

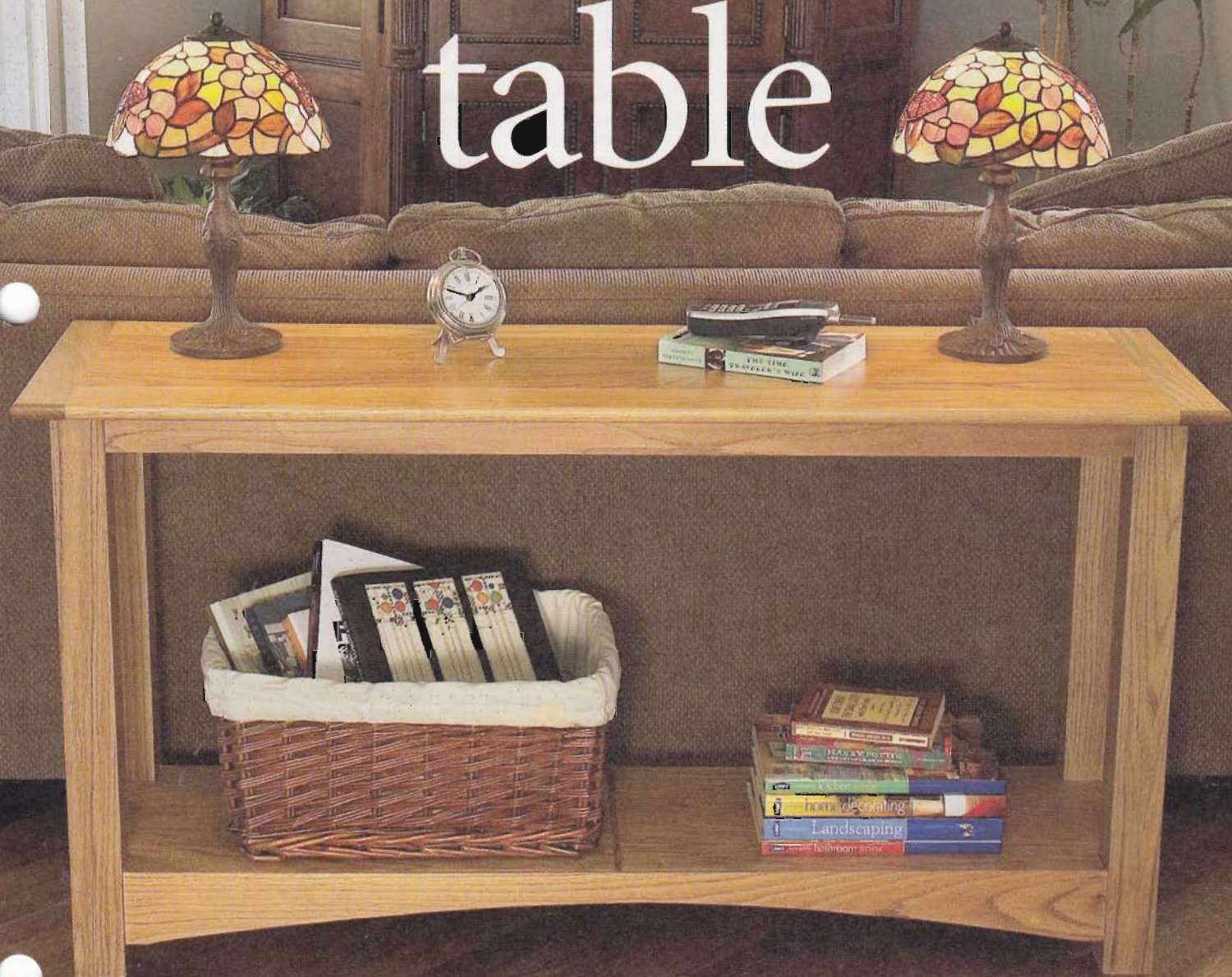
the

An Exclusive Lowe's
Woodworkers Publication

woodpost

Spring 2006

build this
mission
table



From Our Shop

Getting outdoors and enjoying the weather this spring is only part of the fun. This season also is the opportunity to focus on home and garden projects. Our garden bench is just such an activity.

This project will provide hours of outdoor pleasure during spring and beyond into other times of the year. Its ample size and sturdy frame offers the perfect place for a quiet moment after those gardening and landscaping chores.

When planning to build for the outdoors, choosing the right wood will help your projects stand the test of time. In our Begin With the Wood column, we take a look at outdoor lumber and the best fasteners.

This issue also offers projects for indoor activities and enjoyment. Our feature project, the mission-style sofa table, is a great multipurpose piece, especially during the season's sports events, such as basketball, golf, and spring training. It can hold that bowl of popcorn during the big game and then smoothly transition into a surface for displaying family photos or a work of art.

Looking for something with a modern touch? Our ladder shelves combine form and function in a unique design that seems to "float" on its own.

And remember, let us know if you make any of the projects featured in issues of *The Wood Post*. You can send us comments, suggestions, or details about your woodworking experiences. Also check out Lowe.com/Woodworkers for more information. As always, we enjoy receiving your comments.

Bill

Bill Sawyer,
Lowe's Woodworkers

P.S. Tell us about your projects or how you became interested in woodworking. Send your responses c/o Peggy Rees, P.O. Box 523, Birmingham, AL 35201. **If we profile you in an upcoming issue of *The Wood Post*, you'll receive a free Hitachi 14.4-volt 3/4-inch cordless drill/driver kit.**



FREE TO MEMBERS!

As a member of Lowe's Woodworkers, you're entitled to a free woodworking plan with each issue of *The Wood Post*. If you like our mission-style sofa table on page 4, try our plans for matching coffee and end tables (shown left and right). They're available online through May 12 at Lowe.com/FreePlan.



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PHOTOGRAPHS: JOHN O'HAGAN

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With the Experts at

I'm having problems applying a smooth, consistent finish to many of my completed projects—especially those with slats (such as a garden bench, a dining chair, a baby crib, etc.). Can you give me any application tips?

A: The simplest solution is to apply the finish prior to assembling the project, rather than afterward. This guarantees that you'll have 360-degree access to the part—something that's not always true once the project is assembled. Just make sure you apply masking tape to any portions of the parts that need glue, such as the tenons on the ends of slats. If you do accidentally get finish on a section to be glued, take the time to scrape it off with a sharp chisel or cabinet scraper to ensure a strong glue bond.

Alternately, a foam brush held on edge fits well between slats and applies a relatively drip-free finish. Finally, consider spraying on the finish. Outdoor finishes—especially penetrating sealers such as Olympic WaterGuard—can be applied with a garden sprayer. Regardless of the process, go back 5 to 10 minutes later to check for drips or sags. Most finishes tend to accumulate where parts meet, and this is where sags and drips are most likely to occur. Inspect your finish carefully, and use a foam brush or a clean cloth to wipe away any excess.

I built a set of end tables, and every year, cracks in the solid-wood top come and go with the seasons. Is this inevitable?

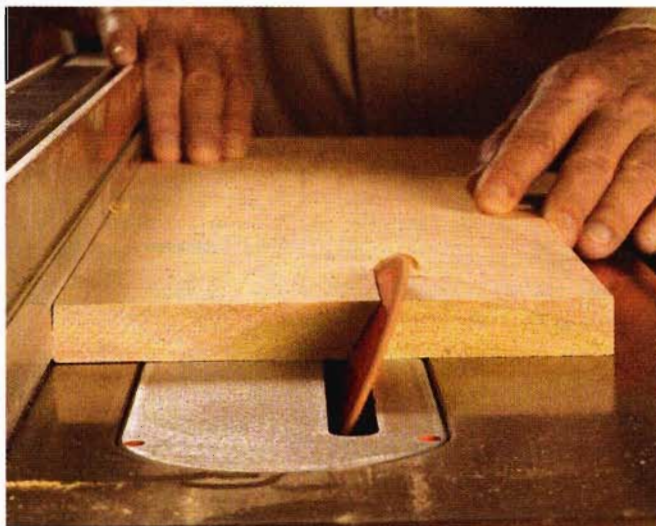
A: Because of its hygroscopic nature, wood—even when it has been kiln dried—will move with the seasonal humidity. Individual wood cells absorb water and expand in the summer when humidity is high, and they lose water and shrink in the winter when the air is dry. Sealing both the top and bottom of a tabletop helps reduce the expansion and contraction, but it doesn't stop it.

When you build a project, you should take this wood movement into account. If you attach a solid-wood top to a frame in such a way that it can't expand and contract as needed—that is, you fasten it directly to the frame—cracks will develop. The solution is to attach the top with either shop-made wood "buttons" or store-bought metal tabletop fasteners. Each of these fit into grooves cut into the rails or aprons of the table. The buttons attach securely to the top but are still able to slide in the grooves, allowing the top to expand and contract naturally. This

freedom of movement will prevent cracks. Another option is to make the top from a dimensionally stable engineered product, such as plywood or fiberboard, and then edge it with hardwood. Because these engineered products will move minimally with humidity changes, you can attach them directly to the table frame.

Whenever I bevel rip a board, the edge frequently ends up rough and is often burned. Is my saw defective?

A: There are three common causes of ragged or burned edges when bevel ripping. The most common is a dirty and/or dull blade. It's easy to forget that when the blade is angled, you're effectively cutting through thicker stock. This means the saw has to work harder, and a dirty or dull blade compounds that work. Second, you could be positioning your rip fence on the wrong side of the blade. You want the blade to angle (or tilt) away from the rip fence—this position greatly reduces binding that can cause ragged/burned edges. Finally, your saw may be out of alignment. In particular, the trunnion, basically the carriage that holds the blade, may not be parallel to your rip fence. If it's not, the workpiece will get pinched between the spinning blade and the rip fence, resulting in a ragged/burned cut. Adjusting a trunnion is not difficult; just be sure to follow the alignment procedure described in the owner's manual for your table saw. ■



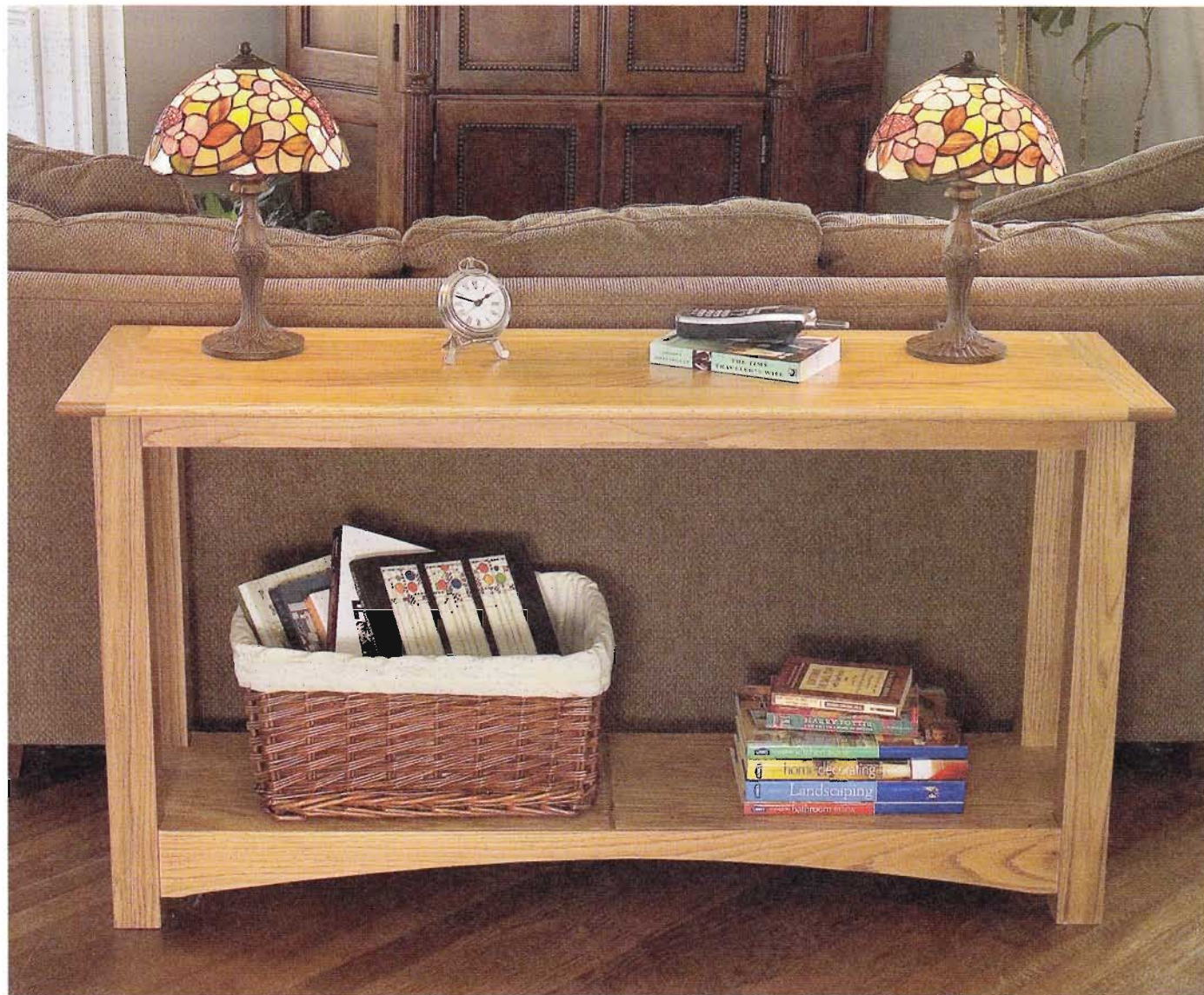
Tilting the blade away from the fence reduces burned rip edges.

PHOTOGRAPH: JOHN O'HAGAN

feature project

Mission Sofa Table

Craft an enduring masterpiece for the entire family to enjoy.



PHOTOGRAPHS: MICHAEL HANSON / STYLING: LEIGH ANNE MONTGOMERY

Few trends from the 1920s remain strong today—except for the clean, simple furniture designs popularized by Gustav Stickley. The mission, or craftsman, style that Stickley helped make famous is still a fixture in showrooms and homes, bringing its rectilinear shapes and subtle curves to contemporary use. Mission means construction that's as sturdy as it is simple. Consider this sofa table; the piece captures the key design elements of mission furniture and becomes a family favorite that's versatile enough to serve many purposes for years to come.

Instructions:

General: Cut all parts as you assemble the project, using the Cut List as a guide and adjusting as needed for fit. Predrill for and countersink all screws. Set all nails, fill holes with wood filler, and sand smooth.

Step 1: Build the legs. Note: Each leg is made up of four beveled strips for a continuous grain pattern.

a. For each leg, cut four strips $2\frac{1}{4}$ inches wide and 27 inches long (you'll trim the legs to their finished length of $26\frac{1}{4}$ inches once they are assembled and dry).

b. Bevel rip the edges of each leg face; set your saw blade to slightly more than 45 degrees. This step will help ensure tight joints when the legs are assembled later.

c. Lay out the strips with edges touching and beveled cuts facing up (see Figure 1, Step 1). Place a strip of packing tape, sticky side up, under the full length of each joint. Press the strips down into the tape for a strong bond; make sure that the edges of the strips continue to butt up against one another.

d. Apply glue to all beveled edges, and then roll the strips together (see Figure 1, Step 2). Secure the rolled-up assembly with a piece of tape on the last joint (see Figure 1, Step 3). Wrap the assembly with elastic bands (bungee cords or an inner tube cut into strips can help hold the assembly until the glue dries). Nail in several places along the joints to secure the pieces, and set aside the assembly to dry (see Figure 1, Step 4). Repeat for the remaining legs.

e. After the glue dries, cut each leg assembly to length.

Step 2: Make the top.

a. Cut the top slats $\frac{1}{2}$ inch longer than the length shown in the Cut List to allow room for trimming later.

b. Label the face sides of the top slats. On the back sides, drill offset pocket holes approximately 6 inches on center (see Figure 2). Pocket holes will not be necessary on the two outside edges.

c. Apply glue to the adjacent edges of two top slats. Placing wax paper under the joint will keep the assembled top from sticking to the work surface as the glue dries. Lay the boards on a flat surface. Clamp a caul, or scrap-wood pad, across them to keep them flat, if necessary. Screw the joint together.

d. Repeat this process with the remaining top slats.

e. After the glue dries, cut the slat assembly to the finished length.

f. Fit a router with a $\frac{3}{8}$ -inch rabbeting bit; cut a rabbet out of the top and bottom edges of each end of the slat assembly to create a tongue that is $\frac{1}{4}$ inch high and $\frac{3}{8}$ inch wide (see Figure 3).

g. Cut a $\frac{1}{4}$ -inch-high and $\frac{3}{8}$ -inch-wide groove in each breadboard edge using a table saw fitted with a dado blade, or a router fitted with a slot-cutting bit.

h. Attach a breadboard to each end of the top assembly by applying glue to the tongue of the center slat only (this will allow the top to expand and contract during humidity changes).

i. Sand the top.

j. Use a router fitted with a $\frac{1}{4}$ -inch roundover bit to shape the upper edge of the top; use a $\frac{1}{2}$ -inch roundover bit to shape the bottom edge (see Figures 2 and 3).

Step 3: Build the end assemblies. Note: Each assembly consists of two legs, an end skirt, an end stretcher, and an end slat (see Figure 4).

a. To lay out the arch in the first end stretcher, mark the start points of the arch $\frac{3}{4}$ inch in from each end. Mark the center of the curve $1\frac{1}{2}$ inches up from the bottom edge of the stretcher. Bend a flexible metal ruler or a thin strip of wood to meet these points, and then mark the curve with a pencil.

b. Cut the arch, and use the first end stretcher as a template for the second; cut to shape.

c. Cut a $\frac{1}{4}$ -inch-deep x $\frac{1}{2}$ -inch-wide rabbet along the entire length of the inside top edge of each end stretcher.

d. Cut a $\frac{1}{2}$ -inch-deep x $\frac{1}{2}$ -inch-wide rabbet along the entire length of the inside bottom edge of each end skirt.

e. Drill two pocket holes on the inside face in each end of the end skirt and end stretcher.

f. Place an end skirt between two legs so that the tops of all three pieces are flush; insert a $\frac{1}{4}$ -inch spacer under the end skirt to offset the face of the end skirt from the face of the legs.



g. Attach the end skirt to the legs using glue and pocket hole screws.

h. Attach the end stretcher to the legs in the same manner as the end skirt, with the bottom of the end stretcher 2 inches up from the bottom of the legs.

i. Center and glue an end slat to the end skirt and end stretcher (see Figure 3).

j. Measure and cut $\frac{1}{4}$ -inch-deep x $\frac{1}{4}$ -inch-wide fillers to fit in the rabbets on each side of the end slat, and glue in place (see Figure 3).

k. Repeat this process for the other end assembly.

Step 4: Connect the end assemblies. Note: The end assemblies are spanned by side stretchers, side skirts, a top, and a bottom shelf (see Figure 4).

a. Lay out the arch in the first side stretcher, using the same technique as described in Step 3a.

b. Cut the arch, and use the first side stretcher as a template for the second; cut to shape.

c. Cut a $\frac{1}{4}$ -inch-deep x $\frac{1}{2}$ -inch-wide rabbet along the entire length of the inside top edge of each side stretcher.

d. Drill two pocket holes on the inside face in each end of the side skirts and side stretchers.

e. Attach the side skirts and the side stretchers to each end assembly using the same procedure described for the end assemblies in Step 3f.

f. Measure and cut the center support to length.

g. Attach the center support between the two side stretchers so that its top is flush with the bottom of the rabbets in the side stretchers.

h. Measuring diagonally, check the assembly for square; if it is out

CUT LIST

Part Name	Material	Size (in inches)	Quantity
legs	1 x 6	$\frac{3}{4}$ x 2 $\frac{1}{4}$ x 26 $\frac{1}{4}$	16
top slats	1 x 4	$\frac{3}{4}$ x 3 $\frac{3}{8}$ x 48 $\frac{1}{4}$	5
breadboards	1 x 4	$\frac{3}{4}$ x 2 $\frac{1}{4}$ x 16	2
end skirts	1 x 6	$\frac{3}{4}$ x 1 $\frac{1}{4}$ x 8 $\frac{1}{2}$	2
side skirts	1 x 6	$\frac{3}{4}$ x 1 $\frac{1}{4}$ x 44 $\frac{1}{2}$	2
end stretchers	1 x 4	$\frac{3}{4}$ x 3 $\frac{1}{2}$ x 8 $\frac{1}{2}$	2
side stretchers	1 x 4	$\frac{3}{4}$ x 3 $\frac{1}{2}$ x 44 $\frac{1}{2}$	2
center support	1 x 4	$\frac{3}{4}$ x 1 $\frac{1}{4}$ x 11	1
end slats	$\frac{1}{4}$ x 4	$\frac{1}{4}$ x 2 $\frac{1}{8}$ x 20 $\frac{1}{4}$	2
fillers	$\frac{1}{4}$ x 4	$\frac{1}{4}$ x $\frac{1}{4}$ x 2 $\frac{1}{8}$	4
bottom shelf	$\frac{1}{4}$ -inch plywood	$\frac{1}{4}$ x 12 x 47	1
corner blocks	1 x 4	$\frac{3}{4}$ x 2 $\frac{1}{4}$ x 2 $\frac{1}{4}$	4

of square, pull it back into square using a bar clamp, and leave the assembly in place until the glue dries.

Step 5: Install the bottom shelf and top.

a. Carefully measure and cut the $\frac{1}{4}$ -inch-thick plywood bottom shelf to size; you'll need to notch the four corners to fit around the legs.

b. Attach the bottom shelf to the rabbets in the side stretchers and to the center support using glue and nails.

c. To attach the top, first install corner blocks to the skirts using pocket hole joinery (see Figure 4). Center and drill an oversize hole through each corner block.

d. Position the top on the table frame so that there is an equal overhang from side to side and from front to back. Then use a washer and a pan-head screw to secure the top to the corner block, driving the screw up through the oversize hole into the top.

Step 6: Apply a finish to the table.

a. Sand the entire table.

b. Apply a stain as desired.

c. Brush on two coats of polyurethane, sanding between coats. Allow to dry.

d. Apply a coat of paste wax to the table, and buff to achieve the desired sheen.

Project #SP0601 ■



With minor adjustments, you also can create this matching mission-style coffee table and end table. See page 2 for details on these additional projects, available at Lowes.com/FreePlan for Lowe's Woodworkers members through May 12.

LOWE'S LIST

Lumber*

- 1 (4-foot-long) $\frac{1}{4}$ x 4, red oak
- 2 (8-foot-long) 1 x 4s, red oak
- 2 (10-foot-long) 1 x 4, red oak
- 5 (6-foot-long) 1 x 6s, red oak
- 1 (48- x 96-inch) sheet of $\frac{1}{4}$ -inch-thick oak plywood

Hardware & Supplies

- 1 box 4d finishing nails
- 1 box (#8 x 1-inch) pan-head screws
- 1 box (#17 x 1-inch) wire brads
- 1 box (#18 x $\frac{3}{4}$ -inch) wire brads
- 1 box (1 $\frac{1}{4}$ -inch) PrimeGuard Plus screws
- 1 box (1 $\frac{1}{4}$ -inch coarse) Kreg pocket hole screws (coarse thread)

- stainable wood filler
- wood glue
- packing tape
- polyurethane
- stain (Olympic, Golden Oak)
- paste wax

*Availability varies by market.

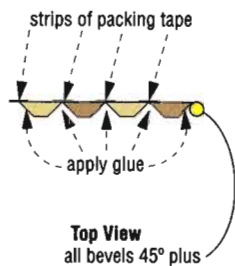
TOOL LIST

- table saw
- miter saw (or handsaw with miter box)
- router with $\frac{3}{8}$ -inch rabbeting bit, $\frac{1}{4}$ -inch roundover bit, and $\frac{1}{2}$ -inch roundover bit
- dado blade set
- framing square
- power sander and various grits of sandpaper
- drill/driver with drill bit set, including #2 square driver
- Kreg ProPack Pocket-Hole System
- pneumatic nail gun (or hammer)
- bar clamp
- tape measure
- flexible metal ruler
- pencil



Figure 1

Step 1
Lay the four pieces of legs edge to edge on strips of packing tape. Apply glue to exposed edges.



Step 2
Roll up leg pieces.



Top View

Step 3



Top View

Complete roll up and secure last joint with tape.

Step 4

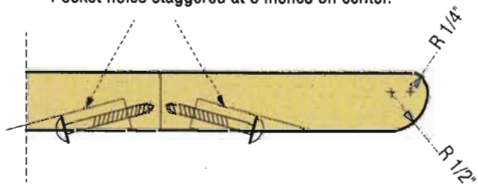


Top View

Wrap assembled leg with elastic bands in several places along the assembly. Nail two to three places along joint, and set aside to dry.

Figure 2

Pocket holes staggered at 6 inches on center.



Finished Dimensions:
Height: 26 1/2 inches
Depth: 16 inches
Width: 52 1/4 inches

Figure 3

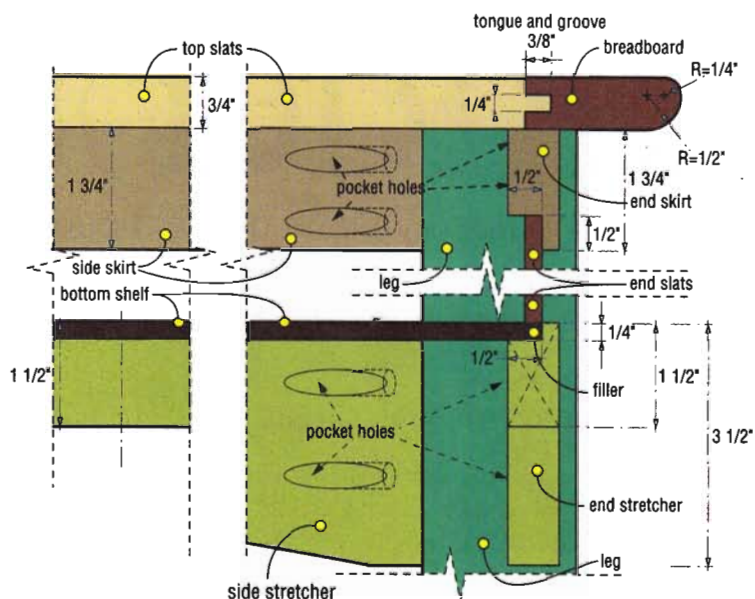
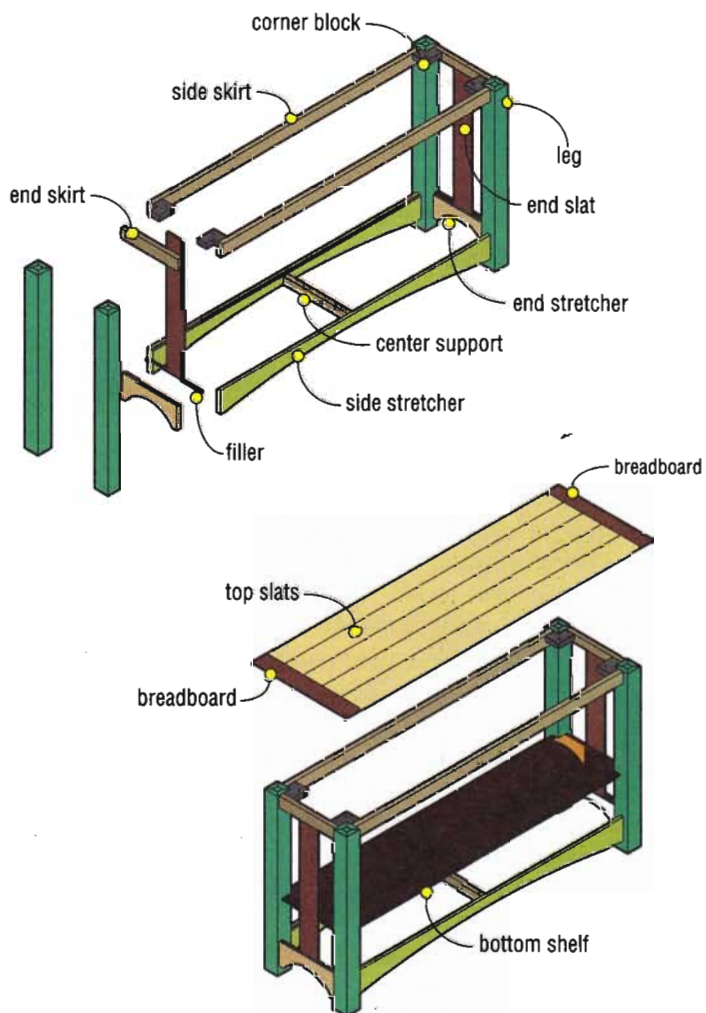


Figure 4



Ladder Shelves

This stunning display piece offers modern appeal with its sleek appearance.

Climb new heights of visual interest with these unique angled shelves. The floating look adds intrigue as the shelves provide ample display space for collectibles, books, or plants. While the shelves appear unsupported, they actually are reassuringly sturdy, sitting snugly into slots cut into the sides of a double-thick backing. To make building this project easy, we have included plans for a couple of simple guides that will help you get the angles just right.

Instructions:

General: Cut all the parts as you assemble the project, using the Cut List as a guide and adjusting as needed for the best fit. Predrill for and countersink all screws. Set all nails, fill holes and voids with wood filler, and sand smooth.

Step 1: Build the standard.

a. Lay out the overall length of the two pieces for the double-thick standard as shown in Figure 1.

b. Glue and nail the pieces together, aligning the beveled ends (see the top detail in Figure 1).

c. Cut the bottom and top of the assembly at 15-degree angles.

d. Lay out the $\frac{3}{4}$ -inch-wide angled slots for the shelves according to the slot detail in Figure 1.

e. Use a handsaw to cut the edges of the slots 1 inch deep, and then use a chisel to remove the material between the saw cuts.

f. Use a handsaw or a hand plane to create a bevel at a 15-degree angle at the top back edge of the standard assembly (see the top detail in Figure 1); this flat surface will accept the picture hanger added later to secure the ladder shelves to your wall.

Step 2: Make the shelves. Note: You'll cut notches in the back of each shelf to allow the shelves to wrap around the standard per Figure 5. Because the slots in the standard assembly are angled, and the standard itself is at an angle, you will need to cut notches in the shelves at an angle as well.

a. To lay out the first $9\frac{1}{4}$ -inch-wide notch, locate the centerline of a shelf per Figure 2. Then, on the top face of the shelf, lay out the

notch $1\frac{1}{8}$ inches from the back edge. On the bottom face of the shelf, lay out another notch $1\frac{1}{8}$ inches from the back edge. This will create the 15-degree angle necessary to attach the shelf to the angled standard.

b. Use a jigsaw to cut out the bulk of the notch that's marked on the top face of the shelf.

c. Turn the shelf over, and use a handsaw to finish the angled side cuts on the bottom.

d. Using a chisel and a shooting block (see Figure 3), remove the waste between the two angled side cuts to create a 15-degree beveled back edge for the notch.

e. Repeat Steps 2a–2d to make the remaining shelves.

f. Measure and miter to length the front and side nosing pieces for each shelf. Attach all of the nosing pieces with glue and 4d nails.

Step 3: Assemble the shelves.

a. Lay out and drill three evenly spaced countersink holes at each shelf location where screws will need to be fastened through the back of the standard (see Figure 5). These holes should be centered on the width of the angled slots.

Use a drilling guide (per Figure 4) to drill the angled holes through the standard.

b. Dry-fit the shelves to the standard, making adjustments for fit as needed, and then secure the shelves to the standard using glue and 3-inch screws.

Step 4: Apply a finish, and install.

a. Paint the ladder shelving using your desired color or colors.

b. Center and attach a picture hanger on the beveled flat surface at the top of the standard's back.

c. To attach the ladder shelves to a wall, either install a suitable hollow-wall anchor, or, preferably, locate a stud to drive in a nail or screw for the picture hanger. (The top edge of the standard should rest against the wall 68 inches above the floor, and the bottom of the standard should rest 19 inches away from the wall.)



PHOTOGRAPHS: MICHAEL HANSON / STYLING: LEIGH ANNE MONTGOMERY

TOOL LIST

- power miter saw or miter box
- handsaw or hand plane
- jigsaw
- framing square
- power sander and various grits of sandpaper
- drill/driver with #2 square driver and bits
- countersink bit
- hammer
- chisel
- protractor
- tape measure
- pencil

LOWE'S LIST

Lumber*

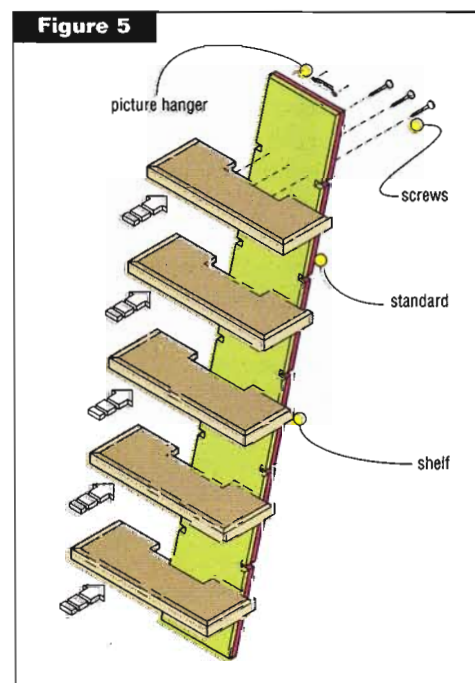
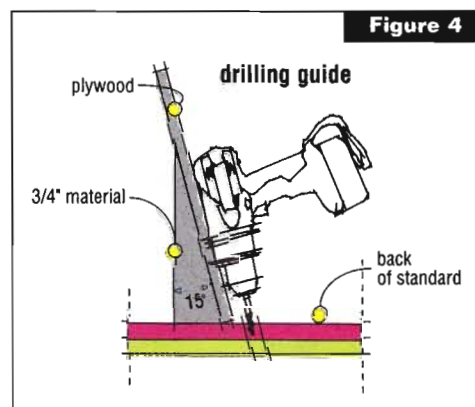
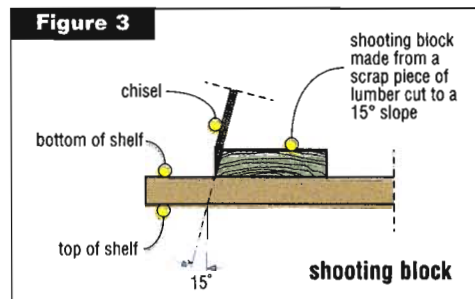
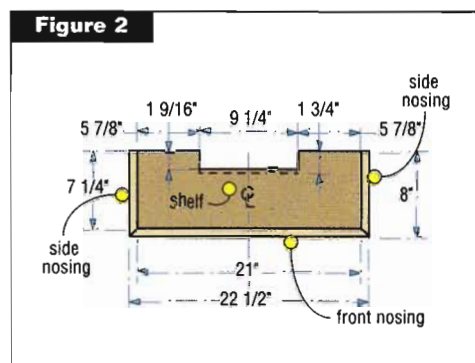
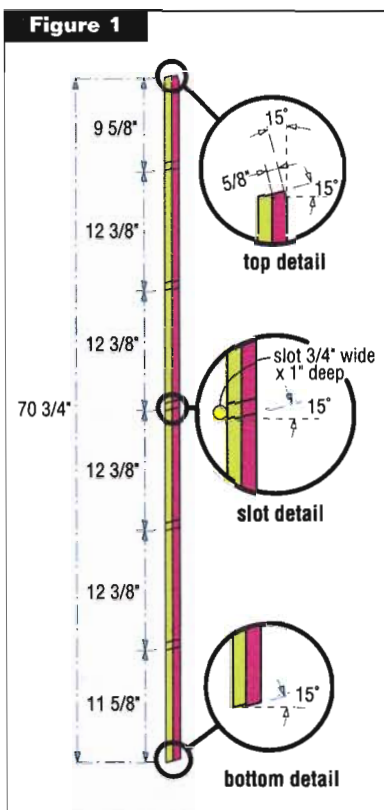
- 3 (8-foot-long) 1 x 2s, poplar**
- 1 (10-foot-long) 1 x 8, poplar**
- 2 (6-foot-long) 1 x 12s, poplar**

Hardware & Supplies

- 1 box (1½-inch) 4d bright-finish nails
- 1 package picture hangers
- 1 (6-ounce) tube stainable wood filler
- 1 box (#8 x 3-inch) Phillips II screws
- wood glue
- 1 quart red paint (American Tradition, Fabulous Red #1011-2, semi-gloss)**
- 1 quart gray paint (American Tradition, Ebony Field #4004-2C, semi-gloss)**

*Availability varies by market.

**If you plan to stain this project, use oak instead of poplar.



Finished Dimensions, Installed:

Height: 68½ inches
Depth: 19¾ inches
Width: 22½ inches

CUT LIST

Part Name	Material	Size (in inches)	Quantity
standard	1 x 12	¾ x 11¼ x 70¾*	2
shelves	1 x 8	¾ x 7¼ x 21	5
front nosing	1 x 2	¾ x 1½ x 22½**	5
side nosing	1 x 2	¾ x 1½ x 8**	10

*Dimensions given are from the long point to the short point of the miter.

**Dimensions given are from long point to long point of the miters; scribe to fit.

Garden Bench

Build an outdoor project that you'll enjoy for many seasons to come.

What's better than relaxing under a shade tree? Sitting there on a garden bench you built yourself. If you can cut a piece of wood and drive in a screw, you can make this handsome and easy-to-build bench. While its construction is simple and straightforward, this sturdy seat will last for years. With pressure-treated wood, outdoor glue, and screws, you'll have it made in the shade.

Instructions:

General: Cut all parts as you assemble the project, using the Cut List as a guide and adjusting as needed for fit. Attach all parts using glue and 2½-inch screws unless otherwise specified.

Step 1: Make the back supports.

a. Lay out the first back support on a flat work surface (see Figure 1 for dimensions). A good way to lay out the curve is by bending a flexible metal ruler or a thin strip of wood into a gentle curve, and then tracing it with a pencil.

b. Cut the shape of the first back support with a jigsaw, and use it as a template to lay out the other three; cut these to shape.

Step 2: Build the leg assemblies (refer to Figure 2).

a. Place a framing square on a flat work surface to keep the assemblies square as you proceed. Butt one end of a leg against the framing square.

b. Butt the bottom end of a back support against the framing square so that it is parallel to the leg with a 9¼-inch space between the two pieces. Angle the curve on the back support away from the leg.

c. Place a seat brace on top of the leg and back support so that the brace is flush with the top edges of the leg and 17 inches up from the bottom of the back support. Attach with glue and screws.

d. Using glue and screws, attach a cross brace 4 inches up from the bottom of the leg and back support; inset ¾ inch from the front edge of the leg and the back edge of the back support.



PHOTOGRAPHS: MICHAEL HANSON / STYLING: LEIGH ANNE MONTGOMERY

e. Build two more leg assemblies in the same manner; build a fourth leg assembly as a mirror image of the first three (see Figure 2).

Step 3: Attach the seat and back slats.

a. With the aid of a helper, place the two mirror-image leg assemblies 66 inches apart from the inside face of one leg to the inside face of the other leg (see Figure 4).

b. Place a seat slat on top of the leg assemblies so that it's flush with the front of the assemblies and overhanging on both ends by ¾ inch. Use a drill/driver and countersink bit to predrill holes for screws. Attach the slat using glue and screws.

c. Add the remaining two seat slats with their ends even with the first seat slat, spacing them ½ inch apart (see Figure 3).

d. Attach the four back slats, starting at the top, in the same manner. Space the back slats ¾ inch apart (see Figure 3).

e. Insert the remaining leg assemblies with

a 21-inch space from the inside face of one leg to the inside face of the next leg (see Figure 4). Attach the back and seat slats to the two assemblies using glue and screws.

f. With glue and screws, attach the front slat so that its top edge is flush with the top and ends of the first seat slat (see Figure 3).

Step 4: Apply a finish.

a. Wearing a dust mask, sand the bench, and ease any sharp corners with sandpaper.

b. To reduce the likelihood of mold growing on the bench, fill a hand-pump garden sprayer with a 50/50 mix of water and household bleach. Place the completed garden bench outdoors on a drop cloth or tarp, and spray the project with this mixture.

c. Because pressure-treated wood tends to be moist, let the project dry outdoors in a covered area for a few weeks.

d. Apply an exterior paint or stain in the color of your choice. **Project #SP063 ■**



LOWE'S LIST

Lumber*

- 1 (6-foot-long) 1 x 4, treated southern yellow pine (TSYP)
- 1 (8-foot-long) 2 x 4, TSYP
- 4 (12-foot-long) 2 x 4s, TSYP
- 1 (12-foot-long) 2 x 6, TSYP

Hardware & Supplies

- 1 box (2½-inch) PrimeGuard Plus screws
- wood glue
- dust mask
- household bleach
- drop cloth or tarp
- paint (American Tradition, exterior latex, white)

*Availability varies by market.

TOOL LIST

- miter saw (or handsaw with miter box)
- jigsaw
- drill/driver and countersink bit
- power sander and various grits
- framing square
- flexible metal ruler
- hand-pump garden sprayer
- tape measure
- pencil

Figure 1

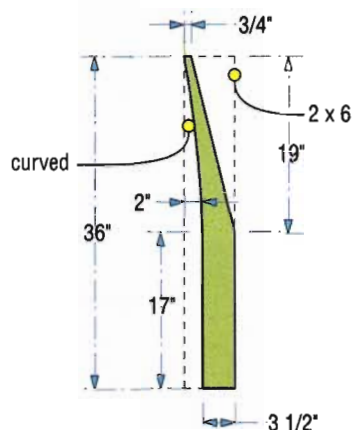
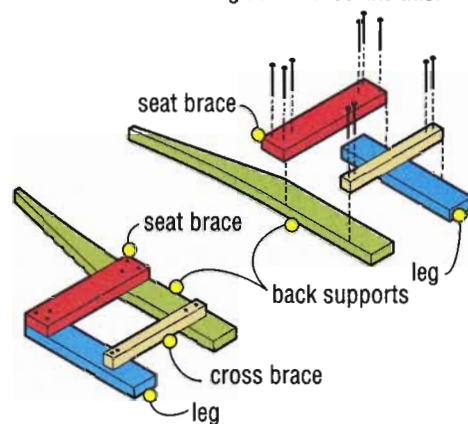


Figure 2

Build the first three leg assemblies like this.



Build the fourth leg assembly like this.

Figure 3

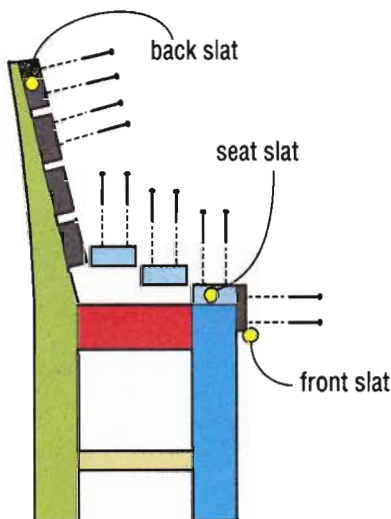
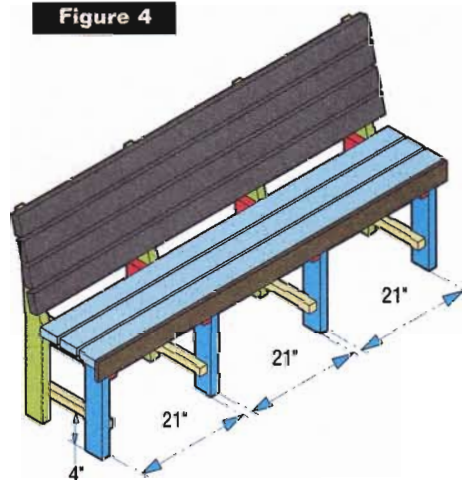


Figure 4



Finished Dimensions:

Height: 36 inches

Depth: 18½ inches

Width: 72 inches

CUT LIST

Part Name	Material	Size (in inches)	Quantity
legs	2 x 4, TSYP	1½ x 3½ x 17	4
seat braces	2 x 4, TSYP	1½ x 3½ x 16	4
cross braces	2 x 4, TSYP	1½ x 1¾ x 14½	4
back supports	2 x 6, TSYP	1½ x 5½ x 36	4
seat slats	2 x 4, TSYP	1½ x 3½ x 72	3
back slats	2 x 4, TSYP	1½ x 3½ x 72	4
front slat	1 x 4, TSYP	¾ x 3½ x 72	1

the right tools

Router Bits

These accessories make one of the most versatile woodworking tools even better.



PHOTOGRAPH: JOHN O'HANON

Router bits are precious tools. They can turn a router into a multipurpose machine and allow a woodworker unlimited creative potential to produce everything from decorative patterns to functional joinery.

However, it can be challenging to find bits that will stand up to wood and other materials, plus the stresses from frequent use. It's vital to keep these accessories organized and to protect them from the elements as well as contact with other tools.

Handling

Bits are affected not only by how they are stored, but also by how they are used. As a general rule, routers should be started away from the piece to be cut; this prevents scuffs or abrasions to the cutting surface as the bit makes contact. Bits should be tightened securely when placed in the router collet. And it is important to adjust the router's speed depending on the bit size and the material to be cut—as this will help prevent burnt edges. (Speeds should be reduced as bit diameter increases.)

Bit Types

Woodworkers essentially can find two major types of bits—those with pilots, or bearings, and those without. This feature is located on the end of a bit and acts as a guide to offset the flute of the bit from the cutting surface by riding along the edge. These bits are great for making moulding and edges for function and aesthetics.

Numerous profiles are possible with piloted bits, including coves, ogees, and chamfers. Piloted roundover bits are great for smoothing sharp edges; you can achieve a sleek look that has a comforting feel when a hand is run across the profile. Rabbeting bits, which include pilots, ride along the cutting surface to make a rabbet-
ing joint. They also can be used to make tongues for joinery.

Plunge routers take advantage of the capabilities of bits without pilots. These tools, used mostly for cutting the interior of wood, are good for making various types of grooves, such as V-grooves, corebox, and classical, in addition to a dovetail cut for



joinery. An exception is the half round, which is a nonpiloted edging bit.

Bits with carbide tips are long lasting and offer cleaner cuts, plus they require less frequent sharpening than other bits. Skil offers many of these with cutting edges that are precision ground to stay sharper, longer. The bits, which feature fully heat-treated shanks and bodies for extended durability, offer a controlled depth of cut design to minimize kickback. ■

Lowe's offers router bits for both the beginner and the professional. Take the Bosch bits, for example. They are manufactured from carefully selected materials that provide extra-sharp cutting edges and low vibration during operation. Bosch's patented micrograin carbide is designed for long bit life during difficult woodworking applications.



Irwin Stand Alone Miter Saw Laser Guide

Turn your miter saw into a laser-guided power tool. This accessory (#170507) from Irwin retrofits your saw with a laser guide line for more precise cuts. It's easy to install because it replaces the outside washer of your current miter saw. The tool also automatically powers on when the blade reaches 400 rpm; batteries are included, with a projected life of 1.5 hours or 5,000 cuts. The laser diode is estimated to last 3,000 hours or 2 million cuts.



In addition to single bits, Skil also produces kits in handsome wooden storage cases. These include a 30-piece set (#209177), a 15-piece set (#209175), and a 6-piece set (#204398). The 30-piece set has 19 different carbide-tipped bit styles, 6 of which are offered in multiple sizes.



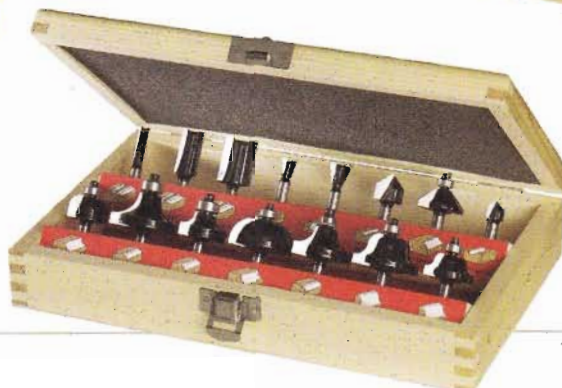
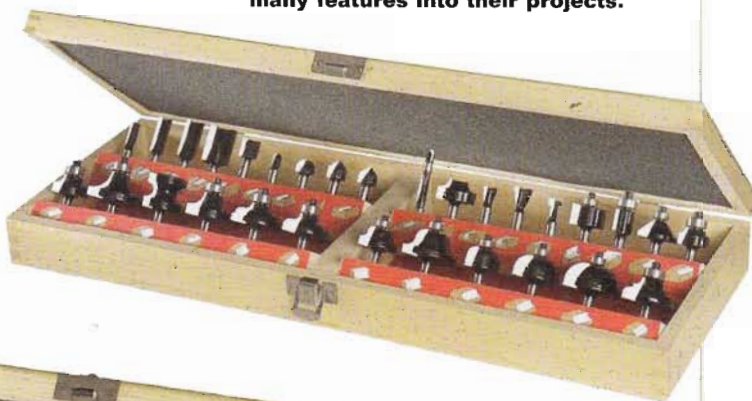
Both piloted and nonpiloted bits are included in the Skil 30-piece set, offering users the means for crafting and integrating many features into their projects.



SKIL



SKIL



begin with the wood

Enduring Impressions

Select the right wood for outdoor projects that will stand the test of time.



PHOTOGRAPHS: JOHN O'HAGAN

Western red cedar (top) and pressure-treated pine (bottom)

You want your outdoor projects to last—Mother Nature doesn't. Very few wood species can endure the combined effects of wind, rain, and sun. Two, however, do hold up well outside: western red cedar and pressure-treated pine.

Western Red Cedar

Western red cedar is one of the most decay-resistant species in America; it's completely nonresinous, so it offers no "food" for decay. It grows along the coastal ranges of western Canada and the United States, from Alaska south through British Columbia, Washington, and Oregon, and east to Idaho and Montana. Western red cedar's tendency to split makes it perfect for shingles, which are generally sawn smooth, and shakes, made by splitting the wood. When exposed, red cedar weathers to an attractive silver gray. Because it isn't a very strong wood, though, it's a poor choice for furniture under stress, such as a chair.

Pressure-Treated Pine

Pressure-treated pine is the most common wood used in outdoor construction because pine readily accepts wood preservatives, making it inexpensive to produce.

Four distinct levels of protection are based on the intended use of the lumber. Varying degrees of chemical retention also help in keeping costs to a minimum. In general, the thicker the wood, the higher the preservative rating. The highest chemical-retention level is reserved for permanent wood foundations. Second, ground-contact protection is designed for 4-by and 6-by lumber. And the third level is approved for above-ground use; it applies to 2-by lumber. Decking lumber—or $\frac{5}{8}$ -inch-thick deck planks—receives the lowest level of protection. These end-use ratings are printed on labels stapled to the boards.

Special Fasteners

Although it may be well known that corrosion-resistant fasteners should be used when building outdoor furniture, it may come as a surprise that new pressure-treated wood requires fasteners with higher levels of protection. Your best bet is to use stainless steel fasteners whenever possible. Or, look for hot-dipped galvanized fasteners with a G-185 rating (1.85 ounces of zinc is used for every square foot of metal). Previous choices, such as G-60 or G-90 fasteners, will break down over time if used with the new preservatives.

Proper Handling

Finally, when using pressure-treated lumber take care to protect yourself from the chemicals used to treat the lumber, and wear gloves, eye protection, and a quality dust mask. Also, you should never burn scraps of preservative-treated wood; both the fumes and the ashes can be toxic. ■



Labels stapled to the ends of pressure-treated lumber detail the treatment rating and project usage.

workshop

Pattern Routing

Learning the basics can help you duplicate complex pieces.

Many woodworking projects call for identical parts. Square or rectangular parts are duplicated easily with a table saw or miter saw. But when plans call for parts that are curved or angled—and you need duplicates—this can be a challenge. You could cut each piece and then try to sand them to match, but odds are, they'll end up noticeably different. Fortunately, a technique known in the furniture-construction industry as pattern routing adapts easily to the home shop.

Flush Trim Bit

Pattern routing entails making a pattern, or template, and using it with a router fitted with a special bit to duplicate the part. The special bit is called a flush trim bit, which is basically a straight bit with a bearing mounted on the bottom; the bearing has the same diameter as the bit. By attaching a template to the bottom of a workpiece, you

can guide the bearing along the edge of the template. The straight bit will trim the workpiece to the identical shape of your pattern.

Templates

Templates, or patterns, can be made out of any stable, flat material. A favorite material for templates is ¼-inch-thick hardboard because it costs little and offers a smooth surface for the router to glide over. Plexiglas also works well, allowing you to see the wood grain as you position the template. The simplest way to attach a template to a blank is to use double-sided tape. Apply at least two full-length strips to ensure a good bond.

Duplicate the Part

Once you've attached the template to the blank, remove as much waste as possible before pattern routing. A band saw or saber saw works best for this process. The idea is to leave around ⅛- to ⅜-inch waste along the



PHOTOGRAPH: JOHN O'HAGAN

edge of the pattern. How you hold the two pieces for routing will depend on their size. For small work, a router mat works well; just sandwich the mat between the template and your workbench, and rout. Larger work should be clamped to the edge of the workbench and routed one edge at a time. Set the flush trim bit so that the bearing rides along the edge of the pattern and the cutting edge trims the full thickness of the blank in a single pass. Then turn on the router, and run the bit gently around the template to duplicate the part. When complete, separate the template from the blank. Note that if they won't separate easily, you can drizzle a little lacquer thinner or acetone between the two pieces. The thinner will dissolve the adhesive, allowing you to separate the parts. ■

member profile

Talented Teen

John Kohles

When John Kohles of Belmond, Iowa, joined the 4-H club three years ago, he didn't hesitate in his decision when reviewing the project options. "I chose woodworking," he says.

He made the right choice.

So far, two of the 13-year-old's projects—a coffee table and a garden-trellis bench—have earned ribbons at the Wright County District Junior Fair and the Iowa State Fair.

John, who is always conscientious about safety and works alongside his father, enjoys putting a personal stamp on his projects. "My favorite part of woodworking," he says, "is creating any kind of design I want—making a project unique." For instance, his

trellis bench includes built-in flowerboxes, his glass-top coffee table incorporates accent lighting, and both pieces feature ceramic tiles that serve as drink coasters.

A member of Lowe's Woodworkers, John enjoys drawing inspiration from the pages of *The Wood Post*. What's next on his list? "I'm thinking about building a table—maybe a dining room table," he says.

John's parents, Ron and Shannon, and his brother, Paul, are avid supporters of his hobby. A self-proclaimed "jack-of-all trades," Ron especially enjoys advising his son on safety and technique. Sanding isn't his favorite task, so John chuckles when passing on one of his father's tried-and-true



PHOTOGRAPH: ROBERT D. ELBERT

adages: "If you think it's good enough, sand it some more."

John's own advice for aspiring woodworkers is smart and succinct. "Always follow safety rules and instructions, and put your own ideas into your projects." ■

put it together

Plank Gluing

Use pocket holes to stabilize tabletop planks.

Gluing up a tabletop from planks of lumber can be a real challenge. For starters, glue makes the planks slippery, and the second you apply clamping pressure the planks start to shift,* which can result in an uneven top. Plus, a large top requires many long clamps—not every woodshop is so equipped. Wouldn't it be nice if there were a way to glue up a top without clamps while still keeping all the planks flat and aligned? There is—all it takes is a pocket hole jig.

The technique is really quite simple. Starting with a plank positioned at one end of your tabletop, drill a pocket hole through its underside portion. Continue working down the length of the plank, spacing the holes about 6 to 8 inches apart. Then, pull the planks apart and apply the glue. Note: It's a good idea to place a strip of wax paper under the joint line to prevent the glue from sticking to your workbench or work surface.

Next, drive in the pocket screws to join the planks together. Repeat for any additional pairs of planks. Following the same

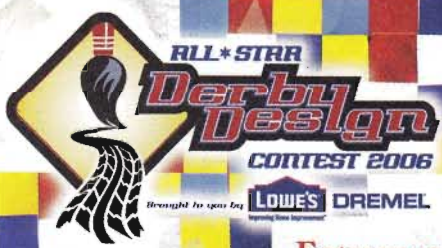
procedure, connect all of the pairs to create a flat panel.

As you attach the pairs of planks, you may find it useful to clamp a caul on the ends to keep the planks aligned until you can drive in the pocket screws.

The benefit of this technique is that once you have finished screwing the top together, you can continue working on it—no more waiting overnight to remove all of those clamps. ■



PHOTOGRAPH: JOHN O'HAGAN



Enter your car by
March 31st



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No purchase necessary. Contest ends 3/31/06. Entry open to legal residents of the (50) United States and DC who are the parent/legal guardian/grandparent of a minor child who is between 7-10 years old as of 12/12/05. Void where prohibited. For complete entry details, visit: <http://www.derbydesigncontest.com> or mail a SASE to 2006 All-Star Derby Design Official Rules, P.O. Box 921, Prospect Heights, IL 60070 for receipt by 3/31/06.



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