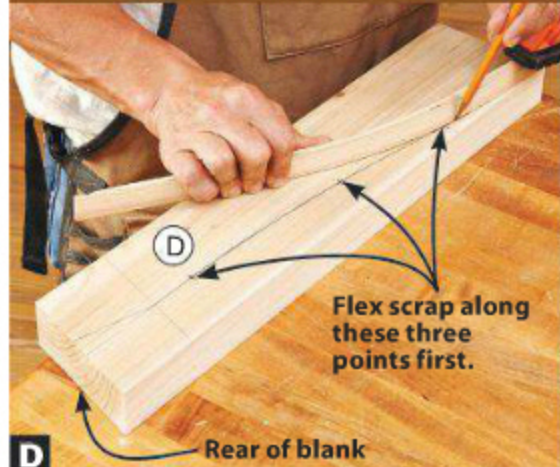
4 Crosscut the lower rails (B) to finished length [Drawing 2]. Set your tablesaw miter gauge to 15° and miter-cut the arm rails (C) to finished length.

Quick Tip! Save time and improve accuracy. Leave your miter gauge set to 15° for cutting several more pieces in the next few steps. Lay out and cut the curve at the front end of each arm rail. Screw each lower rail between two legs (A), then glue and screw the arm rails in place [Photo C].

Note: For the screw joints on this project, drill 3/32" countersunk pilot holes before driving the screws. Also use a glue suitable for outdoor applications: type II or III yellow (PVA) or a polyurethane glue.

5 Retrieve the center seat rail (D). Lay out the 15° angle at the back, and the curve on the top edge [Drawing 3,

LAY OUT A FLOWING CURVE



D Flex a thin scrap between the rearmost three points, then use the front point and the corner of the blank to form the front curve.

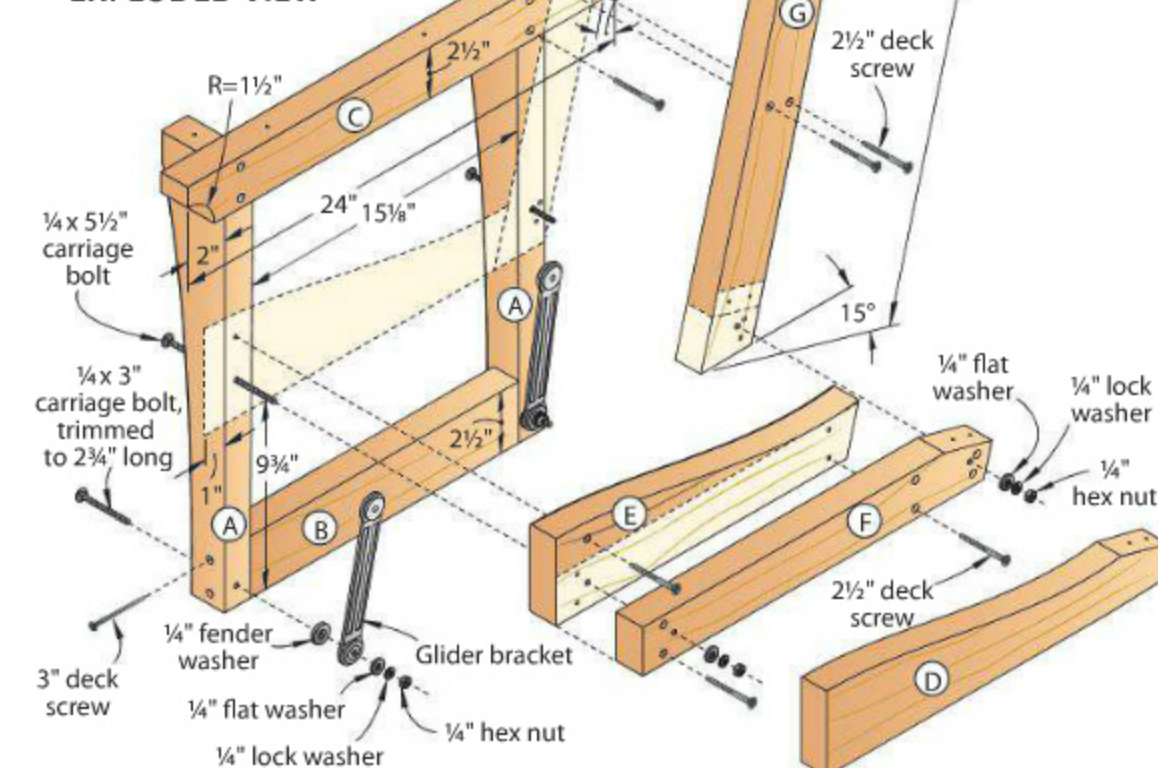
SHOP TIP

Create clear stock, even when it's knot

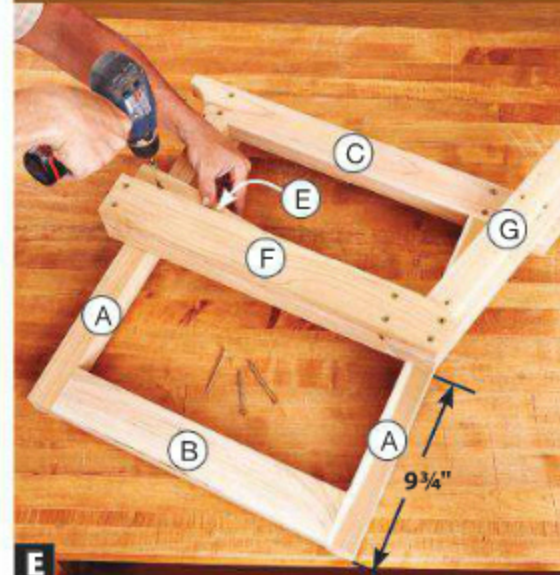
Carefully laying out parts minimizes knots that can weaken your project or detract from its appearance. In **Photo A**, note how the knots all fall into waste areas of the leg blank (A), yielding a clear workpiece.

Photo D. At the tablesaw, miter-cut the end of the rail, then cut the top edge with a jigsaw or bandsaw, and sand the top edge to 150 grit.

2 LEFT-SIDE EXPLODED VIEW



MAKE TWO SIDE ASSEMBLIES



E Glue and screw a side assembly (E-G) to a leg assembly (A-C). Make two mirrored assemblies.

6 Use the center seat rail (D) as a template to lay out the curved shape of the end seat rails (E) and the angled end of the end-rail braces (F) [Drawing 3]. Miter-cut the ends of these pieces. Then cut the curves in the end seat rails and sand them to shape. Finish-sand the seat rails and end-rail braces.

7 With the miter gauge still at 15°, miter-cut the uprights (G) to length [Drawing 2]. Glue and screw an end seat rail (E) to an end-rail brace (F), flush at the front and bottom. Glue and screw an upright to this assembly with its end flush to the bottom edges of the rail and brace. Repeat this process to create a mirrored assembly (E/G) for the opposite side of the glider. Screw and glue each side assembly to its companion leg assembly (A/C) [Photo E].

JOIN THE SIDE ASSEMBLIES



F With a squaring brace clamped to the pieces, drive a 2 1/2" deck screw through the back rail (H) into the end-rail brace (F).

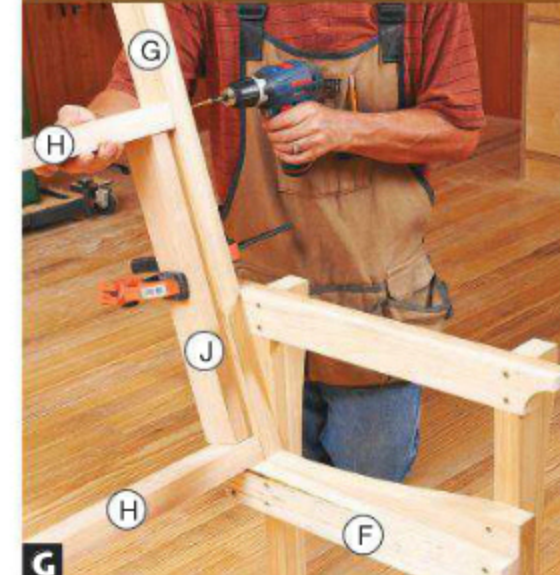
Add a place to sit

1 Cut the back rails (H) and front rail (I) to size [Drawing 4]. Join the side assemblies (A/G) by screwing a back rail to each end-rail brace (F), flush at the back [Photo F]. Cut the lower splat fillers (J) to finished length [Drawing 5] and use them as spacers to position the upper back rail [Photo G].

2 Rout 1/8" round-overs on the bottom front edge and ends of the front rail (I) [Drawing 4], then screw it to the ends of the end seat rails (E). Screw the center seat rail (D) between the front and back (H) rails, centered on their lengths, and flush with their top edges.

3 Place a 3/8"-thick scrap between the lower splat fillers (J) and center this assembly on the length of the back rails (H) [Photo H]. Screw through both back

ATTACH THE UPPER RAIL



G Position a lower splat filler (J) at each end between the back rails (H), then drive 3" deck screws to secure the upper back rail.

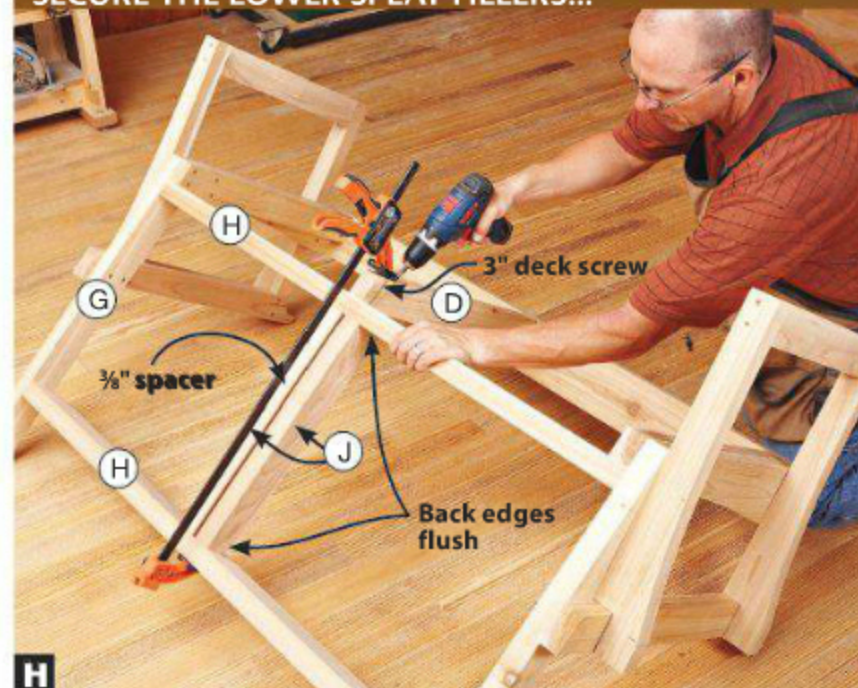
rails into the splat fillers and then remove the scrap.

4 To determine the length of the upper splat fillers (K), measure from the top face of the upper back rail (H) to the top of an upright (G). Cut the upper splat fillers to this length, then set them aside. From 3/4"-thick stock, rip and cross-cut the narrow splats (L) to size, with a 15° bevel on one end [Drawing 5]. Rout 1/8" round-overs on the front faces, except for the bottom ends. Glue and screw a narrow splat to the front edge of each upright (G) and lower splat filler (J). Retrieve the upper splat fillers and glue and screw them in place [Photo I].

Back it up

1 Cut the splats (M) to size [Materials List] and then cut 14 3/8"-thick spacers.

SECURE THE LOWER SPLAT FILLERS...

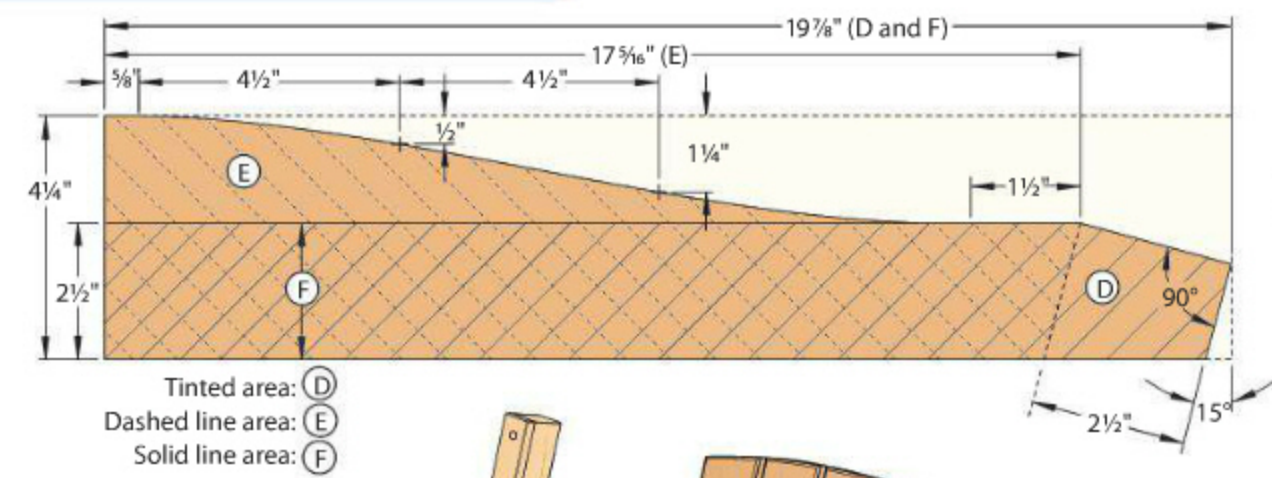


H Flip the seat assembly upside down and screw through the back rails (H) into the lower splat fillers (J).

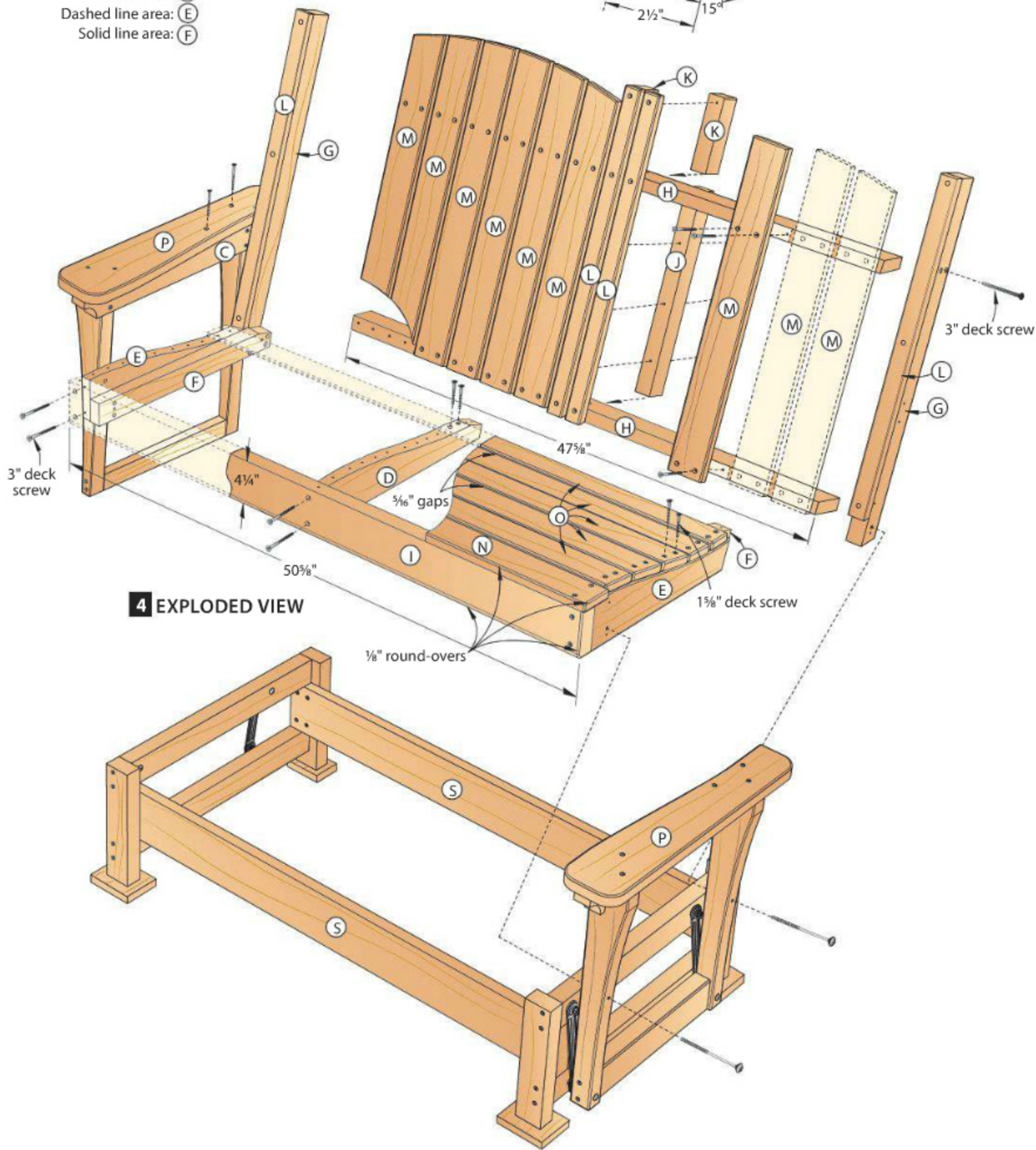
...FOLLOWED BY THE UPPER SPLAT FILLERS



I Screw through the narrow splats (L) into the upper splat fillers (K), then toe-screw through the upper back rail (H) into the fillers.

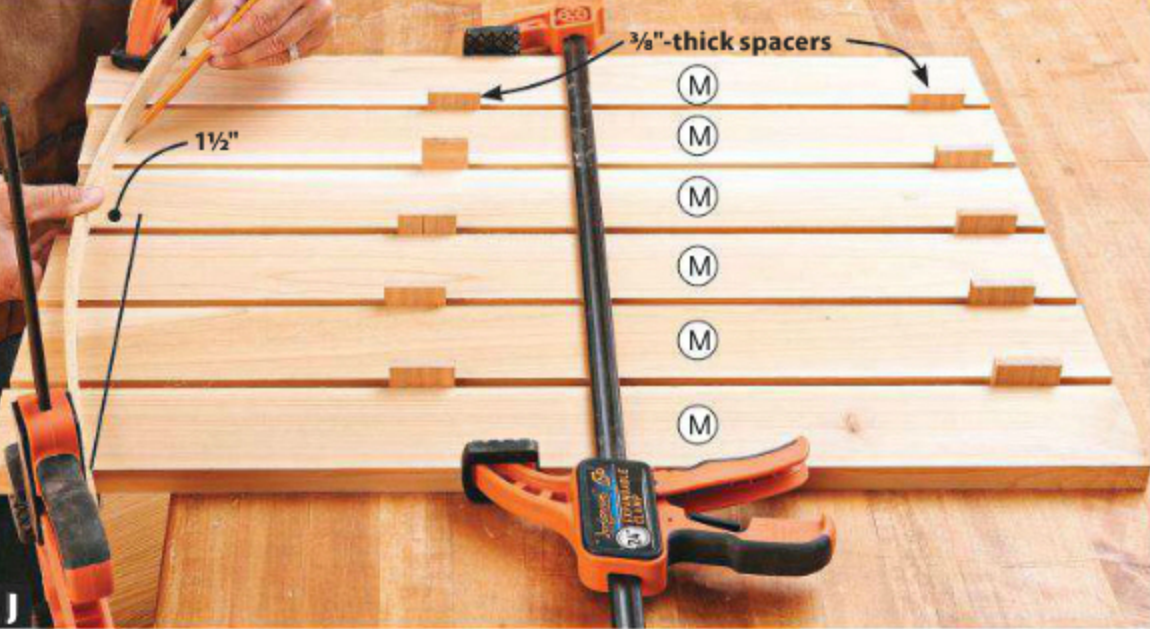


3 SEAT RAILS/END-RAIL BRACE



4 EXPLODED VIEW

LAY OUT THE ARC ON THE SPLATS

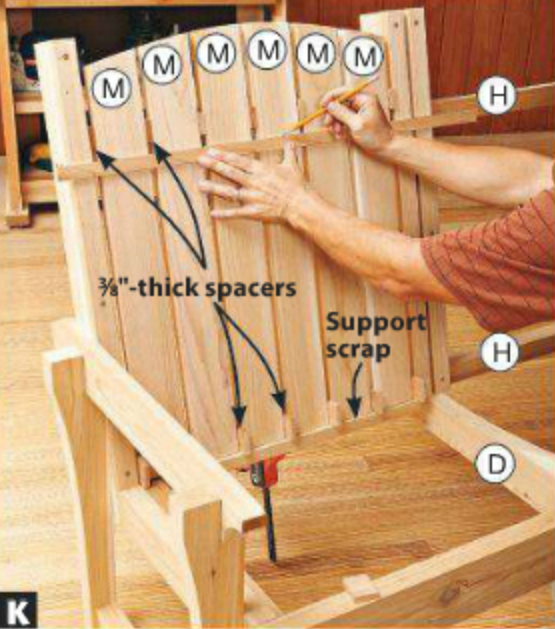


A clamp on each side of the splat dry assembly marks the ends of the arc. Place a thin scrap against the clamps and flex it to the high point of the arc; then trace along the scrap. Unclamp the assembly and cut each splat individually.

Clamp six splats together with their bottom edges flush and spacers between them [Photo J]. Flex a thin strip to lay out the arc along the top end of the assembly [Drawing 5]. Cut the arc, then set the pieces aside and repeat the process for the remaining six splats. Rout 1/8" round-overs around both faces except the bottom edges, then sand the splats to 150 grit.

2 Clamp a scrap below the lower back rail (H) to support the splats (M) and spacers for one side of the glider [Photo K].

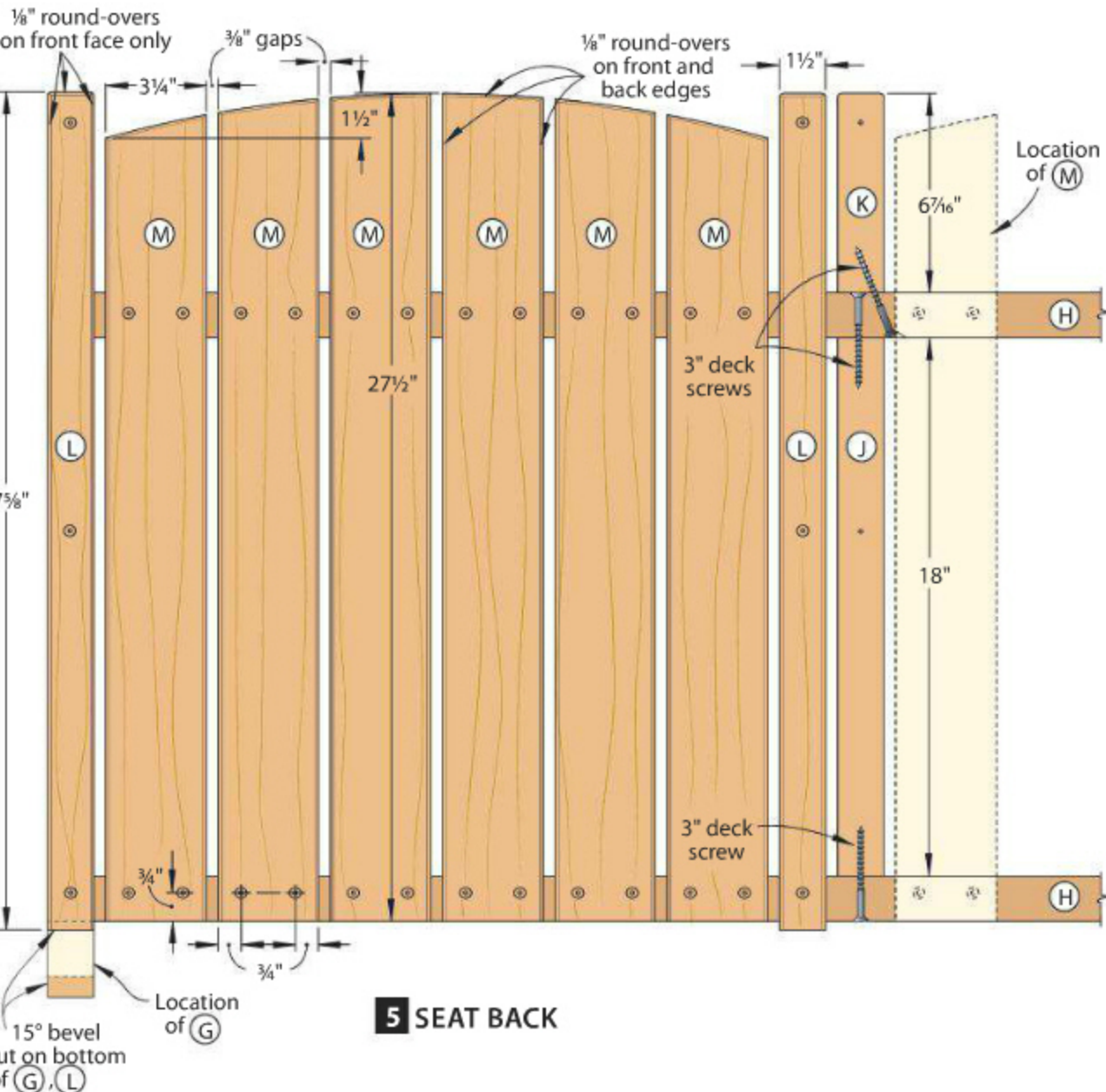
SECURE THE SPLATS



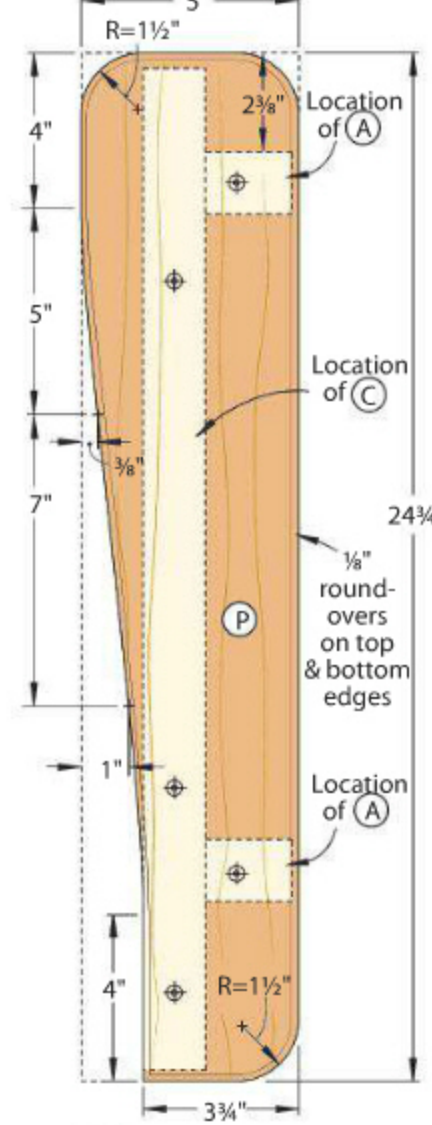
Arrange the splats (M) and spacers, draw lines centered on the thickness of the rails (H), and drive screws along the lines.

Screw the splats in place [Drawing 5]. Repeat to secure the remaining splats.

3 Using an 8"-long 1/4" drill bit (found at home centers), bore two holes through each leg (A), centered on their thickness [Drawing 1; Shop Tip, next page]. Secure a

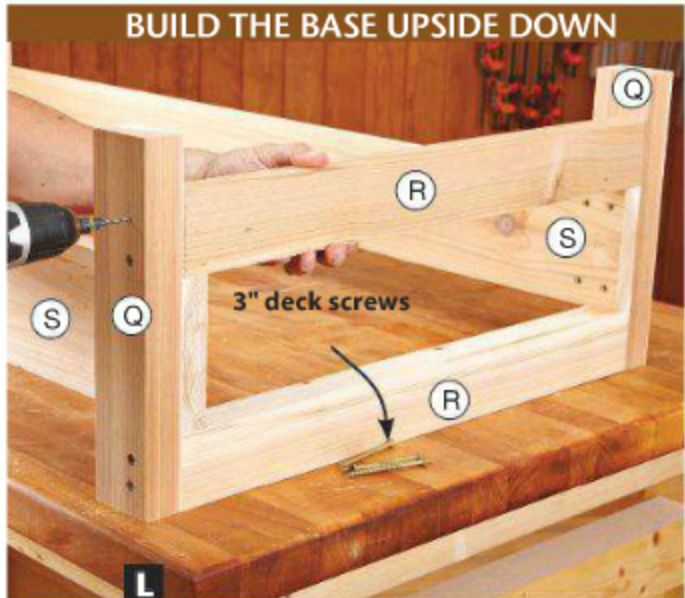


5 SEAT BACK



6 LEFT ARM (Right arm is mirror image)

BUILD THE BASE UPSIDE DOWN

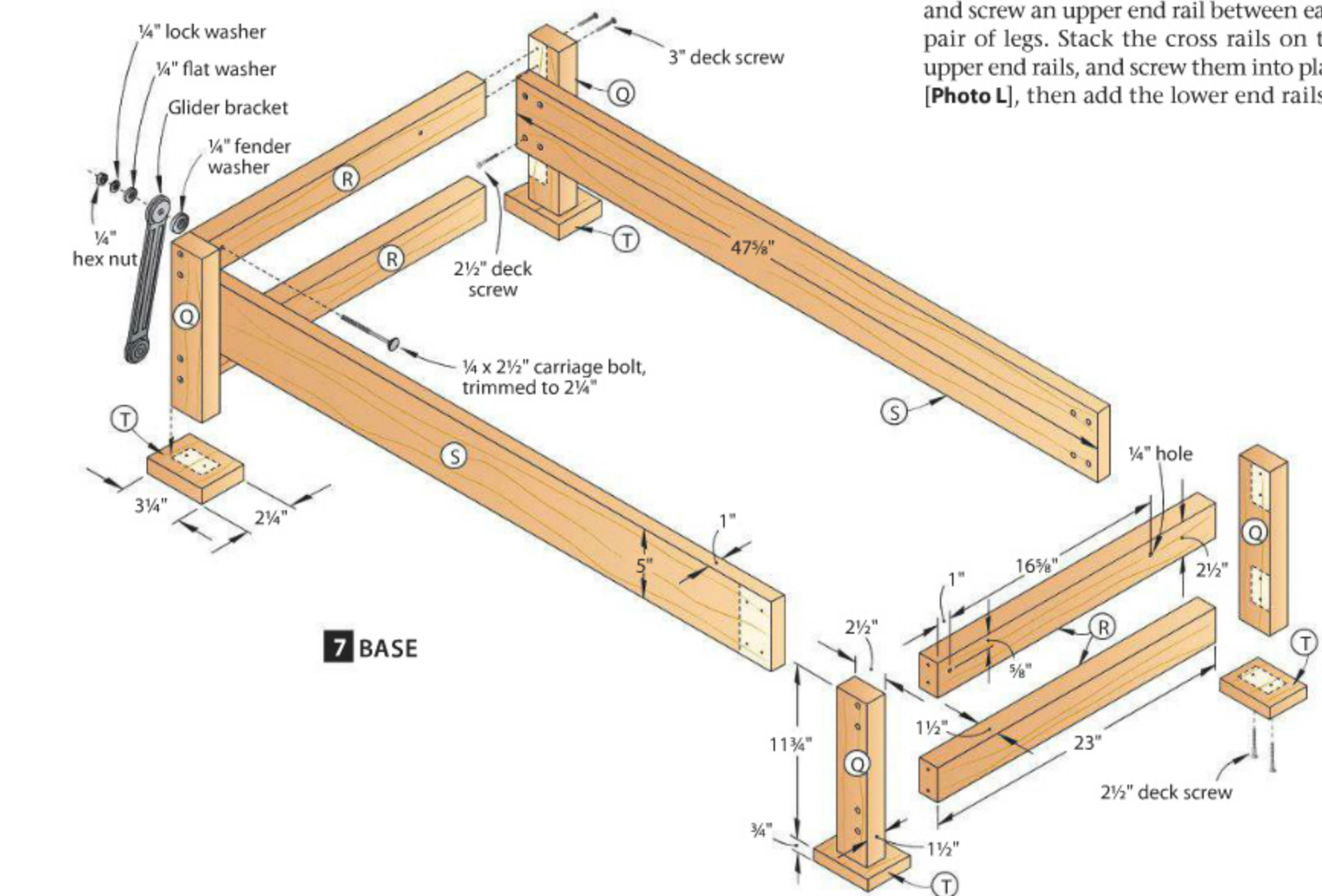
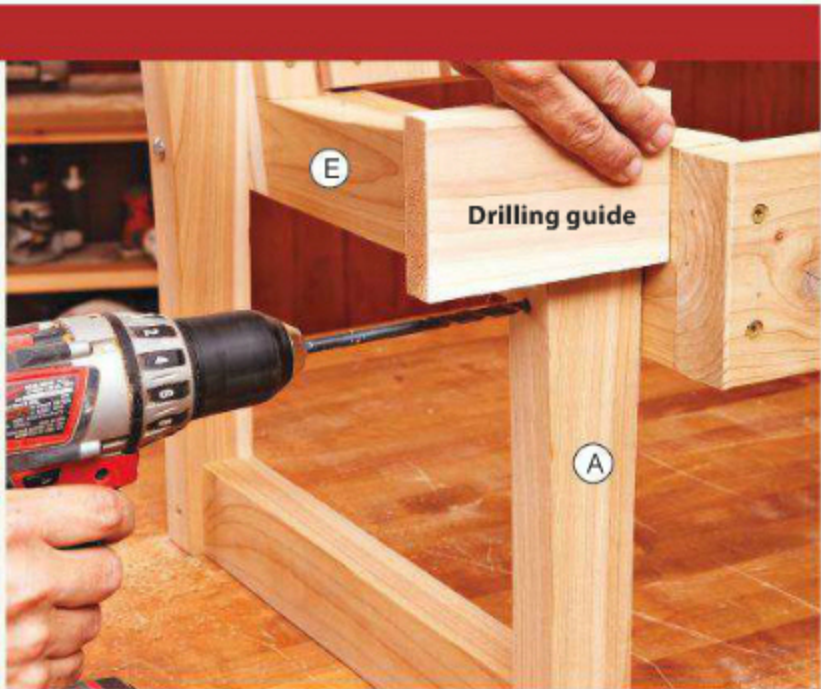


Stack the end rails (R) and cross rails (S) as you screw them in place, keeping their ends and faces flush.

5½" carriage bolt in each upper hole with a flat washer, lock washer, and nut. **4** Rip and crosscut the front slat (N) and the slats (O) to size [Drawing 4, Materials List]. Rout ⅛" round-overs on the top faces, and sand them to 150 grit. Cut 10 ⅝"-thick spacers to use when installing the slats. Starting with a

SHOP TIP

Squarely cut a length of scrap to use as a guide when drilling with a long bit. By keeping the bit parallel to both the face and bottom edge of the scrap, you'll drill straight and true through the leg (A), end seat rail (E), and end-rail brace (F).



spacer at the rear, alternate spacers and slats to check the fit. Screw the slats in place, centering the front slat on the length of the front rail (I). **5** From 1"-thick stock, cut the arms (P) to size [Drawing 6]. Lay out the points for the curve on the inside edge and flex a thin scrap to connect the

Make a base

1 Cut the legs (Q), end rails (R), cross rails (S), and feet (T) to size [Drawing 7]. Set the legs upside down on your bench and screw an upper end rail between each pair of legs. Stack the cross rails on the upper end rails, and screw them into place [Photo L], then add the lower end rails.

2 Center a foot (T) on each leg and screw them in place [Drawing 7]. Flip the base over and drill the holes in the upper end rails (R) for the glider hardware. **3** Feed a ¼x2½" carriage bolt through each hole in the upper end rails (R); then add a fender washer, glider bracket, flat washer, lock washer, and nut. With a hacksaw, cut off the excess bolt length.

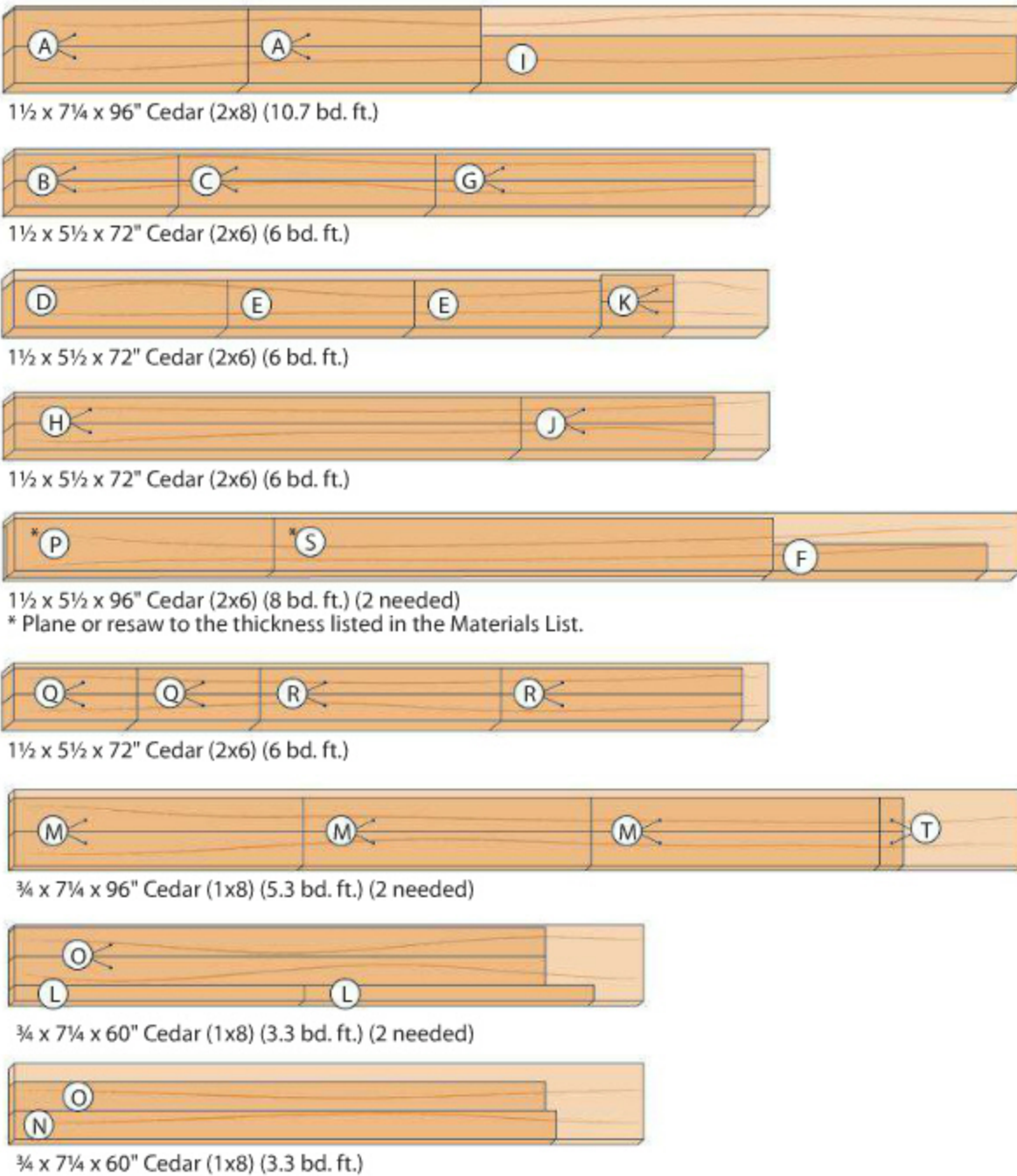
Place the seat (A/P) over the base and, using the same combination of hardware as before, secure the legs (A) to the glider brackets [Drawing 1]. Cut the bolts flush with the nuts using a hacksaw. **4** Remove the hardware, splats (M), and slats (N, O), and apply a finish. **Quick Tip! For best appearance, label hidden areas.** To make reas-

sembly easier, as you remove each slat and splat, label its location on the back face, where it will be hidden when reinstalled. (We applied Cabot Wood-Toned Deck and Siding Stain no. 9202, Cedar, using a 2"-wide foam brush, then wiped off the excess, and allowed it to dry overnight.) Reassemble the glider following your labels, and rock on. 🌲

Produced by **Craig Ruegsegger** with **Jeff Mertz**
Project design: **Jeff Mertz**
Illustrations: **Lorna Johnson**

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Cutting Diagram



MORE RESOURCES

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woodmagazine.com/fairing.

FREE VIDEO

Learn how to use a fairing stick at
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Materials List

Part	FINISHED SIZE	Matl.	Qty.
Seat	T W L		
A* legs	1½" 3½" 21¾"	C	4
B* lower rails	1½" 2½" 15½"	C	2
C* arm rails	1½" 2½" 24"	C	2
D* center seat rail	1½" 4¾" 19½"	C	1
E* end seat rails	1½" 4¾" 17½"	C	2
F* end-rail braces	1½" 2½" 19½"	C	2
G* uprights	1½" 2½" 30"	C	2
H* back rails	1½" 2½" 47½"	C	2
I* front rail	1½" 4¾" 50½"	C	1
J* lower splat fillers	1½" 2½" 18"	C	2
K* upper splat fillers	1½" 2½" 6¾"	C	2
L narrow splats	¾" 1½" 27½"	C	4
M splats	¾" 3¼" 27½"	C	12
N front slat	¾" 2¾" 51½"	C	1
O slats	¾" 2¾" 50½"	C	5
P arms	1" 5" 24¾"	C	2
Base			
Q legs	1½" 2½" 11¾"	C	4
R end rails	1½" 2½" 23"	C	4
S* cross rails	1" 5" 47½"	C	2
T feet	¾" 3¼" 2¼"	C	4

*Parts initially cut oversize. See the instructions.

Materials key: C=cedar.

Supplies: 1⅝", 2½", 3" deck screws; ¼" flat washers (12); ¼" fender washers (8); ¼" lock washers (12); ¼" hex nuts (12); ¼ x 2½" carriage bolts (4); ¼ x 3" carriage bolts (4); ¼ x 5½" carriage bolts (4).

Bits: ⅛" round-over router bit; ⅜", ¼ x 8" drill bits, countersink.

Source

Glider bracket hardware: No. 58330 \$27.99, Rockler Hardware, 800-279-4441, rockler.com.



Who says shutters have to hang vertically? This treatment turns a traditional window dressing on its side with a narrow shutter mirroring the window box's dimensions.

Crafty, Customized Window Boxes

Build a simple window box, then transform it into a perfect one-of-a-kind window dressing. Here are five designs fashioned with garage-sale finds, a bit of architectural salvage, and easy painting techniques.

With simple, inventive add-ons, you can dress up a planter any way that suits your fancy. We made five basic-design 8x12x32" window boxes, then outfitted them with a variety of vintage embellishments: salvaged ceil-

ing tin, an old window shutter, wrought-iron finials, croquet accoutrements, crackled paint, and schoolhouse chalkboard. No need to feel boxed in by design limitations. Just hit the local flea markets and junk stores, and then have fun!



Plain window box

Box basics

1 Cut $\frac{3}{4}$ " cedar, redwood, cypress or other rot-resistant wood to size for the ends (A), sides (B), and bottom (C) [Materials List, page 44]. Because standard dimensional stock is rarely available in 12" widths, you'll need to make the box bottom from multiple narrow pieces trimmed to a final combined width of 12".

2 You can leave the sides (B) of the window box plain for variations where you'll attach trim or other embellishments to the wood. But for boxes that will receive only paint, you may wish to rout a decorative detail the length of the sides with a V-groove bit. Once painted, this groove will simulate the appearance of tongue-and-groove panels. (This step is optional.)

3 Attach the sides (B) to the two ends (A) with 6d galvanized finish nails [Exploded View, page 44]. With all nails driven, use a nail set to place the nails just below the surface. This ensures that no nail heads remain proud of the surface to interfere with any attached decorations.

4 Place the bottom piece (C) atop the inverted box assembly. Using a $\frac{3}{16}$ " bit with a countersink, drill mounting holes through the bottom and into the box assembly. Attach the bottom with 2" deck screws.

Finishing up

1 Ease the corners and all sharp edges of the completed window box with medium-grit sandpaper.

2 Drill several evenly spaced $\frac{1}{4}$ " holes through the bottom of the box to allow for easy drainage.

3 Cut a piece of window screening to $10\frac{1}{2} \times 30\frac{1}{2}$ ", and trim as needed so the screen fits smoothly into the bottom of the box. This screen will help prevent planting soil from washing out of the window box as water runs from the drainage holes.

4 Drill the back and/or bottom of the window box as needed for hardware to attach the box beneath your home's window frames. Attach the hardware and mount the box to your house.



Set a leisurely summertime scene that's quintessential Americana: a game of croquet on the lawn. After painting our box a grass-green, we played around with the remnants of a vintage croquet set, which we varnished for weather protection, then affixed to the box with screws. Metal croquet hoops form the trim around a simple mix of meadow flowers.



Top from a salvaged wrought-iron fence

For this one, we kept the box itself simple with a coat of crackled paint, but then adorned the rim with decorative tops from a salvaged wrought-iron fence, fastened to a mounting cleat on the inside of the box. Clean the wrought iron thoroughly with a wire brush, and give it a coat of rust-resistant paint before placing it outside.



A frame made of barn board painted blue surrounds a section of salvaged schoolhouse slate, affixed to the window box with exterior adhesive. You can chalk in the message of your choice on the slate, changing it whenever the whim strikes.



Victorians were known for their flowery designs. We recycled pieces of ornate ceiling tin from that bygone era and wrapped them around the window box, using small nails to secure the tin to the box. When cutting tin, wear gloves to protect your hands from sharp edges.

Final considerations

While we chose a fairly standard size of 8x12x32" when making our boxes (the same dimensions of many commercially available boxes), adjust the dimensions however you like to better fit your windows or decorating scheme.

If you prefer, eliminate the screening on the bottom of the box and instead use plastic window-box liners available at almost any garden center. If you elect to go this route, however, be sure to purchase your liners first, and then adjust the final dimensions of your window boxes to accommodate the plastic liners for a perfect fit.

When it comes to adapting these boxes to your needs and decorating whims, there are few rules you need to follow. Don't throw out the rule book on planting, though. Use a lightweight, all-purpose potting soil; select plants recommended for container gardening; water regularly to keep plants hydrated; and trim off dead blooms and leaves to keep your window garden neat and tidy.

Written by **A.J. Hamler** with **Jane Austin McKeon**
Photography: **Marty Baldwin**
Illustration: **Roxanne Lemoine**

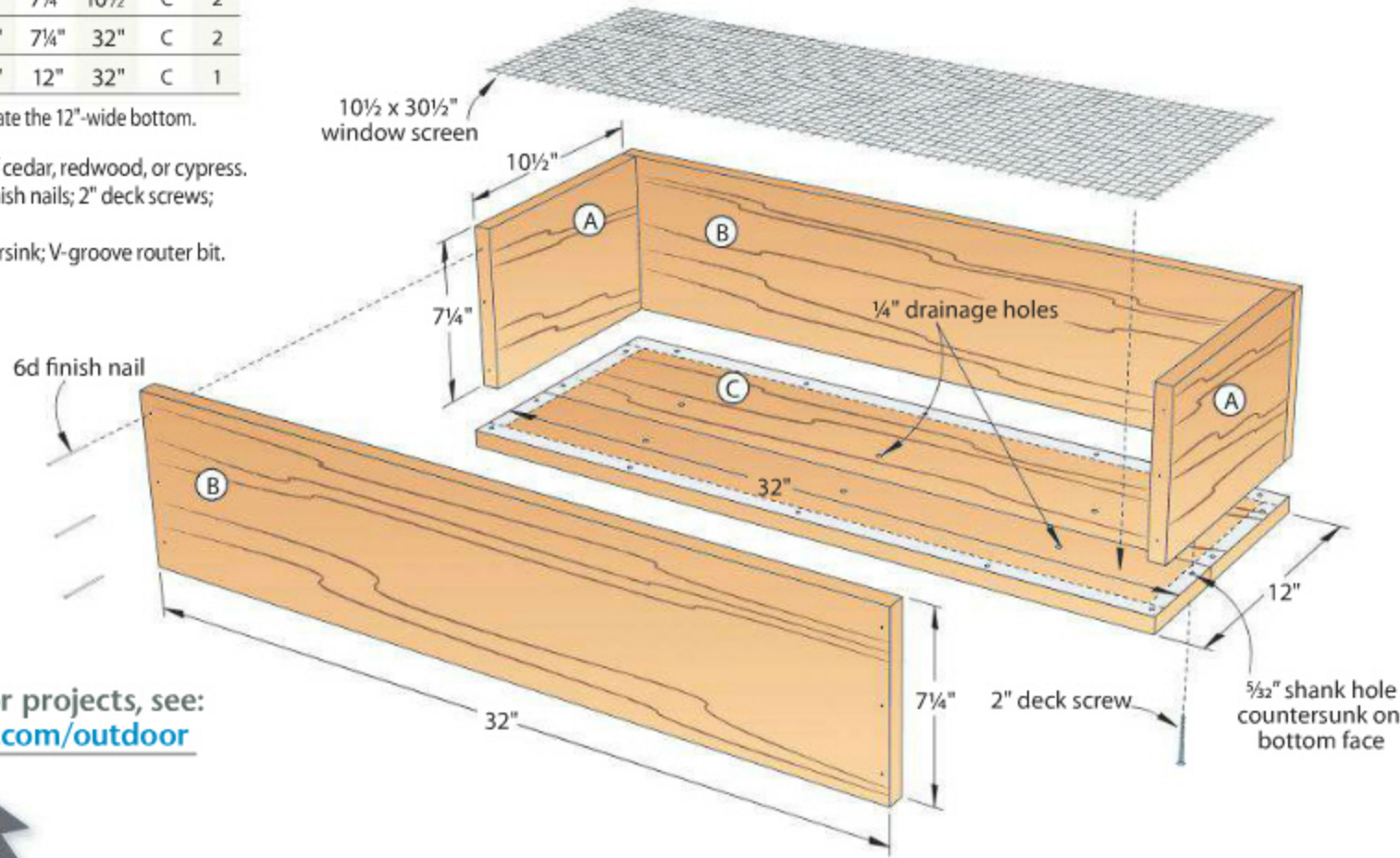
Materials List

Part	FINISHED SIZE			Matl.	Qty.
	H	W	L		
A ends	¾"	7¼"	10½"	C	2
B sides	¾"	7¼"	32"	C	2
C* bottom	¾"	12"	32"	C	1

*Use two narrower pieces to create the 12"-wide bottom.

Material key: C—choice of cedar, redwood, or cypress.
Supplies: 6d galvanized finish nails; 2" deck screws; 10½x30½" screening.
Bits: ⅜" drill bit with countersink; V-groove router bit.

EXPLODED VIEW



For more outdoor projects, see:
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The planter box makes a handsome addition to your landscaping by itself.

Overall dimensions: 42¼" wide x 24¼" deep x 76¾" high
(23¾" high without trellis)

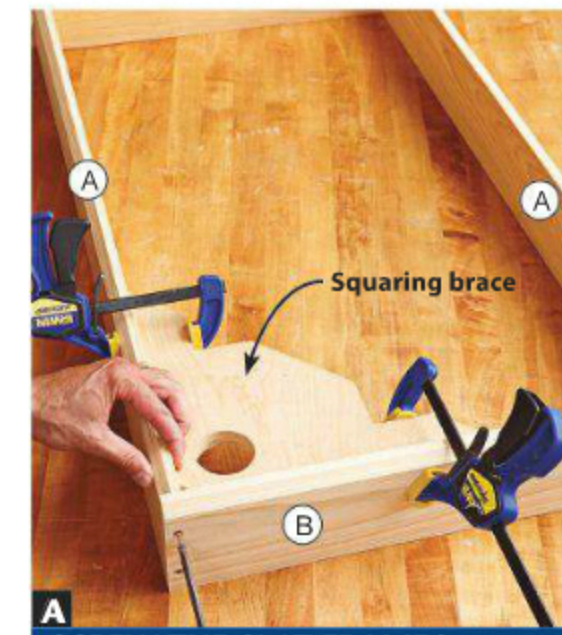
Planter Box & Trellis

Plant this box wherever you'd like a splash of greenery, and perhaps a bit of added privacy. An open grid inside the box supports plant containers while allowing water, leaves and dirt to fall through. Build just the box (*inset, previous page*), or add the upper wood-and-copper water-pipe trellis to support vines. We built ours out of cypress [*Source, page 50*], which will endure all types of weather. However, a structure made with cedar or redwood, or fir with a coat of exterior paint, will also stand up to the elements. Of course, there's no additional protection necessary for the copper pipes that form the trellis.

In spite of the intricacy of the design, you won't need a shop full of heavy equipment to get the job done here. Although we used a tablesaw to cut stock plus a few dados and miters, we completed everything else entirely with handheld power tools: a router, jigsaw, drill/driver and sander.

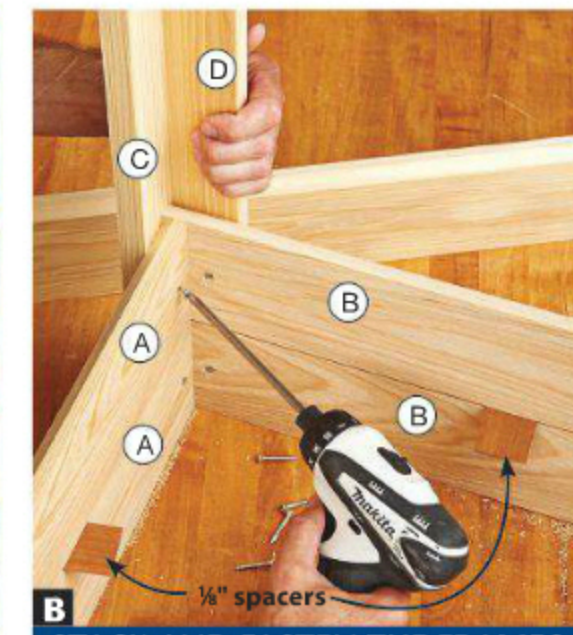
Stack slats to build a box

1 Machine the box front, back (A), and side (B) slats to size [*Materials List, page 50*]. Rout a ⅜" chamfer on the top outside edge of six front and back slats and six of the side slats [*Drawing 1*]. Use a squaring brace [*More Resources, page 50*] to help when assembling four slat frames [*Photo A*]: three with chamfered edges and one unchamfered.



A SCREW THE SLAT FRAMES

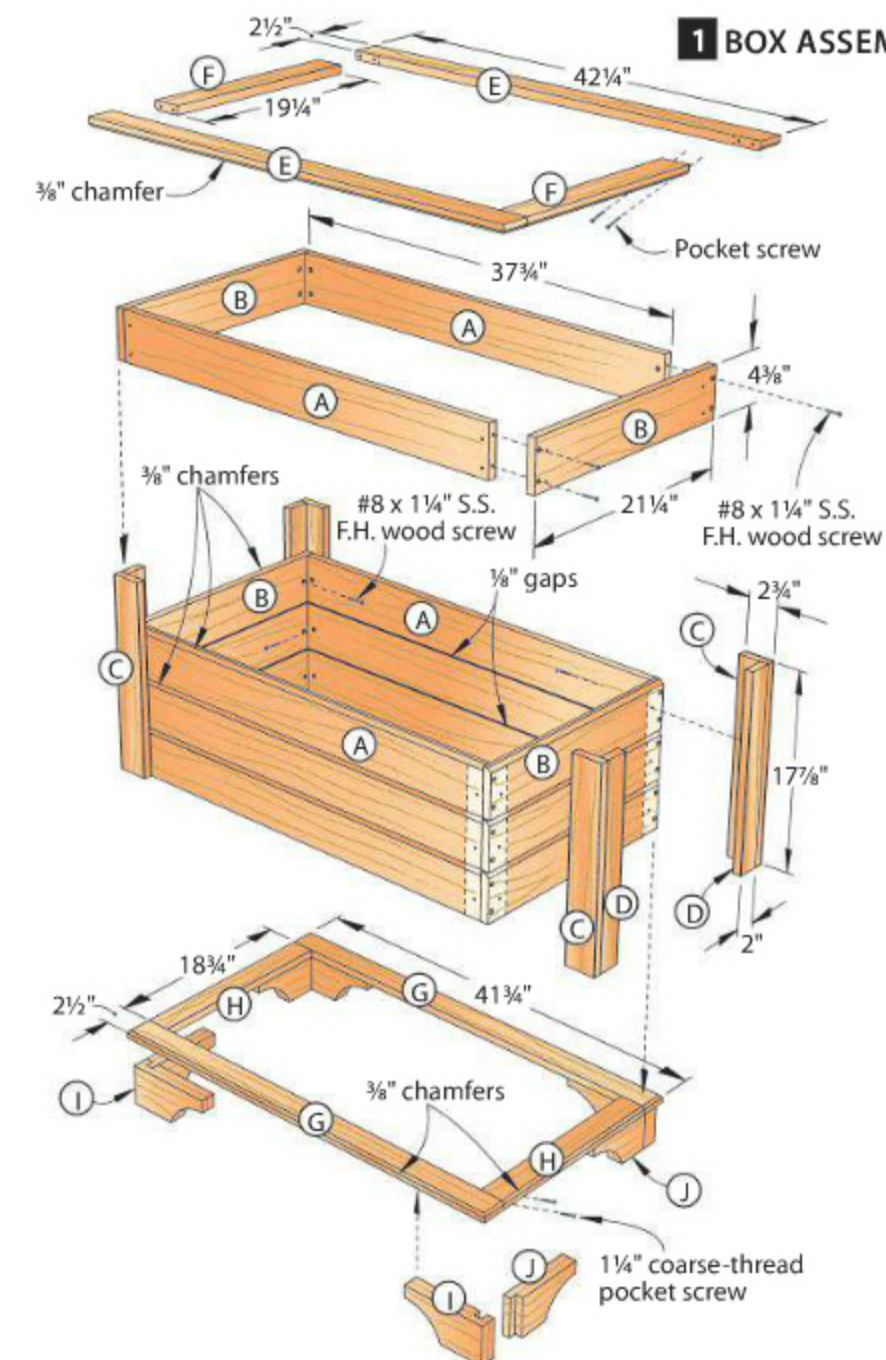
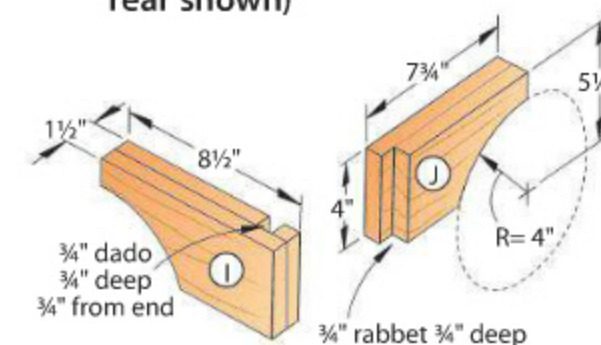
Clamp the front/back slats (A) between the side slats (B), drill two countersunk pilot holes at each joint, then assemble the frames.



B STACK AND FASTEN THE FRAMES

Drive screws from inside the slat frames (A/B) into the corner assemblies (C/D). The unchamfered frame goes on top of the box.

1a FOOT DETAIL (Right front and left rear shown)



6 Glue and clamp one end of each trellis rail (N) to a trellis upright (M). Dry-fit the pipes and trellis dividers (O) [Photo J] and clamp this assembly between the trellis uprights to check the fit. Remove all of the dividers and pipes and once again dry-fit the loose upright to the rails. Center the uprights/rails assembly on the back of the box (A-L) and mark locations for notches to accept the uprights. Cut the notches with a handsaw or coping saw.

7 Cut the trellis top (P) to size and rout a 3/8" chamfer around one face [Drawing 2]. Disassemble the trellis and set the pipes aside. Sand the trellis parts to 150

grit. Tape off the unglued half-lap joints on the trellis upright (M) and rails (N) and apply a finish to the uprights, rails, dividers (O), and trellis top.

8 After the finish dries, remove the tape, reassemble the trellis, and glue the final upright (M) in place. Screw the top (P) in place, centered on the depth and width of the trellis. Fit the trellis in the notches in the top-frame rail (E) and screw the trellis to the rear of the box [Drawing 2]. Place containers on the drip frame (K/L) and fill them with plants.

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine; Lorna Johnson**

Materials List

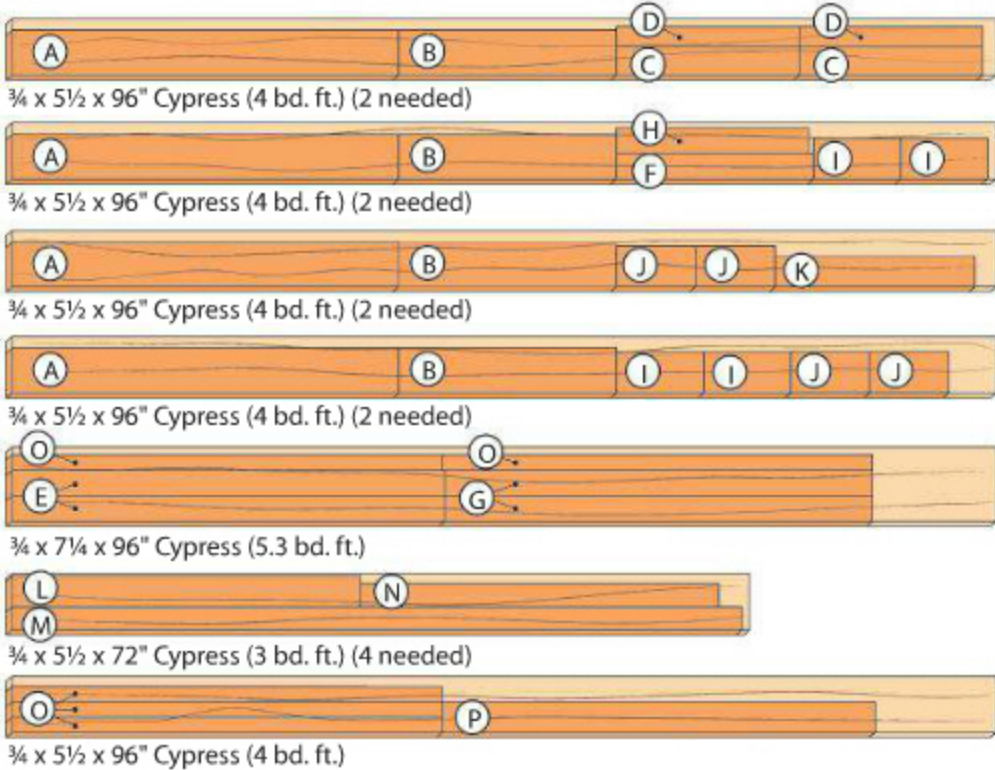
Part		FINISHED SIZE			Matl.	Qty.
		T	W	L		
Planter box						
A	front/back slats	¾"	4⅜"	37¾"	C	8
B	side slats	¾"	4⅜"	21¼"	C	8
C	front/back corner trim	¾"	2¾"	17⅞"	C	4
D	side corner trim	¾"	2"	17⅞"	C	4
E	top-frame front/back rails	¾"	2½"	42¼"	C	2
F	top-frame side rails	¾"	2½"	19¼"	C	2
G	bottom-frame front/back rails	¾"	2½"	41¾"	C	2
H	bottom-frame side rails	¾"	2½"	18¾"	C	2
I*	front/back feet	1½"	4"	8½"	C	4
J*	side feet	1½"	4"	7¾"	C	4
K	drip-frame ends	¾"	3"	19½"	C	2
L	drip-frame slats	¾"	3"	34"	C	4
Trellis						
M*	trellis uprights	1½"	2¼"	71¼"	C	2
N*	trellis rails	1½"	2¼"	35"	C	2
O	trellis dividers	¾"	1½"	42"	C	5
P	trellis top	¾"	3"	42¼"	C	1

*Parts laminated from 3/4"-thick stock.

Material key: C-cypress.
Supplies: #8x1 1/4", #8x2" stainless steel F.H. wood screws (or 1 1/4" and 2" deck screws); 1/4" coarse-thread pocket screws; 3/4" copper pipe (3 10' lengths).
Bits: 45° chamfer router bit; 1/8" spade bit.

Source
Cypress lumber: Wilson Lumber Co., 1279 N. McLean Blvd., P.O. Box 820526, Memphis, TN 38182-0526, 901-274-6887, cypressusa.com. For more suppliers, go to the Southern Cypress Manufacturers Assn., cypressinfo.org.

Cutting Diagram



MORE RESOURCES

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(\$=Download these plans for a small fee.)

Planting possibilities

The planters shown here were filled by the manager of the Better Homes and Gardens Test Garden® using plants readily available at most big-box stores and independent garden centers.

- 1 Clematis "Sweet Autumn"
- 2 Duranta "Gold Edge"
- 3 Coleus "Kingswood Torch"
- 4 Thyme "Lemon"
- 5 Calibrachoa "Trailing Plum"
- 6 Canna "Burning Ember"
- 7 Coleus "Dark Star"
- 8 Pennisetum "Princess Molly"
- 9 Sweet-potato vine "Black Heart"



The perfect host
Outdoor Server

With this attractive and practical bistro-style server, you'll want to make outdoor entertaining the norm instead of just an occasional event. A supply of cedar and a weekend of your time are the two main components for a project you (and your guests) will enjoy for years to come.

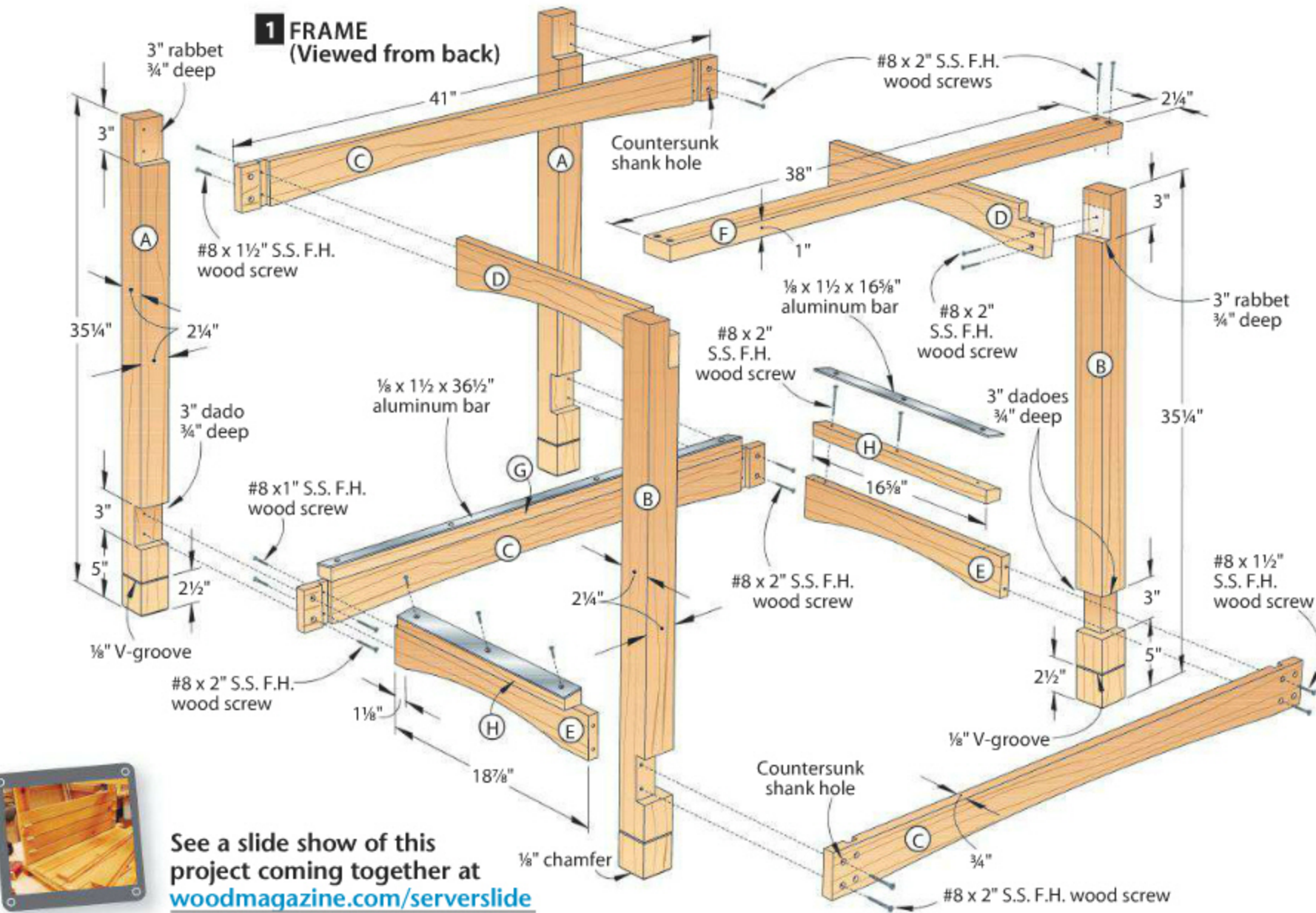
Entertaining friends outdoors is always a treat, but this build-it-in-a-weekend bistro server makes it as much of a convenience as it is a pleasure. There's plenty of room underneath for party supplies, and making it from weather-worthy cedar means you'll enjoy years of faithful (and eye-catching!) service.

Build the base

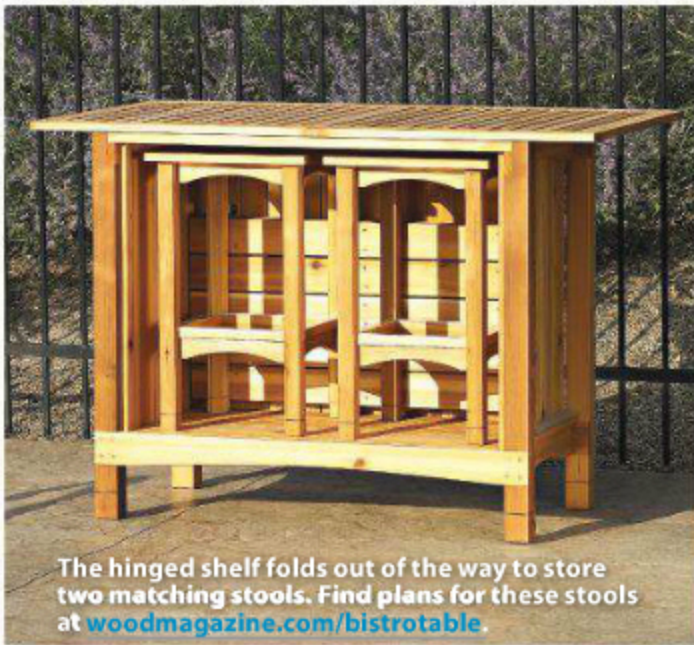
1 For the front legs (A) and back legs (B), cut four 36"-long pieces of 4x4. (We used cedar. You can laminate thinner stock using polyurethane or Titebond III glue.) Then joint, resaw, and plane them to 2¼x2¼", and cut them to finished length [Materials List, page 57].

2 Install a dado blade in your tablesaw, and cut a 3" dado and 3" rabbet in each front leg (A). Then cut two 3" dados and a 3" rabbet in each of the back legs (B) [Drawing 1].

3 Chuck a V-groove bit into your table-mounted router, and then rout the decorative ⅛"-deep grooves near the



See a slide show of this project coming together at woodmagazine.com/serverslide



The hinged shelf folds out of the way to store two matching stools. Find plans for these stools at woodmagazine.com/bistrotable.



Keep your entertaining supplies right at hand in the spacious interior.

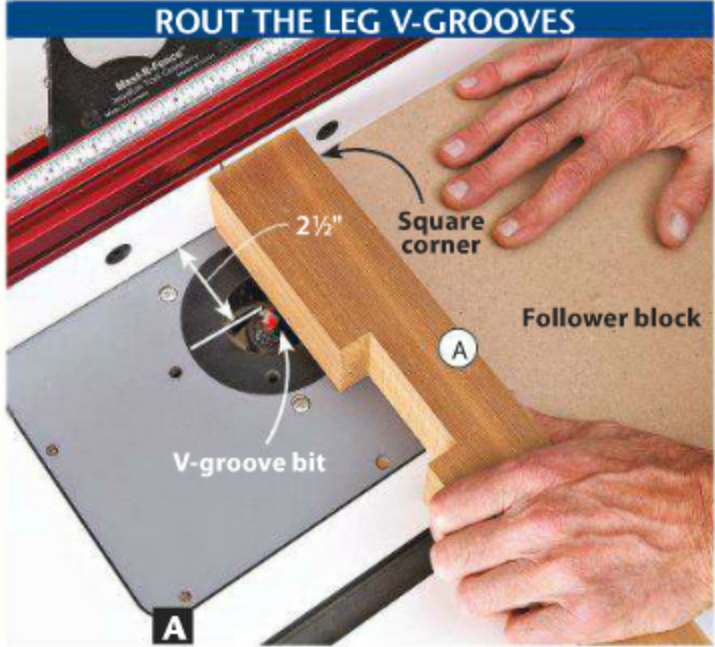
PROJECT HIGHLIGHTS

- Overall dimensions: 53¼" wide x 30" deep x 36" high.
- Readily available project materials means convenient one-stop shopping at your local home center.
- Simple joinery means you can pick up your materials on Saturday morning and be ready to apply the finish by Sunday afternoon.
- For the lumber and other items needed to build this project, see [page 57](#).

Skill Builder

- Learn an easy way to form a row of closely spaced mortises, with no need to chop them individually, by cutting a groove and gluing in filler blocks.

ROUT THE LEG V-GROOVES

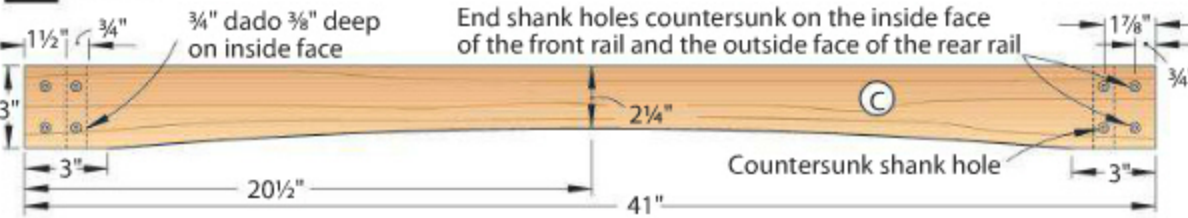


Using the fence as a stop and a follower block to keep the leg (A) square to the fence and prevent chip-out, rout the grooves.

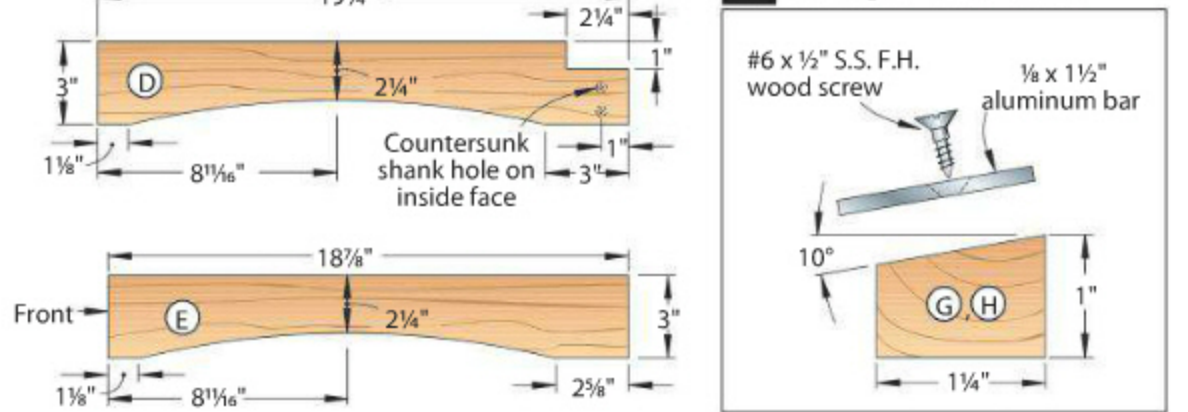
bottom of each leg (A, B) [Drawing 1, Photo A]. Reposition the fence, and use the same bit to chamfer the bottom end of each leg. Finish-sand the legs.

4 Cut the front and back rails (C), upper side rails (D), lower side rails (E), and upper back rail (F) to the sizes listed. With a tablesaw and dado blade, cut ¾" dados ⅜" deep near each end of the front and back rails, and a 1x2¼" notch at the rear end of each upper side rail [Drawing 1a]. Then drill the countersunk shank holes [Drawings 1 and 1a]. Make sure the upper side rails are mirror images with the countersinks in the inside faces. (For the #8 screws in this project, drill ⅝" shank holes and ⅜" pilot holes.)

1a RAILS



1b RAIL CAP END VIEW



5 Lay out the endpoints and center-points of the arches on the front and back rails (C), upper side rails (D), and lower side rails (E) [Drawing 1a]. Connect the points with a fairing stick, and then draw the arches. (Download a free fairing-stick plan at woodmagazine.com/fairing.) Bandsaw and sand the arches. Finish-sand all the rails.

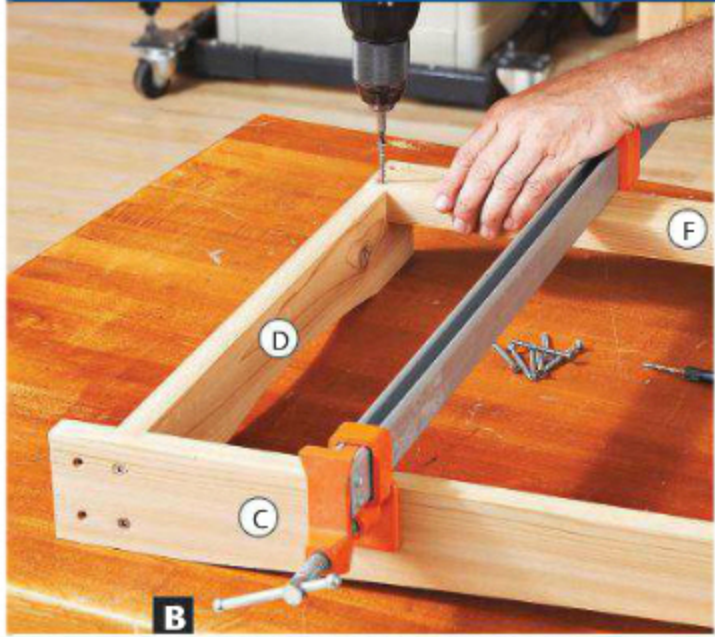
6 Assemble the lower frame (C/E) and upper frame (C/D/F) and add the legs (A,B) to form the base [Photos B, C, and D]. Then cut the front rail cap (G) and side rail caps (H) to size, and rip bevels on the top edges [Drawing 1b]. Glue and clamp the caps to the bottom front rail (C) and lower side rails (E), flush at the inside edges [Drawing 1].

Make slats and shelf parts

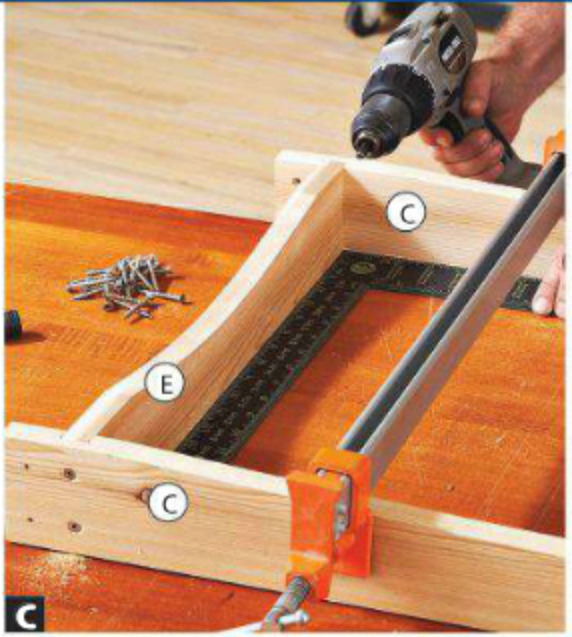
1 Cut the corner slats (I), common slats (J), center slat (K), and end slats (L) to size. With a dado blade in your tablesaw, cut rabbets in the edges of the slats [Drawing 2a]. Then rout chamfers where indicated. Now drill shank holes countersunk on the inside face into each slat [Drawing 2]. Finish-sand the slats.

2 Cut the long cleats (M), short cleats (N), shelf slats (O), hinge rail (P), and shelf cleats (Q) to size. Rout chamfers along the top ends and edges of the shelf slats [Drawings 3 and 4]. Drill countersunk screw holes in the long and short cleats and bottom shelf slats [Drawing 3] and folding shelf slats [Drawing 4]. Finally, finish-sand the parts.

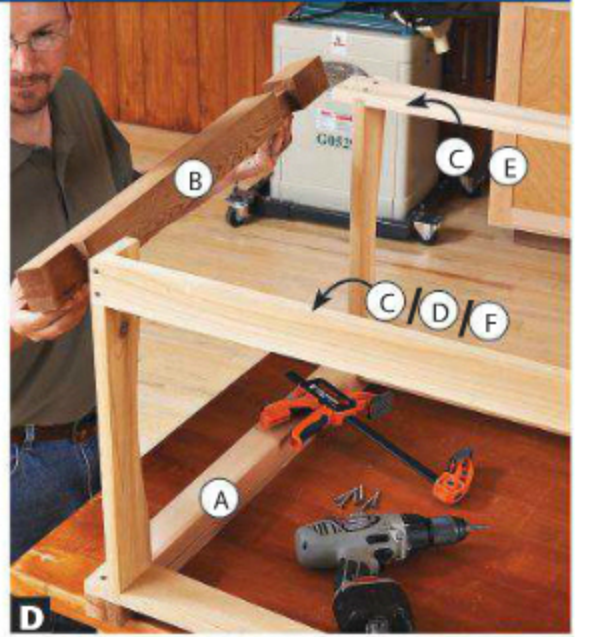
ASSEMBLE THE BASE



Glue and clamp the upper side rails (D) into the front-rail (C) dados and the upper back rail (F) into the side-rail notches. Drill pilot holes, and drive the screws.

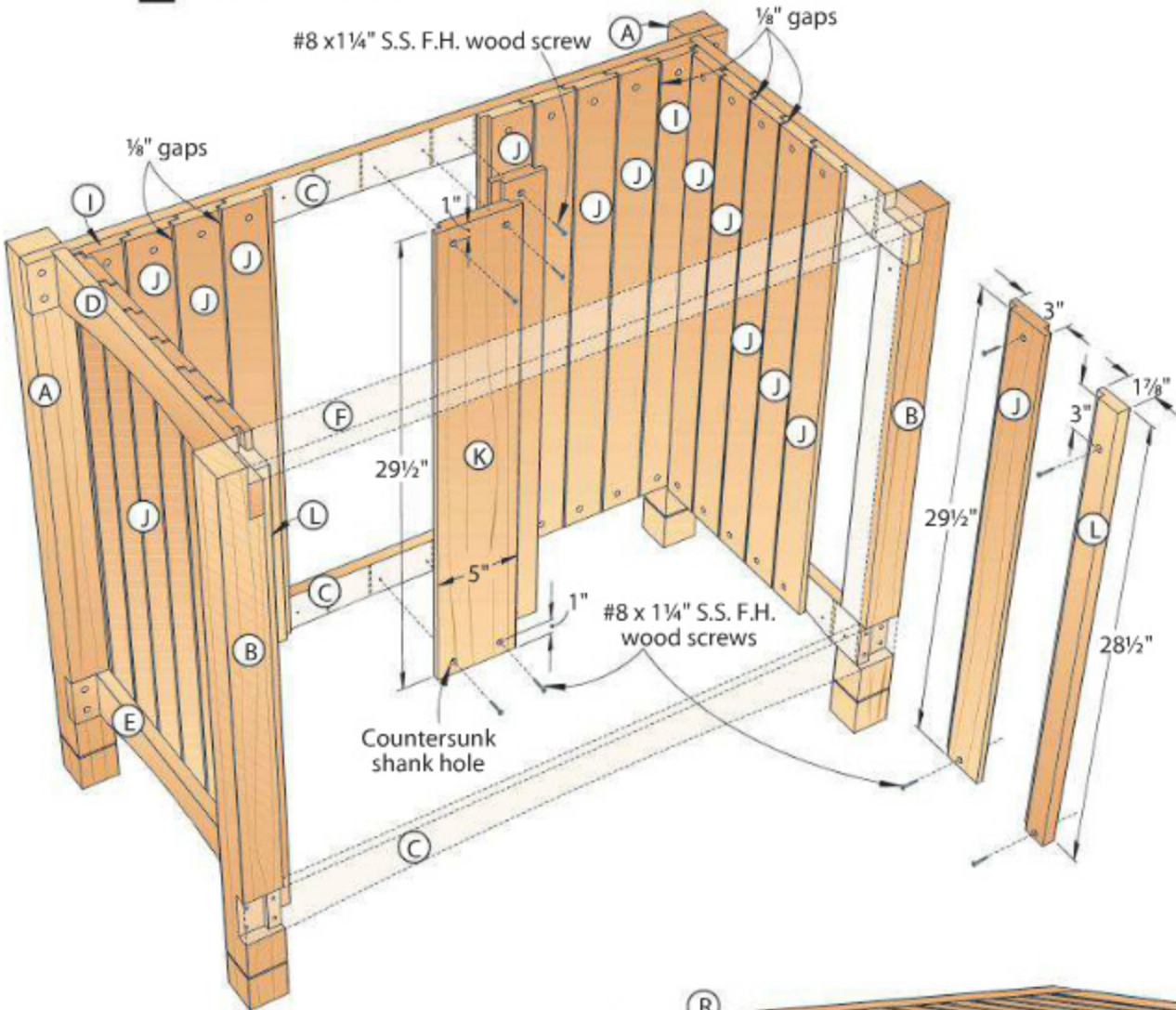


Glue and clamp the lower side rails (E) into the front- and back-rail (C) dados. Using the shank holes in the front and back rails as guides, drill pilot holes, and drive the screws.

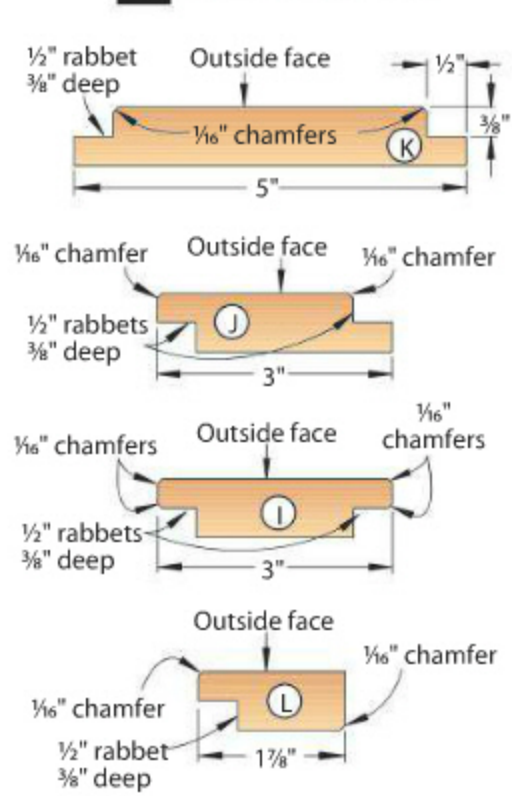


Join the frames (C/D/F, C/E) by gluing and screwing the front and back rails (C) and the upper side rails (D) into the dados and rabbets in the front legs (A) and back legs (B).

2 SLAT ASSEMBLY



2a SLAT END VIEWS



INSTALL THE FRONT SLATS



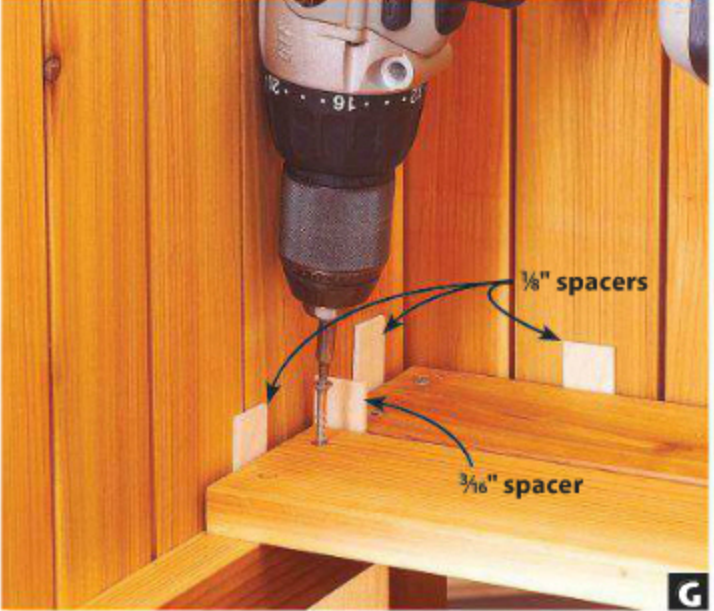
Insert 1/8"-thick spacers between the slats (I, J), drill pilot holes into the front rails (C), and screw the slats in place.

ADD THE BOTTOM SHELF SLATS



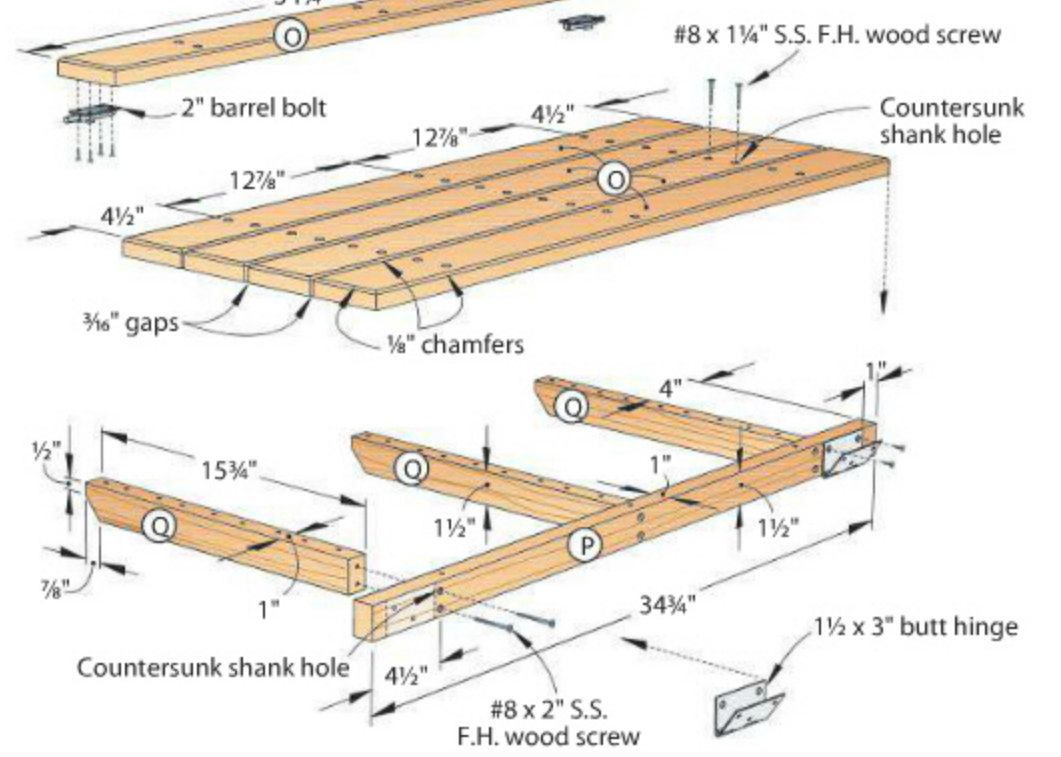
With the common slats (J) fastened, center the center slat (K) in the remaining space, drill pilot holes, and screw it in place.

ADD THE BOTTOM SHELF SLATS



Insert 1/8" spacers at the perimeter and 3/16" spacers between the shelf slats (O), drill pilot holes, and drive screws.

4 FOLDING SHELF (Viewed from front)



SHOP TIP

An easy way to seal outdoor furniture leg end grain
Because the end grain at the bottom of outdoor furniture legs can wick up water standing on a deck or patio, leading to premature rotting, you'll have to make extra effort to adequately seal them. Of course, end grain absorbs finish almost as well as it does water, so brushing on the finish will require repeated applications. Here's a simple solution that turns the wicking action of end grain to your advantage.
Place each leg in a shallow container, and pour finish into the containers, as shown at right. After a few hours, the grain will be saturated. Then turn the furniture upside down, wipe away any excess finish, and let it dry. Keep in mind that end grain absorbs a lot of finish, so drying may take longer.



Note: Drill the countersunk screw holes through the 1" thickness of the two lower long cleats (M) and the 1 1/2" width of the upper long cleat.
3 Apply two coats of exterior finish to all the parts, including the base. (We used Cabot translucent exterior stain no. 3002 Cedar.) Double-coat all exposed end grain. To seal the bottom ends of the legs, see the **Shop Tip** above.
Add the slats
1 To protect the rail caps (G, H) from foot wear, cut three pieces of 1/2 x 1 1/2" aluminum bar to length [Drawing 1]. Drill countersunk holes [Drawings 1 and 1b].

(For the #6 screws, drill 5/64" shank holes and 3/64" pilot holes.) Sand the bars to remove marks and scratches. (We used a 320-grit 3M Sandblaster sanding sponge.) Align the bars flush with the inside edges of the rail caps, and screw them into place.
2 Lay the base on the front, and position the corner slats (I) on the front rails (C) flush at the top and with one edge of each slat against the side rails (D, E) [Drawing 2]. Using the holes in the slats as guides, drill pilot holes into the front rails, and drive the screws.
3 To position the remaining front slats, cut 1/8"-thick spacers from scrap.

Then, working from the corners to the center, install the common slats (J) and center slat (K) **[Photos E and F]**.

4 Install six common slats (J) on each end, separating them with 1/8" spacers and screwing them to the side rails (D, E) [**Drawing 2**]. Then install each end slat (L) with the top end against the bottom of the upper back rail (F).

Assemble the shelves

1 Position the two long cleats (M) with the screw holes through the 1" thickness and the short cleats (N) $\frac{3}{4}$ " below the top edge of the lower back rail (C). Drill pilot holes, and screw the cleats to the common slats (J) and lower back rail [**Drawing 3**]. Position the long cleat with the screw holes through the $1\frac{1}{2}$ " dimension flush with the tops of the front slats. Drill pilot holes, and screw the long cleat to the slats (J, K).

2 Cut $\frac{3}{16}$ " spacers from scrap, and screw five shelf slats (O) to the cleats (M, N) [**Drawing 3** and **Photo G**].

3 Assemble the hinge rail (P) and shelf cleats (Q) [**Drawing 4**]. Add the remaining five slats (O) with the front edges of the front slat and hinge rail flush. Install the folding shelf in the base [**Photo H**]. Then screw barrel bolts to the underside of the rear shelf slat, flush with each slat end, and with the center of the bolt 1" from the rear edge. Mark a bolt-hole location in each end slat (L) [**Photo I**], and drill $\frac{3}{8}$ " holes.

Make the top

1 Cut the top rails (R) to width and 1" longer than listed, and the wide slats (S) and narrow slats (T) to size. Then, to position the fillers (U) later, cut a 1½×32" strip of ¼" hardboard. Next, from the strip, cut 12 spacers 2½" long. Now, to indicate proper spacer orientation, sand chamfers on two corners of each one [Drawing 5a].

2 On your tablesaw, cut centered grooves into the inside edge of each top rail (R) [**Drawing 5**].

3 With a dado blade in your tablesaw, form tenons on the ends of the wide slats (S) and narrow slats (T) [Drawings 5 and 5b]. Check the tenons for a snug fit in the 1/4" grooves. Then chuck a chamfer bit into your table-mounted router, and rout 1/16" chamfers along the ends and edges of the top rails (R) and the edges of the slats. Now use a sanding block to chamfer all of the tenon shoulder edges. To ease assembly later, sand slight chamfers on the ends of the tenons. Finish-sand the slats.

4 To make the fillers (U), first rip two ¼"-wide strips from the edge of a ¾"-thick board 18" long. From these strips, cut 52 fillers ⅜" long.

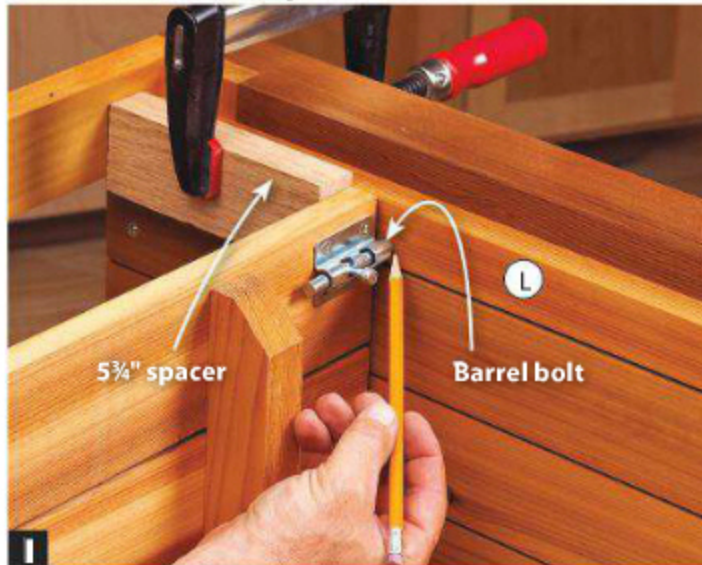
Note: The grain runs across the $\frac{3}{8}$ " dimension of the fillers.

5 Dry-fit a wide-slat (S) tenon into one top-rail (R) groove with the edge of the slat and the end of the rail flush. Glue a filler into the rail groove against

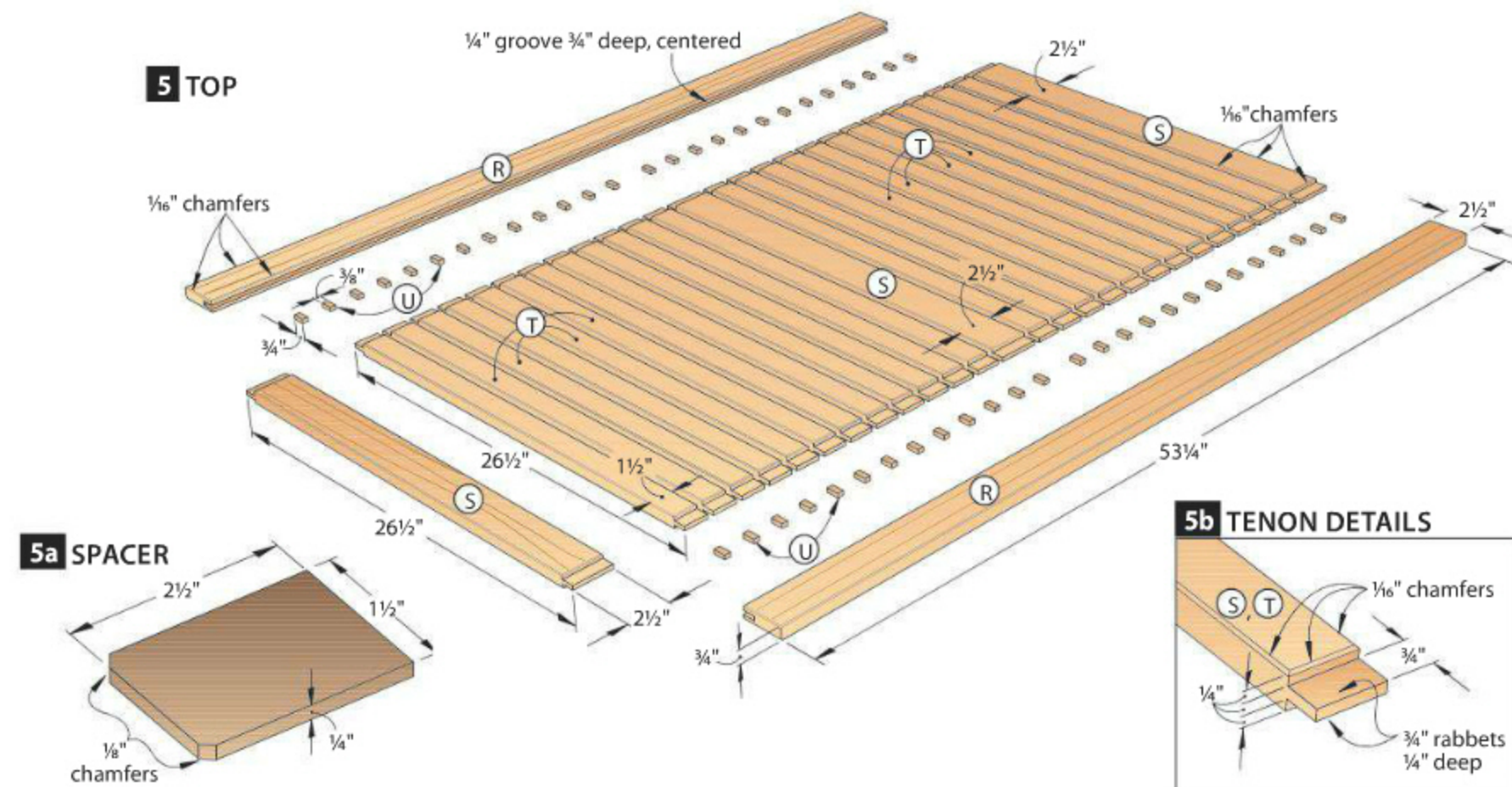
INSTALL THE FOLDING SHELF



Position the folding shelf in the base with 1/8" spacers at the sides and 1" spacers at the bottom. Screw the hinges in place.



Pivot the shelf into the upright position against a 5¾"-long spacer. Mark the location for the barrel-bolt hole on the end slat (L).



MARK THE TOP-RAIL LENGTH

With the three wide-slat (S) tenons inserted into the rail (R) groove, and all the fillers (U) glued in place, mark the rail length.

the slat. Then insert a spacer and glue in another filler. Repeat until you've used the 12 spacers and positioned 13 fillers. Insert the center wide slat (S). Now carefully remove the 12 spacers and use them to repeat the filler-gluing process on the other half of the rail, using all the spacers again and positioning 13 additional fillers. Insert the tenon of the last wide slat into the rail groove, and mark the finished length of the rail **[Photo J]**. Remove the slats and spacers, and trim the rail to length. Repeat with the second rail. Finish-sand the rails.

ASSEMBLE THE TOP

Holding one rail (R) in the bench vise, brush glue into the rail mortises, and insert the wide-slat (S) and narrow-slat (T) tenons.

6 Apply two coats of exterior finish, double-coating the rail (R) end grain. Avoid getting finish on the slat (S, T) tenons and into the rail mortises formed by the groove and fillers (U).

7 Remove excess glue from the rail (R) mortises with a chisel. Dry-fit the slat (S, T) tenons into the mortises. Then assemble the top [**Photos K and L**]. With all the slats in place, apply clamps, and check the top for square.

8 Carry the base and top onto the deck or patio. Center the top on the width of the base with a ¼" overhang at the back.

Brush glue into the second-rail (R) mortises and lower the second rail onto the slat (S, T) tenons. Apply light clamp pressure at one end.

Drill countersunk screw holes through the upper back rail (F) and upper long cleat (M), and into the narrow slats (T) and rear top rail (R). Drive the screws [Drawing 3].

To make your server complete, how about bistro stools and a table? To check out plans for a perfectly matched set, go to woodmagazine.com/bistrotable.) 🌲

Written by **Jan Svec**

Project design: **Jeff Mertz**

Illustrations: **Roxanne LeMoine; Lorna Johnson**

Materials List

Base	FINISHED SIZE				Qty.
	T	W	L	Matl.	
A* front legs	2¼"	2¼"	35¼"	C	2
B* back legs	2¼"	2¼"	35¼"	C	2
C front and back rails	¾"	3"	41"	C	3
D upper side rails	¾"	3"	19¼"	C	2
E lower side rails	¾"	3"	18⅞"	C	2
F upper back rail	1"	2¼"	38"	C	1
G front rail cap	1"	1¼"	36½"	C	1
H side rail caps	1"	1¼"	16¾"	C	2
Slats and shelves					
I corner slats	¾"	3"	29½"	C	2
J common slats	¾"	3"	29½"	C	22
K center slat	¾"	5"	29½"	C	1
L end slats	¾"	1⅞"	28½"	C	2
M long cleats	1"	1½"	35"	C	3
N short cleats	1"	1½"	15¾"	C	2
O shelf slats	¾"	3¼"	34¾"	C	10
P hinge rail	1"	1½"	34¾"	C	1
Q shelf cleats	1"	1½"	15¾"	C	3
Top					
R* rails	¾"	2½"	53¼"	C	2
S wide slats	¾"	2½"	26½"	C	3
T narrow slats	¾"	1½"	26½"	C	24
U* fillers	¼"	¾"	¾"	C	52

*Parts initially cut oversize. See the instructions.

Material key: C—cedar.

Supplies: #6x $\frac{1}{2}$ ", #8x $1\frac{1}{4}$ ", #8x $1\frac{1}{2}$ ", #8x2" flathead stainless steel wood screws, 2" barrel bolts (2), $1\frac{1}{2}$ x3" butt hinges (2), $\frac{1}{4}$ x $1\frac{1}{2}$ x72" aluminum bar.

Blade and bits: Stack dado set, V-groove and 45° chamfer router bits.

Patio-Perfect Planter

This cedar-trimmed planter is the perfect accessory to spruce up your outdoor spaces. Standing 19" tall, it easily accommodates square or round pots up to 16" for showing off your most colorful plantings.



For a different look, build the planter with scroll-sawn tree onlays in place of the center stiles (F). The full-size pattern for the tree motif is provided on [page 61](#).

Start with the box

1 Cut the sides (A) to the size listed in the **Materials List**. Glue and clamp the sides together, overlapping the ends where shown on **Drawing 1**. Use an exterior-type adhesive, such as Titebond II or Titebond III. Check for square. Then drill countersunk shank holes where shown, and drive the screws.

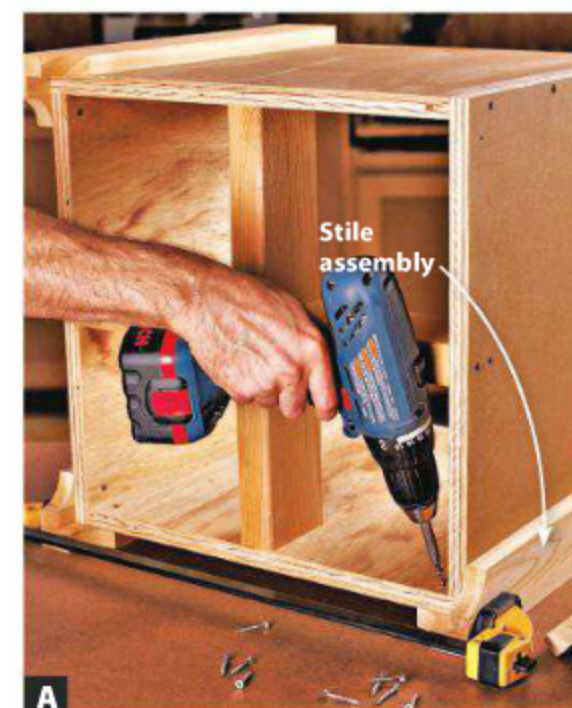
2 Cut the support rails (B) to size. Using a dado blade in your table-saw, cut a 1½" notch 1¾" deep in the center of each rail. Glue and screw the rails together. Place the rails in the bottom of the box, and secure with screws, where shown. If you plan to make the tree onlays instead of the center stiles (F), be sure to keep these screws within 2" of the box's bottom so they'll be hidden by the bottom rails (E).

Add the trim

1 Cut the wide stiles (C) and narrow stiles (D) to size. Mark a 1¼" radius at the bottom of a narrow stile (either corner is fine), where dimensioned on **Drawing 2**. Bandsaw and sand the radius to shape. Using this stile as a template, mark the radius on a corner of each of the remaining narrow and wide stiles. Bandsaw and sand these pieces.

2 Glue and clamp the narrow and wide stiles together, where shown on **Drawing 1**. Note that the stile assemblies (C/D) at adjacent corners are a mirror image. When the glue dries, screw the assemblies to the box, as shown in **Photo A**, with their top edges flush.

3 From ¾"-thick cedar, cut eight 3×14" pieces for the top and bottom rails (E). Trim each rail's length to



With the stile assemblies clamped to the box (no glue), drill countersunk shank holes in the box, and drive the screws.

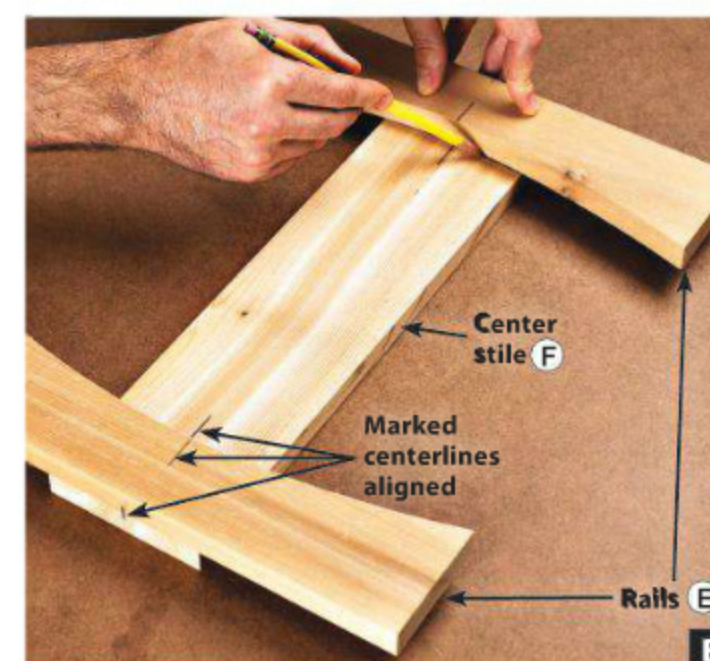
fit between the stile assemblies (C/D). Mark the rails and box so you'll install the pieces in the same locations later.

4 Using a flexible metal ruler or a thin strip of wood as a fairing strip, mark an arch on a rail (E), where dimensioned on **Drawing 2**. Bandsaw and sand the arch to shape. Using this rail as a template, mark the arch on the remaining rails; then cut and sand them.

Note: If you're planning to make the tree onlays instead of the center stiles (F), proceed to Step 7.

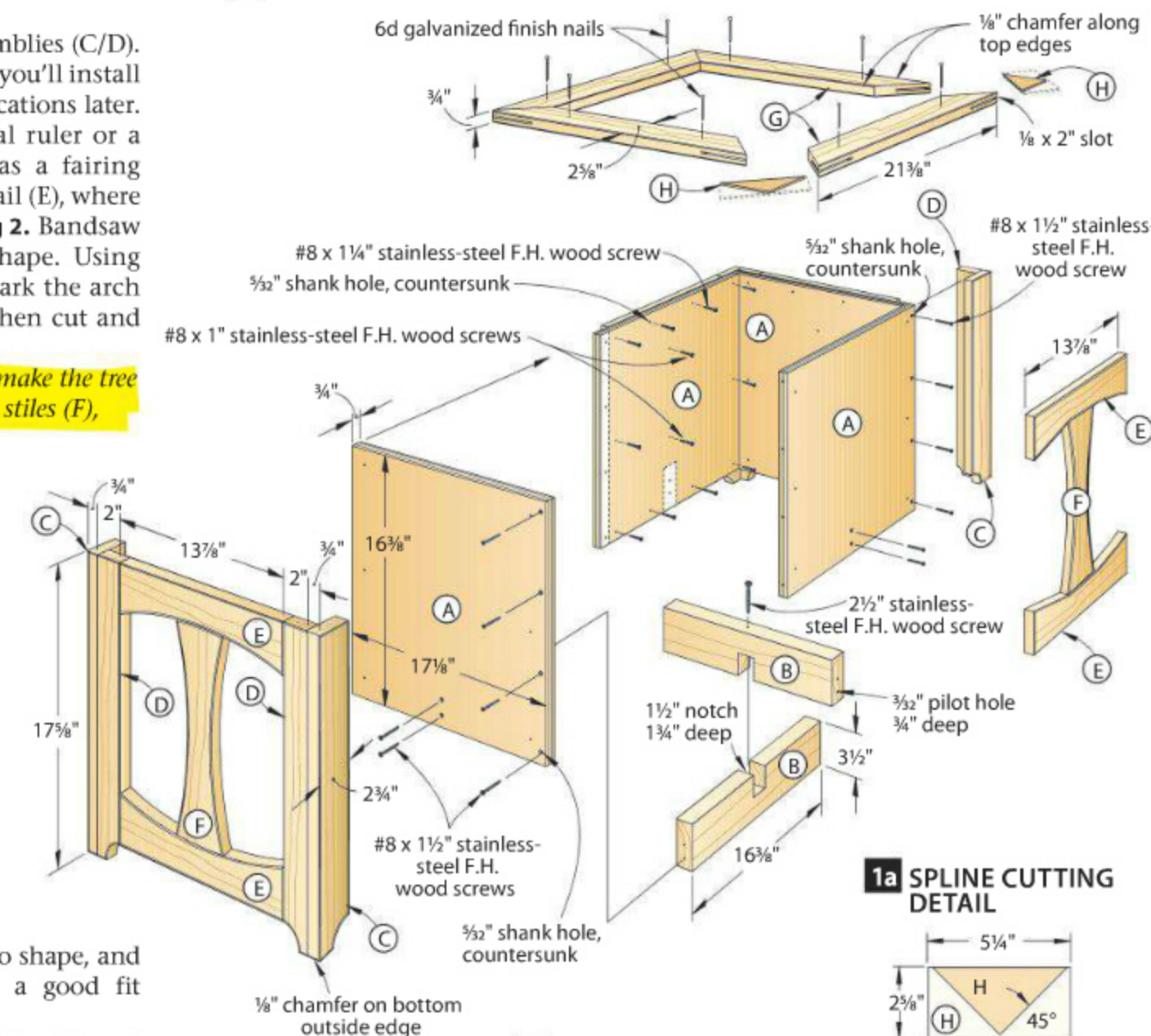
5 From ¾"-thick cedar planed to ⅝" thick, cut four 4×16⅜" pieces for the center stiles (F). Mark centerlines on the stiles and rails (E), where shown in **Photo B**. Position a top and bottom rail on a stile, and mark the rails' contours on the stile, as shown. Identify the stile to match it to the rails, and keep the parts together. Repeat this process to mark the remaining stiles. Now, bandsaw the stiles' ends to shape, and then sand them to get a good fit between the rails.

6 Mark the arches on the sides of a center stile (F), where dimensioned on **Drawing 2**. Bandsaw and sand the arches to shape. Use this stile to mark the arches on the remaining pieces; then cut and sand them.

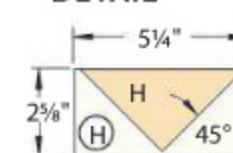


Align the rails' and stile's centerlines and their top and bottom edges. Scribe each rail's arch contour onto the stile.

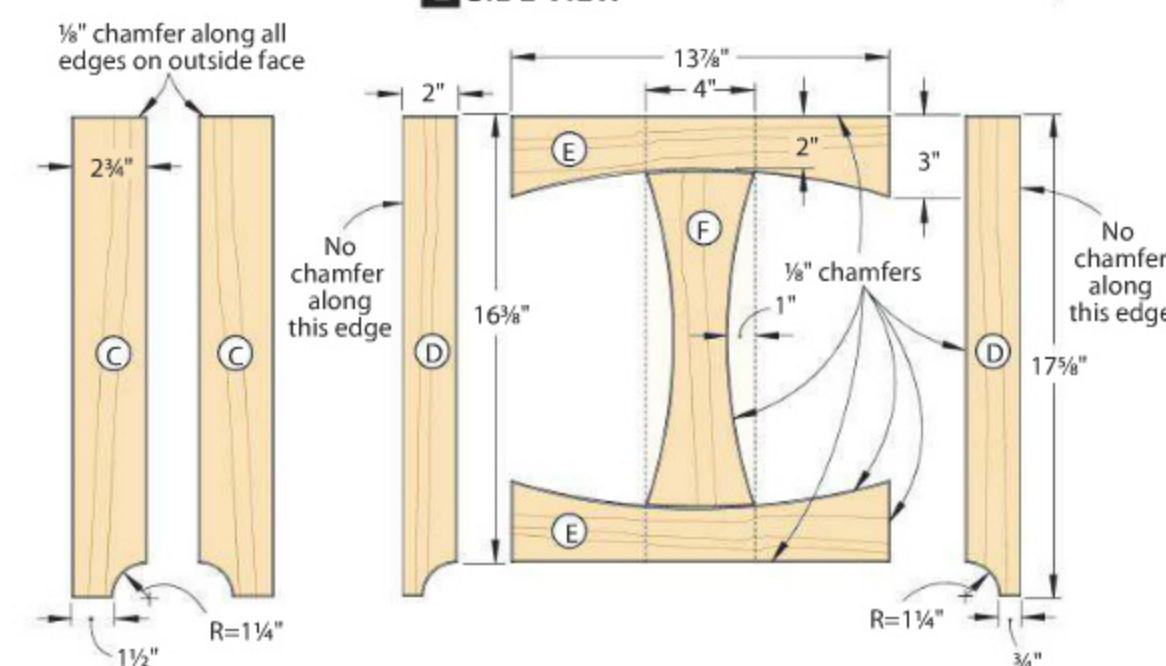
1 EXPLODED VIEW



1a SPLINE CUTTING DETAIL



2 SIDE VIEW



7 Remove the stile assemblies (C/D) from the box, and mark their locations. Sand all of the stiles and rails to 220 grit. Then chamfer the edges of the parts, where shown.

8 Tree-onlay option: Make four copies of the full-size tree pattern

provided on [page 61](#). Adhere these copies to a ⅝×4½×34" piece of cedar with spray adhesive. Bandsaw the trees to shape, and sand all edges smooth. Chamfer along their outside edges, where shown on the pattern. Set the trees aside.

Head for the top

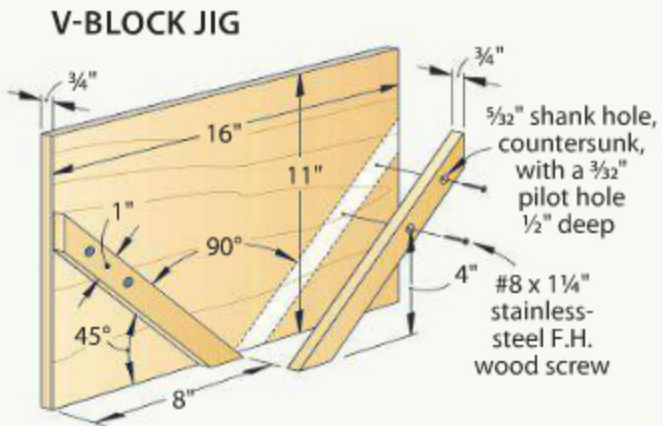
- 1 Cut the top trim pieces (G) to size. Miter-cut their ends, where shown on **Drawing 1**. Glue the pieces together to form a frame, secure with a band clamp, and check for square.
- 2 Referring to the **Shop Tip** at right, cut a slot in each corner of the frame to receive the spline blanks (H), where shown on **Drawing 1**.
- 3 Resaw $\frac{1}{8}$ "-thick strip from a $\frac{3}{4}$ "x $2\frac{5}{8}$ "x24" piece of cedar for the spline blanks (H). Referring to **Drawing 1a** and the **Cutting Diagram**, miter-cut four $2\frac{5}{8}$ "x $5\frac{1}{4}$ " splines from the strip. Apply glue in the frame's slots, and insert the splines. When the glue dries, flush-trim and sand the splines.
- 4 Chamfer the frame's top edges, where shown on **Drawing 1**. Chisel the inside-corner edges to complete the chamfers. Now sand the frame.
- Finish and assemble**
- 1 Remove the support rails (B) from the box. Brush two coats of paint or stain on the inside and outside surfaces of the box. (We used Olympic Solid Color Deck Stain, acrylic latex, Faulkland color.) Brush on two coats of a wood-tone finish on all of the other parts. (We used Wolman RainCoat Water Repellent, cedar tone.)
- 2 Reattach the support rails (B) and stile assemblies (C/D) to the box. Fasten the top and bottom rails (E) by drilling countersunk shank holes on the inside of the box and driving #8x $1\frac{1}{4}$ " screws. In the same way, fasten the

SHOP TIP

Big splines keep exterior miters looking fine

Mitered workpieces subjected to the rigors of Mother Nature will surely open up unless you reinforce them in a substantial way. The best solution is to span the miters with hefty splines, like those for the planter's top trim (G), that offer plenty of face-grain gluing surface.

To safely support your workpiece while cutting the deep slots for the splines, build a V-block jig, as shown above. Raise your $\frac{1}{8}$ "-thick tablesaw blade to the appropriate height for the required slot depth ($2\frac{1}{2}$ " for the planter). Position your fence to center the blade on the width of the jig's $\frac{3}{4}$ "-thick cleat. Clamp the frame in the jig, and cut the slot, as shown at right.



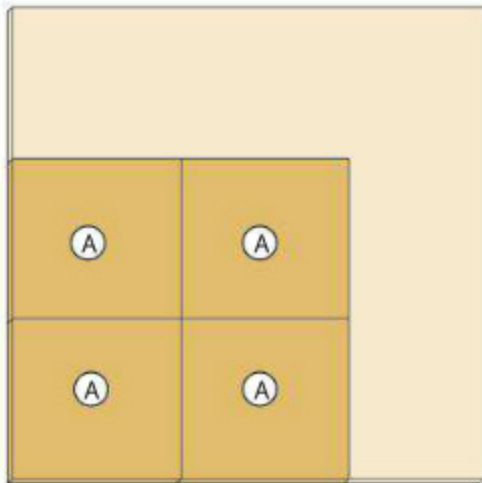
center stiles (F) or trees using #8x1" screws. Centering the assembled top trim (G) on the box. Glue and nail it in place.

3 Finally, place a pot in the box, and plant flowers. At a home center, we found a 16"-square, 13 $\frac{5}{8}$ "-tall pot with a self-supporting rim that fits the

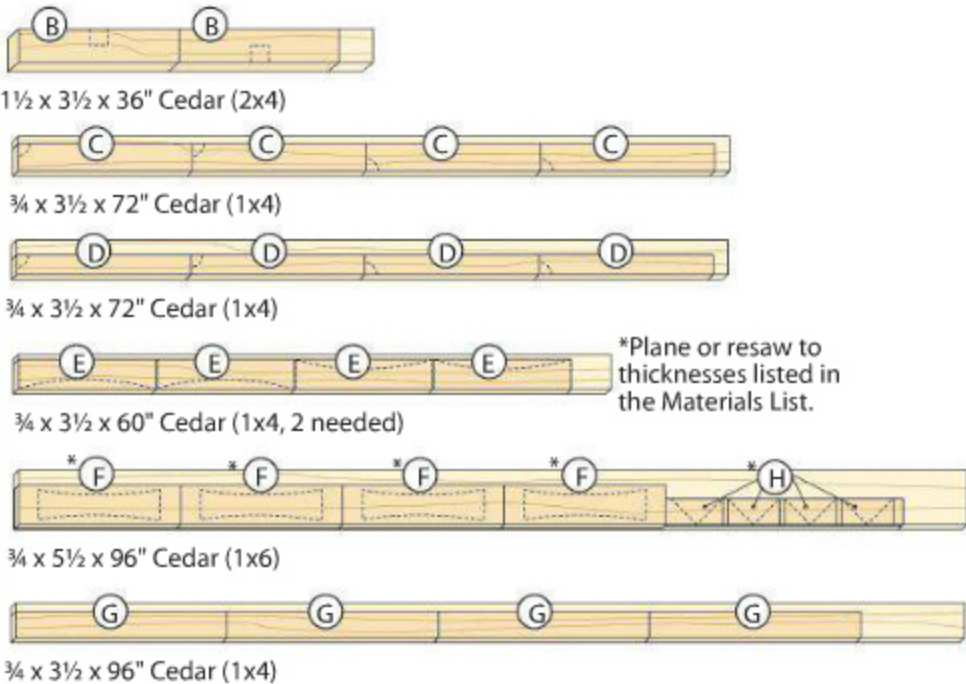
box just right. For a pot less than 13 $\frac{5}{8}$ " tall, elevate it by placing scrap cedar spacers on top of the support rails (B), as needed.

Written by **Owen Duvall**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMolne; Lorna Johnson**

Cutting Diagram



$\frac{3}{4}$ x 48 x 48" MDO plywood



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A sides	$\frac{3}{4}$ "	17 $\frac{1}{8}$ "	16 $\frac{3}{8}$ "	MP	4
B support rails	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	16 $\frac{3}{8}$ "	C	2
C wide stiles	$\frac{3}{4}$ "	2 $\frac{3}{4}$ "	17 $\frac{5}{8}$ "	C	4
D narrow stiles	$\frac{3}{4}$ "	2"	17 $\frac{5}{8}$ "	C	4
E* top and bottom rails	$\frac{3}{4}$ "	3"	13 $\frac{7}{8}$ "	C	8
F* center stiles	$\frac{5}{8}$ "	4"	12 $\frac{3}{8}$ "	C	4
G top trim	$\frac{3}{4}$ "	2 $\frac{5}{8}$ "	21 $\frac{3}{8}$ "	C	4
H* spline blanks	$\frac{1}{8}$ "	2 $\frac{5}{8}$ "	5 $\frac{3}{8}$ "	C	4

*Parts initially cut oversize. See the instructions.

Materials key: MP—medium-density overlay (MDO plywood, C—cedar.

Supplies: #8x1", #8x $1\frac{1}{4}$ ", #8x $1\frac{1}{2}$ ", and #8x2 $\frac{1}{2}$ " stainless-steel flathead wood screws; 6d galvanized finish nails; spray adhesive; exterior-type adhesive.

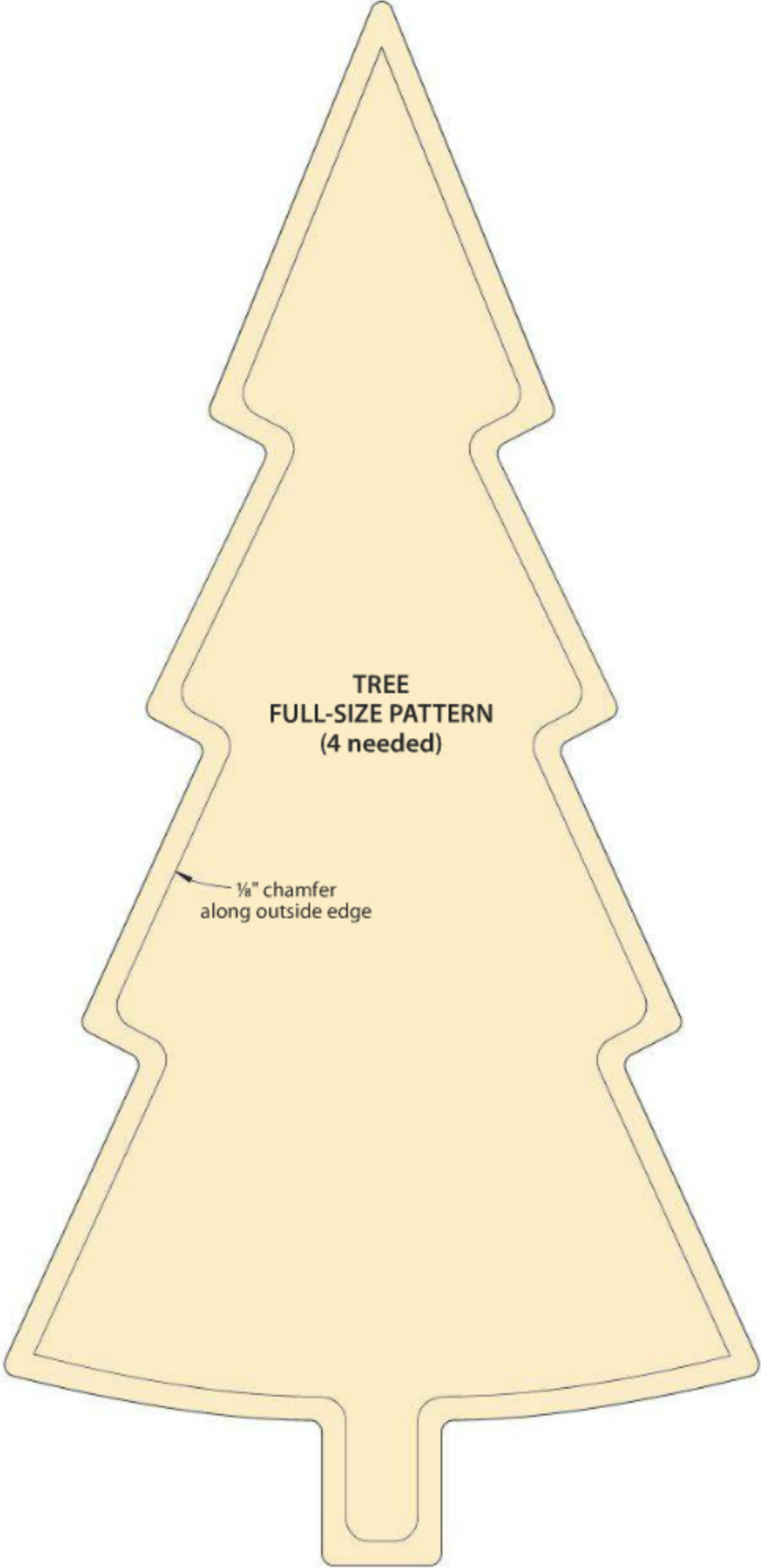


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AD#BEOP12





Build a Block Wall

Add structure and value to your landscape by installing a concrete-block retaining wall.

Even with a sloping yard, it's possible to have a great garden. Concrete construction blocks make it simple to increase your gardening space by terracing the slope. Do-it-yourselfers with a little project experience can plan on completing walls up to 4x12' in a weekend, but recognize when you need to call in a professional. Most walls up to 4' tall (which includes any buried blocks) require no special engineering, but if your wall will be taller or adjacent to heavy loads, such as alongside a driveway, consult a structural engineer. A properly designed wall will save you time and money.

Retaining-wall blocks weigh 20 to 80 pounds, and gravel and base (a mix of sand and crushed rock) are usually packaged in 50-pound bags, so be prepared for a workout. You probably already have most of the tools necessary to complete the job, but you'll need to get a tamper and a brick chisel—available at most home-improvement stores.

TOOLS & MATERIALS

- Stakes
- Twine
- Long-handle, round-point shovel
- Trenching spade
- Wooden dowels or lengths of scrap rebar
- 8' 2x4
- 4' carpenter's level
- Torpedo level
- Base material
- Hand tamper; gas-powered tamper, optional
- Blocks



- Rubber mallet
- Sand
- Construction adhesive
- Crushed gravel
- Perforated drainpipe
- Brick chisel

Step 1: Excavate

If you've designed a straight wall, drive stakes at opposite ends of the proposed site in line with where you want the front of the wall. Attach a length of twine to the stakes, and use that as a guide for digging a shallow trench for the base material, and for placing blocks in a unified and straight front. (Use multiple stakes for a curved wall.) A 3'-high wall should have 4–6" of base material, so dig accordingly.



Step 2: Ensure a level base

To create a structurally sound wall, it's essential that base material and the first layer of blocks be perfectly level. If not, your entire project may lean or shift. An easy way to guarantee a level base is to drive two stakes into the ground with their heads where the bottom of the first row of blocks will sit. We used scrap lengths of rebar, but wooden dowels will also work. Use a straight 2x4 with a 4' carpenter's level attached to level the stakes, then fill the base material even with the tops of the stakes.

QUICK TIP

Call before you dig!

Before you start any landscaping project, call your local One Call at 811 a minimum of 48 to 72 hours in advance to have workers come out and mark buried utilities.

Step 3: Compact the base

If you don't compact your base material as densely as possible, the massed weight of all your concrete blocks will likely sink in places, causing the structure to shift. For the greatest stability, thoroughly tamp down the base before placing blocks on it. A hand tamper—a heavy metal plate attached to a sturdy shovellike handle—will work fine for most walls, but for larger projects consider renting a gas-powered plate compactor. A length of 4x4 will work in a pinch for very small jobs. Compact the first few inches of base, then add some more. Compact this, and repeat until the tops of the stakes are just sticking out of the base material.

Note: Buy base material at most landscape-supply and home-improvement stores, usually in bags of 50 pounds or 0.5 cubic feet. Never use plain soil; it is certain to settle over time and create an uneven or leaning wall.



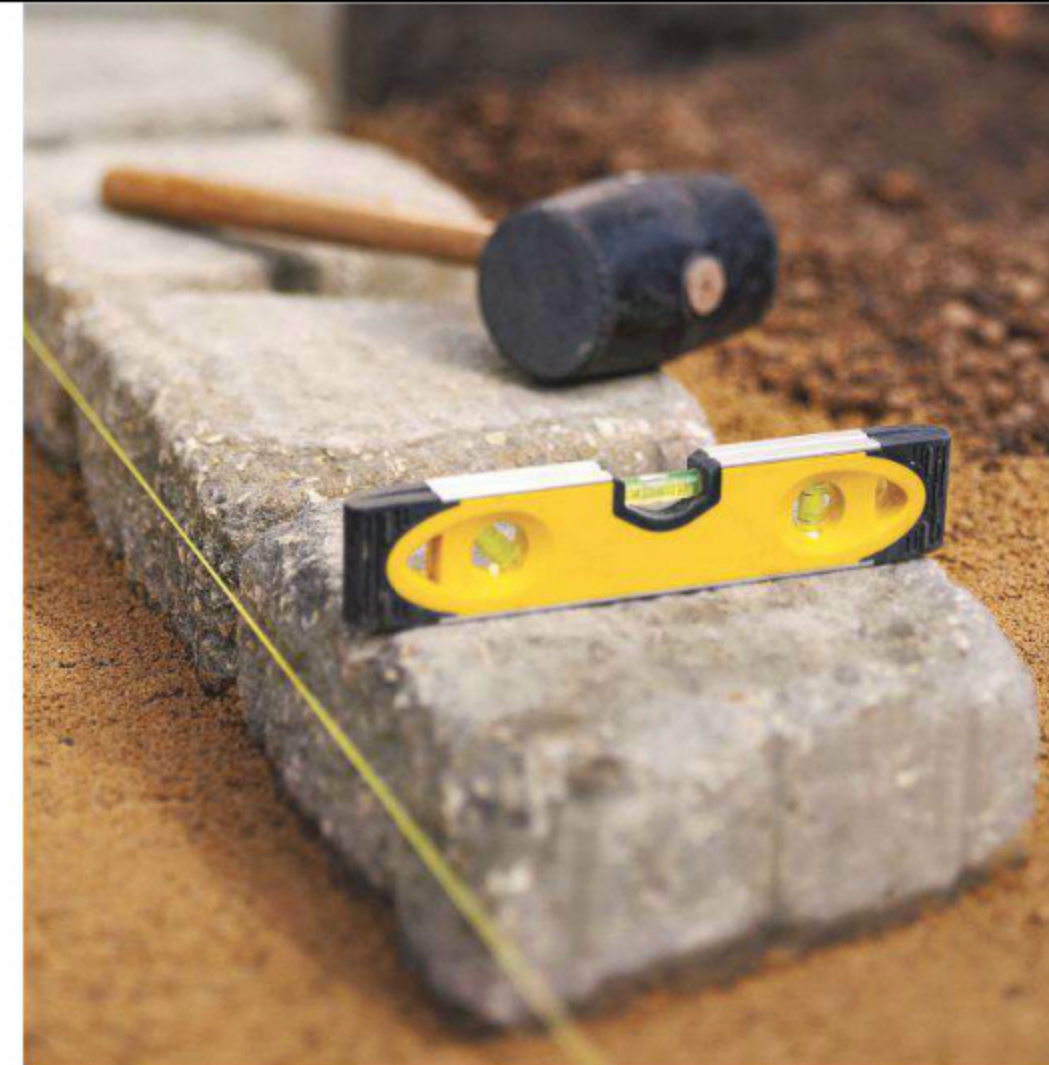
Step 4: Level the base

Place 1" wood strips or lengths of PVC pipe along the edges of the base material as a guide, then use a straight 2x4 as a screed, dragging it over the top of the base material to level it completely flat. This is crucial; you'll fight against the base and first course of bricks for the entire wall if they aren't level. Screeding will likely loosen the very top of your base layer, so tamp once again if necessary to ensure that it's fully compacted.

QUICK TIP



To cut blocks, score a line around the block with a brick chisel, then tap until the block splits. If you need to make a lot of cuts or cut custom capstones, rent a masonry saw with diamond blade to make your scoring.



Step 5: Lay the base blocks

Start laying blocks at one end of the wall beginning with a full block, and referencing your string line often to ensure a straight edge. Ensure that the blocks are even using the 4' level for length, and a torpedo level to check each block front-to-back. Adjust the blocks by tapping with a rubber mallet until they are level with one another. If you need to raise a block, put additional sand or base material underneath it; again, don't use plain soil as a leveler, as it will settle over time and make your wall uneven again. Level every block on the first course: It does the most work, and will receive all the pressure from the wall. When you've finished that layer, pack a bit of dirt along the front of the blocks to hold them in place as you add the next courses. (Remove this dirt when your wall is finished.)

Step 6: Continue stacking blocks

Begin the second course with a half block and start each second row with one. With staggered joints, the wall will have more structural integrity. Some retaining-wall blocks have locking mechanisms that allow them to be built to about 4' high without extra engineering. Because we used tumbled blocks with no locking mechanisms, we applied some construction adhesive between alternate courses. Remember: With locking blocks, you can rearrange them, remove them or even start over if you make a mistake. But adhesive permanently bonds nonlocking blocks, so work carefully.



Step 7: Backfill

As you add each level, backfill with crushed gravel and tamp it down firmly. This facilitates drainage between the back of the wall and the native soil behind it, and helps prevent tree and weed roots from destroying your wall. In addition to the gravel backfill, adequate drainage that empties beyond the wall is crucial to maintaining the wall's strength. Embed a section of perforated drainpipe at the bottom of the gravel to channel water from behind the wall. The gravel backfill between the wall and the surrounding native soil should be at least 8-12" thick.





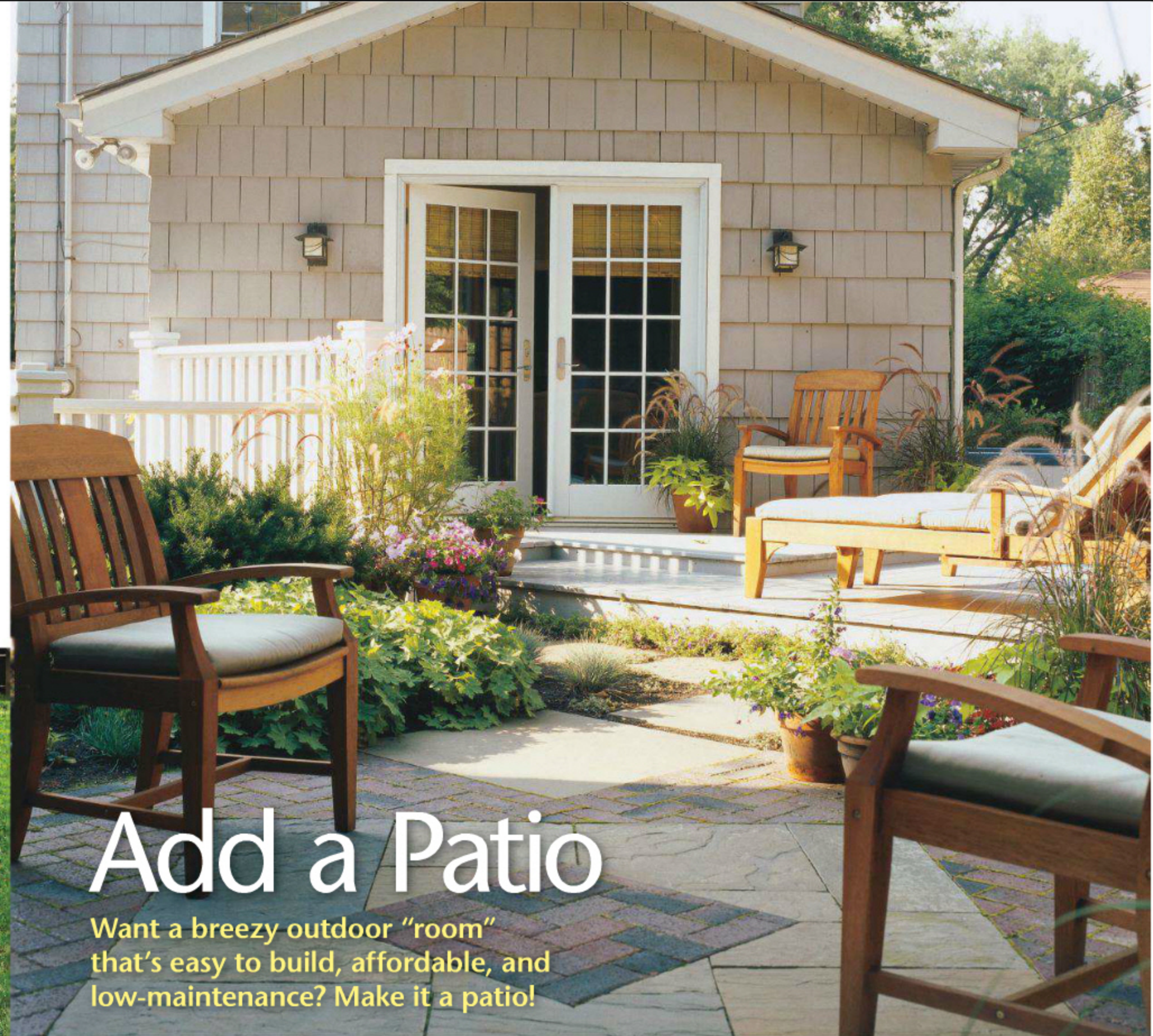
Step 8: Add capstones

Although not essential, capstones give a finished wall a professional look, and the extra weight helps keep the top course of blocks secure and less likely to be dislodged when bumped by lawn equipment. Most block manufacturers make capstones that blend with the color of the wall block, or you can use concrete pavers cut to fit, as we've done here. Apply two or three beads of construction adhesive between the capstones and the top course of blocks to keep them securely in place. 🌱

Written by **Dan Bretz**
Photography: **Marty Baldwin**



Mowing this steep slope and preventing erosion could be a constant chore. Creating a block wall splits the area into two distinct levels to make yard care easier, and adds a well-manicured appearance to this landscape.



Add a Patio

Want a breezy outdoor "room" that's easy to build, affordable, and low-maintenance? Make it a patio!

A well-designed patio adds to your living space, while also increasing your home's ambience and value. Whether you're starting from scratch or renovating, taking time to plan will save you from second-guessing and costly fixes later.

Begin by thinking about how you'd use a patio. It should provide livable square footage and room for traffic and storage, whether you intend it as space for family meals, an outdoor office, or as a way to garner privacy. As you view examples on these pages, consider the overall look of each, then gather ideas you can use from the details.

Start by taking pictures of your site from every angle. You may see your space in a new way and notice certain things for the first time. Visit building centers, landscape suppliers, and nurseries to check out potential materials—we'll show you several common ones on [page 71](#). Take along a notebook and complete measurements to assist you when collecting information about costs, installation, and maintenance.

When you're ready to dig in, allow time to build your patio in stages, whether you do it yourself or enlist help. Enjoy the process, and savor your success.

Make it accessible

Our first example, the airy deck/patio combination shown *above*, helped eliminate a drainage issue by providing a transitional grade change from inside to outside, thus ensuring that rainwater and other runoff is efficiently directed to the outer areas of the yard. Angling the decking from the widened back door made access to the patio, hot tub, and garden easier. Although relatively small, the backyard feels larger, thanks to the skewed design that leads the eye to create the illusion of more space. Landscaping, consisting of layers of plantings at fence, deck, and ground levels, contributes a volume-enhancing effect.



Build-in privacy

Transform an open area, such as a corner lot open to busy streets, into a livable, low-maintenance space by adding a privacy wall. The stucco partition *above* creates seclusion without a feeling of being walled in, and it suits the home's Spanish style. A series of patios flows around the house, providing plenty of room for dining, relaxing,

and entertaining. The saltillo (quarry) tile floor and abundant terra-cotta pots coordinate with the house's clay-tile roof. A splashing wall fountain masks street noise, while an evergreen hedge works as an additional buffer on the back side of the wall. A pergola provides the shade essential in a sunny climate.



Maximize a small space

A tiny backyard like the one at *left* can sometimes feel more than a little cramped, especially once you add typical space-eating patio items like furniture or a grill. However, it's not impossible to add a bit of virtual elbow room simply by incorporating a comfortable place to relax and enjoy your surroundings. Where privacy and outdoor living space were once hard to find, this patio provides new dedicated spaces by including lattice trellises set at angles, a small in-ground water garden, and potted tropical plants amid tiers of lush foliage making a natural transition to existing trees. The outdoor room's overall scale and paving materials suit the home's architectural traditions. The patio design mixes brick and bluestone in various paving patterns, creating a dynamic sense of both interest and movement.

Create a pretty view

A modern second-story addition to this 1950s ranch-style house in Dallas, *right*, provided the owners with more living space. Meanwhile, the new high windows on the second floor created a welcome bird's-eye view overlooking the backyard—unfortunately, that view was of an ordinary lawn with a concrete-slab patio very typical of the period. To update the look, the first step was to break up and dispose of the old patio, then replace it with concrete pads stamped and stained to resemble the texture of flagstone and the color of slate. The pads now form a graceful grass-edged pathway that traces a beautiful backyard patio retreat. As a final touch, affordable slabs of rough-cut stone top the low brick wall that separates the peaceful sitting area from the yard, providing the perfect backdrop for the lush perennial garden.





Match your house

Use the style or architecture of your home as the starting point for a patio design. Outside this 60-year-old, country-French-style house with aged-stone walls, the owner extended the flagstone patio with pea gravel, *left*. The gravel continues into the yard, serving as paths and gathering places throughout the landscape. One of the most affordable hard-scaping materials available, pea gravel proves durable and easier to walk on than larger loose rock. Complementing the home's style, the ironwork patio furnishings withstand the rigors of frequent use, inclement weather, and time.

QUICK TIP

Keep it on the level

The ground under your patio must be even and level. If not, gravel will slide, concrete can crack, and stones and pavers may shift or sink.



Lighten up

A perfect way to play up warmth and light, which helps counteract gray skies and gloomy days, is to rely on patio materials featuring a sun-saturated color palette. The ruddy Arizona sandstone shown at *right*—selected for the patio itself, gathering areas, and steps because of its warm, earthy hue—provides the heft and scale appropriate for this large hillside property. Brick edging and facings complement the scheme. The patio wraps around the house, providing multiple-use areas for casual dining and large poolside get-togethers, and melts into the sloping landscape. Perimeter planting islands of colorful perennials and strategically placed containers of annuals blend the outdoor living area with its surroundings.

Written by **Kate Carter Frederick**
Photography: **Janet Mesic-Mackie; Ed Gohlich; Jason Donnelly; Gordon Beall; Stephan Cridland; Colleen Duffley**

Pick the patio material that's perfect for you

Before you start, collect samples to visualize colors and textures that work best for your setting. We've compared several common ones here. Each patio material has unique characteristics and methods of installation that affect your project costs. Keep in mind that additional costs will include base materials, edging, delivery charges, tools, and labor. Visit improvenet.com, an online project estimator, to gauge patio construction costs in your area.

	Durability	Qualities	Upkeep	Cost
Brick 	Good	Warm, organic colors; earthy, old-world appeal; good match for many older homes	Replace broken or loose bricks; reseat sunken bricks	\$2–\$5/sq. ft.
Concrete 	Excellent	Versatile finishes, colors, and patterns; conforms to shapes	Repair problems caused by unskilled installation may occur years later	Regular: \$3–\$8/sq. ft. Stamped: \$6–\$12/sq. ft.
Pea gravel 	Good	Easy underfoot and on the budget; drains quickly	Gather gravel that strays into surrounding lawn	\$1–\$3/sq. ft.
Pavers 	Excellent	Variety of sizes, shapes, patterns, colors, and finishes	Sweep periodically; reseat sunken pavers	\$2–\$10/sq. ft.
Flagstone 	Good–Excellent	Varied, earthy colors and textures; complements many architectural and landscape styles	Replace cracked or broken stones; remove weeds	\$10–\$30/sq. ft.
Tile 	Excellent	Limitless potential for pattern and color; best when nonporous and slip-resistant	Replace cracked or broken tiles; reseat surface	\$4–\$25/sq. ft.

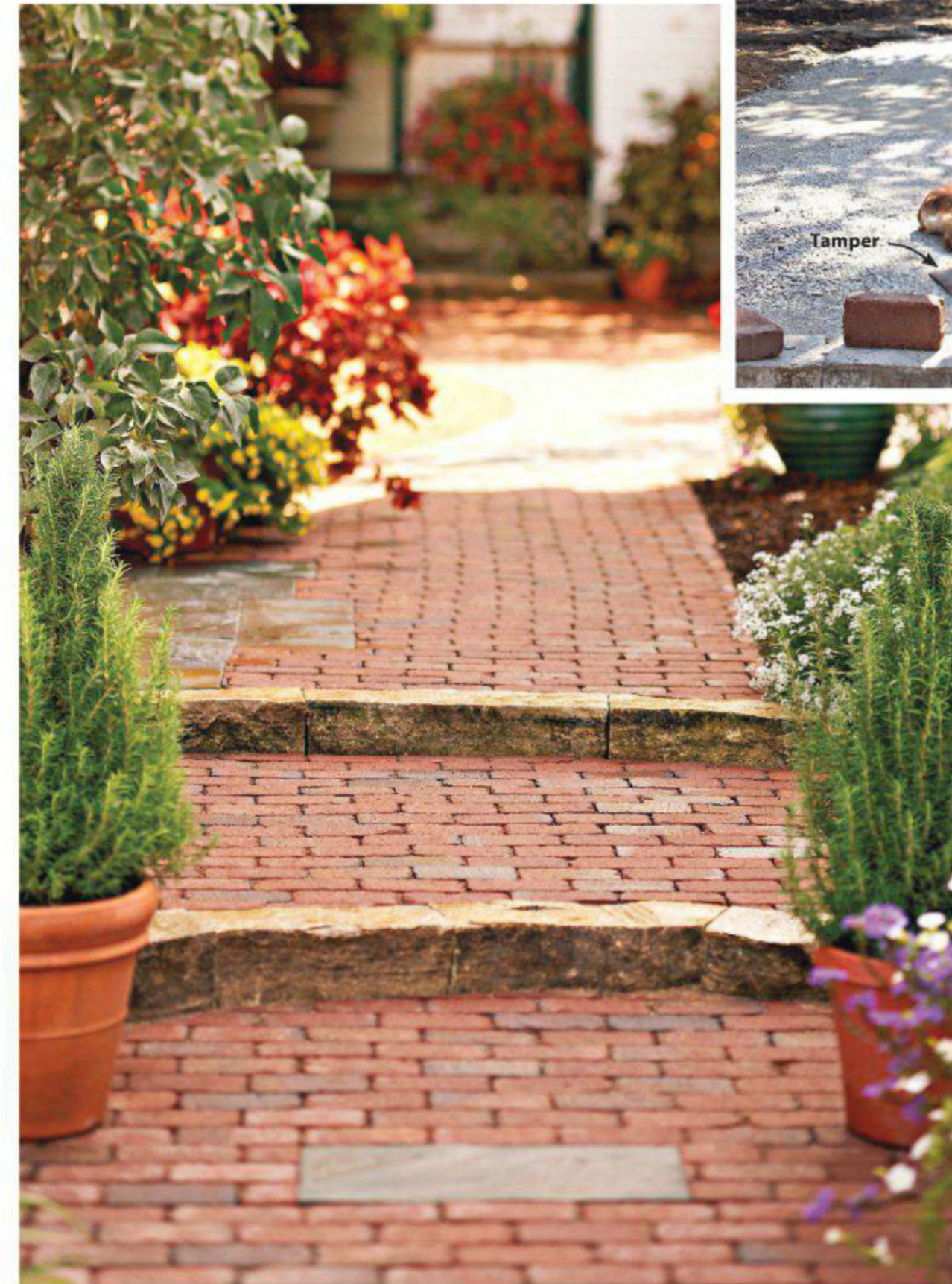


Pave the way

Still the gold standard for patios and paths, bricks cost little, look great, and can be installed by do-it-yourselfers.

Any way you stack them, bricks offer a stylish, steppable surface that defines whatever theme you want your outdoor spaces to reflect. Whether you prefer the crisp edges of a formal walkway or the casual curves of a meandering garden path, brick is among the most adaptable of materials. "You can do just about anything with brick," says landscape designer Katie Ketelsen of TimberPine Nursery & Greenhouse in Earlham, Iowa. She designed and installed the project pictured here using a "running-bond" pattern. It's one of several you'll find on [page 76](#).

Size your brick path according to the overall space you have available, of course, but try to keep it at least 36" to 48" wide so two people can comfortably walk side-by-side.



The key to a perfect brick pathway is a level, solid base. Tamp it down firmly enough that it doesn't shift or move when you walk on it.

Block talk

Before laying the first brick, Katie suggests the following:

PAINT YOUR PLAN

"Use spray paint to outline the perimeter of the project. It helps you visualize what it will look like with your house and landscape."

GO WITH THE FLOW

"Design for traffic flow," says Katie. Creating easy movement from the patio to the home entry helps outdoor spaces function as integral parts of your home.

TAKE A SEAT

Make sure you have room to scoot outdoor chairs. "Most people make their patios too small," says Katie. Before installation, place furniture in the actual space to ensure adequate square footage.

Installing brick yourself

Laying a brick path requires some muscle but no advanced skills, and you can readily rent all the necessary tools and equipment. When installed correctly, brick surfaces last many years; if you cut corners, they can settle or buckle in a short time. "Proper installation is 80 percent of the success of a project," says Katie, who recommends excavating to a depth of 9–10" and building a layered base like the one shown *below*.

QUICK TIP

Stop the weeds

Whatever the design of your pathway project, be sure to incorporate a layer of heavy landscape fabric underneath the sand to discourage weeds yet allow drainage.



1 Lay the base. Tamp the underlying soil with a hand tamper, or speed things up by renting a powered plate compactor like the one *above*. Pour a 4" paver base of crushed stone (often sold as "road base"), and compact again until solid. Next, lay a sheet of heavy-duty landscape fabric on top of the compacted base to act as a weed-germination barrier.



2 Add the edging. Pathway edging can be as simple as adding a row of on-edge bricks, but that might not lend itself well to intricate curves and bends. Instead, consider flexible plastic edging available at most home and garden centers, or through landscaping suppliers. Plastic edging forms easily; edging spikes hold it rigidly in place.



3 Pour the sand bed. Pour a 1"-deep layer of damp, coarse sand over the landscape fabric. Use the pathway edging material as side rails (or use 1" wood strips or PVC pipe parallel to each other as a guide) for a screed board. Drag the screed board over the sand, using a back-and-forth sawing motion to create a level setting bed for the pavers. Remove any excess sand.



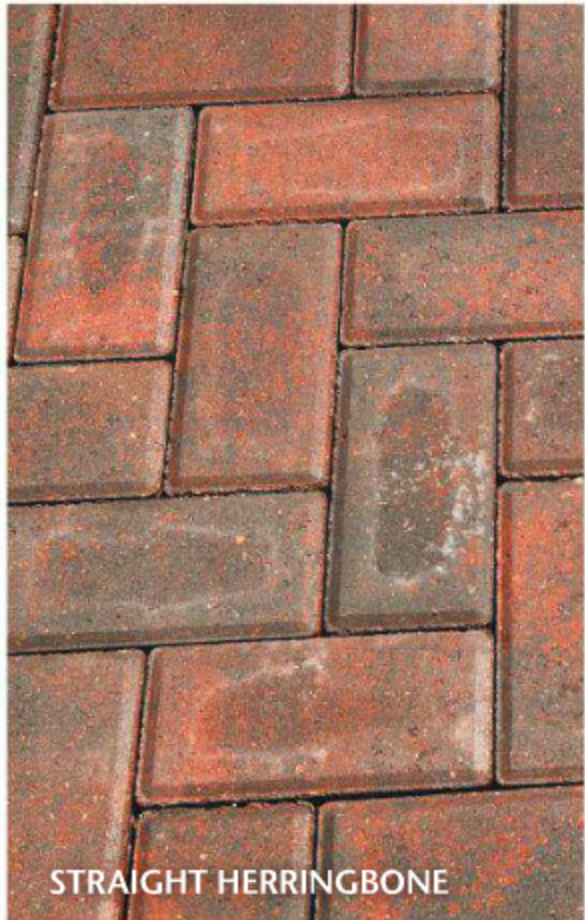
4 Place the pavers. Start laying bricks in a corner or along an edge and work your way across. Gently tap bricks into place with a rubber mallet. Leave a slight gap (about 1/8") between bricks. You may need to cut the final row of bricks to fit. Finish by spreading a light layer of sand over the bricks and sweeping it into the seams with a broom. Repeat until the sand completely fills the cracks.

Brick patterns

The "wow factor" of your brick walkway will be affected by the pattern you choose. A simple running-bond pattern, where each brick spans a seam in adjacent rows, is one of the most familiar and among the easiest to lay. For a more intricate pattern, try the stagger step, straight herringbone, or a single or double basket weave. Because the bricks meet the pathway edging at an angle, the diagonal herringbone pattern is more difficult, and requires cutting most edge bricks.



RUNNING BOND



STRAIGHT HERRINGBONE



DIAGONAL HERRINGBONE



SINGLE BASKET WEAVE

Written by **Karen Weir-Jimerson**
Photography: **Kritsada Panichgul**



STAGGER STEP



DOUBLE BASKET WEAVE

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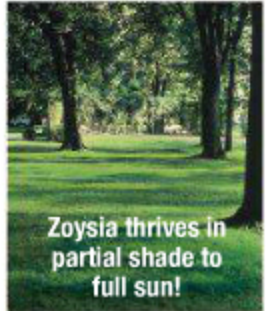
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A mix of stones creates a realistic stream setting. If your project includes boulders, hire professionals to move and position them. Place larger rocks and boulders near the creek's edges, and smaller rocks toward the center.

Dry Creek Drainage Solutions

Make your drainage woes disappear with this water-diverting, eye-catching landscape feature.

Versatile and beautiful, a dry creek tackles landscape drainage issues with an easy-does-it solution that's within reach of almost any budget. Whether you're plagued with simple puddling after downpours or a slope that's slowly eroding, the rock channel will corral and redirect the offending water. By creating a channel, it drains water when insufficient slope fails to do so. The beauty of these

rock beds also helps transform steep, untended slopes into low-maintenance garden masterpieces.

Typically, dry creeks feature a blend of rock sizes—from boulders to river rock to pea gravel—lining a wide, shallow bed. In some climates, rain comes in seasonally intense cloud-bursts, transforming dry creeks into temporarily running streams. More often, they simply direct and disperse water that would normally pool and stand for a few days.

Ground rules of construction

Once you master a few basics of dry-creek construction, completing the project is a quick process. For a creek that's 10' long, plan on a minimum of 1 or 2 days for completion—including shopping for supplies. That time will increase if you're a rock hound and enjoy handpicking stones at a local quarry. You may also need more time if you design intricate plantings to grace your creek with living color.



Above: Ground-hugging plants that carpet the banks of a dry-creek bed allow rocks to take center stage. Good choices include creeping thyme, Irish moss, and Corsican mint.

Left: Design your plantings to shine with textural interest and seasonal appeal. Ornamental grasses provide multiseason interest, as do trees and shrubs that don colorful fall foliage.

Before digging, be sure to understand elevations and which way you'll direct water, especially if the creek will be near existing structures. Make sure that the creek drains water away from your house. For the ending point of your dry creek, consider several options. The ideal method is to direct runoff into existing landscape-draining systems on your property. Another choice is to funnel water to a more remote spot on your property where it can seep into surrounding soil. You can also build a pond at the end of your dry creek to catch runoff.

Above all, don't assume you can direct water into a public street—research local ordinances with a call to your public-works department for information. If drainage into the street is supported, get it in writing before breaking ground.

Selecting where to start your dry creek depends on the problem you're trying to solve. If you're addressing a standing-water situation, place the "headwaters" of your creek bed slightly beyond the outer boundary where

puddling typically occurs. To control erosion on a slope, start the dry creek at the top of the hill. If a drainage pipe dumps water onto your property, you'll want to site the dry creek to catch that water.

Dry-creek design

Lay out your dry-creek bed to mimic a natural watercourse, with twists and turns. Remember that flowing water won't bank sharply, so avoid hairpin turns. Using a rope, garden hose, or landscape paint, mark the creek course. Situate the headwaters for your creek behind a clump of plants or large boulder to cultivate a sense of mystery. In general, a dry creek should be two to three times as wide as it is deep.

When positioning stones, place the largest ones (6–18" in diameter) along the creek bed first, toward the outer edges. For the start of the creek and any turns, choose larger boulders. Place these with a rented backhoe. Otherwise, use a heavy-duty construction-grade wheelbarrow to haul other stones of manageable size. If you purchase a

mix of rocks, it's worth the time to sort them by size. Fill the center of the dry creek with smaller stones (¾"-3" in diameter), which permit water flow. Some designers select a fine substrate, such as decomposed granite, to create the appearance of natural sediment at the end of the dry creek. Mortar stones in place if you're solving a drainage issue that requires moving a lot of water from one point to another.

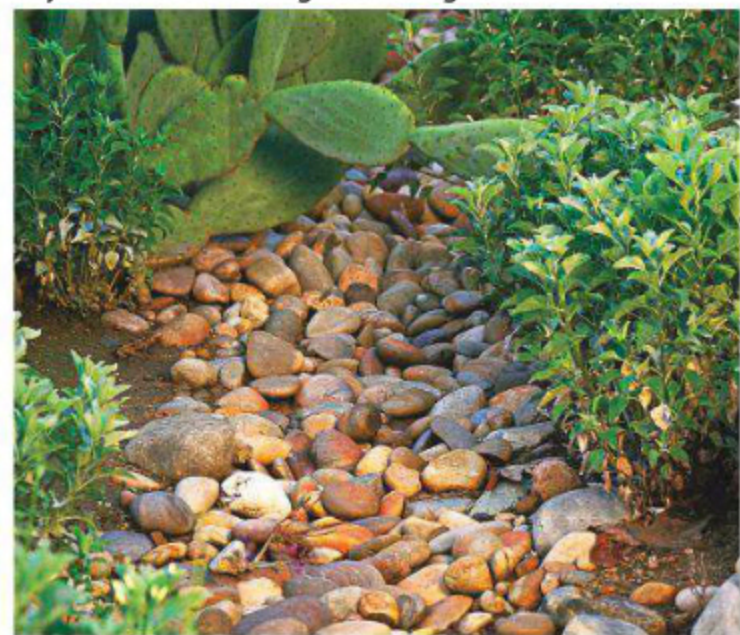
For the sides of your creek, select plants that offer a mix of leaf textures, flower colors, and sizes. Native plants need less care, as do bulbs. Self-seeding annuals like Brazilian verbena (*Verbena bonariensis*), spider flower (*Cleome hassleriana*), and cosmos (*Cosmos bipinnatus*) return year after year. Low-growing sweet alyssum (*Lobularia maritima*) and moss rose (*Portulaca grandiflora*) form self-seeding mats of color that happily scramble among stony surfaces. Ornamental grasses weave movement and texture into the scene, while evergreen or berried shrubs add seasonal interest.

Written by **Julie Marten**

Photography: **Ian Adams, Ed Gohlich, Kritsada Panichgul**

Illustrations: **Travis Rice**

Choose river rock to mimic the appearance of flowing water. Plantings tumble into the creek bed, diminishing any sense of contrived garden design.



Create a crossing to enhance the sense of flowing water in your dry-creek bed. Dress up the scene with colorful container gardens. In the bed itself, include plants that thrive in both wet and dry conditions, such as horsetails.

3 Steps to a dry creek

Creating a dry-creek bed doesn't require a professional landscape contractor. With a little planning you can tackle this project with success.

STEP 1 Lay out the streambed course using a can of landscape spray paint, or with a rope or supple garden hose. Excavate soil to a depth of 4-8". Toss excavated soil onto the sides of the creek bed, building them up and creating a deeper channel. To make certain that your dry creek drains well, provide at least a 6" drop in elevation for every 10' of creek length.

STEP 2 Tamp the bed and sides to form a smooth surface. To suppress weeds, cover surfaces with a layer or two of landscape fabric anchored with staples or nails. Layer ½" of pea gravel in the bed and along the sides. Pea gravel allows water to flow through the channel.

STEP 3 Line the sides of the dry creek with river rock. Avoid following any pattern as you place the stones. Allow a few larger stones to encroach into the pea gravel in several spots along the course for a natural look. Camouflage the beginning and end of the creek with plantings or decorative boulders.





From Generic to Jewel

The right mix of materials and style transforms an ordinary deck into an entertainment showcase.

Like many homes, Tony and Amy Nichols' suburban Iowa home originally came with a plain-vanilla 10x20' deck that simply didn't provide enough space for relaxing, entertaining, and dining. Worse, once the deck furniture and plantings were in place, there wasn't much room leftover for daughter Katie to play with her toys.

Landscape architect Travis Rice's solution was to create two levels, multiple entry points, a sweeping perimeter curve on the main level, and concrete and metal elements to add a contemporary look. The overall concept worked fine, but had to be scaled down a bit to fit the house better and to comply with local setback regulations.

Ample square footage and clearly defined zones set this new deck apart from the generic platform it replaced. The main level accommodates multiple seating areas while leaving room for a grill or a child's play station.

Mixed media

A pair of sturdy concrete bulkheads, arranged perpendicular to each other, anchor one end of the deck visually and structurally while helping to delineate the raised dining level. A simple cedar pergola overhead adds a sense of shelter, and a metal-cable railing borders the area on two sides. The result is an engaging, cozy space clearly distinct from the larger main level a step below.

The combination of elements provided by the integration of concrete with wood sets the tone for the entire project. The large main level, with its curved edge, sports a series of 6×6 cedar posts that supports overhead metal accent panels and more of the braided-steel cable used in the railings. The flavor is decidedly modern, but softened by the look and character of the Western red-cedar decking.



Rather than using an engineered material, such as high-tech composite decking, the couple chose cedar for its natural warmth and appeal. The Nicholse understood that the deck would require occasional refinishing and maintenance to sustain the cedar's bright color, but that was an

acceptable trade-off to keep natural wood in the design.

Combining two seemingly disparate kinds of material in a project carries the risk that those elements will compete for dominance. However, in this design the wood clearly sets the style, while metal and masonry serve as accents.

Dealing with the unexpected

Even with the best-planned building projects, surprises are inevitable. Tony and Amy Nichols' deck was no exception.

Limited access to the backyard meant the concrete truck couldn't maneuver close to the construction site, so the Nicholse brought in a pumper truck with an overhead boom line for the pour—at significant extra expense. Also, the work took its toll on both lawn and landscaping, requiring sod replacement and other repairs. Once the work was complete, the couple realized they needed shade over the dining area, and have added overhead screens of outdoor awning fabric to their wish list.

Still, not all the unforeseen factors were unwelcome. As the old deck was being dismantled, the builder discovered he could simply add to the existing structural framework and footings, saving about two full days and the labor costs that would have resulted.



For the upper deck (above), metal-frame furniture and comfy cushions make outdoor dining a pleasure. On the main level (right), Adirondack chairs of recycled plastic blend traditional styling with green sensibility.



Hip hardware

The hardware Tony and Amy Nichols chose for the railing system and for fastening the decking contributes to the modern look of this deck.

The raised dining platform's railing is a modular cable system from Feeney Architectural Products (800-888-2418; feeneyarchitectural.com). You can use the braided-stainless-steel cable—secured and tensioned with specially designed fittings—with site-built wood or metal posts and handrails. Or pair the cable with a structural aluminum railing (at left) the company also manufactures. It's the top handrail that locks the whole system together, resulting in a strong but simple modular system.

Those same stainless-steel cables show up again on the lower level on opposite side of the deck, where they connect a series of overhead metal accent panels (below). The appearance of the cabling on both sides of the finished deck continues the industrial hardware theme that gives the deck its contemporary look.

For the deck itself, a series of stainless-steel clips secures the decking to the subframe while leaving a clean surface with no exposed screws, nails, or other hardware. 🌱

Written by **Bill Lahay**
Photography: **Kritsada Panichgul**





Reshuffling the Deck

A budget-conscious makeover turns a “builder’s special” deck into one that really is.

Millions of American homes come with “builder’s decks”—bare-bones wooden slabs that leave owners wanting—not necessarily more space, but a more attractive and more livable outdoor room. That was the case for Eric and Wendy Liskey. They didn’t want the expense of hiring a deck builder, and didn’t have the time to build a new deck from scratch. Instead, they took a middle route and kept the existing substructure, which was in good shape, but tore off and replaced the decking, added new railing and a pergola, installed lighting, and expanded the stairs.

The result was a “new” deck with essentially the same footprint as the old one, but with better looks and utility. Because Eric did the work himself, the total price of materials was about \$3,000, making it an economical alternative to a completely new deck.

Objectives

Aside from wanting a generally more inviting deck, Eric and Wendy had these specific goals for the project:

- **Add visual mass to the back of the house**

How we did it: We built a pergola, which, with its height, effectively adds the needed dimension.

- **Create a more seamless and open transition from house to yard**

How we did it: We designed the deck as an outdoor room and transition space—not quite inside, not completely outside. French doors and wide stairs leading to the lawn facilitate movement between indoors and out.

- **Integrate the deck with the rest of the house**

How we did it: We chose gray composite decking to complement the house’s gray siding, and stained the pergola and railing posts and caps to match the home’s exterior trim.

- **Encourage nighttime use**

How we did it: We installed low-voltage lighting in railing posts and stair risers to add a comfortable level of illumination without direct glare.

- **Gain more seating**

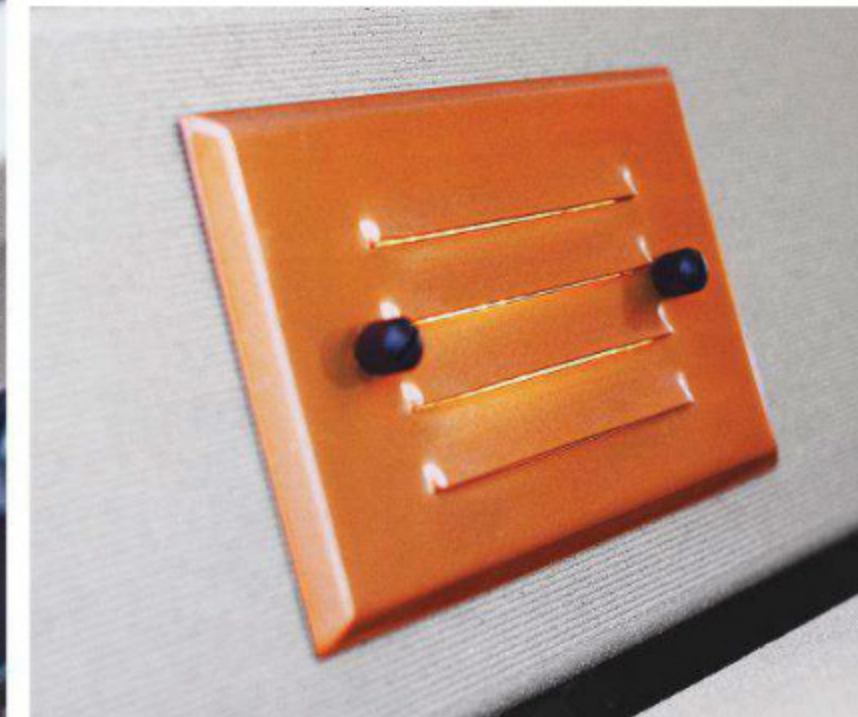
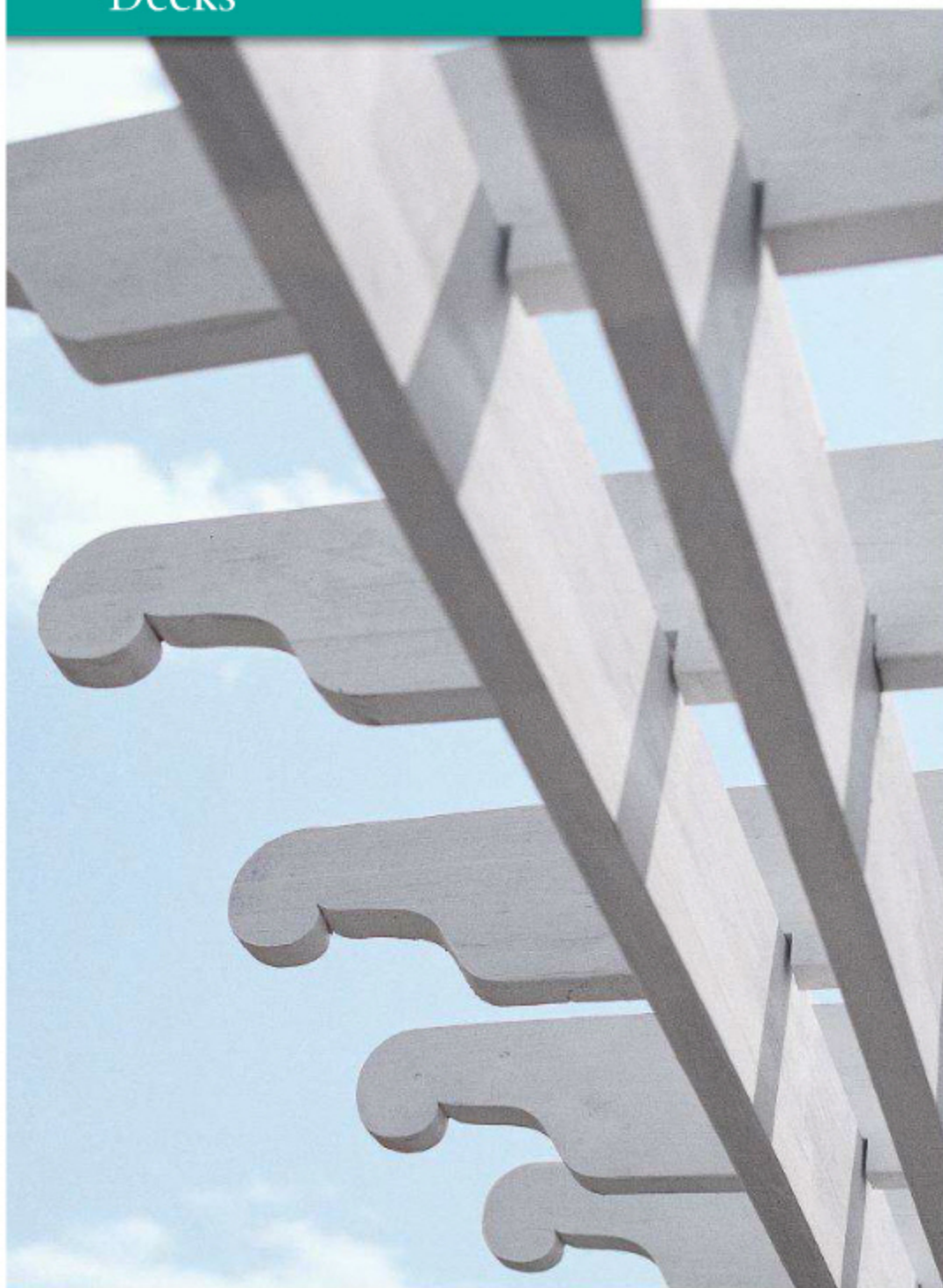
How we did it: We extended the stairs across an entire side of the deck. (The steps are probably our family’s most used outdoor seating, and from a functional standpoint, our favorite feature of the new deck.)

- **Provide shade**

How we did it: We added the pergola, and though it doesn’t yet supply the shade we’d like, a wisteria vine should create a canopy within a few years. (We prefer this alternative to laths or shade cloth.)



The wide stairs function as a long bench where the Liskeys often sit while watching their kids play. The stairs eliminate the need for railing on the front of the deck, opening up the space visually as well as functionally, and creating a better transition to the yard. The wraparound corners give the deck a bit more character, and offer several ideal places to set potted plants.



Pergola

The pergola adds a third dimension to the back of the house, which otherwise was flat and uninteresting. An unexpected, but welcome, effect is the way it created a feeling of being in a room with a roof. The Liskeys wanted the pergola to blend with the house, and chose a solid stain matching the home's exterior trim color.

Railing

Curvilinear powder-coated-aluminum balusters eliminated the confined "jail-cell" feeling of the old wood balusters. The railing caps are 2x6 boards, which are convenient for holding drinks, small pots, and other items.

Decking

The Liskeys chose Veranda composite decking as much for its looks as for its low-maintenance qualities. The gray hue complements the home's exterior color for a clean, uniform surface.



BUILDING CONSIDERATIONS

A tear-off project like this is appropriate only for newer decks with intact, structurally sound joists and posts. If you plan to incorporate preexisting structures, carefully inspect joists and posts after removing the old decking for signs of structural weakness or rot. Make any needed repairs and replacements before proceeding.

Lighting

The fixtures are attractive but unobtrusive during the day. At night, their soft, indirect illumination makes the deck functional, but without the glare of an incandescent sconce light. The post lights, *left*, illuminate the deck surface, while step lights, *above*, increase safety. A timer automatically controls the low-voltage lights, which collectively use only slightly more energy than a single incandescent bulb.

Open air

The original railings featured thick balusters that turned the deck into a wooden cage. The new metal balusters, *previous page*, are much thinner and less obtrusive, giving the deck an open feeling.

Lessons learned the hard way

If you tackle a project like this yourself, estimate the time you'll need, then double it, and count that as a conservative guess. Keep in mind the additional time it takes to set gaps and, in some cases, to drill pilot holes—a step required for many deck screws.

The uniformity of composite decking reduces the margin for error because it accentuates uneven gaps.

Long stairs—and stairs on corners—are hard to build. Lengthy lines and mitered corners make minor variances highly visible. This is one area that required more time than the Liskeys expected, plus several redos to get an acceptable result.

When staining or painting a pergola, use drop cloths on everything. You may be able to get the stray droplets off the deck with a power washer, but it'll take some work.

If you stick with an existing substructure, you're also stuck with any imperfections already there, such as joists that don't run parallel with each other or aren't square with the house. Take note of these in the beginning and accommodate them in your plans. 🌿

Written by **Eric Liskey**
Photography: **Pete Krumhardt**



How to Work With a Contractor

Understanding the fundamentals of deck building helps you communicate with professionals to get the results you want.

A deck project has several phases. Knowing what to expect during each phase helps you make necessary decisions and anticipate problems, enabling your project to proceed as smoothly and efficiently as possible. The process includes essentials such as soliciting bids, hiring a contractor, and signing contracts—and you can't make the best choices without first understanding what each phase involves.

6 key building phases

Having a deck built could take as little as a week or as long as several months, depending on the size and complexity of the design, as well as unpredictable events, such as weather delays. Despite these variables, most deck construction follows a basic sequence: obtaining permits; dealing with building inspectors; preparing the site; pouring or installing the foundation; building the structural system; adding decking, railings, and stairs; followed by finishing the job with protective sealers, stains, or paints. While methods will vary from builder to builder, the essential process is straightforward.

Obtaining permits

Any structure attached to a main house—and often any freestanding structure—requires a building permit before construction can begin. Permits are issued after a member of the local building or planning department reviews your plans and evaluates them for safety and structural integrity. If an architect didn't produce your deck plans, have them reviewed by a registered structural engineer before submitting them to a building department. This is especially helpful if your deck is complex. Plan to spend \$300–\$600 for a structural engineer to review your plans and make suggestions that will address any challenges connected with the job.

Your plans must also meet local setback requirements. Setbacks determine the allowable distance from surrounding property lines for new construction. You may be able to apply for a variance allowing you to build within a setback zone. However, your application must argue compelling reasons for the variance, such as the construction of a wheelchair ramp.

Your building department can tell if your property includes any rights-of-way, which are corridors that allow utility companies or even your neighbors legal access through parts of your property. You cannot build in right-of-way areas.

Inspections

Expect two or three visits from a local building inspector during construction. The inspector examines the structure to ensure that it's being built safely and is in compliance with local codes.

Ask the inspector at what stages he or she expects to visit your site, and then plan to be on-site so you can answer questions.

Don't be intimidated: Most building inspectors are knowledgeable and helpful. Their main concern is safety, and most are quite willing to talk about your specific plans and construction methods to ensure that your deck project is built soundly and on schedule.



The permit process for outdoor work is extremely specific when it comes to setbacks and rights-of-way. Get it wrong, and the building inspector may demand that even a finished project as elaborate as this deck/patio/fire pit be redone to comply.

Utilities

Call 811 anywhere in the U.S. to notify utility companies about your plans for building a deck. Ask them to mark the underground locations of wires, cables, pipes, and sewer lines. Most companies provide this service for free or a small fee.

Site preparation

Once the plans are finalized and approved by the building department, work can begin. Any obstructions, such as shrubs, outbuildings, or small trees that are not included in the design, must be removed from the construction site. Soil near the foundation should be graded so it slopes away from the house at a rate of about 6 vertical inches for every 3 horizontal feet. To suppress growth of unwanted vegetation underneath the deck, add a layer of coarse sand for drainage, then cover the sand with landscaping fabric. Bury the fabric under several inches of gravel. It's most efficient to do this after all footings have been poured.

Foundation work

If the deck is attached to the house, the ledger location is marked on the side of the house. Using the location as a reference, the deck is outlined with a system of strings pulled tautly over staked batter boards. These string lines establish the edges of the deck and create reference

corners. Once the deck is outlined with lines, the strings locate and mark the placement of the concrete foundation footings.

After all footing locations are marked, the holes must be dug for the concrete. For small decks the holes are often dug with a hand-operated clamshell digger. For larger decks with more than six or seven footing holes, consider renting a power auger. This awkward, heavy tool is not easy to master, but it makes short work of digging holes. A power auger can dig a 10"-wide hole 42" deep in two or three minutes, depending on how compacted the soil is.

Main construction

After the preliminary work is completed and the foundation is poured and allowed to cure, the construction of a deck proceeds fairly systematically. Posts, girders, and joists are installed, and braced if necessary. The builder usually fastens the substructure together with galvanized metal connectors that hold the components securely and provide strength at the joints. Decking is then laid over the joists and fastened with galvanized nails or screws. Stairs, railings, and ancillary structures, such as overheads, come next. The final step of a protective sealer, stain, or paint suited to the deck material completes the work.



Setting concrete footings for your deck is a critical early task your builder will undertake when preparing the deck site. A laser level, like the one shown above, ensures that footings are plumb and properly placed.

Get a good set of building plans

A well-conceived set of building plans allows you to realize the deck of your dreams and ensures that the work is completed to code. Building plans document details of the construction process, from location of foundation footings to the placement of pipes for water and electricity. Initially you collected clippings, photographs, and brochures to assist with designing a space that meets your needs. Your design professional works with you to develop the plan for these dreams. Before getting bids and hiring a contractor, be sure to have a registered structural engineer review and approve the plans.

Meeting codes

Once the building plans for the deck are complete, have a number of copies made. Take a set of the plans and the materials list to your local building department. The building inspector may ask for changes or clarifications, but is less likely to do so if your plans are blueprints from a registered architect or have already been approved by a registered structural engineer.

Directing the work

Approved building plans are critical to the accurate completion of work. The general contractor and subcontractors refer to the plans as they excavate, build, and put finishing touches on the new deck. Make several copies of the blueprints so you have enough for everyone



Detailed and accurate building plans are critical, particularly when faced with a complicated site and deck design such as this steep slope and lap-pool surround.

involved in the project, and keep a copy for yourself. Refer to your plans often as you inspect the project to make sure construction is progressing as you've planned. Some plans have legends to explain abbreviations and symbols. If you don't know what a symbol or an abbreviation means, ask.

Research your contractor

Hiring a team of professional building contractors isn't something to be taken lightly—the successful outcome of your deck project depends on it. Take the time to choose a contractor who has a good reputation and with whom you feel comfortable.

A licensed contractor has completed state requirements to perform various types of work. General contractors usually have a broad knowledge of all aspects of construction and are hired to organize and complete a job according to an agreed-upon schedule. Specialized contractors, such as those for plumbing or electrical work, are called subcontractors and have training (and are certified) in specific areas. Electrical contractors, for example, have passed state certification programs that permit them to perform work relating to electrical hookups. It is your general contractor's responsibility to hire all necessary subcontractors.

To find a qualified general contractor in your area:

- Ask friends, neighbors, and colleagues for the names of reliable contractors they have hired. Get several names.
- Meet with prospective contractors to discuss your project. Ask about their experience with building decks and any problems they may have encountered. Ask for a ballpark figure for your project. This figure isn't a precise bid and should not be regarded as an agreement. But discussing money at an early stage may give you an idea of how knowledgeable a contractor is and how comfortable he or she is discussing costs.
- Ask how long the contractor has been in business and if he or she carries insurance. Without insurance, you are liable for accidents that occur on your property. Contractors should have certificates of insurance to cover damage, liability, and workers' compensation. It's acceptable to request that you see the certificate before proceeding.
- Obtain references from contractors and take the time to inspect recent work they've done, as well as work from 5 to 8 years ago so you can ask questions about how their work has held up. Reliable contractors should provide this information readily and will be proud to have their work on display. Check with your local Better Business Bureau to see if any unresolved complaints are on file.

■ Narrow your choices to five contractors and ask for final bids. (See "Getting Bids," next page.) Make sure all contractors have similar deadlines for submitting bids—about 3 weeks should be sufficient. Eliminate any who post late bids.

■ Carefully review each bid to see how thoroughly it was researched. A bid should include the specified fee—usually 10–15 percent of the total costs. Be wary of bids that are significantly lower than others; the low bidder won't necessarily give the most satisfying results.

■ When it comes to a final selection, take all factors into account and keep in mind that price isn't the only consideration; personality, quality, workmanship, and professionalism are all factors to consider.

Once you find your contractor, keep communication open. Schedule regular meetings to discuss progress and stay informed about interim deadlines. Tell your contractor that you don't expect to make your final payment until the job has passed all required building inspections, you have seen written proof that all subcontractors and suppliers have been paid, and you and your contractor have walked through the project and agree that the job is complete.

Working with a contractor

Once you've hired a contractor and signed the contract, you'll be in close quarters with this person for the duration of the project. To achieve the best results, follow these tips:

- **Communication is key.** If you're displeased with anything, tell the contractor immediately. The longer you wait, the more difficult and expensive the corrections. Similarly, when you're especially pleased with results, let your contractor know. Even though you've hired the person to do good work, compliments can go a long way toward getting top-quality results.
- **Get document changes in writing.** Though you want to minimize changes—they're generally costly—you may need to alter plans after work has started. Any change-work agreements made during the project should be as precise and detailed as the original contract.
- **Coordinate schedules.** Try to be at home briefly when the contractors arrive. That way you can quickly assess the work done the previous day and discuss any decisions. Once the contractors have started work for the day, plan to be out of the construction area to avoid delaying work.



Was that three steps or four? Even professional contractors make mistakes from time to time. By printing multiple copies of blueprints—and making sure that any changes or updates are noted on all copies—you'll help keep construction errors to a minimum.



Before embarking on a project that should net results such as this deck retreat, secure bids from several contractors. Review the bids carefully to ensure that they encompass all the work you want completed. If amenities, such as built-in planters, are included in one bid, make sure they are also factored into other bids.

Getting bids

Once you've narrowed down your list of prospective contractors, request final bids from each. If you're hiring a general contractor, that person needs to get bids from subcontractors. In either case, you have responsibilities to secure a carefully prepared bid for the project.

Begin by gathering all planning documents. Most critical is a detailed drawing, preferably a blueprint, and a materials list. Blueprints are copies of the original drawings made by a registered architect or structural engineer, but a qualified designer or homeowner can create usable plans. Blueprints from a registered architect or structural engineer are acceptable for contractor bids, but plans produced by a designer or homeowner must first be reviewed, approved, and stamped by a registered designer or structural engineer.

The materials list must be as complete and comprehensive as possible. It should specify the quantity and brand names of all the materials needed, as well as the brand names and model numbers of all fixtures and appliances to be installed. If specific companies aren't identified, the contractor is free to furnish brands of his or her preference.

Many homeowners enjoy being involved in the selection process and

like to shop for certain items themselves. Be sure your contractor understands your intentions and that the materials list indicates any purchases you intend to make. This information should be included in the contract. Both you and your contractor must agree about any possible limitations because of size, weight, and other factors.

When bids start to arrive, study them thoroughly to determine how each was prepared, and examine the level of detail each contractor provides. A meticulously prepared bid usually indicates that the contractor has carefully considered your project and is prepared for any potential problems that may arise.

A bid should include itemized materials lists, itemized figures for installation work, and a timeline with stages of completion clearly defined. The best contractors offer discounts for work that isn't completed in a reasonable period. There should also be an agreed-upon rate for change orders. Change orders occur when the homeowner decides to alter the plan or type of materials specified. Although most contractors will work with clients to make minor changes, some alterations cause work delays that disrupt shipping arrangements or cause contractors to alter schedules with other jobs. The best way to avoid changes is to plan thoroughly, well in advance.

If the bids vary widely, review each with the contractor who prepared it to find out why. It may be that certain items or tasks have been omitted from some of the bids. Make sure all the prospective contractors are working with identical information and plans.

Making a contract

After selecting your contractor, you should sign a written contract. Many contractors have prepared forms, but if you're unsure about the specific points of a contract, consult a lawyer. Contracts are not all alike, but a good contract should cover these points:

- A precise description of all work to be completed by the main contractor and any subcontractors and a description of all materials to be installed. Descriptions of materials and finishes should include the specific types and brands.
- The total cost of the job, including all materials, labor, and fees.
- A schedule of payments that you make to the contractor. Beware of contracts asking for large up-front payments—some states even limit the amount of up-front payments made to contractors before work begins.
- The work schedule, with dates specified for the completion of each stage of the project. The schedule should include an allowance for delays caused by delivery problems, weather, and product back orders. The schedule of payments should coordinate with the dates specified for the completion of each stage.
- A right of rescission that allows homeowners to back out of the contract within 72 hours of signing.
- A certificate of insurance guaranteeing that the contractor has all appropriate coverage for the job.
- A warranty that guarantees that materials and construction are free from defects for a certain period, usually one year.
- An arbitration clause that specifies the precise method you will use to settle any project-related disputes.
- Description of change-order procedures stating what happens if you decide to alter plans after the contract has been signed. The description should include a fee structure.
- A release of liens to ensure that homeowners won't incur liens or charges against the property as a result of legal actions filed against the contractor or subcontractors. 🌱

Outdoor Construction 101

9 important things you should know before you start working

Getting ready to build or renovate a deck? We've done some of the homework for you so you can spend less time sweating the details and more time enjoying your new outdoor living area.



1 Invest in fasteners ◀

Trying to save money with low-quality, low-cost screws is one of the biggest mistakes you can make when building a deck. Low-quality screws corrode, discoloring your deck and shortening its life, particularly if the wood used is pressure-treated. (Even if your decking isn't pressure-treated, it will be attached to pressure-treated beams and joists.) When old decks start to get rickety, it's often because of failing fasteners rather than the wood. Stainless-steel or coated screws specifically made for pressure-treated wood resist corrosion and extend your deck's life. You'll find a free downloadable guide to wood screws at woodmagazine.com/charts.



2 Conceal your support ▲

Many people don't mind seeing screw heads on their deck. But if you do, you have options. Hidden fasteners, like the EB-TY connectors shown here (rockler.com), sometimes require that a single anchor row use visible screws (which you can then hide with wooden plugs). But the fasteners themselves are all but invisible once installed, resulting in a deck surface with a clean, simple appearance. Hidden fasteners come in a variety of styles with differing methods of attachment, so check with your materials supplier or deck builder to see what's available.

3 Do your level best ►

Need more room? Don't just build a bigger platform; instead, construct two levels—or three—rather than one. Various levels allow guests to congregate in small groups and provide cozier settings for relaxation. A second level not only multiplies available living and entertaining space, but can also break up an exceptionally long flight of stairs leading to an elevated deck.

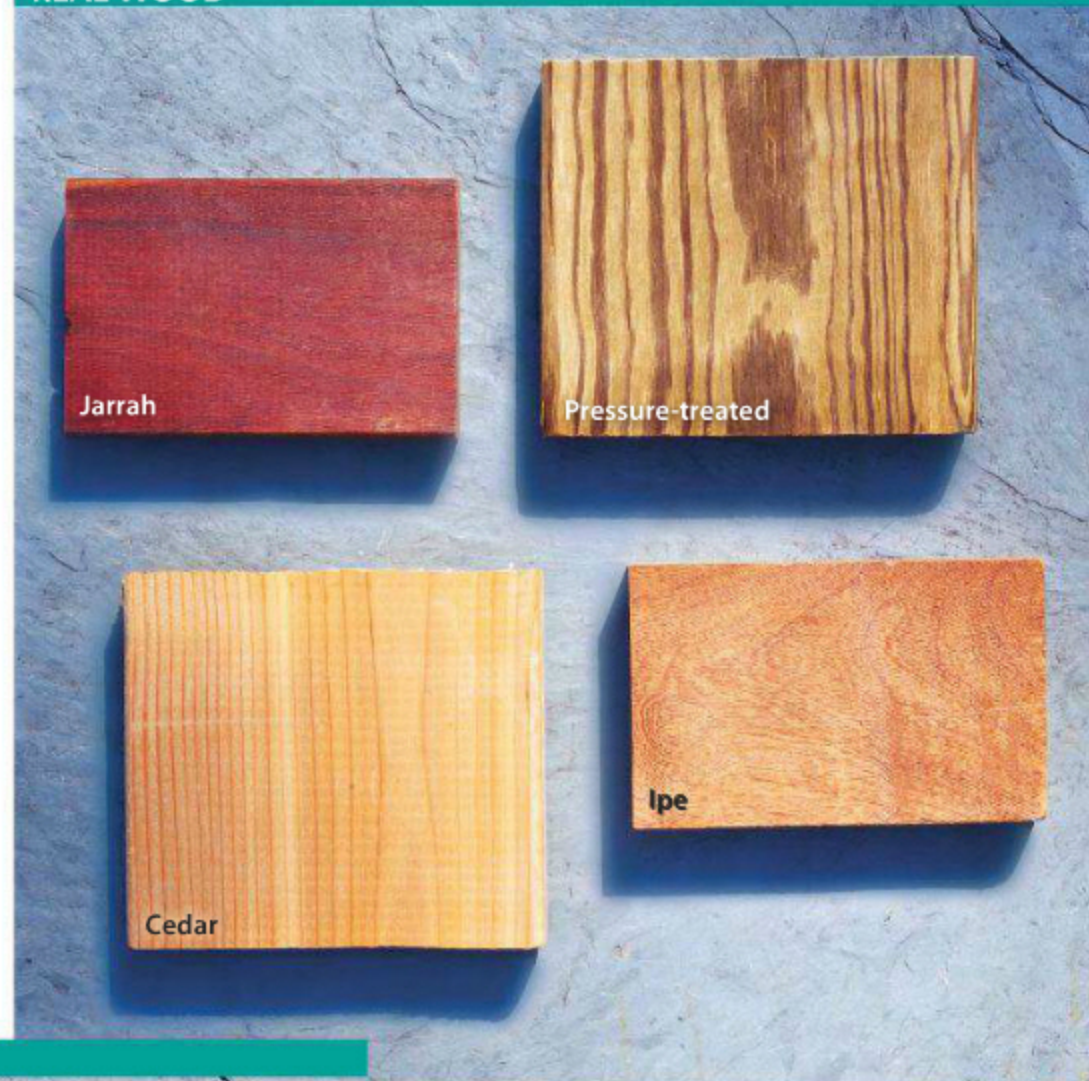


4 Branch out ►

Homeowners have more decking choices than ever before, both in wood and other materials. For fans of wood, pressure-treated, cedar, and redwood are traditional choices. But several tropical hardwoods, such as ipe and jarrah, also are available. Their longevity puts them in a league with composites, and they offer a luxurious, rich appearance you can't get with other decking. They are more expensive than most other woods.

If you're searching for something other than wood, consider composite decking, *below*, and other synthetic materials such as vinyl, which are revolutionizing the deck industry. These products are as close to maintenance-free as you can get, and last for decades. They cost more than most woods, but the payback comes in reduced maintenance, often needing no refinishing. The appearance is different from that of wood, so personal taste is a big part of the decision to choose synthetic decking. For more decking materials, information, and costs, see the Decking Materials chart on [page 101](#).

REAL WOOD



COMPOSITE DECKING



5 Play with color ▲

Most homeowners carefully coordinate the color scheme of their home's exterior, yet many don't consider a decking color other than brown. With today's selection of stains and deck materials, it's easy to find a hue that complements your home's exterior, regardless of the palette. The right shade can mean the difference between a deck that looks like an addition, and one that's a natural extension of your home.

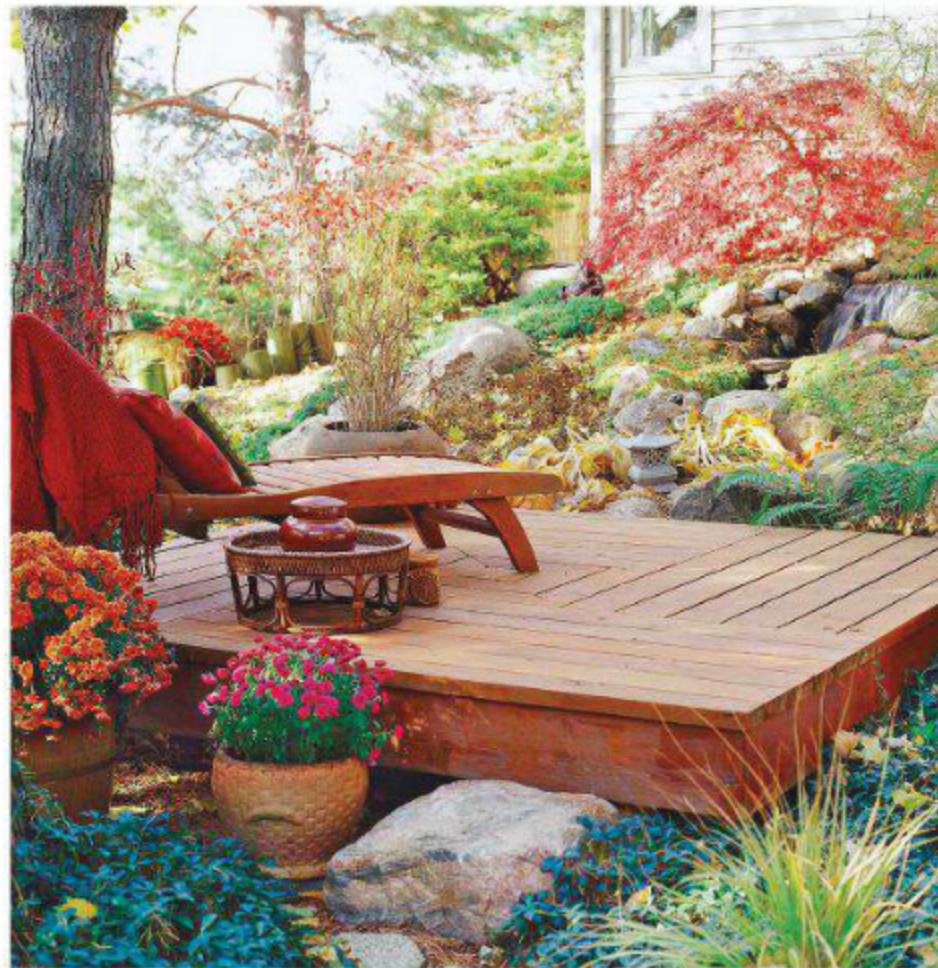


7 Open the view ▶

High decks need railings for safety, but if your property has a gorgeous view that you'd rather not block with a lot of obstructions, consider a low-to-the-ground deck, like the one shown *at right*, as an alternative. Railings aren't required if your deck remains below a height specified by your local codes, often 18" or 24".

6 Finish off your deck beautifully ◀

Innovative railings have taken deck design to new levels. Alternatives to wood, such as the vinyl rail and balusters shown here, offer years of no-maintenance beauty. But you're not limited to vinyl; railings, trim, and balusters also come in composites, metal, cabling, and even glass, and all have tremendous impacts on the overall look of your deck.



8 Set the mood ◀

Small touches make your deck a relaxing place to hang out. Lighting, a sound system, planters, a fan, perhaps a built-in bench or two—these details turn a drab deck into a desirable destination. Think about these amenities during the initial planning phases for your deck rather than putting them in as add-ons after you've finished building. Not only will they look more like an integral part of the design, but during construction you can hide wires and attach structures far more easily than you can once your deck is completed.

Written by **Eric Liskey**
Photography: **Andy Lyons**

continued on page 100

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continued from page 98

9 Working with water ▲
Water-resistant deck materials are ideal for surrounding a pool or spa, and decks with textured surfaces add traction for wet feet. But while the previous 8 tips apply to just about any deck, this one is specific to decks used when enjoying water, as pools and spas involve several construction considerations.

Decks for pools

When building deck areas for sunning and sitting around a pool, add privacy screens, overhead shade structures, and cabanas for storage. Consider placing pumps, filters, and other pool equipment behind a screen to hide them. If these are beneath the deck, install a removable or hinged panel for access.

Keeping bare feet in mind, redwood and cedar are more splinter-free than pressure-treated wood. With constant exposure to moisture, even weather-resistant decking requires special care. Seal both sides of wooden decking before installation, and reseal boards yearly for top performance.

Most building codes require pools to be surrounded by childproof fences and gates. Check with your local building department to ensure you incorporate protective measures into your final plans.

Spas and hot tubs

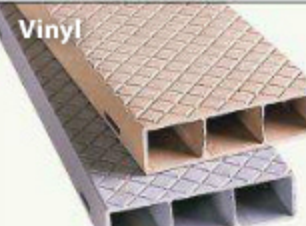
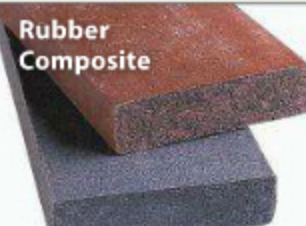
Determine the best location for spas based on privacy and access to your home, and whether you want the tub in shade or sun. If your property offers views, orient the tub to take advantage them.

Typical 6' circular hot tubs occupy about 30 square feet; rectangular tubs need about 48 square feet. Plan unobstructed space at least 36" wide that allows you to walk around the tub easily—a total of 100–150 square feet of deck space.

When full, hot tubs weigh up to 2 tons. Typical decks won't support that, so plan an independent foundation engineered by a qualified professional. If you want to place a tub on an existing deck, you'll need to restructure supporting lumber and add a foundation underneath the tub. As with pools, some building codes require that tubs be protected by a fence with a childproof gate restricting access to the tub area. If fencing isn't possible, substitute an approved tub cover with childproof latches. 🌿

Today's decks are built with an amazing variety of woods and synthetic elements, broadening the spectrum of possible design and construction methods.

Decking Materials

Material type	What you need to know	Other considerations	Durability/maintenance	Cost
 Pressure-Treated	Pine preserved with chromated copper arsenate (CCA) has been phased out by the EPA. Alternative treatments include copper azole (CBA) or alkaline copper quaternary (ACQ).	Lumber is more insect- and fungus-resistant when chemicals are forced into the wood.	Can last up to 30 years with diligent upkeep. Wash at least once a year using deck wash or a power washer, and finish with a preservative sealer. Requires regular maintenance.	\$1.20–\$2 per square foot, uninstalled. Prices vary by grade, region, and season.
 Redwood/Cedar	Redwood and cedar are naturally resistant to insects and decay. Apply mildewcide and ultraviolet inhibitor to boost durability.	Redwood is fire-resistant and takes stains or paints well. It can be expensive. Cedar weathers to a silvery gray. The surfaces of both woods are soft, making them prone to marring and denting.	Can last 20 years or more, if maintained. Wash at least once a year using deck wash or a power washer, and seal with a preservative sealer. To prevent rot, position board ends so they can dry if they become soaked with water.	\$2–\$4 per square foot, uninstalled. Prices vary by grade, region, and season.
 Wood/Plastic Composite	Plastic resin or polyvinyl chloride (PVC) is mixed with wood flour (or sawdust) and extruded into planks in a variety of colors and textures. Step and railing systems also are available.	Composites cut like wood but don't rot, shrink, warp, or splinter. The components can't be used for structural support (beams or joists). Dark colors may show weathering; compare new and "aged" samples.	Warranties range from 10 years to life. No need to stain or paint yearly. Clean as needed with soap and water, household detergent, or deck cleaner. A mildew treatment may be necessary for boards in shady areas.	\$1.75–\$4.75 per square foot, uninstalled.
 Vinyl	Extruded vinyl comes in white, gray, and various shades of tan. Some brands have blind fastening systems. Other brands are simply vinyl caps over wood boards.	Diamond-grid and other tread designs add slip-resistance. Interlocking planks channel water.	Solid-vinyl decks should last a lifetime; vinyl-cap products last about 30 years. Vinyl needs no staining or sealing. Clean with a power washer; remove mildew with a mild bleach solution.	\$4–\$7 per square foot, uninstalled.
 Rubber Composite	A mix of polyethylene resins and recycled tires, this heavy, manufactured board was first used in commercial projects. It's offered in terra-cotta, gray, and black.	Smooth or textured surface. Withstands extreme heat and cold, and resists damage from insects and solar rays. Not widely available.	Will last about 25 years. Needs only periodic cleaning with water.	\$3–\$4 per square foot, uninstalled.
 Plastic	Polystyrene (some recycled) is extruded into plastic decking. Redwood and cedar colors look warmer than wood/plastic composite shades.	Won't splinter, twist, or rot. Comes in standard dimensional lumber sizes and several colors.	Will last up to 50 years. Needs only periodic cleaning with water.	\$7.50–\$10 per square foot, uninstalled.
 Metal	Aluminum alloy decking is manufactured in lengths up to 28'. Manufacturers offer several colors, even wood grain. Interlocking planks form a watertight surface, beneficial for upper-level decks and balconies.	The material's strength allows joists 24–30" on center, not the usual 16". Susceptible to temperature extremes and not widely available.	Should last a lifetime. Needs only periodic cleaning with water.	About \$2.50–\$6 per square foot, uninstalled.

Finish & Maintenance



Finish & Maintenance

Any wood—even pressure-treated wood—will dry out, crack, and turn gray if left exposed to the elements. Keep your deck looking its best with a clear water-repellent sealer, a stain, or paint. To ensure long life, treat all surfaces (including the underside) of decking boards before installation.

Pressure-treated wood used for structural components resists weathering. If it turns gray and displays some

Preparation is key to refinishing a wooden deck, and proper maintenance means you do it less often. Get the most out of your deck by following these tips.

minor cracks, the weathering is usually hidden from view and won't detract from the beauty of your deck. Even so, it's a good idea to finish the ends of structural lumber with a sealer to block water absorption. The chemicals used to produce pressure-treated lumber sometimes don't soak all the way to the center of the boards. Treating the ends protects against moisture penetration and ensures the longest possible life for your deck.

3 basic finishing options

■ Clear finishes

Clear, penetrating finishes seal wood against dirt and moisture, helping prolong its beauty. Clear finishes, even those with ultraviolet (UV) blockers, offer little protection from damaging sunlight—only the pigments in stains and paint can do that. How long your clear finish stays looking nice varies greatly with wear and exposure, of course, but a thorough cleaning once a year with a commercial deck-cleaning agent designed to restore the natural color, followed by resealing, is typical. A clear finish with a mildewcide helps prevent the growth of surface mildew.

■ Stains

Alter the appearance of your deck with stains or paints especially formulated for decking. Oil-based and water-based stains color the wood and help protect it from the sun. Semitransparent stain lets the grain pattern show through, while opaque stain hides the grain and masks flaws. Test the stain on a scrap piece to make sure you like the appearance.

You can stain pressure-treated wood, but because it's already impregnated with a color—either green or brown tint—it's especially important to test scrap pieces before committing to the final look. You should reapply stain every two or three years to freshen the appearance of the deck. Always clean the deck surface thoroughly before reapplying stain.

■ Paints

Deck paints are specially formulated to withstand weather. As with any paint, exposure to the elements eventually will result in cracking and peeling. Maintaining the appearance of painted surfaces requires periodic scraping, sanding, and recoating every 3 to 5 years.

If specified by the manufacturer, deck paints resist foot traffic when used on decking. However, this is a harsh test even for the most durable paint. To add color, consider painting only the railings, fascia, overheads, and built-ins, and finishing decking boards with clear sealers or stains.

Finishing techniques

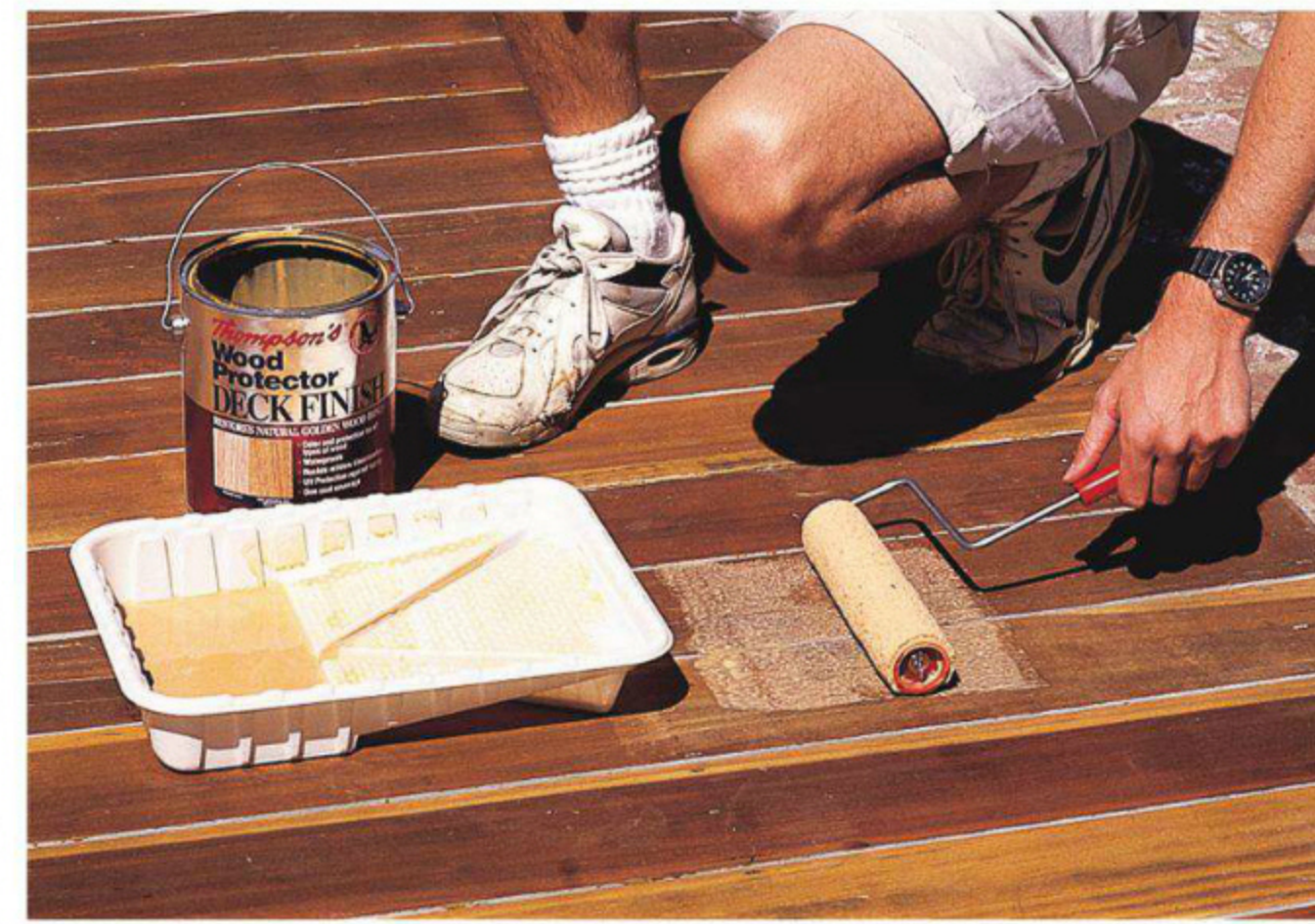
Decking materials should be dry before finishing—but not too dry. Left in the sun without protection, the moisture content of lumber evaporates quickly, often resulting in split, warped wood. But in other cases, decking materials are often freshly milled and full of moisture, making it difficult for sealers or stains to penetrate the grain. Timing is key. Wood is ready for finishing if it quickly absorbs a few drops of water sprinkled on its surface.

Before finishing, remove all furniture and cover nearby plants, structures, and landscaping features with plastic sheets or drop cloths. Apply sealers, stains, and paints with a brush, roller, or sprayer. A paint roller attached to an extension pole allows you to stand while working, shortening application time and helping to prevent a sore back or knees. A sprayer coats very quickly but sometimes unevenly. Watch for dry spots and recoat them if necessary. Spread puddles with a brush, roller, or paint pad to evenly distribute the finish over the surface.

Although stains are more tolerant, avoid painting if the weather is very hot or humid. Either condition can cause paint to fail to adhere properly. Always use a top-quality primer as the initial coat. Latex primers work well, dry quickly, and clean up easily. Oil primers penetrate the wood more completely, creating a tighter, longer-lasting bond.

Finishing balusters

Because there are no broad surfaces, finishing the balusters of a railing system is a tedious, time-consuming job. You can speed up the task with a painter's mitt—a soft, absorbent glove used to apply finish to oddly shaped surfaces. Although painter's mitts accelerate the staining process, controlling the amount of finish is more difficult than with a brush or roller. Have rags on hand for cleaning up drips, and a brush to smooth out runs.



Most sealers and stains go on quickly with a paint roller. However, because their formulation is much thinner than the paints you're used to rolling, expect more drips from the roller. If your roller leaves a rough finish pattern, wipe the finish smooth, removing the excess immediately. Be sure to let each coat dry thoroughly before applying additional coats.

9 steps to a beautiful deck



STEP 1 Test your deck to see if it needs restaining by lightly splashing water on a small section. If the water soaks into the wood immediately, it's time to stain. But, if the water beads up on the surface for 2 minutes before soaking in, there's still a good layer of protection between the wood and the elements, so enjoy for now; test again next year.

STEP 2 If it is time to restain, do your prep work. First, know which type of stain you want; there are several to choose from. A clear finish reveals the natural color of the wood, but offers no protection from the sun's ultraviolet rays. It lasts for 2 to 3 years. Semitransparent stains last 3 or more years. Solid colors can last 5 years or longer because the sun doesn't penetrate them as quickly, but they hide wood grain. Always do a test in a small area before staining the whole deck to make sure you have the right color.

STEP 3 Choose between oil-based and water-based stains. Oil-based products are durable, making them best for harsh conditions. Water-based products resist mildew and are easily cleaned up with soap and water after application. They also offer better color retention and have a much shorter drying time.

STEP 4 Plan to devote a weekend to redoing your deck. Spring or fall is the best time. Start by looking for signs of mildew, mold, or algae, which tend to grow in shady, wet areas. If the conditions are right for mildew to form, you can't prevent it from growing. Exterior finishes



resist it, however, helping to prevent water penetration and damage. If you discover mildew, mold, or algae, clean the surface with a simple solution of water mixed with an oxygenated cleaner. Be sure to protect your eyes and skin from the cleaning solution. Thoroughly rinse off the cleaned area with plain water.

STEP 5 Now, prepare the surface for staining by washing, cleaning, and stripping it. Always clean the wood before applying stain (Photo A). Otherwise it's like waxing your car without washing it first. Sweep away any debris from the deck, and wash it with water or a deck-cleaning product. If the wood was previously stained or finished, you'll need to remove that layer so the new stain can adhere to the wood. If you're using a power washer, you'll get better results by using a 40-degree nozzle at 1,500 psi, which will avoid damaging the wood.

STEP 6 Let the deck dry overnight. The best time of day to stain is in the morning before the deck is in direct sunlight. To allow proper drying time, check the weather forecast before you start to make sure it won't rain for at least 24 hours.



STEP 7 For staining a large deck, a power sprayer makes for quick, easy coverage (Photo B). Be careful of overspray on plants. Work small sections, checking each when finished for any areas where the stain is uneven, and spread it out with a roller (Photo C) for an even finish. Continue working in sections, recoating any areas that were covered too thinly.

STEP 8 Don't overapply stain; unlike paint, stain doesn't go on as a thick coat (Photos D and E). Before starting, read the directions on the can carefully for specific recommendations on coat thickness. You want the stain to penetrate the wood without building up on the surface; apply too much, and it may start rubbing off later.

STEP 9 With minimal deck maintenance, you should only have to restain every 2 to 3 years, depending on your climate and the type of stain used. (Highly pigmented stains last longer.) Maintenance includes regularly sweeping and hosing to remove dirt and debris. Check for signs of mildew, mold, and algae annually, and clean the deck as needed. Make necessary repairs before continued use makes them worse.

Tips to maintain your deck

It's inevitable—sun, rain, repeated foot traffic and just plain wear are certain to damage your deck surface no matter how well you care for it. But if you treat your deck as you would any other major investment, with regular maintenance, it will be the fabulous focal point of your backyard for years.

Working with wood

When a tree falls in the forest, Mother Nature and her army of microbial troops immediately start turning it into soil. Unfortunately, the same forces of decay are constantly at work on your wood deck. Though your deck probably won't crumble into dirt, without regular maintenance it will surely show its age in the form of ugly stains, mildew, cracking, cupping, and rot.

Dirt, leaf bits, and substances from bird droppings to burger grease sink into the tiny cracks of a deck like a malignant salve. Besides causing stains, they become food for the fungi that speed decay.

Keep an eye on your deck year-round. Regularly brush or blow off fallen leaves and clean between decking boards, paying attention to corners where silt and grime can collect. Undertake a major cleaning at least once a year, using the opportunity to inspect for damage. Tighten any loose fasteners, sand away roughness or splinters, and use a stain remover to lift grease or dirt stains.

Spring cleaning

The perfect time for a counterassault against nature's wear and tear is after the rigors of winter have passed and your deck is enjoying a bit of a respite between extremes.

Start out with a thorough sweeping or vacuuming, then use a crevice tool to remove any leaves and twig bits stuck between boards.

If the deck's finish is in good shape and you're not recoating, a mild detergent such as dish soap will do the trick; some stronger cleaners may strip away part of the protective finish.

However, if the deck needs to be recoated or has become seriously mildewed or badly stained, use a good deck cleaner—preferably one containing either an oxygenated bleach powder or sodium percarbonate. These types of cleaners are



Wet nearby foliage before using deck cleaner or stripper to reduce chemical damage, above. After cleaning the deck, spray plants again to wash off any chemical residue. Oxygenated cleaners, such as the one pictured above right, are less harsh than those containing chlorine bleach.

environmentally friendly, and have an amazingly effective bubble action. If your deck has stubborn rust stains or tannin stains (natural brown stains on cedar), use a cleaner/brightener with oxalic acid or citric acid. A diluted acid wash also can brighten cedar or redwood that looks dark after cleaning. Just spritz the wash on and rinse it off; additional scrubbing is minimal.

Avoid cleaners containing sodium hypochlorite, also the key ingredient in household bleach. They destroy mildew, but they can also turn wood into paper pulp, and there's evidence that bleach-based cleaners of this type may actually encourage mold's return. Furthermore, these cleaners compact surface fibers, which can lead to stain failure or peeling, if overused. If you use sodium hypochlorite, rinse extremely well, and consider sanding before reapplying stain.

Keep in mind that if you use a home-made cleaning solution, cleaners with bleach lighten the wood's natural hue; a nonbleach cleaner removes dirt and stains without affecting color. To reduce the amount of elbow grease required, try using a manufactured deck wash that chemically cleans the wood.

Whichever cleaner you use, thoroughly wet the deck, then use a stiff scrub brush or broom to work it into the wood. Clean the entire deck, not just the parts that appear dirty, and rinse thoroughly.

A long-handled deck brush is all you need for most cleanup jobs, but if the deck still won't come clean, pressure washers speed the process. Take care not to gouge the wood with a nozzle that concentrates the spray too tightly; avoid rotating tips, which spin at the nozzle and can quickly tear up soft wood such as cedar.

If you do power-wash, test your skill on an inconspicuous area before moving to areas everyone will see. Don't bring the nozzle too close to the wood or linger in one spot. Always power-wash in the direction of the grain.

Maintenance for a composite deck

An often-porous blend of wood fiber and sturdy plastic, composite deck materials show remarkable resistance to weather-caused wear and tear. However, they succumb just as easily to stubborn stains, mold, and mildew as natural wood. Sweep composite decks clear once a week and clean up stains promptly. Each spring, or as needed, treat mildew and tougher stains with an oxygenated cleaner. For older composite decking that has begun to fade, you can apply special deck stains to refresh its appearance, but then it will no longer be a low-maintenance deck. 🌿

Written by **Andria Hayday**
Photography: **Stephen Cridland; Pete Krumhardt**

Tricks for Treated Lumber



Wouldn't it be great if you could build an outdoor project and have it last as long as the trees the wood came from? Some woods offer natural resistance to weather and pests, but pine treated under pressure with preservative chemicals outlasts them all.

It has been nearly 10 years since the U.S. Environmental Protection Agency announced a phase-out of lumber treated with chromated-copper-arsenate (CCA) over concerns that arsenic in the treatment was contaminating soil and harming children. CCA's replacements, although safer, bring different challenges to outdoor projects. Here's what you need to know.



Some freshly pressure-treated lumber holds so much moisture that discolorations form around the heads of driven fasteners.

ACQ, CA, MCQ, who?

Alkaline copper quaternary (ACQ) and copper azole (CA) filled in seamlessly as wood preservatives following CCA's exile from the outdoor-lumber kingdom. Both treatments provide similar, high levels of protective power, but with arsenic-free chemicals.

In order to achieve the preservative power of CCA, ACQ and CA ramp up the amount of copper used. But because copper speeds corrosion in ferrous metals, steel fasteners must be chosen with care. (See photo, *below*.)

A newer formula, micronized copper quat (often marked MCQ), substitutes dissolved copper with a finely ground copper particulate. MCQ doesn't yet have the long, proven track record of ACQ and CA, but its proponents claim MCQ achieves the same level of wood preservation and rot resistance with a lowered level of fastener corrosion.

Wet and warped

Pressure-treated (PT) lumber starts out as stacks of Southern yellow pine. (The high sapwood content readily accepts

preservative chemicals). The wood is placed into large, sealed vats, where air is evacuated and the preservative chemicals are introduced. Low pressure draws the chemicals into the sapwood. Because there is little chance for it to dry between its chemical bath and the time it hits the home center lumber stacks, PT lumber can have a moisture-content percentage in the low to mid-20s. (Compare with kiln-dried hardwoods, which average 6–8 percent.) Once left in your shop or a sunny spot, the drying—and the warping—begins.

The best approach to counter this: Buy wood well in advance of the project, and let it acclimate under cover outdoors, preferably in the shade, for several weeks; then fasten it firmly in place with screws. A common beginner's mistake is to leave a gap for drainage between the decking boards during assembly. This strategy isn't necessary for PT lumber; shrinkage during drying will provide all the gap necessary.

Are PT projects safe?

There's no need to run out and demolish that weathered pressure-treated (PT) deck for fear of arsenic leaching from older CCA-treated lumber. The majority of the leaching seems to happen in the first year.

But if it's time to replace the deck anyway, do take some precautions as you're working with both old and new PT lumber.

- Clean up and dispose of all debris through your municipality's trash collection. Never burn PT lumber: The smoke and ashes can contain toxic chemicals.

- Along with gloves and safety glasses, wear a dust mask when working with pressure-treated lumber to avoid inhalation of dust.

- Wash your hands or any exposed skin thoroughly after working with PT lumber.



FASTENERS FOR TODAY'S PRESSURE-TREATED WOODS

Hot-dipped galvanized



Hot-dip galvanized fasteners have a thicker zinc coating and therefore provide more rust resistance than fasteners galvanized by other means.

Stainless steel



Stainless-steel fasteners are nearly impervious to corrosion, but can cost twice as much as hot-dip galvanized.

Proprietary coatings



Some manufacturers use proprietary anticorrosion layers. They are often color-matched to blend with the wood. Many offer lifetime guarantees against corrosion.

These outdoor alternatives put the pressure on PT lumber

Pressure-treated wood resists decay and insect damage at a cost of about \$1 per lineal foot. But these alternative outdoor materials bring their own advantages to the table.

Cedar

Pros: Lightweight, naturally decay-resistant

Cons: Requires replacement about every 10 years

Cost per lineal foot: \$1–2

White Oak

Pros: Dense and strong, moisture- and decay-resistant, accepts stains readily

Cons: Unavailable as dimensional deck lumber, pricey

Cost per lineal foot: \$2–3

Ipe

Pros: Superdense, strong, and stable; resists warping, cracking, decay, and denting; life expectancy of 40–50 years with proper care

Cons: Heavy, pricey, and sometimes hard to find

Cost per lineal foot: \$3–4

Wood/plastic composites

Pros: Rot-proof, defect-free, and dimensionally stable; widely available in home centers

Cons: Not for structural applications, becomes hot to the touch in sunlight

Cost per lineal foot: \$2–3

Thermally modified wood

Pros: Lightweight, stable, rot- and insect-resistant, chemical-free

Cons: Limited availability, split-prone

Cost per lineal foot: \$2



EASY FINISHING OPTIONS



Oil-based penetrating finishes combine a natural-wood look with UV protection and ease of application.

But can I finish it?

Pressure-treated lumber's gradual transformation to a weathered gray color is almost as inevitable as the sun and rain, and for a good reason: The combination of sun and rain is the primary cause of that color change. Because there's no perfect finishing solution, you have to choose either a durable finish that effectively hides the wood grain, or a lightweight finish that requires frequent reapplication.

Any outdoor finish that's heavy on pigments, such as paint or solid-color stains, provides the highest amount of protection from damaging UV light. Without the benefit of those sun-screening pigments, clear, film-forming finishes like varnish and polyurethane can quickly slough off as the wood's surface degrades. Unless you really enjoy completely

refinishing every year or so—after a thorough sanding of the entire deck, of course—you're probably a lot better off skipping these clear or low-pigment finishes.

For a compromise between the two, choose a penetrating-oil finish with a finely ground, UV-inhibiting pigment mixed in. Products of this type include Penofin Blue Label (Performance Coatings, 800-736-6346, penofin.com); Ready Seal (Ready Seal Products, 888-782-4648, readyseal.com); or Total Wood Preservative (Gemini Coatings, 800-262-5710, geminicoatings.com). Near-microscopic trans-oxide pigments contained in these stains effectively block out most UV rays. You'll still have to recoat about every 2 years, but because you don't have to remove the previous finish, application is far easier compared with other options. 🌿



Deck In a Snap

Renew an unsightly deck or patio with click-together modular tiles.

Easy to install, portable, and just as attractive as fine furniture—modular decking can be all that and more. Modular decking tiles offer fast, easy alternatives to conventional timber decking and inspire creative uses where traditional decks cannot be built.

The deck-tile system shown *above* from Eco Arbor Designs (ecoarbordesigns.com), is typical of the product and uses 12×12" hardwood-topped tiles that snap together via interlocking tabs to form a continuous surface. The tiles enable you to update any solid, level, and well-drained surface.



Using modular wooden decking squares that snap together, you can transform a worn wooden deck or a drab concrete patio into a rich-looking hardwood surface in a few hours.

Decks

They work especially well if you have an existing deck or patio in need of a make-over. Other potential applications include a porch, courtyard, pool deck, sunroom, or entryway. Tiles typically come in two sizes and cost about \$8–\$12 per 12×12" tile; about double that for the larger 12×24" tiles. Some manufacturers offer snap-on edge reducers and corners for a trimmed look.

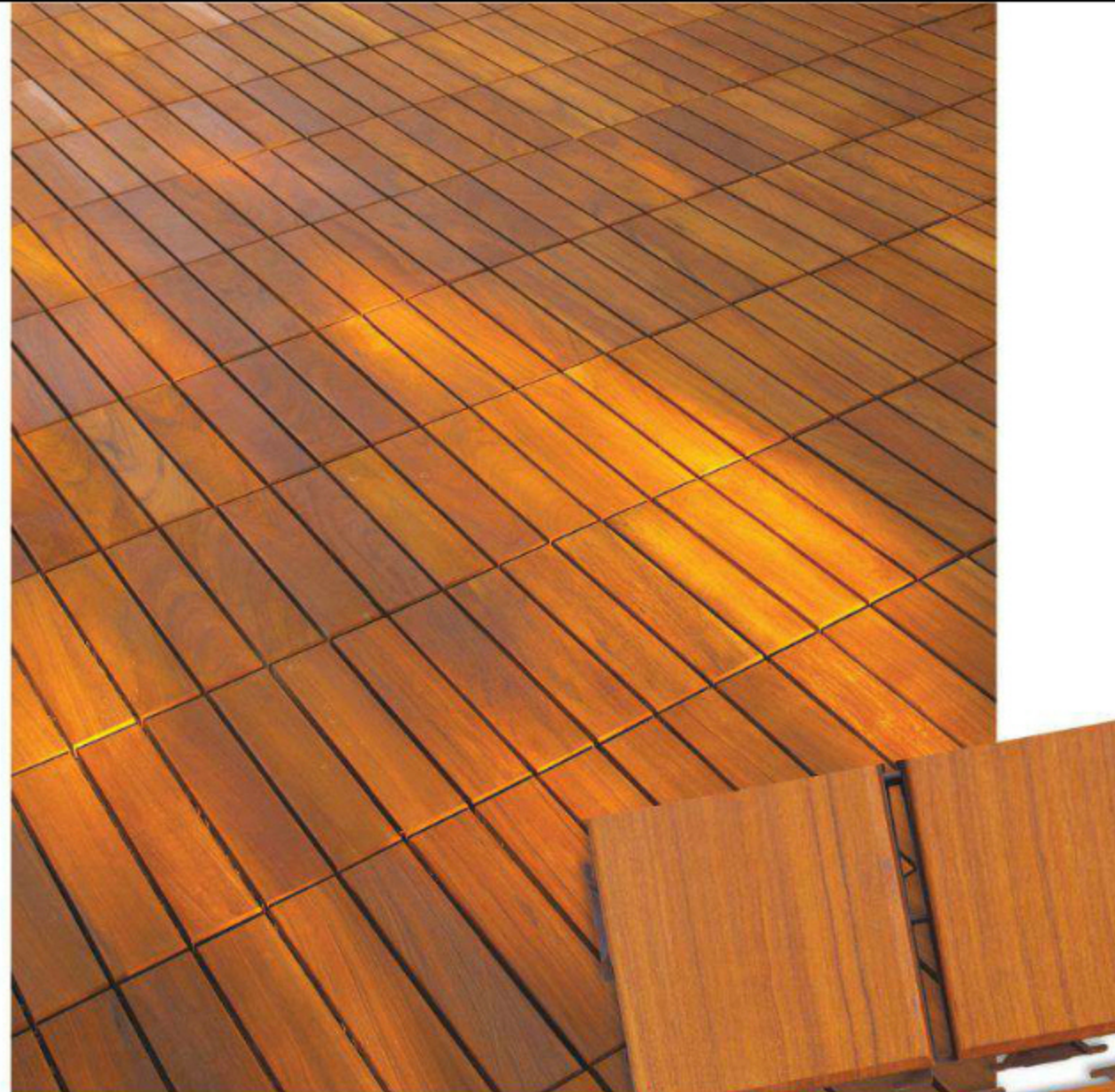
Unique design

Modular deck tiles consist of separate slats of hardwood fastened to a gridlike PVC, polypropylene, or polyethylene base. The base raises the tiles off the surface; the open design allows water to run right through.

With their snap-to-create nature, installing these decking tiles usually takes an hour or two, depending on the area. No special tools, fasteners, or adhesives are needed.

You may prefer wood tiles for decking—especially when using them to cover a worn, unattractive wooden deck. They do come in other materials for a different look or when used in other locations. You'll find deck tiles available in stone, slate, porcelain, and even indoor/outdoor carpet.

Once installed, the deck is ready for immediate use. If you ever get tired of the pattern, just unsnap the tiles and reposition them whenever you wish. You can even take them with you if you move.



EASY INSTALLATION

As long as the location is smooth and level, surface preparation is simple: Just clear the area and sweep it clean. Starting in a corner, lay the deck by snapping tiles together.

STURDY CONSTRUCTION



Each tile is constructed of wooden slats screwed to a rigid polypropylene mesh base incorporating locking tabs around the edges. The design allows rain and other moisture to pass through and drain away.

SNAP TO IT



Connecting decking tiles is a snap—literally. Tabs extending from each side of the tiles interlock to form a secure, stable surface.

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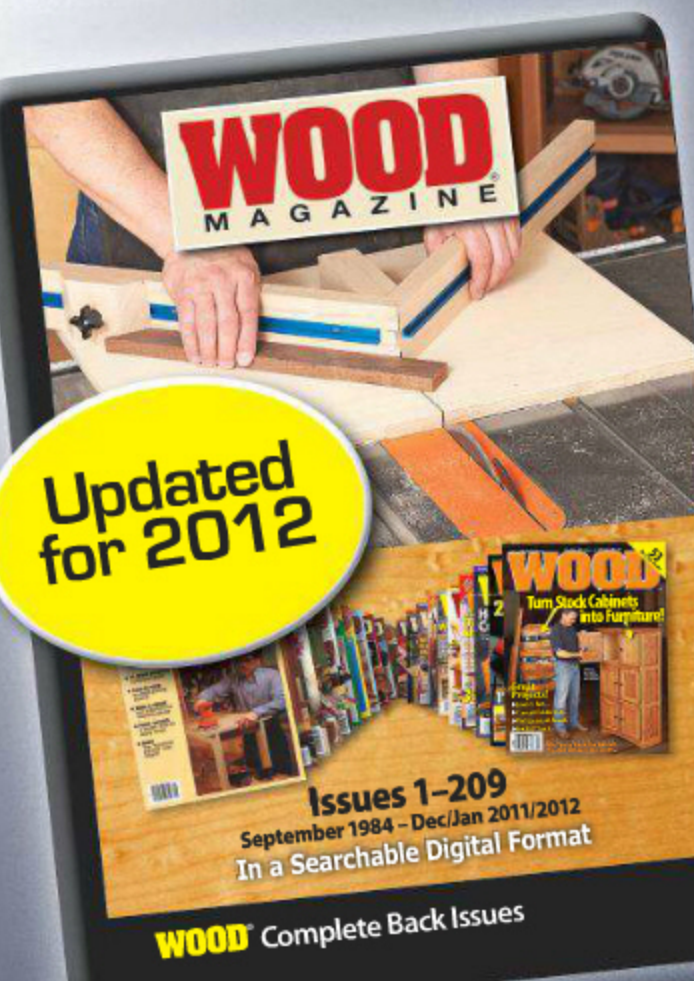
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You can arrange the tiles in all sorts of configurations. These are just a few of the possible patterns.



Decking maintenance

Once you've installed the wooden tiles, keep your decking looking its best.

- Apply exterior-grade, preservative-type penetrating oil such as Penofin once or twice a year, depending on your climate, to help maintain the wood's rich color.
- Or, allow decking to fade naturally by leaving it unfinished. Most exotic hardwoods soften to a silvery gray, similar to cedar.
- Sweep the deck regularly to remove leaves and other debris. Rinse the surface occasionally, using the forceful blast of a garden hose to keep the tiles clean.
- Because decking tiles have gaps between the wood slats, small sticks and other debris may lodge there. If these aren't freed by washing or sweeping, you may need to gently pry them loose with the tip of a small screwdriver.
- For a thorough cleaning, pressure wash every few years. Let wood dry completely before applying an oil finish.

Written by **A.J. Hamler** with **Kate Carter Frederick**
Photography: **Marty Baldwin**

Sources

Coverdeck Systems, Inc.: 408 A Meco Drive, Wilmington, DE 19804; 800-550-3325; coverdeck.com.
Eco Arbor Designs, Inc.: 730 Orchid Ave., Capitola, CA 95010; 866-326-4418; ecoarbor.com.
HandyDeck Systems, Inc.: 1807 14th St., Level 2 NW, Washington, DC 20009; 866-206-8316; handydeck.com.
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