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COVER PHOTO BY LARRY OKREND AND MATT SPROUSE

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HANDYMAN CLUB OF AMERICA

MADE IN THE USA

ACTING LOCALLY IN A GLOBAL ECONOMY

As a nation, we have an almost ingrained — and certainly historic — reason for wanting to buy products made in the United States. Before America won its independence, Britain viewed it as a place to obtain natural resources to produce its products, which it would then sell back to the colonists. The local manufacture of many types of goods was prohibited by law, thus creating a monopoly for British businesses.

The trade tactics in today's global economy can be just as heavy-handed, with countries fiercely competing for the upper hand. Every nation wants to succeed, and unfortunately, that is often framed in the simplistic context of winning or losing. The rhetoric, emotions and politics associated with trade can become overwhelming. But set aside the complexity of tariffs, trade wars, exchange rates and nationalism, and one fact remains: Manufacturing in the United States creates jobs, which helps fuel our economy.

The industries associated with hardware, housing and home improvement make up the biggest slice of the U.S. economy. So when we buy American-made products for our homes and shops, we're helping our neighbors — and ourselves.

There are sound reasons that some American companies manufacture their products in other parts of the world. Offering good products at a reasonable price while remaining profitable is a tricky balance. Nevertheless, many notable companies have made the commitment to manufacture many or all of their products in the United States. These companies recognize their importance to our economy as employers, worthy competitors and good citizens. I'd like tip my hat to a few of them: The well-known and respected hand-tool manufacturer Channellock; Cambria, the maker of high-quality quartz countertops; Purdy paintbrushes (which are handmade); Lincoln Electric welders; CST/berger laser instruments; FrogTape masking tape; and outdoor power equipment brands such as John Deere, Cub Cadet, Toro, Echo and Stihl, all of which conduct significant manufacturing in the United States. (Interestingly, Stihl is a German company that produces all of its North American products in Virginia.)

It would be impossible for this magazine to publish a comprehensive list of the manufacturers who employ U.S. workers — and that's good news. It's reassuring to know that when you walk into your local home-improvement center, you'll find plenty of great products whose makers are doing their part to keep this country's economy vital and diverse. As consumers, it's up to us to make choices that strike a balance between what we can afford and contributing to the greater good. ■



▲ The romantic notion of this country's self-sufficiency, characterized by this historic photo from World War II, has long since passed. However, there are still many notable products made in the USA.

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CONTEMPORARY ADIRONDACK CHAIR



LARRY OKREND

A SLEEK, COMFORTABLE UPDATE OF A CLASSIC DESIGN

Because I grew up in upstate New York, I've always been a big fan of the Adirondack chair. I appreciated the wide armrests, contoured seat and curved back, but I didn't like the bulky appearance and the low seat that made getting up difficult. So when I was asked to build a modern version of this

American classic, I was thrilled to be able to make some changes.

My goal was to come up with a sleek, stylized outdoor chair that still had the look, feel and comfort of a traditional Adirondack. After you build the version shown in the plans on p. 7, grab a cold lemonade and have a seat

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— I think you'll agree that the mission was a success.

Instead of using one of the common types of exterior-rated boards, such as cedar or pressure treated pine, I built these chairs using a new product called Perennial Wood. These boards are Southern pine that has gone through an interesting new treatment process (see "First Impressions," p. 8). The boards measured 7/8 in. thick x 5-3/8 in. — if you prefer, you can substitute other types of wood deck boards and the cutting dimensions will remain the same.

BUILD THE LEG ASSEMBLIES

Whenever I build a piece of furniture that has a lot of curved profiles, I make full-size templates of all of the curved parts. This approach is especially useful for building multiple pieces. (It will come in handy in the future, when your neighbor sits in your chair and asks you to build one for him.) I draw the shape on 1/4-in. plywood or hardboard, cut it out and then trace the template on the actual parts (photo 1, below).

Once you've made the templates, cut the four legs to the rough sizes stated in the cutting list (above) before cutting them to their final shapes. Use a miter saw to cut the ends of the back legs (B) at 35 degrees; then use a jigsaw or a



▲ Make full-size templates for the curved pieces so you can trace the contours on the actual parts.

CUTTING LIST

▶ KEY	NO.	DESCRIPTION	SIZE
▶ A	2	Front legs	7/8 x 3 x 25-1/4 in.
▶ B	2	Back legs	7/8 x 5-3/8 x 34 in.
▶ C	2	Front leg brackets	7/8 x 2-3/8 x 25-1/4 in.
▶ D	2	Armrest supports	7/8 x 2 x 21-3/8 in.
▶ E	2	Seat supports	7/8 x 5-3/8 x 23-1/2 in.
▶ F	1	Seat front	7/8 x 2-3/4 x 22 in.
▶ G	7	Seat slats	7/8 x 2-1/4 x 22 in.
▶ H	1	Back seat slat	7/8 x 3-7/8 x 22 in.
▶ I	2	Armrests	7/8 x 5-3/8 x 25-3/4 in.
▶ J	1	Lower back rail	7/8 x 4 x 22 in.
▶ K	1	Middle back rail	7/8 x 5-3/8 x 25-3/4 in.
▶ L	1	Upper back rail	7/8 x 3-3/4 x 22 in.
▶ M	1	Middle back slat	7/8 x 5-3/8 x 33-3/4 in.
▶ N	2	Inside back slats	7/8 x 5-3/8 x 32-1/4 in.
▶ O	2	Outside back slats	7/8 x 5-3/8 x 30-3/4 in.

SHOPPING LIST

- ▶ 7/8 x 5-3/8 x 96-in. deck boards (7)
- ▶ 1/4 x 2-1/2-in. stainless steel carriage bolts, washers and nuts (6)
- ▶ 1-5/8-in. deck screws (1 box)
- ▶ 2-1/2-in. deck screws (6)
- ▶ Semitransparent stain or paint (1 quart)

band saw to cut the curves (photo 2, p. 9), and clean them up with a sander.

Cut the armrest supports (D) to size and then drill four pilot holes for the screws that will attach the supports to the armrest. These holes should be slightly oversized (roughly 3/16 in. dia.) to allow

the shank of the 2-1/2-in. screws to slide freely in the countersunk holes. This will allow you to easily draw the armrest tight and avoid splitting the supports.

Next, use a router equipped with a 1/8-in.-radius roundover bit to ease the edges. If you don't have a 1/8-in.-dia. bit, you can use a slightly larger roundover bit, such as a 1/4-in.-radius bit, and set the router height so that the bit is not cutting at its full cutting depth.

To build each leg assembly, fasten the front leg (A) and back leg (B) to the armrest support (D). Do not attach the front leg brackets (C) at this time. Follow the spacing in the drawing, and clamp the pieces in place to keep the assembly square. Drill pilot holes and countersinks; then fasten the legs with 1-5/8-in. deck screws (photo 3).

MAKE THE SEAT

Rip a 35-degree bevel along the top edge of the seat front (F); then mark and cut an arched profile (with a rise of about 1 in.) in the bottom edge. Next, make a template for the seat supports (E). Trace the template on each seat

CONTEMPORARY ADIRONDACK CHAIR

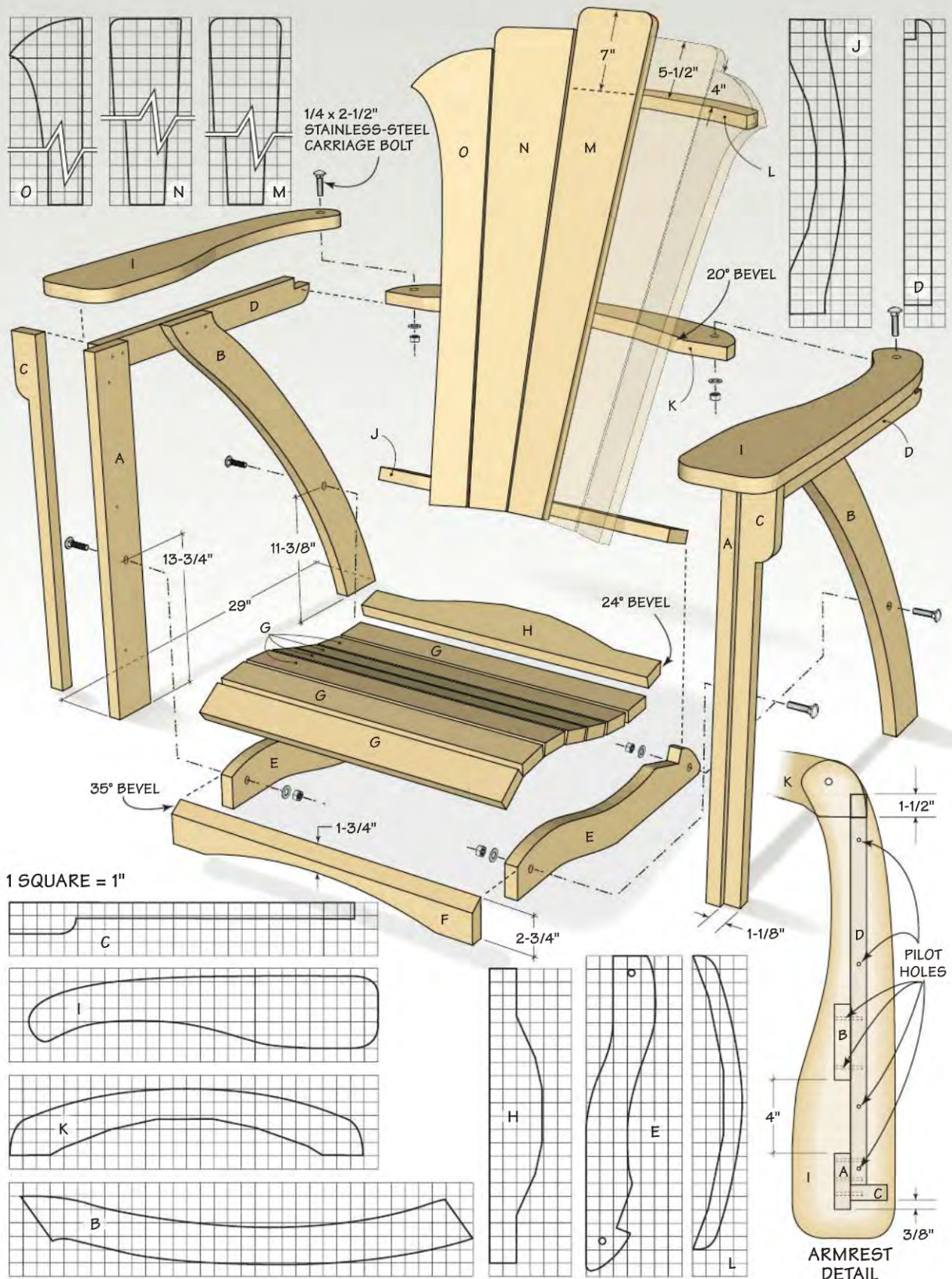


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support and cut the shape. Then cut the seat slats (G) to size and ease the top edges with a router and a 1/8-in.-radius roundover bit.

Attach the seat front to the seat supports, lining up the top edge of the seat front's bevel with the top edge of the seat supports (E). Position the front seat slat (G) so that it overhangs about 1/2 in., and attach it to the seat supports with a single 1-5/8-in. screw centered in each end. Attach the rest of the slats, working your way to the back of the seat and leaving a 1/4-in. gap between slats. Do not attach the back seat slat (H) yet; you'll do that after you've assembled the back.

ASSEMBLE THE CHAIR BOTTOM

Lay one of the leg assemblies on its side and position the seat assembly on the legs. The bottom edge of the front of the seat support should be 11-3/4 in. above the bottom of the front leg, and the bottom edge of the back of the seat support should measure 10 in. from the floor. Attach the seat assembly with a single 1-5/8-in. screw driven into each leg (photo 4, p. 9). Offset these screws to allow for the bolt hole that you will later drill into the center of each leg connection. Flip the chair over and attach the other leg assembly.

FIRST IMPRESSIONS

This is the first time I've used Perennial Lumber, Southern yellow pine treated with heat, pressure and an organic compound to make it much more resistant to water absorption. When the lumber was delivered, the first thing I noticed was its strong vinegar odor (which eventually fades away). The next thing I observed was that the straight-grain boards were free of knots and completely flat and straight. The wood machined well and was a pleasure to work with. The downside is that the treatment process left the boards harder and heavier, and they had a tendency to split if I overtightened the screws or didn't drill pilot holes. For more information on this relatively new lumber option, visit PerennialWood.com. — VG



2

▲ Cut close to the line and then sand up to the line to create a smooth, refined curve.

► With the leg assembly on its side, use a temporary spacer to raise the bottoms of the legs so they are level and use a square to keep the leg assembly square while screwing the legs into the armrest support.



3

Holes in armrest support for attaching armrest



4

▲ Attach the seat assembly to the two leg assemblies with 1-5/8-in. screws.



5

20-degree bevel

▲ Angle the jigsaw base and cut the beveled curves in one pass. Move slowly around the faceted corners.

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▲ With the chair bottom upright and the four legs firmly on level ground, the middle back rail is ready to be fastened to the armrests with bolts.



▲ When assembling the back, work from the center out and from the top down.



Set the chair-bottom assembly upright on a level surface and attach the front leg brackets (C) with three 1-5/8-in. screws. Next, cut the middle back rail (K) that will be attached to the back of the armrest supports and armrests. Tilt the jigsaw base to cut a 20-degree bevel; then cut the inside curve profile of the middle back rail (photo 5, p. 9). Note that the back rail's curve profile and the back seat slat are faceted to fit the back slats. Set the jigsaw base at 90 degrees to cut the back edge of the middle back rail.

Place the middle back rail on the notched ends of the armrest supports and attach it with 1-5/8-in. screws. Next, place the armrests (I) on the armrest supports, clamp the parts in place and drive 2-1/2-in. screws up through the holes in the bottom of the armrest supports. Drill a 1/4-in. bolt hole through each armrest and the middle back rail (photo 6, top, left). Fasten the parts with 1/4- x 2-1/2-in. stainless steel carriage bolts, washers and nuts.

Next, drill the bolt holes through the legs and seat supports. Make sure that all four legs are sitting flat and level when you drill the holes and tighten the bolts.

ADD THE BACK

Lay out and cut the back slats (M, N, O) to shape. I used a jigsaw to cut close to the line on the long tapers and then sanded up to the line with a belt sander. You could also cut the long tapers on the three inside slats using a band saw or a table saw with

◀ Center the back assembly on the middle back rail and screw it in place before attaching the back seat slat (H).



WORKSHOP

a tapering jig. Ease the edges with a router and roundover bit.

Attach the back slats to the upper and lower back rails, starting with the middle back slat (**M**). Center the upper back rail (**L**) on the back of the middle slat and 7 in. below the top. Attach the slat with a 1-5/8-in. screw. Use a 1/8-in. spacer to align the two inside back slats (**N**) on either side of the middle slat. Position the upper back rail 5-1/2 in. below the top edge of each inside slat.

I found it easier to attach the three inside slats (**M** and **N**) to the lower back rail (**J**) before adding the two outside back slats (**O**). Center the lower back rail 3/8 in. above (and parallel to) the bottom of the middle back slat and screw it in place. Use the 1/8-in. spacers and screw the inside back slats in place.

Next, attach the outside back slats (**O**) to the upper and lower back rails (photo 7, p. 10). Position the top of the upper back rail 4 in. below the top of the outside slats. **Note:** The bottom of the back slats will extend past the lower back rail at different lengths because of the curve. I left them long because they are hidden by the back seat slat, and the extra length helps to strengthen the screw joint.

Set the lower back rail (**J**) in the seat-support notches and screw it in place. Center the back assembly on the middle back rail and fasten with a 1-5/8-in. screw in the center of each slat (photo 8).

Tilt the jigsaw base to cut roughly a 24-degree bevel, and cut the back seat slat (**H**). Adjust the fit as necessary; then attach the slat to the seat supports with 1-5/8-in. screws.

I finished the chairs with gray semi-transparent deck stain for a natural weathered look. Of course, you can apply the stain or paint of your choice to achieve the look you desire. Once the finish cures, pour yourself some lemonade and sit awhile. ■

Handyman Club life member Vern Grassel is a custom furniture builder, cabinetmaker and woodworking designer in Elk River, Minnesota.

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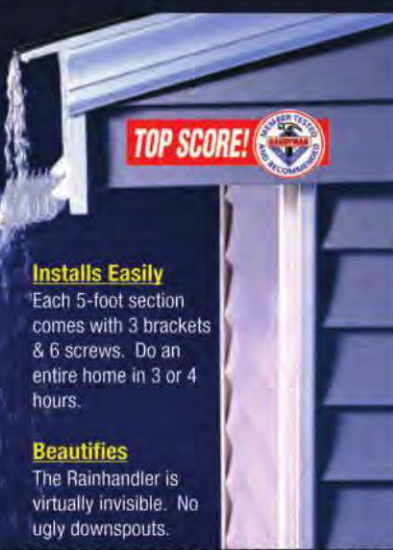
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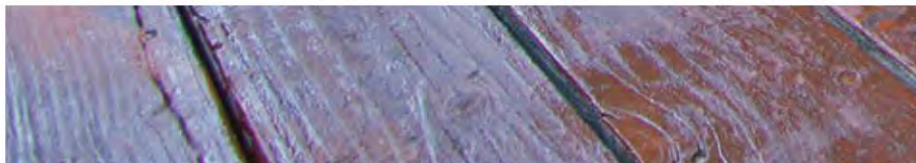


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RENOVATE YOUR DECK



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▲ Before



Far from being inviting, a weathered old deck can drive you indoors in despair. The thought of refinishing worn railings — sanding and staining each spindle and rail — can seem overwhelmingly tedious and time-consuming, and building a whole new deck may be cost-prohibitive.

But there is an alternative solution. Provided the existing deck boards are sound, you can give your deck a new look (one that will last) with a maintenance-free railing system. The TimberTech composite railing system I used for this project features post skirts and rails made of recycled plastic and wood fibers, and the balusters are galvanized and painted steel. Because the composite can be worked much like wood, your existing carpentry skills and tools will see you through this relatively simple project.

REMOVE OLD RAILINGS

The existing railings on the 15 x 20-ft. deck in this project were rapidly deteriorating, but the rest of the deck was sound. So the homeowner opted to refinish the deck boards and replace the rail and balusters with TimberTech's Builder-Rail System (see SOURCES ONLINE).

Constructed in a style popular during the 1970s and '80s, the existing railing had no posts; balusters were nailed directly to the rim through the deck skirt board. If your railing was built this way, hold a length of scrap 2x4 material horizontally against a section of balusters and strike the 2x4 with a hammer to separate the balusters from the rim board. Hold the 2x4 a few inches above the decking so that the hammer will easily clear the deck surface. If your railing was built with traditional post-and-rail construction, simply remove the bolts or lags in the posts and gently lift the rail sections away from the deck. Either way, remove the railing carefully to avoid damaging the deck.

◀ This TimberTech zero-maintenance deck-railing system offers DIY-friendly installation and provides a better view than the old wood railing it replaced (inset).

LAY OUT POST POSITIONS

Like many composite rail systems, this one is available in 6- or 8-ft. lengths. Keep this in mind as you lay out the posts. Depending on the type of posts you use, deck-post preparation will vary. On this deck I used the Secure-Mount Post System from TimberTech. This is a very strong surface-mount metal post with a base flange and upper and lower plastic fastening blocks. (You can also use wood posts sized to fit inside the composite post skirts.)

Start by positioning the corner posts first, and then fill in along the straight runs. Position the middle posts evenly between the corner posts, and make sure they're spaced no more than 8 ft. apart. It's also important to set the posts back from the deck edge so that the post skirt and base trim do not extend over the deck; 3 in. is an adequate distance.

If you are installing posts at a stair location, measure equally from the risers at the top and bottom of the stairs and set the posts accordingly. This way the distance between the railing and the steps will be consistent across the entire stair run.

After locating the positions of the stair posts, double-check the future height of the railing by stringing a line across the posts and measuring vertically from the nose of the stair tread to the string line. Depending on how you plan to attach the railing to the posts, you will need to add to or subtract from the string-line measurement to get your actual rail height. The code requirement for stair-rail height in most states is 36 in. (measured from the stair-tread nose to the top of rail).

After locating the positions of each post, I used the Secure-Mount post base as a template and marked the location of each hole with a black marker.

INSTALL POSTS

Because the Secure-Mount post fastens directly to the top of the deck, I reinforced the decking at post locations with pressure-treated 2x10s screwed to the underside of the deck between the joists. TimberTech recommends installing the 2x10s with the wood grain perpendicular to the outside rim joist.

When you are finished marking holes, drill at each mark and fasten the flange plate to the decking with hot-dipped galvanized bolts. The hole size should be the same as the bolt so that the post stays snug. Secure the posts lightly to the deck but do not tighten the bolts yet.

Note: Always use fasteners that are compatible with pressure-treated wood. Even though the project deck's CCA pressure-treated framing was not as corrosive to fasteners as current ACQ-treated lumber is, I fasten all pressure-treated lumber with stainless steel or hot-dipped galvanized bolts, screws and nails. (You can't tell whether existing wood is CCA or ACQ, so it's better to be safe than sorry.)

Sometimes a set of holes will land over a rim joist or blocking, which makes it impossible to install bolts, nuts and washers. If this happens, install a lag bolt instead. When installing lag bolts, always drill the hole 1/8 in. smaller than the diameter of the lag.

If you need to attach a post to concrete (for example, a landing or patio), you'll need to drill holes with a masonry bit and install a masonry fastener. For this project I used Redhead masonry wedge anchors. Drill all four holes according to the manufacturer's diameter and depth recommendations; then align the post-base flange over the holes. Tap one fastener at a time through the flange into the concrete with a hammer until it makes contact with the bottom of the hole. Continue to tap the anchor, expanding the "wedge" into the concrete. When all of the anchors are securely in place, add washers and lightly tighten with the nuts provided in the wedge-anchor kit. Do not tighten completely yet.

Note: Before tapping the anchors into concrete, thread the nut on the bolt just enough so that the nut sits above the bolt threads. This will protect the bolt threads from damage by the hammer.

With a 4-ft. level, check the posts

for plumb, and shim the base flanges as necessary. Once the post is plumb in both directions, tighten each of the four base-flange bolts.

ADD POST SKIRTS

Now that the posts are plumb and secured, the post skirts can be cut to size and installed. To determine the length of the post skirts, I added the following measurements:

- Length of balusters: 26 in.
- Height of top rail: 3-1/2 in.
- Height of bottom rail: 3-1/2 in.
- Clearance between bottom rail and deck: 3-3/4 in.
- Desired measurement between top rail and cap: 2 in.
- Installed depth of cap: 1 in.

The post skirt depth is 39-3/4 in.

I recommend using a 10- or 12-in. sliding miter saw to cut the post skirts, which will provide a clean, even cut with one pass. When the skirts are cut to length, slide them over the Secure-Mount posts.

STEP-BY-STEP



1 To add support for the posts, reinforce the decking by screwing 2x10 blocking under the deck between the joists.



2 Measure 3 in. from the deck's skirt board to provide the space needed for the post, post skirt and base trim.



3 Establish the post height for the stairs by measuring from the stair nosing to the string line. (The TimberTech Secure-Mount posts are height adjustable.)



4 Position the Secure-Mount post and mark the bolt holes before drilling. (The posts should be located above the reinforcing blocks installed earlier.)



5 Secure the posts with bolts, nuts and washers, but don't fully tighten the bolts yet. Use lag bolts in areas where conventional bolts won't work.

Before moving to the next step, slide the base trim over each of the post skirts. This must be done before you install the top and bottom rails.

CUT THE RAILS

Because of its rectangular shape and clean lines, this composite railing is very easy to measure and install. The best way to determine the lengths of the top and bottom rails is to scribe them rather than measure the distance with a tape. This method is faster and will result in a more accurate fit.

Start by laying a piece of bottom-rail material against the base of the posts and scribe a mark at each end. Cut on the marks, using a miter saw for accuracy. Next, test the fit of the piece: It should be snug but not too tight. If the piece fits properly, lay it beside a top-rail piece and scribe its length on that piece. Cut on the marks, and compare the rails: Both pieces should be exactly the same length. Test both pieces again for proper fit. If they are snug, you are ready to lay

out and install the baluster hardware.

ASSEMBLE RAILINGS

TimberTech supplies a clever card-board spacing template with each package of balusters, so you don't need to do math. Start by laying the top and bottom rails side by side; then take a total measurement of the railing and divide by two to establish the center point. Measure and mark the center lightly on the bottom rail.

Next, lay the template along the edge of the bottom rail and align the center mark with one template hole or between two holes, depending on how the spacing works out at each end. Keep in mind that the spacing between the balusters cannot exceed 4-5/8 in. OC. When the template is aligned properly with the center mark on the railing, mark each template hole with a dark pencil or marker. Then transfer the marks to the top rail.

Once you've completed the spacing layout, drill each of the template marks

with a 9/64-in. bit. The holes should be about 1-1/4 in. deep. Always be sure to drill into composite boards before driving screws; otherwise the composite material will mushroom or split.

After you drill the holes, fasten the baluster mounts to the railing with the provided screws. Do not overtighten the screws or they'll compress the baluster mounts, making it difficult to attach the balusters.

Next, drill holes for and attach foot blocks to the underside of the bottom rail. Foot blocks can be purchased from TimberTech, or you can use the cutoffs from the railing. The foot blocks are an important part of the structure of the railing: They prevent the top and bottom rails from sagging and keep them together after installation. Use one block for railings up to 4 ft. long, two blocks for railings up to 6 ft. long and three blocks for railings longer than 6 ft. Space multiple blocks evenly along each rail section.

Finally, mark and drill holes and at-



6 When installing posts on concrete, insert wedge anchors through the base flange into the drilled hole. Then thread a nut first onto the bolt head and tap the wedge into the hole until it seats firmly in place.



7 Check the post for plumb on two sides and shim as necessary. Then tighten the bolts and recheck to ensure that the post is plumb.



8 Slide the post skirts over the Secure-Mount posts; then install the post-base trim before adding the railing.



9 Press the bottom rail against two posts and draw a line at each end to establish the rail length. (Note the block under the rail used to set the correct height.)



10 Measure and mark the bottom rail's center; then use the provided template to lay out the baluster spacing.



11 Drill the holes for the baluster mounts; then fasten the mounts to the railing, being careful not to overtighten the screws.

tach post fasteners to the underside of both the top and bottom rails. Take the time to follow TimberTech's instructions closely to avoid drilling unnecessary (and unsightly) holes into the railing. Note that the underside of the bottom rail is the side *without* baluster mounts; the underside of the top rail is the side *with* baluster mounts.

Now comes the fun part. I strongly recommend that you find someone to help you with this step so that the railing installation goes smoothly and accurately. Start by installing the bottom rail first. Center the railing on the post at each end and mark the fastener holes. Next, drill the marks through the post skirt into the Secure-Mount post blocking. Angle your drill slightly toward the center so that you catch the Secure-Mount post block inside the skirt; otherwise you'll drill into hollow space, and the screw won't be able to support the rail.

Center the railing once more on the posts, aligning the fasteners with the

drilled holes. Loosely screw the fasteners to the posts. Make sure not to overtighten the screws and strip them.

Next, slide the metal balusters over the baluster mounts on the bottom rail; then ease the top-rail baluster mounts into the balusters. The best way to do this is to have your helper hold one end of the top rail as you slowly work from the other end, lowering the top-rail mounts into the balusters one at a time.

Once the top rail is secured to the balusters, center it on the posts at each end just like the bottom rail. Mark the fastener holes and slightly lean the railing away from the posts. Have your helper hold the rail while you drill the holes for the top-rail fasteners. Then move the top rail back into place and attach it to the posts.

ADD THE POST CAPS

This last step is by far the easiest and most rewarding. Add a little construction adhesive or silicone to the

underside of each post cap, and fit it onto the post. Because the cap fits snugly over the post skirt, you may be tempted to skip the adhesive. However, composite material contracts in cooler weather, and at some point the cap will blow off of the post if no adhesive is applied.

With the final post cap in place, your project is complete. The few days of effort you invested will pay off for years. Now you can sit back, enjoy the beauty of your new railings, and rest easy knowing that your deck's fresh new look will last a very long time. ■

Mike Conner is a Minneapolis-based contractor and a frequent HANDY contributor.

SOURCES ONLINE

For online information, go to HandymanClub.com and click on WEB EXTRAS.

TimberTech, timbertech.com

STEP-BY-STEP



▲ Attach foot blocks to the underside of the bottom rail with screws and construction adhesive. Space blocks evenly along the length of the rail.



▲ Attach railing fasteners to the underside of both the top and bottom rails. Be sure to drill the screw holes to prevent the composite from splitting or mushrooming.



▲ Screw the railing to the post. Drive the screw snug, but do not overtighten. The screw should be angled slightly toward the center of the post.



▲ Slowly lower the top-rail mounts into the balusters one at a time. Once all of the balusters are positioned, use a rubber mallet to gently seat the rail on the mounts.



▲ Start drilling the screw holes for the top-rail fastener; then tilt the rail assembly away to complete the holes.



▲ The post caps provide the finishing touch to the project. Be sure to apply construction adhesive to the underside of the post caps to prevent them from blowing off.

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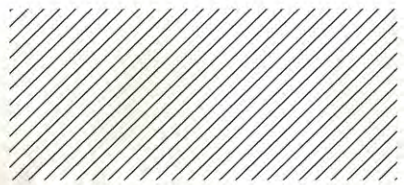
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NEW PRODUCTS

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**BY JENNY
STANLEY**

**DURING SUMMER, MANUFACTURERS
TYPICALLY INTRODUCE A MYRIAD
OF TOOLS AND HOME-IMPROVEMENT
PRODUCTS THAT PROMISE TO MAKE**

DIYers' and trades professionals' projects easier, but *HANDY* editors maintain a healthy skepticism toward these claims. We make it our mission to sort through the hype and identify the new products and tools that truly fulfill a need, solve a problem or provide a new way for our readers to improve their homes. The good news is that summer 2012 has much to rave about. Here's a brief look at the products we're excited about this season.

PHOTOS COURTESY MANUFACTURERS

TOOLS



FLUKE 805 VIBRATION METER

Designed to identify problems in motors and other rotating equipment, the Vibration Meter measures overall vibration from 10 to 1,000 Hz and detects peaks in vibration signal readings of roller bearings from 4,000 to 20,000 Hz. In addition, its infrared sensor automatically measures contact temperature and displays it with the vibration reading to help provide a broader understanding of the health of a machine.



FRANKLIN SENSORS PROSENSOR 710

This high-tech tool in a low-tech package features 13 sensors that can detect multiple objects simultaneously, and its LED lights indicate both the location and width of wood, metal and other items inside walls.



**2012 HANDY
Innovation Award Nominee**



FESTOOL DOMINO XL

A follow-up to the original Domino, Festool's Domino XL makes larger joints than its predecessor and offers innovative accessories such as a hand-rail fence that helps to cut accurate mortises in round stock.



MAKITA 18V LXT LITHIUM-ION CORDLESS MULTI-TOOL KIT

Makita's new 18-volt multitool features a variable-speed control dial (6,000 to 20,000 opm) and soft start so users can match the tool's speed to the application.



BOSCH GSL 2 SURFACE LASER

Eliminating the need for time-consuming spot checks, the GSL 2 Surface Laser can scan an entire floor in minutes, and the tool's target plate and remote control provide a working range of 60 ft., allowing users to examine and mark uneven spots without having to stay close to the tool. When the laser finds a bump or recess in a floor, it separates into two lines, indicating areas to be marked and reworked.



**2012 HANDY
Innovation Award Nominee**



Also from Bosch, the JS572E Top-Handle Jig Saw and JS572E Barrel-Grip Jig Saw both feature double-roller blade guides that provide more accuracy and minimize deflection. The saws are auto-centering to keep blades firmly within the rollers, and they include LEDs and a switchable dust blower.

HOME-IMPROVEMENT HEADLINERS



MILWAUKEE THERMAL IMAGER

Ideal for trades professionals performing preventive maintenance and troubleshooting applications, the Thermal Imager captures both thermal and visual images simultaneously with each trigger pull, and it comes with software that makes analyzing images and creating reports simple. This device is just one of many innovations from Milwaukee Electric Tool Corp. this year; a couple of the company's summer blockbusters are embargoed until early fall, so stay tuned.



STANLEY STH77404

Detecting studs up to 1-1/2 in. below a surface, the Stanley STH77404 stud sensor features audible beeps that indicate what it is sensing — even alerting users if there are live wires below the surface. An LED-lighted channel points to your target and makes marking easy.



BOSTITCH BTHT10502

This new knife from Bostitch combines the convenience of two different blades in one tool with the space-saving capabilities of a folding knife.

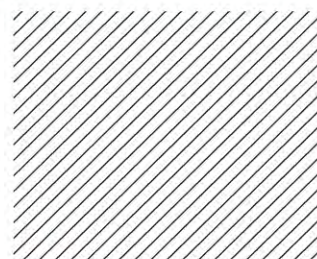


BLACK & DECKER GYRO

This 4-volt lithium-ion screwdriver features a palm trigger and ground-breaking gyroscopic speed and direction control technology. With a simple twist of the wrist, users can vary the speed and direction in which the screwdriver operates.



2012 **HANDY** Innovation Award Nominee



SPYDER DOUBLE-SIDED JIGSAW BLADE

This durable blade, made of chrome vanadium steel, is designed with two cutting edges to provide clean radius cuts in wood, plastic, laminates and more without limitations.



SAVAGE LIGHTED TORPEDO LEVEL

This durable level boasts a three-vial lighted system for stellar visibility, four neodymium magnets and a durable case designed to hold up on any job site.



HYDE TOOLS TAPING KNIVES

Three new lines of drywall taping knives from Hyde boast features inspired by user feedback: Pro Stainless has rivet-free construction and a hammerhead, Pro Hardwood has a smooth wood handle, and Pro Project has a soft-grip handle and rivet-free construction.



CRESCENT CODE RED RENOVATION AND DEMOLITION TOOLS

This innovative line of 10 tools includes indexing flat pry bars, adjustable utility bars (shown), flat bars and molding bars. Each offers unique features that improve leverage, strength and precision.



2012 **HANDY** Innovation Award Nominee



PURDY JUMBO MINI-ROLLER SYSTEM AND ULTRA FINISH ROLLER COVER

Providing a smoother, more easily controlled rolling action compared with traditional rollers, Purdy's new jumbo mini-roller system features an innovative cageless dog-bone design. Available in 14-in. and 26-1/2-in. lengths with an assortment of 4-1/2-in. and 6-1/2-in. replacement covers, this new roller system helps users create a beautiful finish every time — especially when paired with the new Purdy Ultra Finish roller covers. Made with high-quality microfiber, the covers help to release an even amount of paint for a consistently smooth finish.



IRWIN MARPLES WOODWORKING SERIES SAW BLADES

Manufactured in Irwin's new facility in Italy, these blades are laser-cut and feature a thin kerf and oversize carbide teeth for long life and multiple sharpenings.



ARROW FASTENER TRUTAC FORWARD ACTION STAPLERS

With both the handle and the staple exit point on the same end of the tool, these staplers (available in heavy-duty and light-duty models) are designed to easily handle home repairs and upholstery projects that require precise control.



ROCKLER DADO JIG

This jig works with a router and a separate Rockler Straight Edge Clamp System to cut precise dados. It features grooves on both sides so it won't drift away from the fence, and all adjustments are tool-free.



HOME MAINTENANCE



CUB CADET 221 LHP SNOW THROWER

Designed for clearing sidewalks and driveways, the 221 LHP snow thrower features a 21-in. clearing width and 13-in. intake height, remote chute control and an in-dash headlight.



GE ENERGY SMART 27-WATT LED BULB

This innovative lightbulb replaces a 100-watt incandescent with an LED version that is cooler yet no bigger than the traditional A-19 shape and produces the same amount of light.



HOME-IMPROVEMENT HEADLINERS



SCOTT PRO SHOP TOWELS

Designed to be tough when wet and solvent-resistant, Scott's new Pro Shop Towels are effective for tasks such as cleaning oily, greasy tools and applying solvents and other fluids. The towels are made with Hydroknit Material Technology in which jets of water bond soft, absorbent paper fibers to extra-strong polypropylene nonwoven fabric, resulting in a durable, reusable shop towel.



KRYLON RUST PROTECTOR

Krylon's new Rust Protector paint boasts a drying time of eight minutes, which the company says is 15 times faster than competitive products. This quick dry time reduces the risk of dirt, grass, bugs and other debris potentially sticking to a freshly painted surface, an important consideration when working on an outdoor project. The paint also provides corrosion protection and durability, and it can be sprayed or brushed on with or without primer.



★ **2012 HANDY
Innovation
Award
Nominee**



WORX TRIVAC

This electric blower/mulcher/vacuum makes utilizing its three functions easy: Change from blower to vacuum with the flip of a switch — no hoses or tubes to move. It weighs only 8.3 pounds and features a two-stage mulching system with a handy collector bag.



TUB O'TOWELS

Twice the size of typical cleaning wipes, these solution-soaked towels are also thicker and more durable — great for the workshop and tough household messes.



RUST-OLEUM LEAKSEAL FLEXIBLE RUBBER COATING SPRAY



LeakSeal is a high-build spray formula designed to fill cracks, gaps and holes. It maintains flexibility with temperature changes and UV exposure and is ideal for sealing skylights, ducts and more.



HOMERIGHT DECK WASHER FLOW- THROUGH BRUSH

This heavy-duty broom attaches to a standard garden hose and features high-pressure water jets that wash away debris while you sweep.



DAP 3.0 PREMIUM SEALANT LINE

This low-VOC line of sealants boasts a water-proof seal, quick paintability (wait just 30 minutes to coat the DAP 3.0 Window, Door, Trim & Siding sealant), shrink- and crack-resistance and strong adhesion for projects in kitchens and baths, around windows and doors and on outdoor concrete and masonry projects.



★ **2012 HANDY
Innovation Award Nominee**

LIFESTYLE PRODUCTS



RACOR LADDER LIFT

Operating with a rope-and-pulley mechanism, the Racor Ladder Lift can be easily fastened to ceiling studs in a garage or basement and allows users to raise and store ladders weighing up to 150 pounds with ease. Simply place one end of the ladder on the fixed hook and attach the strap to the other end; then start pulling on the rope to lift the ladder up to 12 ft. high. The unit also features a locking mechanism that holds the rope securely in place to prevent accidental releases.



CHENG OUTDOOR CONCRETE PRO FORMULA

Cheng's new concrete mix features crack-prevention agents, fade-resistant pigments and freeze-thaw additives for creating flawless outdoor elements such as planters, fire pits, garden sculptures and more.



KEEN UTILITY KEEN.WELT BOOT

Boasting a noncontinuous Goodyear welt construction that is reinforced by a traditional Keen toe bumper, the new Keen.

Welt boot is designed to prevent premature sole delamination even in extreme work conditions.



SCHLAGE ALARMED LOCK

Engineered to detect vibration and motion even before a door is opened, the battery-operated Schlage Alarmed Lock provides early warning of potential break-ins.



GLADIATOR ADJUSTABLE HEIGHT WORKBENCHES

Available in 4-, 6- and 8-ft. lengths with maple or bamboo tops, these versatile workbenches can be raised and lowered to various heights to accommodate different users and tasks.



HOME-IMPROVEMENT HEADLINERS



MOEN MOTIONSENSE FAUCETS AND RETRACTABLE TOWEL RING

Moen's new MotionSense faucets feature on/off sensors below the spout and along the top, but they can also be operated with a traditional on/off handle. The innovative retractable towel ring secures hand towels to a cord so users can pull the towel close and then quickly and easily return it to its place.



ETÓN FRX3 RADIO

Handy for camping trips and emergencies, this lightweight digital radio features a weather alert, USB smart-phone charger, solar panel, hand turbine, LED flashlight, DC and AUX input and much more.



CARHARTT QUICK DUCK FABRIC

Providing the same durability and water resistance as traditional sandstone fabric but weighing 30 percent less, Carhartt's Quick Duck is an improvement over heavy outdoor workwear.



DIEHARD 6AA EXTREME FLASHLIGHT

With a high-beam option that can shine beyond 1,000 ft. and a low-beam option that provides about 25 hours of use, the new 6AA Extreme Flashlight, operated by DieHard's new alkaline batteries, promises to be powerful and long-lasting.



SIMONTON WINDOWS SAFEPOINT AND ASURE

SafePoint impact-resistant laminated glass is designed to withstand high winds and flying debris, deter intruders and reduce noise. Also from Simonton, Asure replacement windows and patio doors feature an innovative narrow frame that maximizes natural light.



THERMA-TRU PRIVACY GLASS

Offering more choices of decorative privacy glass, Therma-Tru has introduced new Chord, Chinchilla, Rainglass and Granite patterns for all door collections.



DAVINCI ROOFSCAPES BELLAFORTÉ

BellaForté Shake polymer roofing tiles boast eight different profiles that resemble natural, rough-hewn wood shakes, with a 50-year limited warranty and 100 percent recyclability.



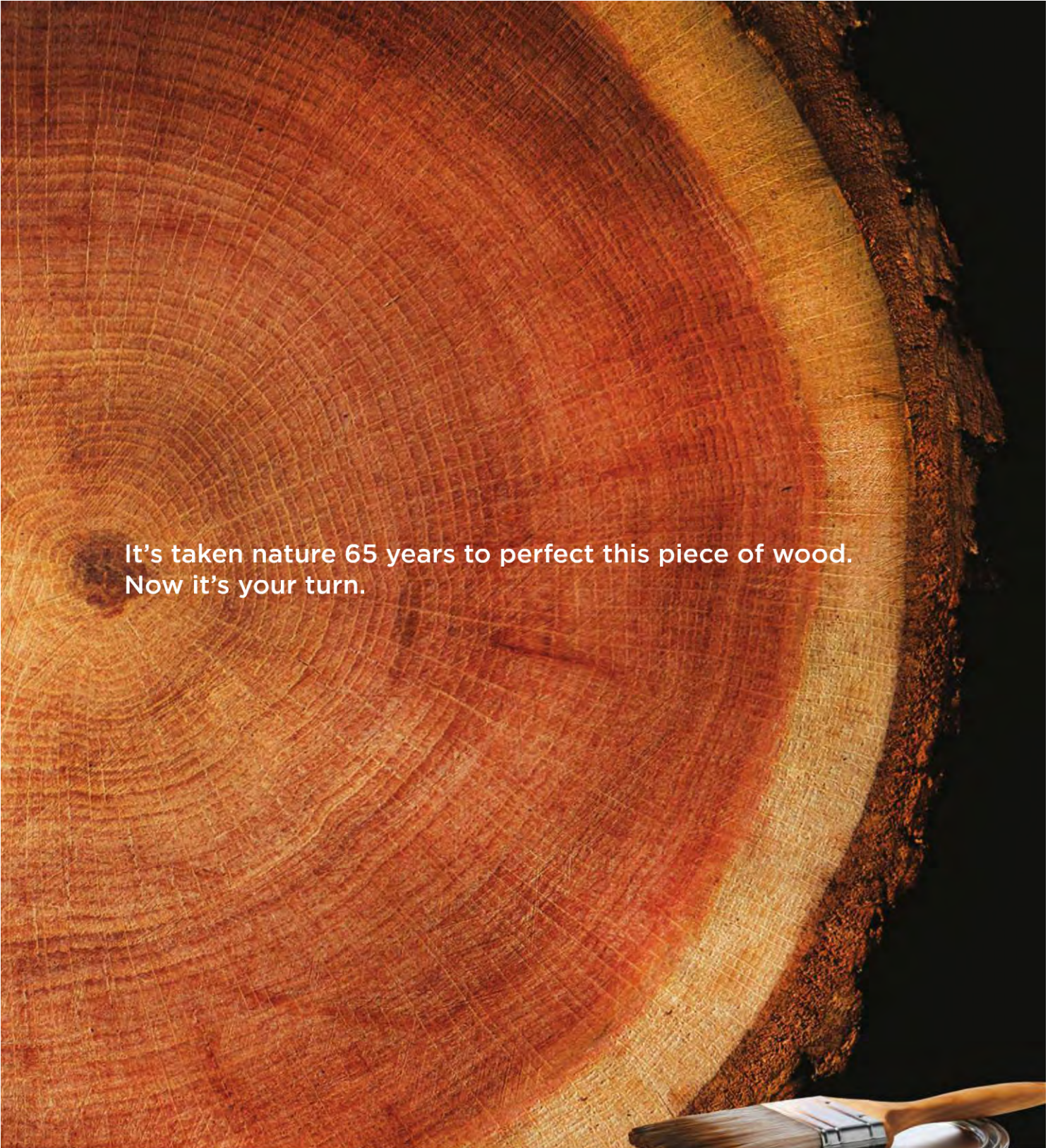
COOPER LIGHTING HALO LED UNDERCABINET

Available in track sections of 12, 18, and 24 in., this undercabinet lighting system features LED lights that are connected to a low-voltage track with magnetic contact, so they can be rearranged at any time. ■



SOURCES ONLINE

For more information about all of these products, go to HandymanClub.com.



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BASIC BENCH

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A woodworking classic, the traditional five-board bench is a simple yet adaptable piece: You can build it from scrap lumber or exotic wood and vary the height, length and width to make it function as entryway seating, a bonfire bench, a coffee table, a workshop piece or a child's stepstool. You can also change its personality with different finishes and details.

For this project, we altered the design by making the seat top from three narrower boards (rather than one wide plank) to create a paneled look and to alleviate potential warping. One of the benches has angular lines (like the original style) and another features curves. The plan makes efficient use of materi-

als: From five 8-ft. boards (a 1x12 and four 1x4s), I made two benches: one to keep and one to give away (maybe).

SIMPLE SUPPLIES

This is a great skill-building project that can be made using just two power tools: a jigsaw and a drill. I built the pair of painted benches out of poplar and then made a pine version, which I finished with three coats of polyurethane. (For outdoor use, redwood, cedar or pressure-treated pine are suitable species.) Each bench calls for 38 wood screws. We provide an illustration (p. 28) as a starting point, but you can use your creativity to adapt the design to whatever size and style you like.



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CUTTING LIST (for one bench)

▶ KEY	NO.	DESCRIPTION	SIZE
▶ A	1	Center seat slat	3/4 x 4-3/4 x 36 in.
▶ B	2	Edge seat slats	3/4 x 3-1/2 x 36 in.
▶ C	2	Side rails	3/4 x 3-1/2 x 33-1/2 in.
▶ D	2	Legs	3/4 x 10-3/4 x 15 in.
▶ E	2	Seat cleats	3/4 x 3-1/2 x 9-1/4 in.
▶ F	2	Leg cleats	3/4 x 3/4 x 9-1/4 in.

SHOPPING LIST (makes two benches)

- ▶ 1x4 x 8-ft. boards (4)
- ▶ 1x12 x 8-ft. board (1)
- ▶ 1-1/4-in. No. 6 stainless-steel finishing screws (60)
- ▶ 1-1/2-in. No. 6 stainless-steel finishing screws (16)
- ▶ Glue
- ▶ Paint, stain or clear finish

CUTTING AND SHAPING

Begin by squaring one end of each board. Starting at the “true” end of the 1x12, cut two 30-in. sections (one for each pair of legs). From the remaining piece (approximately 36 in. long), rip two 4-3/4-in.-wide boards to create the center seat slats (A) for both benches. Cut four edge seat slats (B) to that same length, using two of the 1x4s. From the remaining 1x4s, cut four side rails (C) 2-1/2 in. shorter than the seat slats. Use the waste material to cut the cleats (E, F). Now you have all the parts for two benches. (Instructions from here on will describe how to build a single bench.)

Use a jigsaw and a straightedge guide (photo 1, p. 30) to rip a 30-in. leg section (D) to 10-3/4 in. wide; then crosscut it in half to create two 15-in.

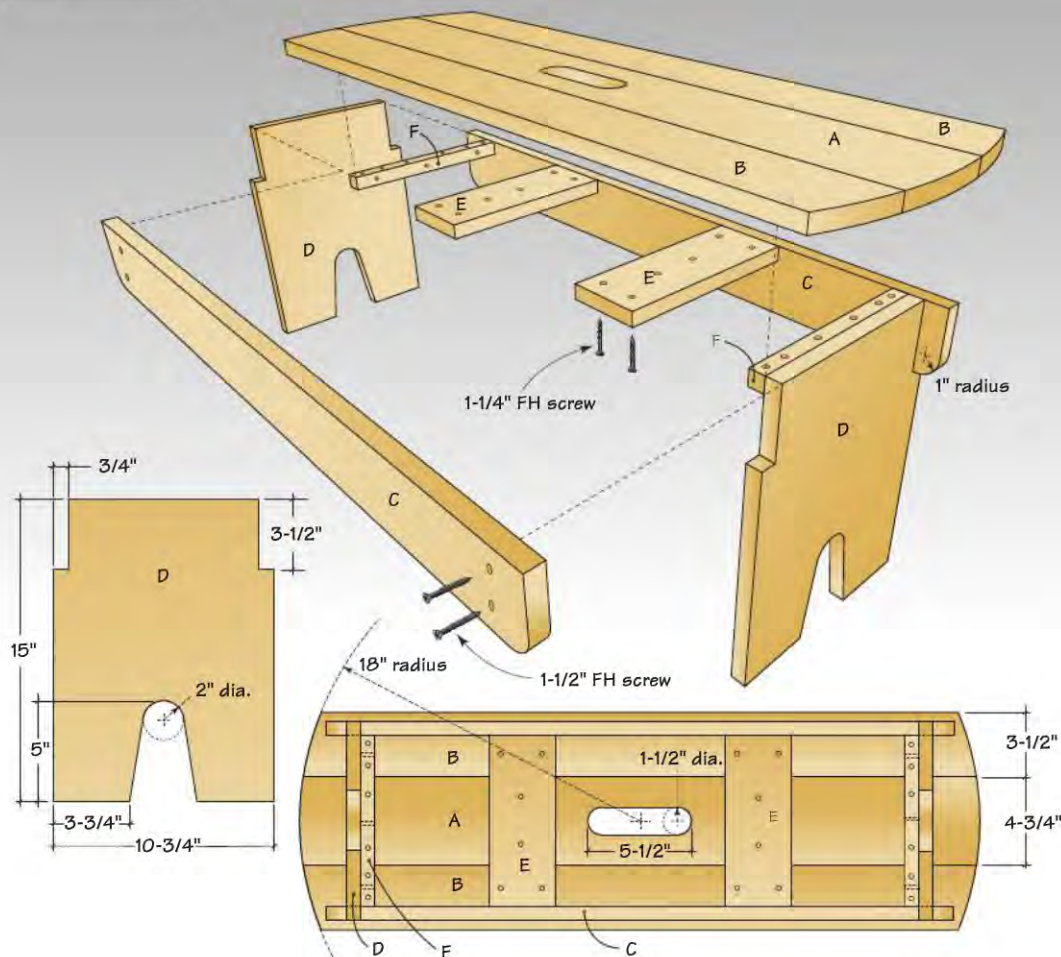
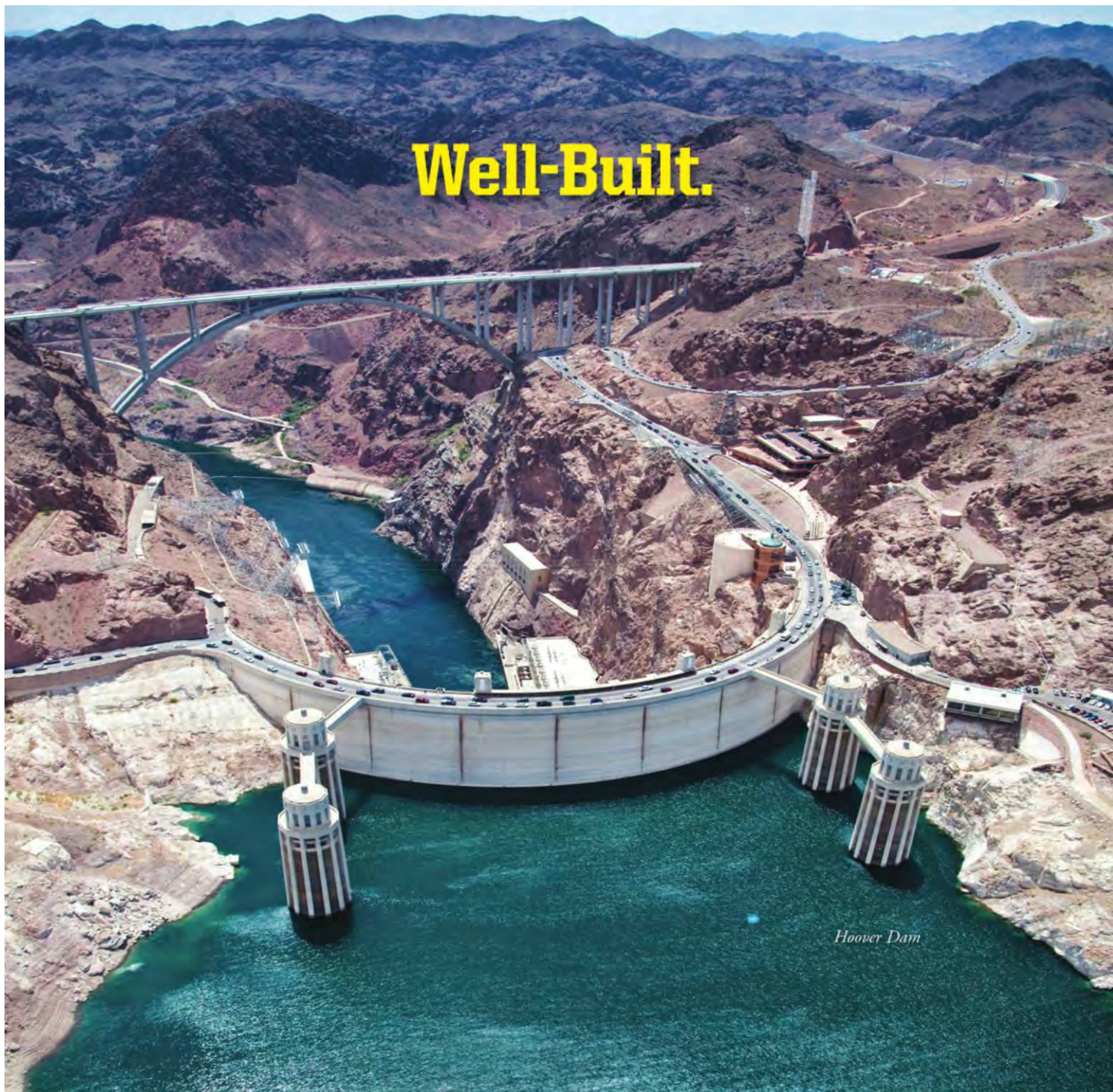
BASIC BENCH

ILLUSTRATION BY MICHAEL ANDERSON

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leg panels. Use a block plane (photo 2, below, right), a sanding block or a router with a 1/8-in. roundover bit to ease the long edges of the seat slats and the legs.

To begin shaping the legs, first drill a 1/8-in. pilot hole in each leg panel, 4 in. from the bottom and centered hori-

► You can modify the basic bench design by altering the shapes of the side rails, the bench seat, the legs and the handle cutout. We gave this version the traditional angular cuts on the legs and side rails and then embellished it with tapered cuts on the ends of the seat. (It's finished with Krylon Dual satin spray paint in Hunter Green.)



▲ To cut a straight line with a jigsaw, first secure the workpiece to a sturdy surface. Use a clamp-on edge guide or two hand clamps and a straight piece of wood to guide the saw.



▲ Rounding off the edges of the boards helps to emphasize the individual seat boards and provides a timeworn look and feel.



▲ Be sure to clamp the workpiece securely to a workbench when drilling with a hole saw. Once the centering bit penetrates the back side of the board, flip the board over and bore from that face to prevent chipping of the surface.

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◀ This pine bench will look right at home inside a cabin or on a porch. As another option, you can make the legs about 10 in. long to create a child's bench — or 6 in. long (with a 16-in. seat) to build a stepping stool or footrest.

zontally; then enlarge the holes using a 2-in.-dia. hole saw (photo 3, p. 30). Mark two cutting lines, starting at 3-3/4 in. from the leg edges and extending to the sides of the leg hole. Cut along these lines to form the legs (photo 4, below, left).

Mark the 3/4-in. x 3-1/2-in. notches in the tops of legs. Make the short (cross-grain) cuts first; then cut the lengthwise lines. This sequence makes it less likely that you'll overcut the notches. Mark and



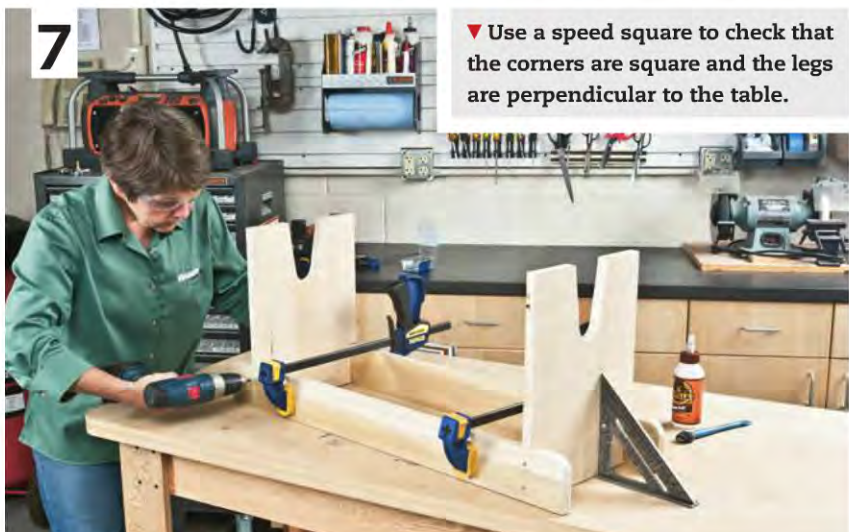
▲ Guide the jigsaw blade along the pencil lines, merging the cut line into the side of the round cutout. Sand the cuts smooth and round off the edges.



▲ To be sure that the guidelines are accurate for the leg placement, align the ends of the side rails and mark the lines using a combination square.



▲ Use the waste plug made by the 2-in. hole saw to mark the 1-in.-radius curves on the ends of the two side rails.



▼ Use a speed square to check that the corners are square and the legs are perpendicular to the table.

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▲ Attach the seat slats to the leg cleats by driving two 1-1/4-in. screws into each of the three slats.



► For an easy, accurate parallel line, slide a combination square along the seat edge while holding a pencil at the ruler's end.

◀ An 18-in.-radius arc complements the rounded shapes in the leg and seat cut-outs. You can use a trammel or a string and pencil to mark the curve.



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The self-tapping tip of this **trim-head screw** makes a pilot hole virtually unnecessary in many types of wood.

cut the curves on the ends of the two side rails (C; photo 5, p. 32); then sand the cuts and ease the edges.

ASSEMBLING AND FINISHING

To prepare to attach the side rails (C) to the legs, mark lines 3 in. from the ends of the side rails and bore two pilot holes on each line. Using a combination square, draw another set of lines 3-3/8 in. from the ends to use as guidelines (photo 6). Set the side rails and legs upside down on a flat work surface, aligning the insides of the legs along the guidelines; then glue, clamp and fasten the legs to the side rails (photo 7) using eight 1-1/2-in. wood screws. Bore three 1/8-in. pilot holes in each leg cleat (F). Glue and fasten the cleats to the tops of the legs using 1-1/4-in. screws.

Lay the three seat slats (A, B) top-down on the work surface, aligning the ends. Set the leg/rail assembly on the slats and bore six pilot holes in each cleat. Drive the screws through the leg cleats into the seat slats (photo 8, opposite).

Attach the two seat cleats (E) about

10 in. from either side of center. Drive two 1-1/4-in. screws through the cleats and into each of the seat slats.

To mark an 18-in.-radius curve at each end of the seat, drive a screw part-way into the center of the seat and use a thin piece of scrap wood as a trammel (photo 9). Cut the curve with a jigsaw; then sand the cuts and ease the edges.

Next, create the cutout in the seat. Mark and bore two 1/8-in. pilot holes 4 in. apart in the center of the seat top. Use a hole saw to cut two 1-1/2-in.-dia. holes. Connect the holes with straight lines (photo 10) and cut the opening with the jigsaw. Sand the cuts and ease the edges.

Once construction is complete, you can finish the benches with paint (brush-on or spray), stain or clear finish. Then choose which one you'll keep and which one you'll give away. ■

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CUSTOM SHAPE METAL

HAMMER FORMING SKILLS YOU CAN USE AT HOME



Hammer forming is one of the oldest methods of shaping metal — and one of the easiest for DIYers to employ. Often used for automotive body work, this technique has many applications for other metalworking projects. Using only basic shop tools and a little practice, you can fabricate one-of-a-kind parts for just about any project.

Virtually any type of sheet metal can be hammer formed, although the thickness and type of material will determine the amount of effort needed to form it. Simply put, steel will be harder to form than brass, aluminum or copper.

A hammer form can be made from a variety of materials; the best choice depends on the metal being formed as well as the number of times the form will be used. Wood, plywood and medium-density fiberboard (MDF) are excellent choices for single parts being formed out of aluminum and light-gauge steel. If you intend to make several parts or form heavier-gauge metals, you'll need stronger form materials, such as metal.

To learn more about this process, we visited WyoTech, an automotive-based technical college in Wyoming. Instructor Eric Griffith demonstrated some of the techniques he uses to create truly one-of-a-kind parts that look factory-made. Follow the photo sequence to see how you can fabricate an engine air cleaner; then you can apply the techniques shown to your own projects.



1 ▲ Use an 11-in.-dia. air filter as a template to create an oblong shape on a 3/4-in. piece of MDF. Squeeze the filter to the desired shape before tracing a rough outline around it.



2 ◀ A final size of 8-3/4 x 12-3/4 in. was established with this filter. Clean up the rough pencil outlines using a compass and straightedge.

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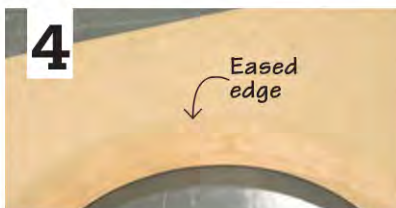
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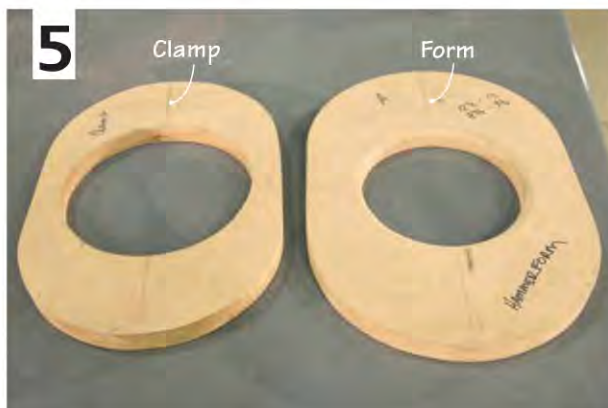


3 ▲ Use a jigsaw to cut a 5-1/8-in.-dia. hole in the MDF to accommodate the combined size of the carburetor and the thickness of the metal to be used for the air cleaner.



4 ▲ Use a router and roundover bit to ease the edges of the carburetor opening. This detail will improve airflow to the carburetor and helps to maintain strength in this critical area.

► The clamp (left) is 1/4 in. smaller on all sides than the form (right), and the clamp's center hole is 3/4 in. larger.



6 ▲ Rough-cut a piece of 14-gauge aluminum sheet 2 in. larger than the form; then cut a 4-in.-dia. hole in the center using a fly cutter mounted in a drill press.



8 ▲ To completely shape the aluminum inside the form, you'll need to make several "corking tools" out of 1-1/2-in. wood dowels.



7 ▲ Sandwich the metal between the clamp and the form, and begin the forming process by making overlapping strikes with a soft-face hammer.



9 ▲ Use the corking tools slowly and steadily to achieve a smooth result. Trying to work the metal too quickly will create a crude product.



10 ▲ Use a relatively flat corking tool and overlapping hammer strikes to shape the aluminum smoothly against the bottom of the form.



11 ▲ Before removing the sheet from the form, use a 1/2-in. transfer punch to scribe a line 1/4 in. from the outside edge of the form.



12 ▲ A throatless shear was used to trim the formed sheet to the scribed line. Tin snips or a similar tool can also be used.

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▲ After inverting the aluminum in the form, use several clamps to secure it for the hammer-forming process.



▲ Use a soft-face hammer to make repeated overlapping strikes at a 45-degree angle to define the metal edge.



▲ After removing the piece from the form, use a hammer and dolly to lightly planish (smooth) the outside edge and smooth out imperfections.



▲ The process of stretching the aluminum over the form may leave the edge a little wavy. You can quickly clean this up using a metal file.



▲ With the base of the air cleaner complete, repeat the process to form the top cover, but without the carburetor center hole.



▲ After forming the top, drill a 1/4-in. hole for the carburetor stud. (Eric recommends using a Unibit to prevent tearing the aluminum.)



▲ To give the top a little more strength and a more finished look around the stud hole, fabricate a simple "press form" using 1/4-in. steel plate and a rod.

20



▲ Use a large C-clamp to force the press form into the top cover. Don't overtighten the clamp or you could stretch the metal too far.

21



▲ Work with care and the finished product will have a professional appearance. Although this project is relatively basic, you can use the same techniques for any project, whether you're building parts for a hot rod or a custom aluminum table for your patio. ■

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MASKING TAPE ROADMAP

STICK WITH THE RIGHT TYPE FOR YOUR TASK



Whether you're wrapping a gift, preparing to paint or adhering a broken taillight to your car, you can find a tape made for the job — and the various types (cellophane, painter's, duct) are not interchangeable. The same principle applies to masking tapes: Among the rainbow of varieties available today, each has a talent for certain tasks — and inabilities in others. Here's how to find the tape destination with the right characteristics for any sticky situation.

TAPE TRAITS

When shopping for masking tape, you see a range of colors, widths and prices. These clues help to distinguish tapes' less obvious features, which are the most important considerations in choosing the best tape for your project.

Paper backing — General-use tan tapes (as well as some painter's tapes) are made with crepe, a tissue paper with wrinkles. The wrinkles give the tape its flex to help it conform to tex-

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tured surfaces. The finer-caliper painter's tapes typically are manufactured on a base of washi paper, making them ideal for creating sharp paint lines on smooth surfaces. All masking tape papers are treated with polymer or sizing to make them durable yet tearable.

Adhesive — Rubber-base adhesives give tan masking tape sticking power for applications on rough surfaces such as brick, stucco, concrete and siding or for narrow spaces such as the top edges of baseboards. Acrylic-base adhesives used on painter's tapes make some of the easy-release formulas practically powerless on rough, hard-to-stick areas but very effective on smooth, delicate surfaces such as unpainted wallboard, wallpaper or fresh paint.

Bleed preventers — To stop paint from seeping under the edges of masking tape, manufacturers such as ShurTech Brands LLC, 3M and IPG offer products (FrogTape, ScotchBlue With Edge-Lock and Bloc-it Painters Tape, respectively) made with various edge treatments. These are typically thinner-caliper tapes designed to yield sharp paint lines and are especially ef-

▼ To apply tape, first smooth it by hand; then press the edges by burnishing them with a five-in-one tool or putty knife. If you're planning to paint along just one side of the tape, burnish only that edge of the tape so it's easier to remove.



▲ Both of these rolls of FrogTape contain 60 yards of tape and have the same size core, but the Delicate Surface (yellow) roll is smaller because it is made of washi paper, a thinner-caliper backing.

fective for applying faux finishes or for creating stripe patterns with paint.

Temperature and chemical tolerances — Auto-care tapes (sold at auto-parts stores) are specially formulated to handle the extreme temperatures of bake cycles, which general masking tapes would not survive. You also need to consider the finishes that you're applying. Lacquer, for example, requires a solvent-resistant tape.

TAPE TIPS

Manufacturers offer instructions, guidelines, tricks and ideas to help in your masking endeavors. Visit their Web sites (see SOURCES ONLINE), read the packaging (including the inside of the



BASICS

core, where you'll find recommended removal periods), ask the paint retailer for guidance and follow these tips:

- Buy a tape that is recommended for the surface and the conditions where you're working. Consider surface vulnerability, and always use tape with the lowest adhesion on delicate wall surfaces.

- For textured surfaces, conformability is important; choose a tape that sticks and bends to the topography of the surface.

- The "ripples" of crepe paper allow you to more easily mask a curved edge. A tape made with washi paper does not flex laterally, but it offers better control in creating a straight line.

- To mask a tight curve, use narrow tape and shorter pieces.



▲ When you're applying paint along a masked edge, do not stroke into the tape with a loaded brush (top photo). Rather, pull the (lightly dipped) brush over the tape and toward the surface you're painting (bottom photo). This prevents bleed-through and a heavy film buildup.

- Temperatures affect adhesives. The ideal storage conditions to preserve tape are 70 degrees, 50 percent humidity and shade. If tape is cold, bring it to room temperature (or at least 50 degrees) before you apply it.

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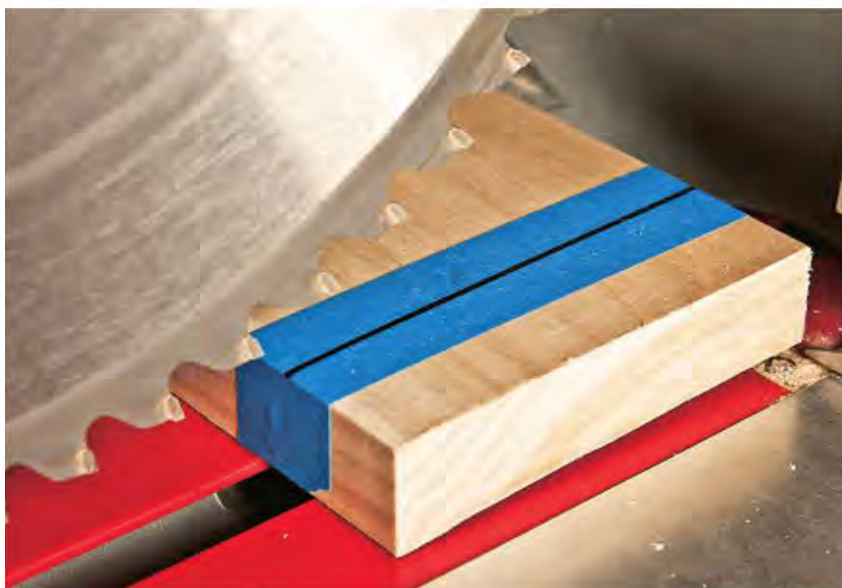
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- Even under the best circumstances, tape has a shelf life. After 12 to 18 months, the tape may lose its effectiveness and may even become difficult to unwind. Don't use an old roll you found around the house, especially if it has been stored in a garage or shed.

- To mask the narrow edges of wood trim, use a higher-adhesion tape and plan for a short working time. For a good seal, always clean surfaces before applying tape. (Do not use the tape to do your dusting.)

- Apply tape in the sequence that you'll follow as you paint. The extra tacking time allows the tape to cling better to surface contours.

- Unroll the tape in short sections as you gently lay the strip on the surface. Never stretch the tape as you work with it; when it relaxes, it can span

▲ Applying a strip of masking tape to a board (before marking your cut line) helps to protect the wood from chipping during a crosscut.

surface depressions.

- Although water-base paints dry fast, they need a month to fully cure. Before applying tape over new paint, wait at least 24 hours after painting and use a delicate-surface painter's tape; immediately (but slowly) remove the tape when you're done.

- When to remove painter's tape is

▼ Use thin-caliper painter's tape along both sides of a corner to control caulk flow. Smooth the caulk and immediately remove the tape. (A thicker tape would leave ridge lines along the edges of the bead.)



TAPE EVOLUTION

Masking tape started out as a monotone tan material, invented to help create two-tone patterns on automobiles. In 1925, 3M inventor Richard Drew applied adhesive to paper so it that would stick and release without absorbing paints and finishes. His idea worked, and for more than 60 years, masking tape was a tan and terrifically tacky coated crepe paper.

In 1988, 3M introduced a safe-release painter's tape and colored it blue to distinguish it from the super-sticky masking tapes. The tape's new acrylic-base adhesive allowed it to be left in place for up to 14 days yet still remove cleanly. This was great for DIYers and busy painters seeking flexibility in timing their work. And it was the beginning of a colorful era of specialty tapes made to accommodate various needs and conditions. Besides paint projects, masking tapes are used for labeling, bundling, wrapping, shipping, crafting and numerous other tasks. To keep up, tape manufacturers consult consumers and work with painting contractors to explore ideas and improve their backing papers and adhesives. Even evolving paint technologies and environmental expectations keep today's tape makers on their toes. — CB



a point of debate. I prefer to remove the tape while the paint is still wet. If you choose to wait until the paint dries, lightly score the edge with a utility knife before you slowly pull off the tape.

INS AND OUTS

Although most masking tapes can be used indoors and outdoors, the ideal choice of tape depends on sun exposure. Tan masking tapes adhere best to the textured surfaces often found on home exteriors, but their rubber-base adhesive has less UV stability than painter's tapes' acrylic-base adhesive. The more UV exposure, the less time you will have for clean removal.

Some professional painters find that a general-use tan tape can work in various applications as long as they tweak the timing: They'll use it in sunny conditions only if they plan to remove it within a few hours of application. If they're working outdoors in a dry, shaded area, they can leave the tape in place for a day or two. When used inside, away from sun and extreme temperatures, tape will remove cleanly after four or five days. If your project requires more than four days, stick with painter's tape and follow guidelines printed on the roll's core.

TAPE ECONOMICS

Everyone has encountered tape that sticks to itself or tears off the roll in pieces. The tape might be poor quality, or age and climate conditions may have taken their toll. You're investing time, effort and money in a painting project, so it makes sense to pay a few dollars more for a fresh roll of the proper tape. "For \$7 instead of \$4, you gain extra working time and better removability," says Jeff Malmer, masking tape specialist for 3M. "It's worth spending a few extra dollars to help achieve professional results on your painting project." ■

SOURCES ONLINE

For online information, go to HandymanClub.com and click on WEB EXTRAS.

3M (ScotchBlue and Scotch Masking Tapes), 800-494-3552, 3M.com, scotchblue.com

IPG (Pro-Mask Blue and Bloc-it Painters Tape), 800-474-8273, itape.com, bloc-it.com

ShurTech Brands LLC (FrogTape, Painter's Mate Green, Duck Tape, Shurtape), 877-376-4827, frogtape.com, thegreentape.com, duckproducts.com and shurtape.com

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INFRARED THERMOMETERS

VERSATILE TOOLS WITH MEASURABLE RESULTS

You probably don't own a noncontact infrared thermometer — it's not yet a common tool among DIYers. But once you understand this versatile instrument's potential to help save money and make your home more comfortable, you may wonder how you've managed without one.

For years professional electricians, plumbers, HVAC technicians, home inspectors and other tradesmen have used noncontact infrared thermometers to check for overheated breakers in electrical panels, air leaks around windows and doors, temperature variations in HVAC systems, energy loss

around water heaters, and any number of problems occurring behind drywall (even nesting pests). During the last few years, the price of these instruments has fallen into DIY-friendly territory. (The units shown in this article cost about \$50 to \$120.) Here's what you need to know before you buy.

HOW IT WORKS

An infrared thermometer is similar to a camera in that they're both optical systems that "see" at specific angles of view (see illustration, opposite). But whereas a camera records light energy (photons), a thermometer measures infrared (heat) radiation being emitted or reflected from a surface or object.

Many infrared thermometers use a laser to point to the area being measured, but the laser spot indicates only the center of the area. As the distance from the thermometer to the target increases, so does the area being measured. The angle of optical resolution (often expressed as a distance-to-spot-size ratio) varies with different makes and models,

◀ **The Fluke 62 Max+ uses two lasers to indicate the outside edges of the circular measured area. It also has a curved display, which makes it easy to see when viewed from an angle. The unit is sealed against moisture and dust. Below, two of the thermometers are being saturated with fine dust before being drenched in a shower to test the seals.**



which means that when you're operating the thermometer from the same distance, the measured area can be larger or smaller depending on the measuring angle of the unit.

Describing how an infrared thermometer works would require a lot of technical explanation. You may hear terms such as *black-body radiation* and *emissivity*, which deal with the thermal characteristics of objects, associated with these instruments. However, it's not vital to understand these concepts to use a thermometer; what's more important is to understand how they affect the tool's operation and to recognize that all objects radiate heat.

For example, a matte-black object emits more heat than a light-colored reflective object. That means you may get different readings even if both objects are the same temperature. But for most purposes, the relative temperature is more important than absolute accuracy. If you're trying to detect a leak around a door, knowing that the leaky area is cooler or warmer than the surrounding surfaces is what matters.

CHOOSING AND USING A THERMOMETER

Manufacturers of infrared thermometers incorporate features designed to

▼ Infrared thermometers see specific angles and should be used at an appropriate distance for the measurement they're taking.



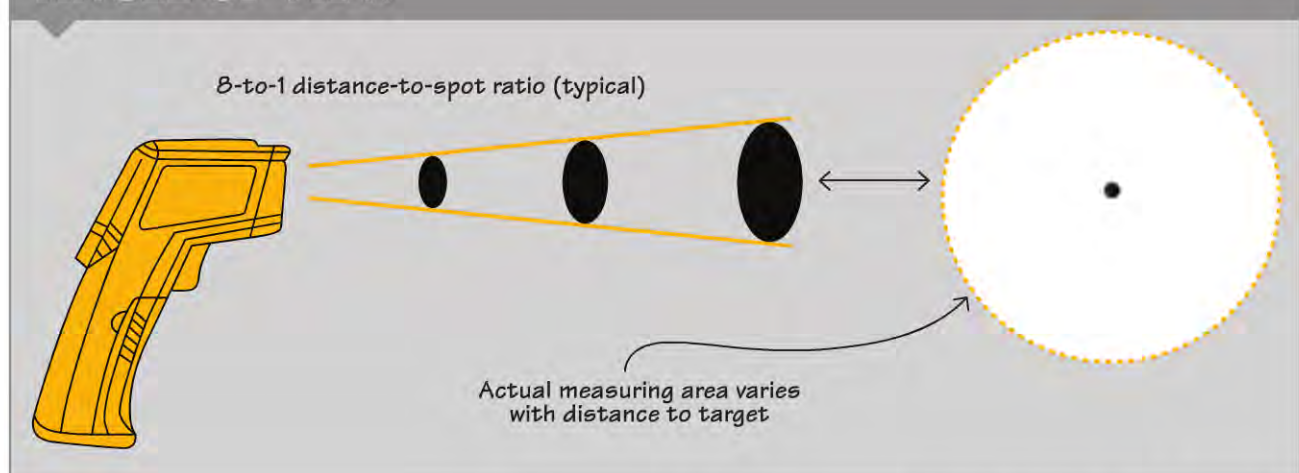
set their models apart and make them more functional and easier to use, such as colored lights to indicate high and low temperature ranges, audible alarms, lasers that show the actual target size, and adjustments for emissivity and temperature set points. Units will also differ in how they're set up, the readability of the display, the high/low temperature range, their functions, their ruggedness and the batteries they use. It's a good idea to compare models before you buy to ensure the one you get has the features most useful for your needs.

The basic operation of most pistol-grip-style units is very similar. Stand at a distance so the target area is ap-

▲ Porter-Cable's 9-volt thermometer projects a light circle to show the measured area. The light changes color to indicate cool (blue) and warm (red) temperatures that fall outside of the set reference temperature (indicated by green, shown).

propriate for the measurement you're taking; then squeeze the trigger to get a reading on the display. (The correct distance might be a few inches from an electrical circuit or a few feet from an HVAC duct.) If you hold the trigger and scan slowly across a doorframe that leaks air, the reading on the display will change so you can pinpoint

ANGLE OF VIEW



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▲ The General Tools IRTC50 thermometer projects a starburst pattern to show the target area, and a panel on the top of the instrument changes color (left) to indicate when the temperature falls or rises above the set range.

the leak. If you want to take a reading off of a clear or reflective surface, such as a window, you can apply black electrical tape to use as a target to get a reading and for enhanced accuracy.

OTHER CONSIDERATIONS

Some thermometers may not give repeatable readings off of the same object at the same time, even if the object's temperature has remained constant. That's important if you're looking for a unit that provides accuracy beyond relative temperature variations, such as checking the acceptable operating temperature range of a motor.

Check the measureable high/low temperature range to be sure the ther-



▲ The Ryobi TEK 4 thermometer uses a single laser spot to target the reading area (in this case, an air duct). The unit is also designed to be moisture- and impact-resistant.

meter will meet your needs. If you plan to work in wet, dirty or humid conditions, you'll want a unit that's built to withstand such abuse.

The list of uses for infrared thermometers is extensive (checking for problems in and the temperature of water pipes, dimmer switches, leaky roofs, fan motors and radiant floors) and is only limited by your imagination. Though all of the models available today are good at what they do, be sure to compare features and capabilities to make the most of your purchase. ■

SOURCES ONLINE

For online information, go to HandymanClub.com and click on WEB EXTRAS.

Amprobe, amprobe.com

DeWalt, dewalt.com

Extech, extech.com

Fluke, fluke.com

General Tools, generaltools.com

Porter-Cable, portercable.com

Ridgid, ridgid.com

Ryobi, ryobitools.com

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TABLE SAW FENCE CHECK

Frustrated by inconsistent results with his table saw, Club member **James Coulter** of Kerrville, Texas, created this tool to check the alignment of his table saw fence. He cut a scrap piece of oak to fit inside the slots on the table saw surface; then he drilled holes in the oak piece to fit a 1/2-in. dowel and an eye screw to secure the dowel in place. When the fence is set for a desired cut, James uses the jig to check the infeed and outfeed ends of the fence and makes slight adjustments where necessary to ensure that the fence and blade are precisely parallel before making the cut.

WING NUT WRENCH

To make loosening and tightening wing nuts on workshop tools and jigs easier, Club member **James Perrone** of Columbia, South Carolina, created a wing nut wrench. He initially used a file handle for the body, but he has since turned a handle on his lathe so that it would better fit his hand.

James drilled a 5/16-in.-dia. hole about 1 in. into the end of the handle lengthwise so that it would fit over a 1/4-in.-dia. bolt. Then he cut a 1/8-in.-wide slot 1/2 in. deep across the end of the handle so it would fit over the wings and hub of a wing nut. To use the wrench, he slips it over a wing nut and aligns the wings of the nut in the slot; then he tightens or loosens the nut by twisting the handle.

SPRINKLER-VALVE ILLUMINATION

Tired of fumbling around inside the dark hole that houses the on/off valve for his sprinkler system, Club member **Dennis Henry** of Pueblo, Colorado, devised this solution. He purchased a small LED flashlight and attached its lanyard to a long string. The light can be lowered into the hole, illuminating the valve and making it much easier and quicker for Dennis to attach the key and turn the sprinkler system on and off.



POP-CAN TAB PICTURE HANGER

Club member **Larry VanMaastricht** of Waupaca, Wisconsin, wanted to hang a picture one afternoon, but when he went into his shop to retrieve the tools and supplies needed for the task, he realized that he was out of picture-hanging hardware. Unable to run to the local hardware store at that moment, Larry decided to relax and have a soda instead. Then inspiration struck: He noticed that the soda-can tab would make a perfect picture-hanging hook. He removed the tab and drove a screw through one of its openings and into the picture frame, leaving the other opening available to hook onto the fastener in the wall. ■



SCOTT JACOBSON

SUBMIT YOUR TIP

The member who submits the best tip wins \$200. Other published tips are awarded \$50. Submit your tips by e-mail to:

tiptrader@HandymanClub.com

or mail them to:

**Tip Trader c/o Jenny Stanley
HANDY, 12301 Whitewater Drive
Minnetonka, MN 55343**

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3



4

1 DESIGNER-STYLE DECK

"When my wife and I got tired of trying to entertain on our 8 x 8-ft. concrete pad, we decided to build a deck ourselves," says Club member **Neil Thomas** of Newark, New York. The couple sketched several designs until

they settled on a size and style that they loved. One of the biggest challenges of the project was routing all of the deck boards to allow for hidden fasteners. The finished deck is 30 x 14 ft., with composite planters, a bench and two decorative deck-board murals.

2 STORAGE BENCH

Club member **Jacob Smith** of Bear Creek, Wisconsin, built this mudroom storage bench after his wife spotted a similar piece of furniture at a local retailer. But Jacob incorporated personal touches and made some

VOTE NOW

upgrades, such as using rough-sawn black walnut and cherry hardwood. He constructed the interior of the storage box out of black melamine for durability and easy cleaning, and he attached decorative brackets, coat hooks and glass panels for a finishing touch. The result is a one-of-a-kind bench that also corrals unsightly mudroom clutter.

3 PERSONAL PARKING RAMP
Club member **Russ Lord** of Bonita Springs, Florida, created this rolling storage platform for his motorcycle using little more than 2x4s, 1x6 deck boards, 3-in. swivel casters and plenty of ingenuity. "The inspiration came as I realized I had minimal space in the garage to store two cars and a motorcycle," Russ says. After finding similar products online, he decided to design a version that better suited his needs. "I used the dimensions of my 2004 Harley-Davidson Sportster to define the length and width of the platform and to locate the swivel wheels," he says. Now Russ' bike can be easily loaded onto the cart and toted around the garage to make room for other vehicles.

4 HAND-CARVED PLAQUE
Proud Club member and talented woodworker **Charles Shinn** of Levering, Michigan, carved this plaque by hand for **HANDY** Editor in Chief Larry Okrend. The distinctive hammer logo displayed in the carving has been a symbol of the Handyman Club of America and its hardworking members for many years. Charles gave the piece a splash of color with a little brown and vibrant red and blue stains. He also drilled a hole at the bottom on the back of the plaque and provided a dowel that can be used to stand the piece upright for display. ■

VOTE ONLINE FOR YOUR FAVORITE PROJECT

Vote online for one of these projects to receive the Critics' Choice Award. Go to HandymanClub.com and click on WEB EXTRAS.

1. DESIGNER-STYLE DECK
2. STORAGE BENCH
3. PERSONAL PARKING RAMP
4. HAND-CARVED PLAQUE

Voting will end September 30, 2012.

The winner will be announced in the December 2012/January 2013 issue.

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We regret that we cannot acknowledge or return submissions.



CRITICS' CHOICE AWARD

WINNER: Karen Fiske of Blaine, MN

PROJECT: "Mosaic Fire Pit,"

April/May 2012

PRIZE: Karen will receive an official certificate and a 12V Hyper-Lithium Drill/LED Light Kit (R92008) from Ridgid. Congratulations, Karen!



GOODWORKS

HANDY APPLAUDS THOSE WHO EXTEND A HELPING HAND



HANDCRAFTED CHURCH CABINET

Asked by officials at his church to participate in a narthex-improvement project, Club member **Walter Luihn** of Oakdale, California, accepted the challenge and set out to replace an old shelf with this decorative cabinet. Walter's instructions were to build the piece 1 ft. deep x 3 ft. high x 5 ft. long, with drop leaves that extend the top surface to 8 ft. and casters. Other than that, he was given freedom to design the cabinet as he pleased. Walter incorporated panels with inlays on the cabinet doors and added decorative posts as eye-catching details. ■

▲ Helping to spruce up his church, Club member Walter Luihn crafted this decorative storage cabinet on wheels.

DIY DILEMMAS SOLVED

TOY BOX STORY

Q} I am trying to find out how to seal a cedar chest for my daughter to use as a toy box. Where can I find information on this topic?

Douglas Brinker
Fenton, MO

A} A cedar chest can be a great toy box, and you are wise to consider sealing the interior. Although cedar's natural fragrance and insect-repelling properties are desirable for storing keepsakes and linens, in this case you have two good reasons to apply a finish: to create a washable surface and to help protect little people who may have allergies or sensitivities to cedar.

The Western Red Cedar Lumber Association (wrcla.org) offers many options for finishing interior cedar projects. Be-



cause low-solvent coatings are a preferred choice for children's furniture, we recommend water-base acrylic polyurethane to seal the unfinished interior surfaces. Any sheen (flat, satin or gloss) will enhance cedar's natural beauty; a higher gloss will provide a harder finish.

Apply two to three coats, following the manufacturer's instructions.

One additional suggestion: To prevent the trunk's lid from closing on small hands or heads, be sure the trunk is equipped with spring-loaded lid supports (such as Soft-Down Lid Supports from Rockler Woodworking and Hardware, item No. 69732, rockler.com; see photo).

ERRATIC WATER HEATER

Q} Our natural-gas water heater can't keep up with our limited demands. Only two adults live in the house, so usage is never very heavy, and we try to conserve water. But in the mornings when I shower after my wife, I must turn the shower control to the hot side to get any hot water. However, there's no problem if we shower in the afternoon or evening. To add to the confusion, the water temperature is sometimes just fine in the morning. I've drained the tank, inspected the dip tube and even had the utility company check out the unit. Any suggestions?

Ryan Martin
Duluth, MN

A} You're probably experiencing standby heat loss — the dissipation of heat in the water that's in the tank when there's no call for hot water. Standby heat loss is very slow and typically goes unnoticed until hot-water usage stops for a length of time. The temperature of the water in the tank of a heater set at the hot position (120 degrees F) could drop as low as 95 degrees before the thermostat would fire. (The thermostat on standard residential gas water heaters has a plus or minus factor of 10 degrees when shutting off and a differential of 15 degrees to 25 degrees when turning back on.) Scale buildup and/or debris on the bottom of the tank may slow response

time even more.

To combat the problem, flush the water heater at least once a year, advises Chip D. Dalby, technical specialist for A.O. Smith Water Products. Also, try running a gallon or two of hot water to activate the heater first thing in the morning or at least 15 to 20 minutes before the first shower.

This should significantly improve your shower temperature. Chances are that on the occasions when the water temperature was fine, the water had cooled to the firing temperature through standby loss or you had run some hot water before showering. High-efficiency water heaters (such as A.O. Smith's Effex model, above) maintain a more consistent tank temperature. ■



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**MEMBER
TESTED AND
RECOMMENDED**

Replacement bay window

MEMBER RATING: 10.0

BEST FEATURE: EASE OF INSTALLATION

Simonton Windows Inc., 800-746-6686, simonton.com

The Simonton Impressions Bay Window (starting at \$2,000) features a combination of 30- or 45-degree angles, with a fixed center window and two flanking windows that can be either fixed or operable casement or single-hung units. A special cable support system eliminates the need for two different cable lengths and the use of knee braces or corbels to support the bay during installation. The windows feature Low-E glass and a host of available styles and options, including ultra-efficient glass packages.

Wes Beack, Little Falls, MN: "The bay window came exactly as ordered, so I didn't have to adjust the rough opening at all. The window looks beautiful and makes the room look much bigger and brighter."

Mark Bahe, Sumner, IA: "The cable support system and clamps work very well and made it very easy to install. You just lag the brackets to the wall above the window, slide the cable through and tighten it up."

**Oscillating tool**

MEMBER RATING: 9.3

BEST FEATURE: POWER

Dremel, 800-437-3635, dremel.com

The Dremel Multi-Max MM40 (\$139.99) is a multifunctional oscillating tool with a 2.5-amp motor and an innovative Quick Lock accessory-change system. The tool includes a soft-start feature that minimizes abrupt starts, and it can cut, sand, scrape, grind and remove grout with a variable-speed range of 10,000 to 21,000 OPM. Other features include electronic feedback that ensures users can power through the toughest jobs, strategic vent locations, an improved fan design, new cutting accessories with expanded cutting width and depth and an extra-long 7-ft. rubber cord.

Ray Brown, Clyde, TX: "The Multi-Max MM40 is very comfortable to hold, has less vibration than other oscillating tools I've used and has plenty of power to handle heavy jobs."

James Hebert, Orland, CA: "I really like the weight, versatility and long cord. The quick-change system is slick, and the kit comes with a lot of blades and sandpaper."

PHOTOS COURTESY MANUFACTURERS

HCOA RECOMMENDED

Products earn additional seals when they receive favorable ratings from Club members who are trades contractors, automotive mechanics or avid woodworkers. These products are identified with Contractor Tested, Mechanic Tested and Woodworker Tested icons.

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Re-keyable deadbolt

MEMBER RATING: 9.5 **BEST FEATURE: PERFORMANCE**
Kwikset Corp., 800-327-5625, kwikset.com

The Kwikset Signature Series 980 Deadbolt (\$34.25) is a BHMA/ANSI Grade 1-certified lock that features a fully adjustable latch and Kwikset's SmartKey technology, which allows you to re-key the lock in seconds without having to call a locksmith. The SmartKey cylinders feature patented BumpGuard technology, a stainless steel side-locking bar and racks and pins that improve security. The deadbolt is available in six finishes and comes with a lifetime mechanical warranty.

Frederick Lee, Annapolis, MD: "I installed the Kwikset 980 deadbolt and reset the keys in less than 10 minutes. The high-quality mechanism has a smooth feel and is an improvement over my previous deadbolt."

Stephen Stewart, Lyons, CO: "The strike plate is made of heavier metal compared with most locks and uses four screws rather than the typical two. Two of the screws are 3 in. long to prevent the door from being kicked in."



Dual-flush converter

MEMBER RATING: 8.3 **BEST FEATURE: PERFORMANCE**
MJSI Inc., 888-466-5741, gomjsi.com

Designed to reduce toilet water usage by at least 30 percent, the HydroRight Dual Flush Converter (\$19.95) works on all standard flush valves, installs without tools in about 10 minutes and eliminates three common causes of problems in toilets: the flapper, chain and handle. The unit lets users choose between a water-saving quick-flush option and a full-flush option that uses the normal amount of water. Other features include an interchangeable handle and button.

Ronald Speights, Hudson, NC: "I like that it reduces water use. It made a positive seal with the base, which stops the slow leaks that flappers develop over time."

Tom Iavello, Simi Valley, CA: "The water savings is significant, which translates into money savings. The choice between a handle and a button is great."

Work pants

MEMBER RATING: 9.3

BEST FEATURE: QUALITY

Duluth Trading Co., 800-505-8888,
duluthtrading.com/LPS



Duluth Trading's new Flex Fire Hose Work Pants (\$69.50) take comfort to a new level by incorporating 3 percent spandex, which provides flexibility as you work. The pants are made from 8-ounce fire-hose cotton canvas that is prewashed for a broken-in feel. Other features include abrasion-, water- and stain-resistance, triple-stitched seams, a hidden crotch gusset for extra ease,

midleg utility pockets and back pockets with tuckable flaps.

Andrew Walker, Mooresville, IN: "These pants have plenty of pockets for ease in carrying tools, gloves, nuts, bolts, etc. The flex material makes kneeling and squatting easy; the pants are certainly made of high-quality material."

Tom Bermingham, Sumner, WA: "The pants are comfortable, and the pockets are like having a portable suitcase. They are lightweight and durable, and the size is spot-on."



LED night-lights

MEMBER RATING: 8.4

BEST FEATURE: PERFORMANCE

Wireless Environment LLC,
877-298-9082, mrbeams.com

Stick Anywhere LED Night Lights (\$39.99 for a pack of three) attach to any surface and can be used to illuminate hallways, bathrooms, bedrooms, cabinets, pantries and more. A motion sensor turns on the light, which emits 10 lumens and will run for 30 seconds after the last motion has been detected. The photocell will only activate the LED during darkness; it's weatherproof and includes a mounting bracket, tape and screws for simple and easy installation.

Paul Griffin, Point Roberts, WA: "The Stick Anywhere LED Night Lights cost a fraction of installing power to small outdoor buildings or crawl spaces. You can put them wherever you want, and the motion detection is really slick."

Ron Johnson, Birmingham, AL: "These lights give me the right amount of light where I need it, so I don't have to turn on lights in the bedroom or hallway."



Right-angle attachment

MEMBER RATING: 8.2

BEST FEATURE: CONVENIENCE

Milescraft Inc., (847) 683-9200,
milescraft.com

Intended for driving screws or drilling holes, the compact and ready-to-use Drive90 (\$19.99) is a durable right-angle attachment that fits any drill. The gears are housed in a die-cast zinc body for high performance, and the compact head allows you to work in confined spaces. Other features include 100 in.-lbs. of torque at 400 RPM, three ball-bearing sets for long-lasting and smooth operation, and a magnetic 1/4-in. hex socket and shaft, a No. 2 straight bit, a No. 2 Phillips bit, a No. 2 square-head bit and a 1/8-in. StubbyBit.

John Hubbard Jr., Opelousas, LA: "The Drive90 is well-balanced, comfortable to hold and easy to use in tight spaces. It also provided plenty of power with no grinding or slowing down."

Anthony Thomas, Crown Point, IN: "It easily fit into the chuck of my drill, and the magnet helped hold the screws in place. I used it for under-the-counter work and it saved me from buying an angle drill."

Scraper and sharpener kit

MEMBER RATING: 8.0 BEST FEATURE: SCRAPING POWER

JigSharp, (502) 526-5865, jigsharp.com

The HandScape JigSharp Scraper & Sharpener Kit (\$32.95) is a scraper, shaver and planer that includes a sharpening jig to keep the 3/4-, 1-1/2- and 2-1/4-in. blades honed. The saddle portion of the handle fits the heel of your palm, allowing you to press down and then pull — an ergonomic design that provides a comfortable way to scrape and shape wood, remove paint and scrape sticky doors and drawers, furniture, glued joints and wood floor corners.



Fred Grams, St. Louis, MO: "I used the scraper to remove the old finish from a cabinet. The ability to apply downward pressure and pull the blade across the work surface made the entire process quicker and less tiring."

Chris Messier, Crestview, FL: "It scrapes hardwoods and contours nicely, and it's a breeze to sharpen the interchangeable blades." ■

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QUIZ

Can you find the following photos in this issue of *HANDY*?



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Dennis Mellor, Lafayette, Indiana

Check out this issue's GREAT GIVEAWAY on p. 61.

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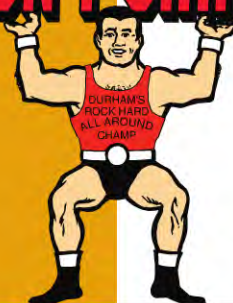
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Rec'd 5/2/12

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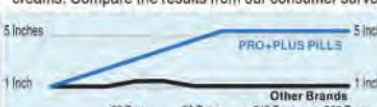
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Out of Control

Waging war on insects through trial and many, many errors

Since insects predate humans, man has never known a world where he had nothing to swat. Throughout history, flies, fleas, lice, bedbugs and mosquitoes have plagued people and spread disease while locusts and beetles devoured food supplies. It's no wonder ancient humans considered insects a form of divine punishment. But that didn't stop people from fighting back.

Observation has always been the key weapon in man's war against bugs. Studying insects has enabled people to outwit their tiny tormentors (sometimes). Anthropologists in South Africa recently reported finding 77,000-year-old bedding made of plants that repelled mosquitoes and other insects. And some reports say that as long as 3,000 years ago Chinese farmers put nests of predatory ants in citrus trees to keep away caterpillars and beetles (a technique that would later be adopted throughout the world to battle many insect species).



Through the centuries, farmers tried natural repellents (sulfur vapors, wood ashes, tobacco washes), lures (cow dung smeared on fence posts, sugar water, beer, etc.), importing predators such as birds and other insects, and anything else they could think of to protect their crops and homes. Unfortunately, it was often human practices that allowed insects to multiply. In *American Pests: The Losing War on Insects From Colonial Times to DDT*, author James E. McWilliams paints a depressing portrait of how American colonists' clear-cutting of forests, removal of prairie grasses and planting of huge crops disrupted the New World's ecological balance and caused insect populations to explode, leading to devastating infestations of potato beetles, chinch bugs (one of the most destructive insects) and locusts. (The infamous 1875 swarms were estimated to contain more than 3 trillion locusts, which ate even the blankets that settlers spread over their crops for protection.)

Many of the efforts to fight insects would prove destructive as well. In the late 1800s, arsenic- and lead-containing insecticides were widely used on crops (required by law in some states) for years before people finally accepted that they were toxic — and ineffective. And after the 1897 discovery that mosquitoes spread malaria, people sprayed kerosene and crude oil on bodies of water, hoping to eliminate the health menace.

World Wars I and II drove insecticide development, as soldiers, food, crops and wood (used to make ships, oars, tool handles and airplane wings) had to be protected. Scientists worked to develop new formulas, but the creation of the most potent insecticide was somewhat inadvertent: While trying to make a moth-proofing treatment for wool in 1939, Swiss chemist Paul Hermann Müller concocted a powder that killed most insects. In 1948 he was awarded the Nobel Prize for creating DDT.

Considered a miracle insecticide, DDT saved millions of lives from malaria and typhus. It became so popular after ending a 1943 typhus outbreak in Naples, Italy, that people reportedly threw it (instead of rice) at Italian weddings. But the honeymoon was short: In the 1950s, scientists discovered that DDT killed birds and became more concentrated in the body with each step up the food chain. Meanwhile, insects were developing resistance to it.

In 1972, commercial use of DDT was banned in the United States. Though it



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▲ Whether considered a godsend or at worst a necessary evil, insecticides were fearlessly applied to crops, buildings and people during World War II and the early 1950s.

is now more difficult to gain approval for new insecticides, scientists continue to use their observational skills and ingenuity to battle bugs. In 2009 researchers found that the brain chemical serotonin caused desert locusts to transform from timid green grasshoppers into the dark, voracious insects known for swarming and devouring crops. The hope is that a serotonin-blocking chemical will be able to prevent this transformation. And more recently, researchers at the University of Florida discovered that flies are attracted to the color blue and repelled by yellow (often used for fly traps), insight that helped them create a blue device that lures and poisons the potentially disease-carrying critters. It's no miracle powder, but it's progress. ■



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