

HANDY

HANDYMAN CLUB OF AMERICA MAGAZINE

MADE NEW FROM OLD

CUSTOM-BLEND
COFFEE TABLE

CHAIN SAW
HOW-TO

LAST-MINUTE
GIFT GUIDE

HISTORY OF
THE SALT LAKE
TRESTLE

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+ WORKSHOP WORKHORSES

SAWHORSES THAT PULL
THEIR OWN WEIGHT

NEW LIFE FOR SEASONED WOOD

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NOVEMBER 2012

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PHOTOS BY DAN CARY; ILLUSTRATIONS BY GABRIEL GRAPHICS

Boasting that you built the best sawhorse is like claiming that your mom makes the best chocolate chip cookies — you're bound to hear some differing opinions. Even so, we're claiming bragging rights for a few blue-ribbon contenders.

In an attempt to create the best sawhorse *ever*, frequent contributor Vern Grassel, *HANDY* Editor in Chief Larry Okrend and I combined our 70-plus years of workshop experience in a brainstorming session. We've seen a lot of good and bad designs, but we couldn't agree on a universal sawhorse that works best for all applications. So rather than offer one that's OK for most everything, we developed a couple of designs that excel at different applications. In the process, we also designed a sawhorse-inspired tool tote that you'll find on our Web site as a special featured project (see "Tool-Toting Sawhorse," p. 7).

One of these styles will suit just about any application. It's up to you to decide which one best serves your needs. None of them require much lumber to build — you probably have the necessary materials in your scrap bin. If you're like us, you'll want at least one pair of each.

FOLDING SAWHORSES

The first design is based on the folding sawhorses that Vern has used in photo and film studios for years. They're lightweight, sturdy and only 2 in. thick when collapsed, so you can stack and hang several sets on the wall without taking up much space. Though you can buy manufactured plastic folding sawhorses at home centers, we prefer the strength, stability and appearance of our wood pair. They're so attractive you could even use a set as legs for a table or desk.

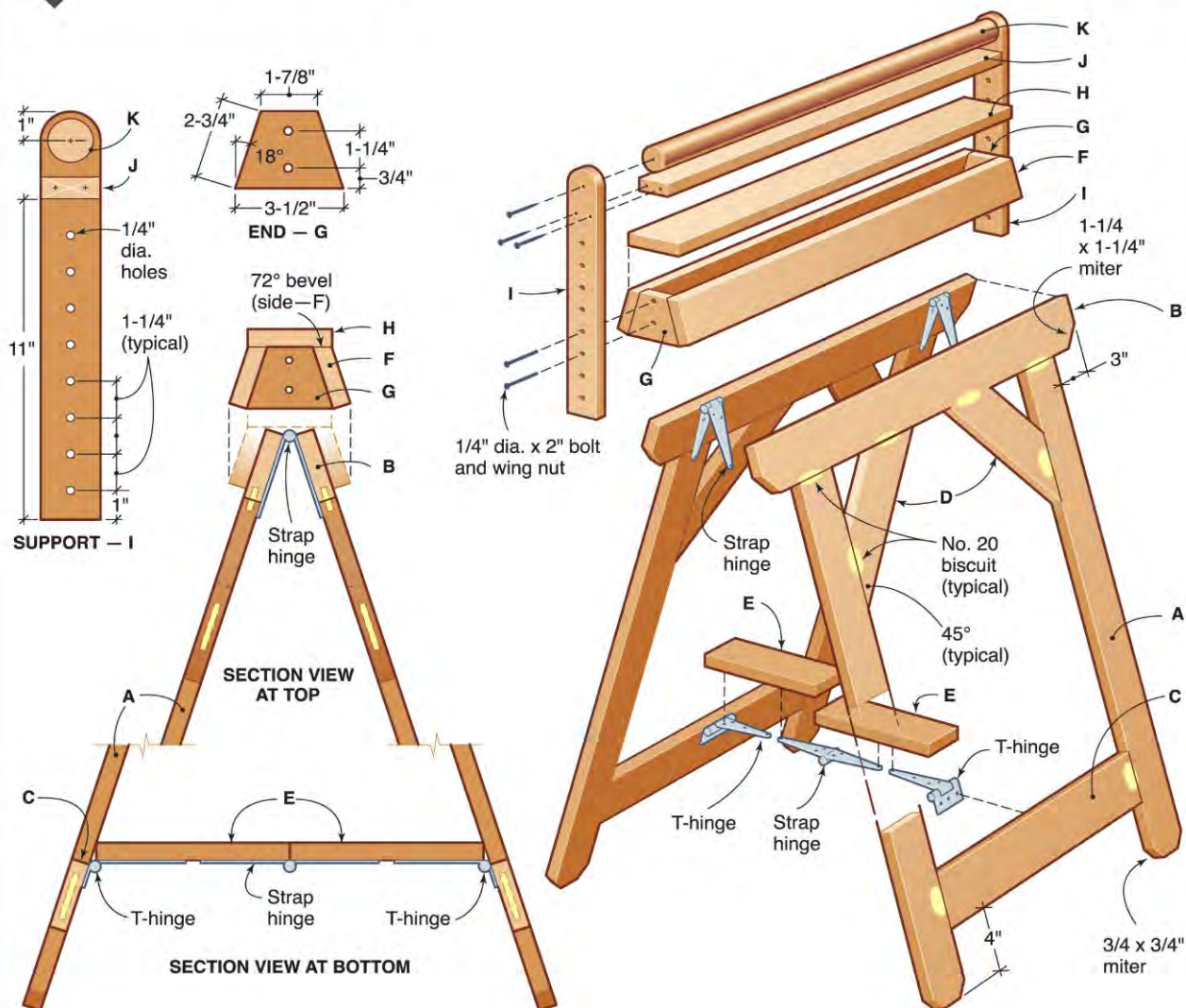
We used 1x lumber, but you could cut each side frame out of a single piece of plywood. (Using plywood eliminates the need for joinery, but the frames will be a little more susceptible to damage than if they were made of solid wood.) Instead of common construction-grade 1x pine, we chose 1x birch stock to upgrade the sawhorses' strength and appearance.

The first step in construction is to cut the parts to length. Miter-cut the ends of the brackets to 45 degrees. Lay out the parts for each side frame and mark the biscuit locations. Cut the biscuit slots with a plate joiner (photo 1, p. 7). If you don't have a plate joiner you could assemble the frames with dowels, loose tenons or pocket screws.

Next, trim the bottom corners of the top rail and legs with a miter saw. Then apply glue to the biscuit slots, insert the biscuits and clamp the frame parts together (photo 2).

After the glue has cured, sand the joints smooth and apply finish to all of the parts. (We applied three coats of wipe-on polyurethane.) After the last coat of finish has cured, connect the side frames with 7-in. strap hinges and attach the hinge arms with 3-in. T-strap hinges.

FOLDING SAWHORSE



CUTTING LIST

Folding sawhorses (1 pair)

KEY	NO.	DESCRIPTION	SIZE
▶ A	8	Legs	3/4 x 3 x 29-1/2 in.
▶ B	4	Top rails	3/4 x 3 x 32 in.
▶ C	4	Bottom rails	3/4 x 3 x 20 in.
▶ D	8	Brackets	3/4 x 3 x 11-3/8 in.
▶ E	4	Hinge arms	3/4 x 3 x 8 in.

Removable top and outfeed roller

▶ F	4	Sides	3/4 x 2-3/4 x 33-3/4 in.
▶ G	4	Ends	3/4 x 2-1/2 x 3-1/2 in.
▶ H	2	Tops	3/4 x 3-1/2 x 33-3/4 in.
▶ I	2	Roller supports	3/4 x 2 x 14 in.
▶ J	1	Roller cross-brace	3/4 x 2 x 33-3/4 in.
▶ K	2	Roller dowels	3/4-in. dia. x 32-3/4 in.

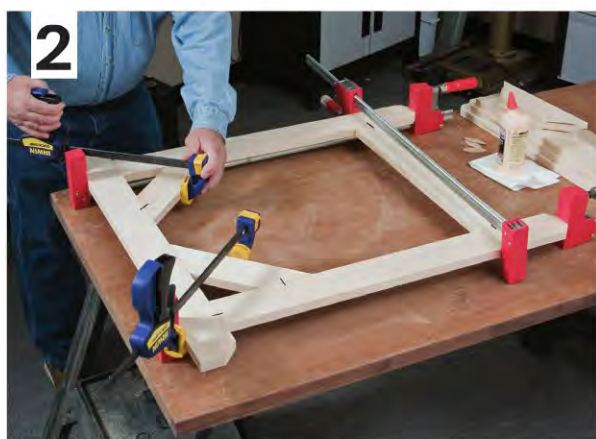
SHOPPING LIST

- ▶ 1x4 x 8-ft. boards (7)
- ▶ 3-in. T-hinges (2 pairs)
- ▶ 7-in. strap hinges (3 pairs)
- ▶ No. 20 biscuits

FOLDING SAWHORSE



▲ Mark the biscuit location across each joint and cut biscuit slots using a plate joiner.



▲ Apply glue to each biscuit slot. Insert No. 20 biscuits and clamp the frame.

The sawhorses swing open easily, and the hinge arms lock to keep them from collapsing. When it's time to hang them up, lift each sawhorse and tap the bottom of the hinge arms with your foot to fold the legs closed.

You can build several accessories that make your sawhorses even more versatile. A tabletop or work surface is probably the most useful. A piece of plywood or a hollow-core door work well for this purpose. You can enhance stability and keep the tabletop from sliding by attaching four strips of 3/4-in. stock to the bottom of the work surface, spacing the strips so that the top of the sawhorses fits snugly between them.

Another useful accessory is a removable top board that can be modified to serve several purposes. To avoid damaging your sawhorses during cutting applications, attach a piece of scrap stock to act as sacrificial top board. To protect finished workpieces from scratches, cover the removable top board with a carpet scrap. Or turn your sawhorse into an outfeed support by making an outfeed roller that attaches to the removable top board (photo 3).



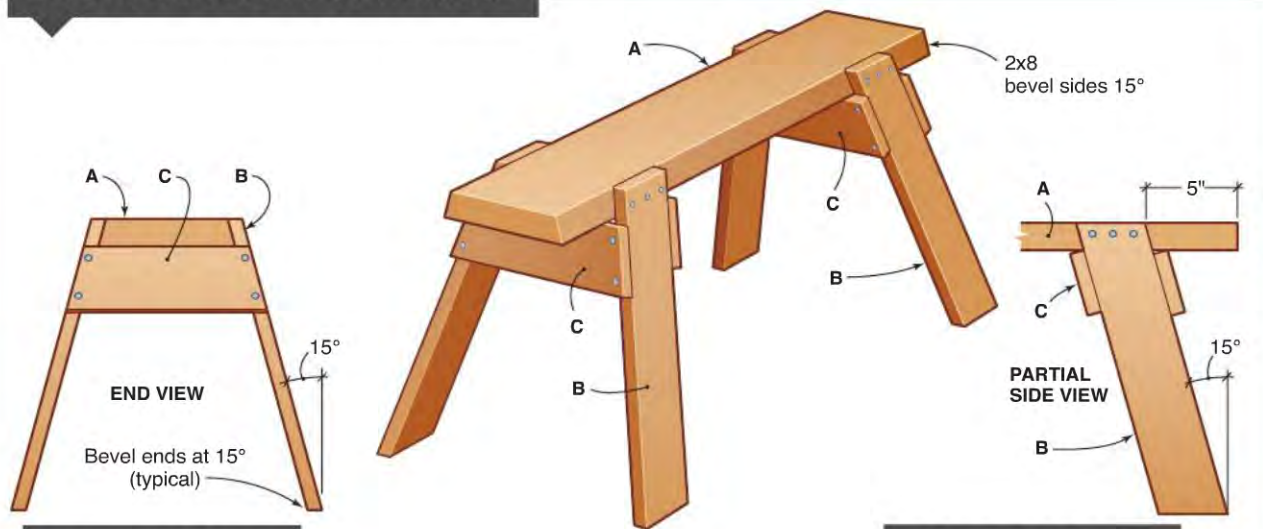
▲ The outfeed roller accessory is secured to the removable top with 1/4-in.-dia. bolts that fit through holes in the top and roller support. Drill a line of holes in the roller supports first and then use those holes as a guide to drill the corresponding holes in the sides of the removable top.

TOOL-TOTING SAWHORSE

This isn't really a sawhorse — think of it as a toolbox in disguise. It's just the right height to use as a stepstool or seat, and it acts as a tote for small tools and materials. You'll find a complete set of construction drawings and the cutting and shopping lists at HandymanClub.com. — DC



SHORT STACKING SAWHORSE



CUTTING LIST

16-in.-tall stacking sawhorses (1 pair)

KEY	NO.	DESCRIPTION	SIZE
▶ A	2	Tops	1-1/2 x 7-1/4 x 36 in.
▶ B	8	Legs	3/4 x 3-1/2 x 18-1/4 in.
▶ C	8	Gussets	3/4 x 3-1/2 x 10-1/4 in.

SHOPPING LIST

- ▶ 1x4 x 8-ft. boards (3)
- ▶ 2x8 x 8-ft. board (1)
- ▶ 2-in. deck screws

TALL STACKER

You can easily build larger versions of our stacking sawhorse design. No matter what size you choose, follow the same procedures. We substituted a 2x6 for the top of this 30-in.-tall model. We also added a bottom tray to hold materials. The four lower gussets that support the tray make this sawhorse incredibly stable; the only downside is that you won't be able to stack the sawhorses. Visit HandymanClub.com for a complete set of construction drawings and the cutting list for this 30-in.-tall version. — DC



For more information visit
HandymanClub.com

STACKING SAWHORSE



▲ Tilt your table saw blade to 15 degrees and rip bevels along the long edges of the top boards.



▲ Set your miter saw to cut a 15-degree miter and bevel. Cut the ends of the legs at this compound miter angle.



▲ Attach the legs to the top board with 2-in. screws and then attach the gussets to the legs with 2-in. screws.

STACKING SAWHORSES

The second sawhorse design is strong and stable because the legs have a compound inward tilt. Variations of this design are sometimes called 15-degree sawhorses because all of the bevels and miters are cut to 15 degrees.

You can modify the leg length to create any size you like, but our favorites are the 16-in. “shorties.” They’re just the right height for supporting furniture projects that would be too high to set on your workbench. They also serve well as stepstools or low scaffolding supports. You can even use one as a seat when working on projects (or taking a break). We’ve included the construction drawings and cutting lists for the shorties in this issue; plans for a 30-in.-tall version appear on our Web site (see “Tall Stacker,” opposite, for a preview).

You only need one 8-ft.-long 2x8 and three 8-ft.-long 1x4s to build a pair of these sawhorses. We used a table saw, miter saw and drill driver, but you could get by with a jigsaw or circular saw and a straightedge to make the cuts.

First tilt the table saw blade to 15 degrees and rip the edges from the top boards (photo 1, opposite). Next, set the miter saw to 15 degrees and cut both ends of each gusset. Then, leaving the miter saw set to 15 degrees, tilt the bevel angle to 15 degrees and cut compound miters at each end of the legs (photo 2).

You can also cut compound miters with a table saw or circular saw. When using a table saw, tilt the blade to 15 degrees and push the leg through the cut with a sliding miter gauge that is set to 15 degrees. When using a circular saw, tilt the blade to 15 degrees and cut across the legs at a 15-degree angle.

Attach the legs to the top board with 2-in. screws. Then, while pressing the gussets against the bottom of the top board, attach the gussets to the edges of the legs with 2-in. screws (photo 3).

Whichever style you choose, building these shop aids is fast, easy and fun. Best of all, this is one project that’s bound to make many of your future endeavors easier. ■

GEAR FOR GETTIN' IT DONE

THE LATEST PRODUCTS FOR YOUR DIY PROJECTS



▲ RYOBI 18V LITHIUM-ION DRILL KIT

This new drill kit from Ryobi includes an improved Li-Ion battery that holds a charge four times longer, is 45 percent lighter in weight and provides 20 percent more run time than standard NiCd batteries — all for the same price. The \$99 kit includes a drill with a 1/2-in. single-sleeve keyless chuck, 24-position clutch and drill bit; two 18-volt compact Li-Ion batteries; a dual-chemistry charger; and a tool bag. [LINK ▶](#)

▼ HYDE TURBO NOZZLE

Compatible with most consumer-grade pressure washers and both the electronic- and gas-powered versions of the Hyde PivotWand, the Hyde Turbo Nozzle is a powerful ceramic tip designed to blast away stubborn and encrusted stains. The Turbo Nozzle produces a high-pressure jet stream that rotates at 3,000 rpm, creating a 4- to 8-in. circle so users can clean an expanded area without diminishing the velocity of the spray. [LINK ▶](#)



▲ CRESCENT ODDJOB

The all-in-one Crescent OddJob combines 11 of the most frequently used household tools into one talented tool that is small enough to fit into a kitchen drawer or vehicle glove box. The OddJob can serve as a hammer, a soft mallet, a nail puller, a ratcheting screwdriver with seven bits, a retractable utility knife and more, and its unique T-shape handle provides greater leverage than most other stand-alone hand tools. [LINK ▶](#)

▼ MAKITA 18V LXT RANDOM-ORBIT SANDER

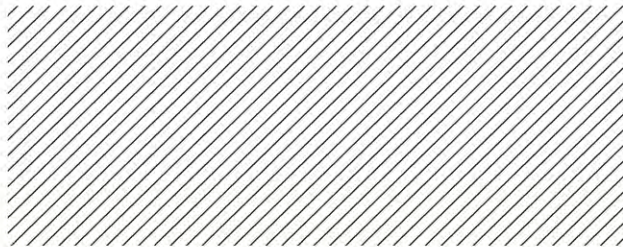
Woodworkers will appreciate the new Makita LXOB01 random-orbit sander, which provides a cordless option with three speed settings and up to 40 minutes of run time on a single charge. The LXOB01, which weighs only 3.6 pounds, also features a pad brake that reduces free spin and a control system that regulates pad speed at the start for an improved overall finish. [LINK ▶](#)



PHOTOS COURTESY MANUFACTURERS

► LUTRON MAESTRO DIGITAL FADE DIMMER

Providing a dimmable option for a variety of light bulbs, including incandescents, halogens and dimmable compact fluorescents, the Lutron Maestro digital fade dimmer gives homeowners more lighting control with whatever bulb they choose. The Maestro features a tab switch and side-rocker dimmer that offers multilocation dimming, gradual fade functionality and compatibility with a standard three-way switch with no special wiring required. **LINK ►**



▲ 3M TEKK PROTECTION FORCEFLEX SAFETY EYEWEAR

Featuring flexible, impact-resistant frames and lenses that provide 99.9 percent UV, UVA and UVB protection, 3M Tekk Protection Forceflex Safety Eyewear shields eyes from flying debris and contaminants during indoor and outdoor chores such as mowing, sanding and painting. The glasses also feature multi-injection technology that fuses the lenses to the frame and soft rubber accents for added comfort. **LINK ► VIDEO ►**



▲ DELTA BENCH GRINDERS

Delta's new 8-in. (model 23-199) and 6-in. (model 23-198) bench grinders are equipped with a cast-iron base and rubber feet for durability and reduced vibration during use. In addition, the grinders' upfront variable-speed dial makes it easy to control wheel speeds between 2,000 and 3,400 rpm. Both models also feature full-size clear safety shields with thumbscrews for easy adjustment and a work light with a flexible goose neck. The 8- and 6-in. grinders come with a 36-grit coarse wheel for grinding, a 60-grit friable wheel for sharpening and a diamond wheel dresser. **LINK ►**

▼ SAVAGE FOLDING JAB SAW/UTILITY KNIFE

Two handy cutting tools in one package make the Savage Folding Jab Saw/Utility Knife from Swanson a convenient addition to any toolbox. The jab saw features two cutting positions and a quick blade-change function, and it accepts any reciprocating saw blade. The integrated utility knife provides added convenience while you work. **LINK ►** ■



HOME IMPROVEMENT

BY DAN CARY

RECLAIM LUMBER

RECLAIMED

R WOOD WITH A PAST LEND'S PROJECTS AN AIR OF HISTORY

Whether it's a 12x12 white-oak beam or a field of wide-plank Douglas fir flooring, reclaimed lumber adds character to just about any project. Nail stains, saw marks and old-growth grain patterns convey a sense of history and integrity that new lumber can't match.

Reclaimed lumber isn't limited to high-profile beams and vintage flooring; the term includes any previously used wood that's ready to be transformed into a new project. The key is looking past the material's current state and seeing its potential. Even a mundane object such as an old pallet

or a packing crate has the potential to be a future heirloom.

Though reclaimed lumber has gained popularity during the past several years, the concept isn't new. In fact, some reclaimed lumber shows signs that it has been reclaimed before. Jim Hildebrandt, owner of Barnwood of Minnesota, has recovered many framing members that appear to have been twice-reclaimed. "We've taken down buildings from the 1920s that contained beams that look like they originally came from buildings that were built in the late 1800s," he says. "We can tell from the cutting

marks and fastener holes when a beam was reused. I guess that makes it re-reclaimed lumber."

FINDING RECLAIMED LUMBER

If you need large pieces or large quantities of reclaimed lumber, a commercial supplier is your best option. These companies are speculators that love their work and their products. They look for hidden sources of good-quality wood in old barns, granaries and warehouses built with large pieces of lumber. The sleuths who succeed at harvesting this limited resource are equal parts woodworker, historian, treasure

hunter, scavenger, demolition expert and remodeling contractor. Sometimes they must buy the wood; other times they get it in exchange for removing and hauling away the old structure or are even paid to take it.

Most suppliers are primarily interested in acquiring large stock such as beams, framing and timbers — pieces that are large enough to be transformed into the beams, flooring and paneling that make up the bulk of their

will ship to anywhere in the United States, although you'll typically get the best deal and will limit shipping costs by working with a local source. Reclaimed-lumber suppliers tend to know other dealers, and most are willing to help guide you to a source that has what you want.

Suppliers typically stock species that are native to their region because older buildings were usually built of native lumber. You're most likely to

“We’ve taken down buildings from the 1920s that contained beams that look like they originally came from buildings that were built in the late 1800s.” — Jim Hildebrandt

business. Reusing old beams for the same purpose is the most efficient use of the lumber; many of them need only to be cleaned up before installation.

Milling the wood into flooring, trim or other millwork is another profitable option, but this requires more labor and results in waste. It can take 2-1/4 board feet (bf) of old timber to make just 1 bf of new tongue-and-groove flooring. Flooring made from reclaimed lumber typically costs \$5 to \$12 (and more) a board foot, depending on the species and flooring width. Flooring that is 6 in. wide or less is the least expensive because it can be milled from 8-in.-wide beams, which are common.

Though more commercial suppliers are operating today than 15 years ago, it's unlikely that you'll find them listed in the Yellow Pages. To search for a supplier, you can start by contacting local sawmills, especially smaller operations. Sawmills often sell reclaimed lumber or do milling for local reclaimed-lumber dealers.

The Internet is another great way to search for reclaimed lumber. Using a search engine such as Google, combine your state name with key words such as “reclaimed lumber,” “barnwood,” “antique,” “beam,” “timber” or a specific wood species name. You'll likely find businesses from all over the country. You don't have to limit your search to local dealers because most

find a specific wood by working with a supplier where that species grows. Some species, such as Douglas fir, that have been used extensively as structural lumber throughout the country can be found in varying quantities just about everywhere (although you'll still find the largest quantities of Douglas fir on the West Coast).

You can also find reclaimed lumber on your own. Smaller quantities for furniture or other small projects may be right under your nose. For example, an old solid-wood door is a great candidate for reclaiming. [Click here](#) to read about how a wood door was transformed into several new objects.

WORKING WITH RECLAIMED LUMBER

You never know what's been done to a piece of lumber before you get it. So before cutting, you must thoroughly inspect the wood for nails or other hidden metal objects. One hardened ring-shank nail can destroy a band saw blade. (Even if you luck out and it doesn't get the sawmill blade, it will likely end up damaging another tool blade later on as the wood is worked.) Professionals use powerful pole- and wand-style metal detectors that can scan through large timbers, but less-expensive consumer models are available (see “Hidden Hazards,” p. 16). These devices pay for themselves in saved saw blades.

NEW LIV STRUCT



▲ Structural features: These tamarack beams are reclaimed cross-member beams from a barn.



YES FOR OLD URES

JUST ABOUT ANYTHING THAT IS
MADE OF WOOD CAN BE BUILT
WITH RECLAIMED LUMBER.



◀ Furniture: The top of this coffee table was made from hackberry that came from a grain elevator. (See p. 26 for plans to build this table.)



▲ Decorative architecture: This mantel was made from a barn's tamarack support post.



▲ Flooring: This Douglas fir flooring came from an old train trestle that once crossed the Great Salt Lake in Utah (see HISTORIES, p. 32).

FARMYARD TO FORMAL DINING

The process of salvaging and milling reclaimed lumber is labor-intensive, involving a wide range of skills from rough demolition to fine woodworking.



1 ▲ The barn siding and interior fixtures are removed before the frame is knocked down and dismantled.



2 ▲ The sawing service then uses a metal detector to locate concealed metal. The metal is removed before machining.



3 ▲ Beams are milled on a band saw mill into 1-in.-thick boards.



4 ▲ A commercial mill then planes the boards to final thickness and cuts the tongue-and-groove edges.



5 ▲ Finally, the flooring is installed in its new home, in this case a restaurant in Minneapolis, Minnesota.

BURIED TREASURE

Reclaimed lumber is often old, but the wood imported and sold by Bob Teisberg and his crew at Ancientwood Ltd. in Ashland, Wisconsin, is prehistoric. The company mills lumber from ancient kauri trees that lived more than 1,000 years before they fell and were buried under a peat swamp on the North Island of New Zealand 30,000 to 50,000 years ago. The logs were so perfectly preserved that the lumber looks and machines as if it came from newly forested trees.

"The business is similar to selling reclaimed lumber, but this wood has never been milled — I guess it's 'claimed' lumber," Teisberg says.

Ancientwood has developed the only reliable method of kiln drying kauri, and the company sells the whole tree, including stumps and root stock, in large slabs, small boards, turning blanks, veneer sheets or veneer applied to any common sheet-good substrate. "We waste nothing, and we like working with small shops or individual woodworkers and helping them find what they want. It's fun seeing the types of projects this wood inspires," Teisberg says as we wander through the warehouse's amazing stacks of material.

Unfinished kauri looks similar to unfinished mahogany, but after it has been smoothed and finished the wood takes on a unique iridescent quality that sparkles as light moves across it. Starting at \$25 a board foot, it can be pricey, but if you're envisioning a special project that will be a conversation piece, kauri is definitely worth considering. — DC



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◀ Excavating and cutting buried kauri logs into more manageable slabs for transport is a major undertaking.



▲ A couple of examples of the stunning grain patterns found in kauri wood

Did this to my wish list: one of the largest pieces of wood for sale in the United States. 1-1/2 in. thick x 5-1/2 ft. wide x 22 ft. long. This 100-year-old slab will cost you about \$1 a year.

HIDDEN HAZARDS

member found a clothesline reel embedded deep in the trunk of his 30-ft.-tall oak tree, an example of how reclaimed lumber can contain a variety of hazards. If you plan to work with reclaimed material, you need a metal detector. Professional models cost more than \$200 and will scan through 6 ft. of earth, but even a less-expensive consumer model such as the Zircon MetaliScanner M40 (\$40) can find metal embedded 2 in. deep. — DC

Once the lumber is free of metal, it's ready to mill. Most 14-in. band saws have the capacity to resaw at least a 6-in.-wide beam (and wider if you install a riser block), but supporting and controlling long beams is a challenge. Hire a sawing service to cut timbers longer than 4 ft. or if you have a lot of stock to cut. Some will even make house calls, using a portable band saw mill that they can tow to just about any location, so you don't have to haul large logs or beams. Sawing-service costs are typically based on an hourly rate. (Band saw cutting services in my area cost about \$50 an hour.) You will also be responsible for the cost of any ruined blades caused by hidden metal.

Most reclaimed lumber is already dry and stable, but if it has been stored uncovered outside, it will likely need to dry before you can work with it. Reclaimed-lumber suppliers often kiln dry their lumber to a uniform moisture-content level of about 8 percent. You can also air dry the lumber yourself by stacking it in your shop. Purchase a moisture meter if you plan to work with a lot of reclaimed or found lumber.

Another potential problem to consider is insect damage. It can add character, but it can also destroy the lumber's structural integrity. Most insects are more of a nuisance than a hazard and will evacuate during the milling and drying process. You can kill them without damaging the lumber by spraying the affected areas with mineral spirits. Avoid lumber that has been infested by aggressive wood-eating insects such as termites.

Once the wood is milled and dry, it's ready to be transformed into whatever you can imagine. The fruit of your labor will be a new creation that already has a rich history. ■

SOURCES

Ancientwood Ltd. [LINK](#) ▶

Barnwood of Minnesota [LINK](#) ▶

Trestlewood [LINK](#) ▶



HOME SKILLS

BY MIKE BERGER | PHOTOS BY SCOTT JACOBSON

SAW LIKE THE PROS

LEARN (OR REVIEW) **CHAIN SAW** OPERATION AND SAFETY STRATEGIES

/// If you own a chain saw (or simply want one), you know how useful they are for felling trees, clearing deadfall and preparing firewood. But along with their usefulness comes the potential for injury. According to the Centers for Disease Control and prevention, there are approximately 36,000 chain saw injuries each year. Nevertheless, by following proper operating and maintenance procedures, you can avoid becoming a statistic and achieve years of safe, reliable service from your chain saw. It all begins with understanding the tool. ►





▲ To safely start a chain saw, hold the saw firmly on the ground by placing your right foot through the rear handle.

PROPER OPERATION

Though different brands and individual models may have specific operating instructions with respect to their engine designs, all chain saws share the same basic safe-operating requirements.

Before you start the saw, carry it at least 10 ft. from the refueling area, and make sure that other people and animals are well away from the working area. Activate the chain brake by pushing the front



▲ When running a chain saw, take a wide boxer's stance. Do not allow the kickback zone (see "Know Your Chain Saw," p. 22) of the bar to engage the workpiece in any way, and fully wrap your fingers and thumb around the handle (see inset).

hand guard forward. Grip the front handle with your left hand. Hold the chain saw firmly on the ground by placing your right foot through the rear handle — make sure the chain is not making contact with anything (see photo, above left). Grasp the starter rope with your right hand and slowly

pull until you feel resistance. As the starter pawls engage, pull on the rope firmly and rapidly.

To safely make cuts, start by positioning the workpiece (if possible) so that the saw will neither jam in the cut nor cause the workpiece to dangerously split or release tension. In cases where you can't move the workpiece, carefully examine it to determine in which direction the tension will be released, and position yourself accordingly. (For more information on proper felling and limbing techniques and how stress is released during cutting, see Husqvarna's online video in Video Extra, p. 22.)

Take a wide stance, with your feet squarely and firmly planted on the ground (see photo, near left). As you feed the saw through the workpiece, make sure the chain will not make contact with the ground or any other object. Position the bar of the saw evenly on the workpiece, with the bucking spikes against the face of the log, and slowly feed the saw through the wood.

As you operate the saw, don't let the upper quadrant of the bar's nose (known as the kickback zone) make contact with any object — if it does, the saw can suddenly and violently be thrown backward and can cause serious or fatal injuries. Though the inertia chain brake should shut off the chain in the event of kickback, the best safety measure is simply to never use the saw in a way that can cause kickback.

Always hold the saw firmly with your right hand on the rear handle and your left hand on the front handle, regardless of whether you're right- or left-handed. Wrap your fingers and thumbs around the handles to minimize the effect of kickback and keep the saw under better control (see inset photo, above).

SHARPENING THE CHAIN

A chain saw's ability to cut wood comes from the sharp, opposing cutters evenly spaced along the chain. Cutters are made up of two components: a ramplike depth gauge that controls the depth of the cut and a dual-profile cutting element. These



DRESS FOR SUCCESS

Chain saws are powerful tools, and therefore potentially dangerous. Safety always comes first, and it starts with wearing the proper attire.

Never saw without a helmet, safety glasses or a full-coverage visor and hearing protection. Protect your hands with a pair of heavy gloves and your feet with a pair of boots that have a protective toe-cap and heavy treads. In addition, wear trousers or chaps that are designed for chain saw work and incorporate saw and abrasion protection. The best chaps meet American Society for Testing and Materials standards, which require them to stop a chain saw running at 2,600 fpm under controlled laboratory conditions. And if you'll be working in the field with other people, wear a bright-colored jacket so you can easily be spotted. — MB



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*See toro.com or your dealer for warranty details.

KNOW YOUR CHAIN SAW

Though it's the chain that does the work during the cutting process, every part of your chain saw is designed with efficient operation and safety in mind. To operate your chain saw as safely as possible, it's important to understand what these components do and how they function.

- Chain catcher — located on the bottom of the saw (see bottom photo, p. 25); catches the chain if it breaks or derails
- Throttle lock — located on the top of the handle; prevents accidental throttle advance
- Stop control — located near the rear handle; allows you to quickly shut off the engine
- Right-hand guard — located on the bottom of the rear handle; protects your right hand from a broken chain
- Chain brake — located above the rear of the bar; stops the chain in the event of kickback



VIDEO EXTRA

To see a video of this technique, click here.



To see a video of extreme chainsaw action, click here.



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SHARPENING



▲ Tools for sharpening a chain include a round file, a sharpening guide, a 6-in. flat file and a stump vise.

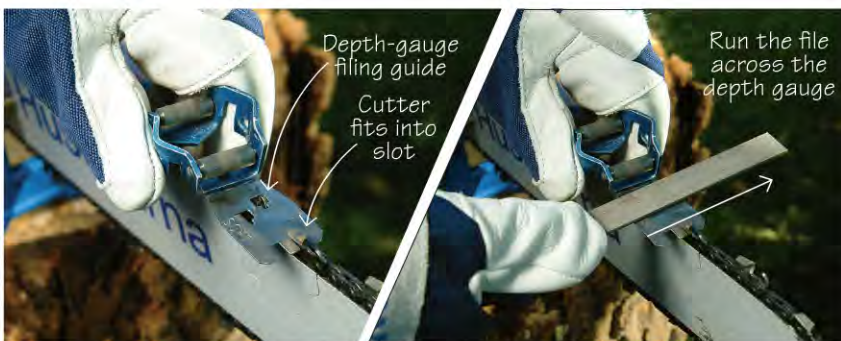
TYPICAL FILE SIZES FOR SHARPENING

Chain pitch	File diameter
▶ 1/4-in. low profile	5/32-in.
▶ 3/8-in. low profile	5/32-in.
▶ 0.325-in.	3/16-in.
▶ 3/8-in.	7/32-in.
▶ 0.404-in.	7/32-in.

two profiles (referred to as the top plate and side plate) contain three different angles that, when combined, cut through wood like a chisel and scoop out the chips. But like any cutting device, the chain can become dull. If the chain no longer self-feeds and you find yourself pushing on the saw to make it cut, it's time to sharpen the chain.



▲ Place the sharpening guide over the chain and position the file over the rollers and into the cutter. File every other tooth with an even, pushing stroke; then turn the saw around and file the remaining teeth.



▲ Hold the depth-gauge filing guide against the cutter and over the depth gauge. Use a flat file to file the depth gauge until the file makes contact with the filing guide.

Likewise, if the saw's discharge is dusty rather than made up of small wood chips, the chain needs sharpening.

You'll need only a few inexpensive items to sharpen a saw chain (see top

left photo, above). Many chain saw manufacturers offer sharpening tools specific to their brand, but most chains can be sharpened with generic tools available wherever chain saws are sold.

First you will need a round file. Different-size chains and different cutter styles call for specific file diameters (see chart, above left). You'll need a sharpening guide to help you consistently hold the file at the correct height and orientation within each cutter. Other items you'll need include a depth-gauge filing guide, a flat file, a stump vise (if you plan to do any sharpening in the field) and a pair of heavy gloves.

Secure the saw with a stump vise or on a workbench. Place the sharpening guide over the cutter, and lay the file across the guide and within the cutter. File from inside the cutter to out-

SHARPENING WITH A DREMEL

If you own a Dremel rotary tool, you can quickly sharpen a chain with the No. 1453 chain saw-sharpening attachment. The sharpener attaches to many of Dremel's rotary tool models and includes sharpening stones, sharpening guides and complete instructions.

To use the Dremel sharpener, begin on the near-side teeth, keeping the line on the guide parallel to the chain (see photo, right). A few light strokes on each tooth are enough. Next, sharpen the far side, keeping the back edge of the guide parallel to the chain. Use the same number of strokes on each tooth to maintain proper chain balance. After completing all of the cutters on the top of the bar, advance the chain with a gloved hand and sharpen the rest of the cutters. — MB



MAINTENANCE



▲ Remove the cylinder cover and clean any debris from the air filter and cylinder cooling fins.



▲ Regularly check the saw's safety features such as the chain catcher (shown here). If the saw has a damaged plastic catcher, replace it with a metal version if available.

side using full strokes. Apply pressure against the cutter rather than down, and let up on the return stroke (see top right photo, opposite). File all of the cutters on one side of the chain; then file the cutters on the other side.

As you sharpen the cutters, the clearance between their cutting elements and the chain's depth gauges slowly becomes smaller. To offset this gradual reduction, you must also file the depth gauges. Some sharpening guides double as depth-gauge guides and are set for the recommended clearance; if yours doesn't do double-duty, you can use a separate depth-gauge filing guide.

Place the guide over the chain, making sure its top surface rests squarely on the chain's top plates (see middle photo, opposite). Using a 6-in. flat file, stroke from inside the cutter to outside until the depth gauge is flush with the top of the slot. Repeat this sequence until all of the depth gauges are the correct height.

GENERAL MAINTENANCE

There are a few other basic steps you can take to ensure your chain saw operates as efficiently as possible:

- Check the chain tension and adjust as necessary. As a chain wears, it can stretch and lose its proper tension. Check the tension by performing a "snap test." At the center of the bar, grasp the chain with two fingers. Lift the chain away from the bar and release (see top left photo). A properly tensioned chain will quickly snap back into position. If the chain loosely falls into position or sags, you'll need to adjust the bar. Each brand

▲ To perform a snap test, grasp the chain, lift it away from the bar and release. A properly tensioned chain will quickly snap back into position. A loose chain will visibly sag (photo, above right) and won't cut efficiently.

of saw has different provisions for adjustment, so consult the owner's manual for the proper procedure.

- Remove the clutch cover and clean the chain brake band and the chain bar, as dirt and debris can keep the chain brake from functioning properly.
- Remove the cylinder cover, clean any debris from the air filter, and clean off the cooling fins and air intake to keep the engine from overheating during normal operation (see middle photo at left).
- Inspect the chain brake, throttle control and chain catcher. Make sure that all of the saw's safety features work as designed and are not damaged in any way (see bottom photos at left). Check that the chain lubrication system is functioning properly, inspect the drive wheel to make sure that it's not worn, and tighten any loose nuts, bolts and screws.

Following these maintenance tips and operating procedures will enhance your safety and help you get years of service out of your saw. ■

SOURCES

American Society for Testing and Materials [LINK](#) ▶

Dremel [LINK](#) ▶

Husqvarna [LINK](#) ▶

CUSTOM BLEND

MANUFACTURED LEGS AND
HARDWARE MAKE BUILDING
A COFFEE TABLE EASY

26 HANDY NOVEMBER 2012

▲ You can build this table using country-style legs and re-claimed lumber for the top, or you can easily modify it with materials and finishes to suit your style.

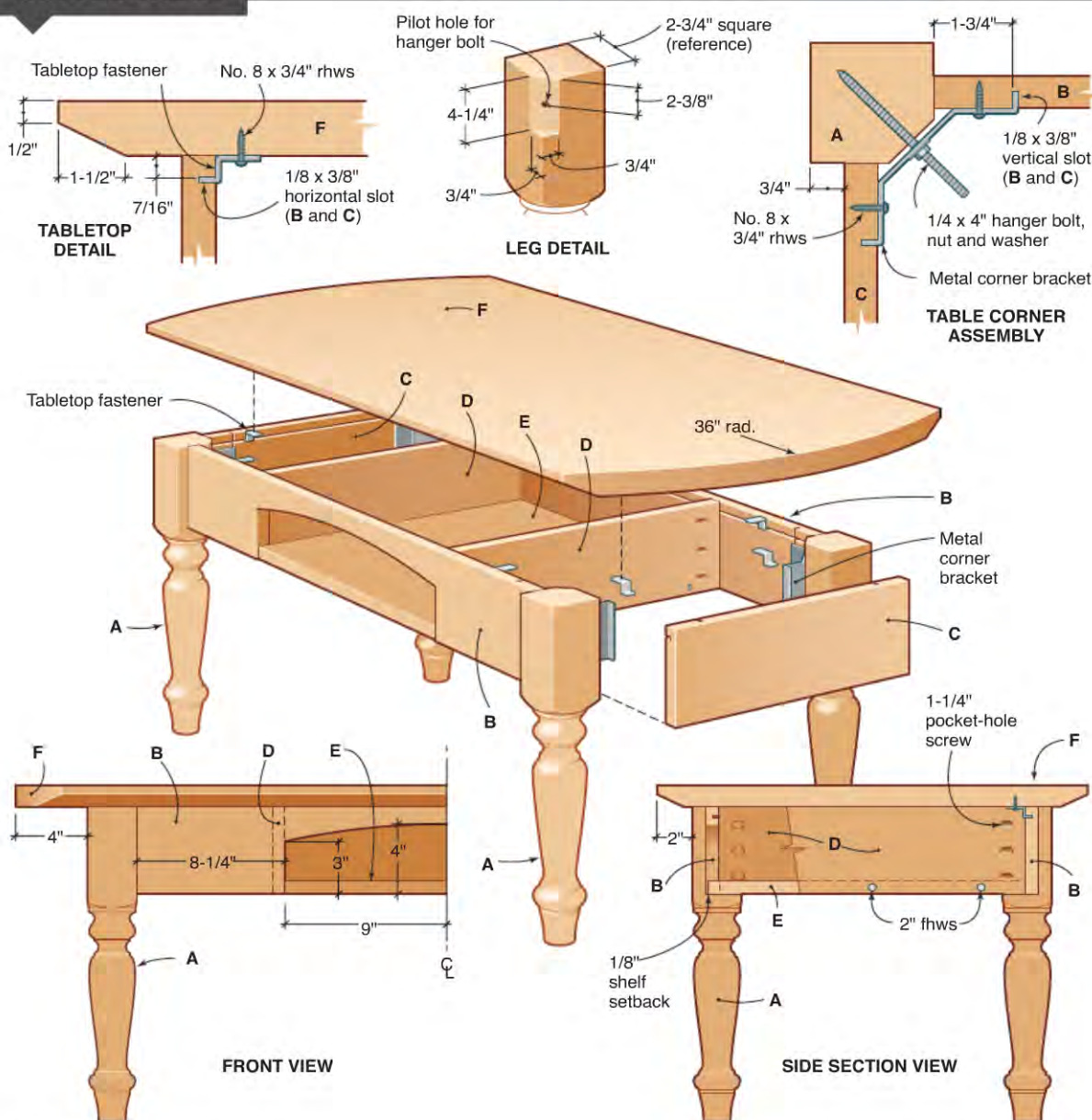


Whether your hot beverage of choice is coffee, tea or a more exotic concoction, chances are you call the low table typically placed in front of a sofa a *coffee table*. The name *tea table* might be more historically accurate — the design originated in the teahouses of the Middle and Far East — but that term doesn't carry the same familiar connotations of traditional American interior design.

True to classic table-design principles, this plan consists of a top, four legs and four skirt boards (also commonly referred to as aprons). Whether you're building a coffee table, a dining room table or an end table, the basic components are the same; only the dimensions differ. So once you understand how to build this design, you can use the same techniques to build other types of tables.

To simplify construction, I used manufactured legs and corner brackets from Osborne Wood Products Inc. (see SOURCES). The cost of the legs depends on the style and wood species you choose. The soft maple turned country-style legs that I chose cost about \$15 each (not including shipping). Using manufactured components is a great way to incorporate design elements that you might not be able to make on your own and enables you to build a one-of-a-kind table for a fraction of what you'd spend to have a piece custom-built for your home.

COFFEE TABLE



CUTTING LIST

KEY	NO.	DESCRIPTION	SIZE
▶ A	4	Legs	2-3/4 x 2-3/4 x 18 in.
▶ B	2	Front/back skirts	3/4 x 5 x 34-1/2 in.
▶ C	2	End skirts	3/4 x 5 x 14-1/2 in.
▶ D	2	Stretchers	3/4 x 5 x 18 in.
▶ E	1	Shelf, birch plywood	3/4 x 17-5/8 x 18 in.
▶ F	1	Top	1-1/4 x 24 x 48 in.

SHOPPING LIST

- ▶ Material for 2 x 4-ft. tabletop (see text)
- ▶ 1x6 x 8-ft. boards for skirts (2)
- ▶ 3/4 x 17-5/8 x 18-in. plywood for shelf
- ▶ 18-in.-long manufactured table legs (4)
- ▶ Metal corner brackets (4)
- ▶ No. 8 x 3/4-in. round-head wood screws (24)
- ▶ 2-in. flathead wood screws (8)
- ▶ 1-1/4-in. coarse-thread pocket-hole screws (12)
- ▶ 1/4-in.-dia. x 4-in. hanger bolts (4)
- ▶ 1/4-in. nuts and washers (4)
- ▶ Tabletop fasteners (8)

► Trace the leg and skirt-board joint on a piece of paper. Position the bracket with the flat portions of the bracket flush with the skirt boards. Mark the chamfer depth and the location where each bracket lip enters the skirt boards.

CUSTOM DESIGN

Building your own table gives you the freedom to make it just the right size for your needs and to incorporate custom details such as the storage shelf that my design includes — an especially useful and convenient feature for a coffee table. I also made my table's top unique by using reclaimed lumber (see "New Life for Old Timber," p. 31) from an old beam made of hackberry, a lesser-known member of the elm family. The boards were riddled with nail-hole stains and signs of worm and insect damage — not enough to compromise the integrity of the wood, but just the right amount of rustic character to complement the country-style legs.

There are several ways to attach the skirt boards to the legs: Mortise-and-tenon joints, dowels, metal corner brackets and wood corner brackets are the most common. I chose to use metal brackets because they are easy to install, create a strong connection and are easy to take apart and reassemble. Osborne Wood Products' Web site provides detailed project instructions, including how to install both metal leg brackets and shop-made wood corner brackets.

BUILDING THE BASE

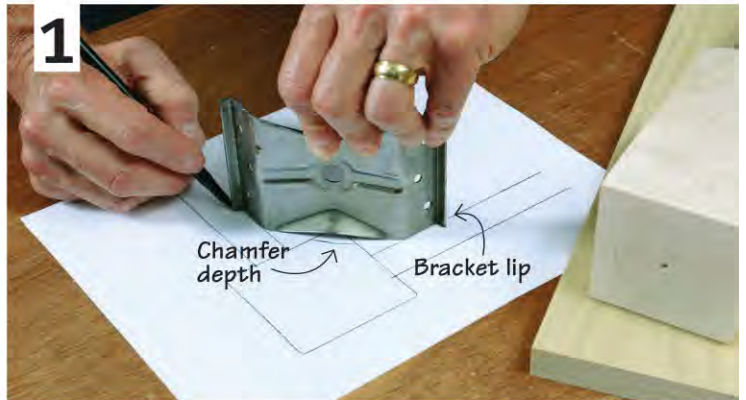
The metal corner brackets fit into slots that you cut in each skirt board and then fasten to a hanger bolt that is screwed into the corner of the leg. Hanger bolts feature two sets of threads: bolt threads in one half and screw threads in the other. The inside corner of the leg is chamfered to make room for the bracket and to provide a flat surface for connecting the hanger bolt.

The first step in construction is to determine the position of the bracket slots on the skirt boards and how deep to chamfer the inside corner of each leg. The position of the skirt boards is up to you. The closer the skirt boards are to the outside edge of the leg, the deeper the chamfer will need to be. Make a pattern of the leg and skirt board connections on paper to determine the position of the bracket and depth of the chamfer (photo 1, above).

I made the skirt boards first. Using a table saw, I cut the slots for the corner brackets and tabletop fasteners (photo 2). My next step was to cut the opening for the shelf, which is an optional feature. Eliminating the shelf from your design will simplify construction — you won't need the stretchers or shelf. If you include the shelf, use a scrap of flexible lumber such as a strip of 1/8-in. plywood to draw the arc for the shelf opening. I cut the opening with a band saw.

There are several ways to cut the stopped chamfer on the inside corner of each leg. I used a band saw (photo 3). If the chamfer is not too deep, you can use a router with a piloted chamfer bit. A third option is to use a handsaw.

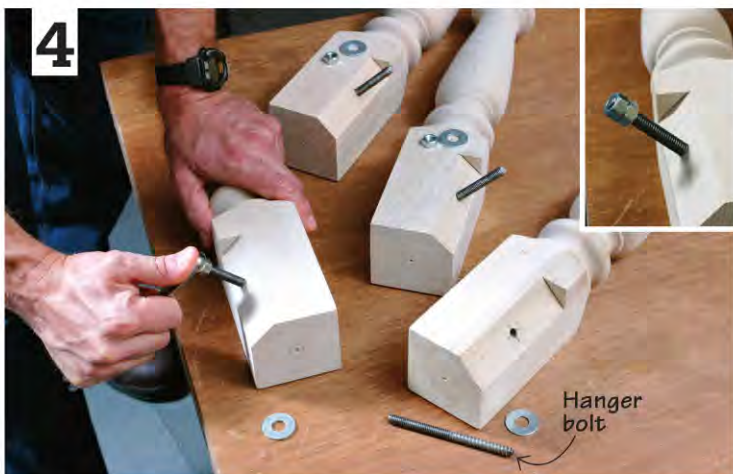
The hanger bolt must be centered across the chamfer. It also must be high enough on the leg so that the bracket is not ex-



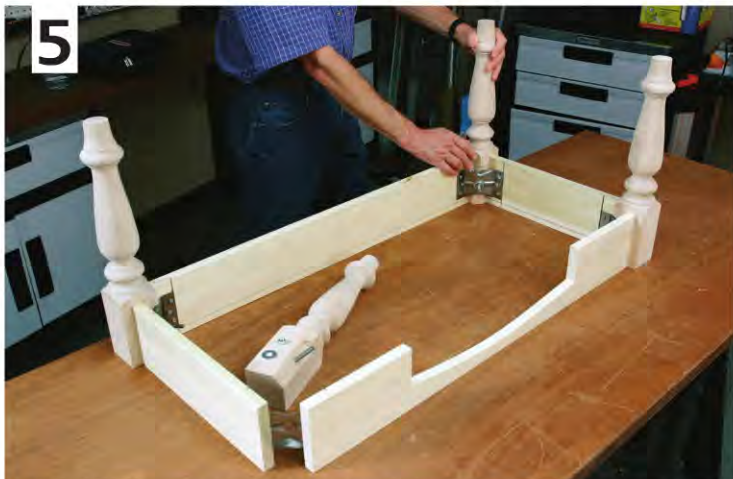
▲ Use a table saw to cut slots in the skirt boards for the top fasteners and corner bracket lips. First use a miter gauge to crosscut the slots for the corner bracket lips; then cut the slots for the top fasteners.



▲ Tilt the band saw table to 45 degrees to cut the stopped chamfer on the top inside corner of each leg. Use a wide blade (at least 3/8 in.) for a straighter cut.



▲ The trick to driving a hanger bolt is to use two nuts on the bolt threads (inset). Tighten the second nut down on the first nut to lock them together so that the bolt turns instead of the nuts.



▲ Fasten the brackets to the skirt boards with No. 8 x 3/4-in. wood screws. Then fasten the legs to the brackets with washers and bolts.



posed under the skirt board. The brackets I used are 4 in. tall. I drilled a 5/16-in.-dia. pilot hole 2-3/8 in. down from the top of each leg. Then I drove a hanger bolt into the hole until only the bolt threads were left exposed (photo 4).

The next step is to loosely assemble the legs and skirt boards and then slip the corner brackets over the hanger bolts and into the slots in the skirt boards. Fasten the corner brackets to the skirt boards; then attach the legs to the corner brackets (photo 5).

It is a good idea to wait until the legs and skirt boards are assembled before cutting the stretchers to length. Measure the distance between the front and back skirt boards to find the exact length of the stretcher boards. Then cut the stretchers to length and bore three pocket-screw holes in each end.

I used a scrap of 3/4-in. plywood for the shelf. I cut the shelf to final size and attached heat-activated edge banding (available at most home centers and woodworking stores) to the front edge. Then I installed the stretchers and shelf (photo 6).

TOP OPTIONS

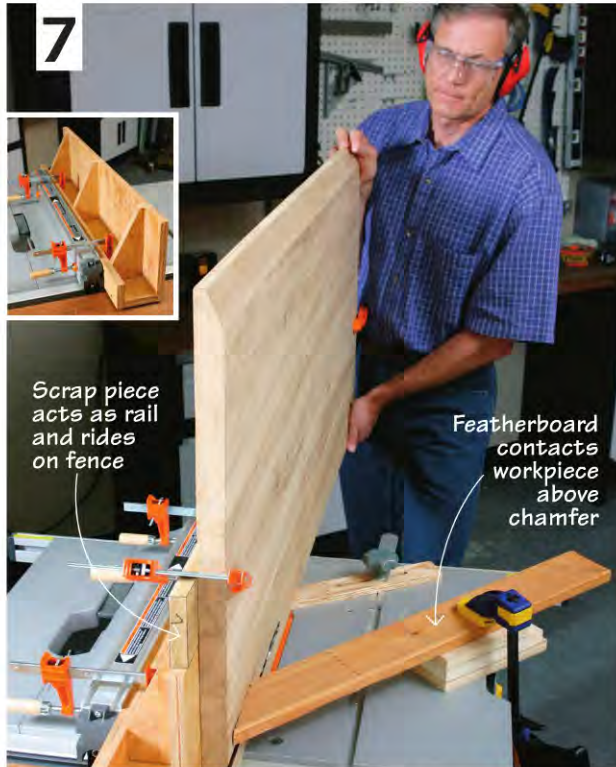
I built a solid top for this table, but if you're not comfortable with the techniques required for this task, you have other options. For example, you can have a piece of hardwood-veneer plywood cut to size at most home centers and apply heat-activated edge banding to cover the cut edges. Or you can have a piece of natural stone cut to fit. You can also reuse a top from an old table or buy one at a furniture outlet.

My first step in making the top was to prepare the boards for gluing. I used four boards to make the 24-in.-wide top. The boards were rough-planed and flat when I got them, so I only needed to plane them down to the final thickness, square up the edges and cut them to size. Next, I cut biscuit slots in all of the mating edges and then applied the glue, inserted the biscuits and clamped the boards together.

Once the glue had cured, I added a chamfer detail to the bottom long edges of the top using a table saw (photo 7). Chamfering this edge makes the top appear less heavy and makes access to the shelf easier.

Next, I cut radii in the ends to ease the corners while still leaving flat edges along the sides that people would normally sit next to. To locate the center points for the radii, measure 36 in. from

◀ Bore pocket-screw holes in the stretchers and then attach the stretchers to the shelf with 2-in. wood screws. Next, attach the stretchers to the skirt boards with 1-1/4-in. pocket-hole screws.



▲ Cutting a shallow chamfer along a long edge requires a few special precautions. To help support the workpiece, attach a tall fence extension to the existing fence (inset). Clamp a long scrap to the workpiece to ride like a rail along the top of the fence. And use two featherboards to help keep the workpiece from tilting.



▲ Fasten the top to the base with tabletop fastener clips. Drill 1/8-in.-dia. x 1/2-in.-deep pilot holes for each screw, being careful not to drill through the tabletop.

NEW LIFE FOR OLD TIMBER

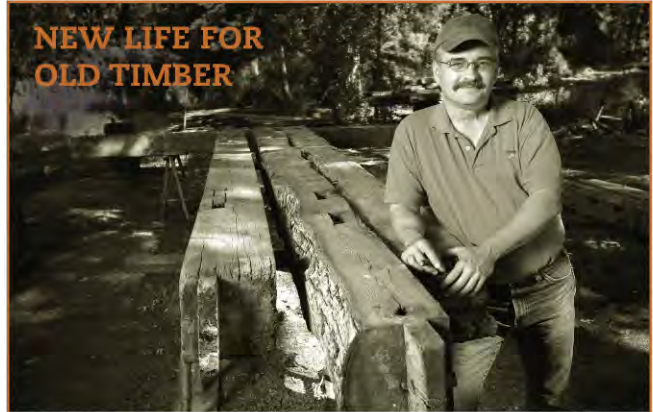


PHOTO BY MARK MACEMON

Reusing lumber is not a new idea. I got the stock for my tabletop from Barnwood of Minnesota, a reclaimed-lumber business owned by Club member Jim Hildebrandt. Jim says some of the lumber he acquires shows signs that it had been reclaimed from a previous building and reused to construct the building being salvaged — making it twice-reclaimed material.

Reclaiming lumber is a regional industry, meaning that the common species that are reclaimed tend to be native to that region. For example, the majority of the wood that Jim finds in central Minnesota is white oak, red and yellow elm and white pine, whereas a dealer in Washington primarily reclaims Douglas fir.

The best way to find reclaimed material is to contact a dealer who can steer you to the best resources for the species and types of lumber you need. An online search for “reclaimed lumber barn wood” is another good starting point. — DC

each end and find the center between the sides. Cut the radii using a band saw or jigsaw.

FINISHING AND ASSEMBLY

You can choose any furniture-grade finish for the top and base. Because the legs, skirts and top of my table are built from three different species of solid wood and the shelf is a piece of plywood, I had no intention of trying to match the wood tones. To play up the beauty of the reclaimed lumber, I applied clear satin polyurethane to the top and sprayed three coats of antique-white paint on the base.

After the finish cures, the last step is to fasten the top to the base with tabletop fastener clips (photo 8). Then grab a few books and magazines and a hot cup of something — just please remember to use a coaster. ■

SOURCES

Go to HandymanClub.com and click on WEB EXTRAS.

Barnwood of Minnesota Inc. (reclaimed lumber) [LINK ►](#)

Kreg Tool Co. (pocket-hole jigs and screws) [LINK ►](#)

Osborne Wood Products (English country legs, No. 1320; corner-bracket set, No. 901) [LINK ►](#)

Rockler Woodworking (tabletop fasteners, No. 34215) [LINK ►](#)

PICKLED PLANKS

A STORY OF WOOD WITH A PAST (AS A PASS),
A PRESENT AND A FUTURE



Every piece of wood — whether a toothpick or a temple's timber — has a story, and reclaimed wood can claim a doubly interesting history. Today's green-inspired resourcefulness presents many opportunities to give used wood a second chance. After a past life as warehouse shelving, old-growth pine is planed and prepped to be used as flooring or cabinets. Douglas fir beams that once supported hand-raised barns now serve as posts and beams in a timber-frame house. And the list goes on (see "Reclaimed Lumber," p. 12).

One fascinating example of the resurrection of reclaimed wood involves

the construction and dismantling of a 12-mile-long railroad trestle that was built across the Great Salt Lake in Utah more than 100 years ago. Its story is a tale of two sets of visionaries: the men who believed they could build a shortcut across the lake and the company that envisioned the abandoned trestle's potential rebirth.

The journey begins in 1869 at Promontory Summit in the Utah Territory, where the nation's first transcontinental railroad was completed. Surveyors had routed the connecting tracks of the Union Pacific and Central Pacific railroads through the mountains north of the Great Salt Lake for three

▲ **Trains hauled 38,256 fir trees from Oregon to use as pilings in this 12-mile-long trestle. The pilings, timbers and decking are finding new purpose as flooring, siding, beams and more.**

reasons: The desert soil to the south of the lake was soft, the lake's water level was high, and the makeup of the lake floor was unknown. For nearly 35 years, freight and passenger trains navigated the treacherous climb over steep inclines, around tight curves and across deep ravines. It was a slow, costly and perilous passage.

By 1900 the water levels in the lake had receded, and the costs and

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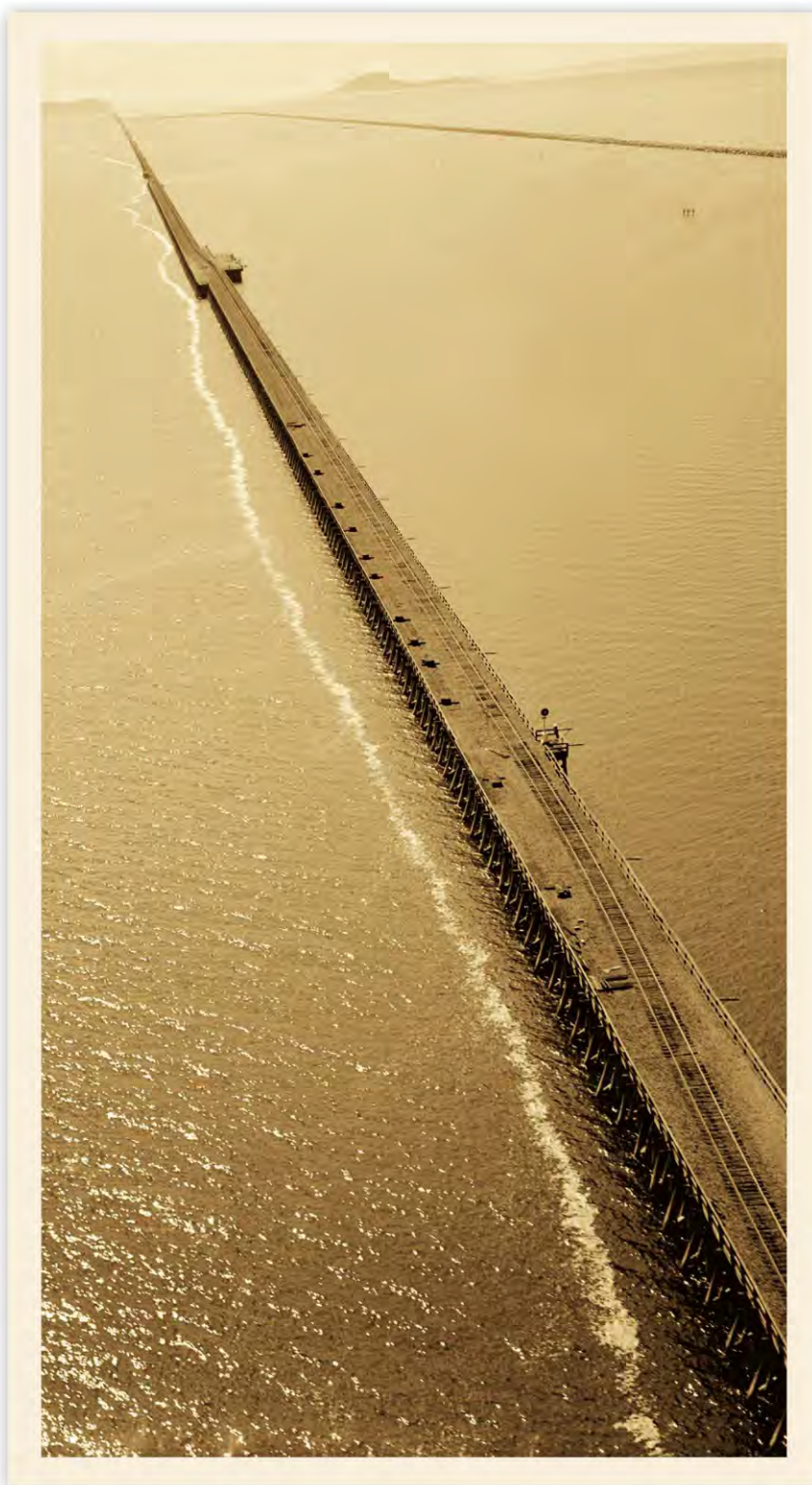


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EXTRAS

For links to Trestlewood's Web site and to Utah's railroad history, as well as "Handy Facts" statistics about the Lucin Cutoff, [click here](#).

challenges of the northern route between Ogden and Lucin had not. So Edward Henry Harriman, president of the Southern Pacific railroad, revisited the idea of building a causeway across the lake. With the support of William Hood, the company's chief design engineer, Harriman decided to invest in a shortcut that promised long-term savings.

In February 1902, workers began building temporary trestles for delivery of the rock-and-gravel fill that would become 13-mile sections of causeway. Over the 12-mile stretch where the lake bottom was too unstable to support loads of fill, crews constructed a permanent trestle. They drove 38,000 pilings, some as deep as 120 ft. In all, more than 30 million board feet of lumber (redwood decking and Douglas fir poles and timbers) composed the final structure.

The trestle was completed in October 1903, and the Lucin Cutoff (at a cost of \$8 million) opened in March 1904, servicing a mounting volume of passenger and freight trains for a half-century. During the 1950s, the rail company replaced the trestle portion with an extension of causeway but left the wood structure standing alongside the new section.

Then in 1993, Cannon Structures Inc. of Blackfoot, Idaho, acquired rights to salvage the wood. The company spent more than seven years harvesting the decking and above-water structure as well as most of the salt-soaked pilings. To process the wood, workers had to strip out the metal connectors and then kiln-dry, mill and resaw it. The complexity and scale of the project required custom machinery and special procedures — one factor that led the company to form a new division named Trestlewood.

Today, the timbers and planks from the Lucin Cutoff are finding new homes as flooring, beams, siding and more. The former pilings, which were preserved in salt water for nearly 100 years, bear unique blue-green markings that hint at an amazing history of growth — the growth of great trees, innovative transportation and true resourcefulness. ■

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