

family handyman

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WOODWORKING ISSUE!

5 UNIQUE PROJECTS
TO GRACE YOUR HOME

WISE
LESSONS
FROM A HOME
INSPECTOR

ART &
LIGHT
DUO

NEW LIFE
FOR A
VINTAGE
CONSOLE

MAKE A LIVE-EDGE
WATERFALL TABLE

ROUND CABINET'S
SPINNING SHELVES
REVEAL WHAT'S INSIDE

BUILD A DANISH
MODERN CHAIR

MARCH 2022

IF YOU HAVE DIABETES— YOUR EYES NEED ATTENTION

If you have diabetes, excess blood sugar can damage the blood vessels inside your eyes—a condition known as diabetic retinopathy. Even if your vision seems fine and you don't notice it happening, there still may be damage that could lead to vision loss. Fortunately, an eye doctor may be able to help your eyes and protect against vision loss.

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August 2021 OPH.21.07.0012

CARVING OUT MY OWN PATH

DESIGN, CREATE, REPAIR,
REPORT, REPEAT



SEE HOW TO MAKE
A DANISH MODERN
CHAIR, P. 40

I started working in a small cabinet shop around 1991 after scouring the Yellow Pages (early Google) for a place that could use some inexperienced help. I laminated miles of countertops and glued together hundreds of acrylic “pull tab” boxes. Not very glamorous stuff, but I learned how to use all the power tools of the trade, and I knew I wanted more.

After that shop closed, I did some house building and remodeling before starting at a two-person cabinet shop. In that basement workshop, I discovered traditional hand tools and all the possibilities they open up.

During that stint, I became a stay-at-home dad and worked at the cabinet shop on weekends. When our kids started school, I found freelance work, spent weekends at the cabinet shop and

added in musical instrument repair. Today I also keep relatively busy as a jazz saxophonist.

Eventually, I carved out the time to take a class on hand tool use from Tom Caspar, a senior editor at *American Woodworker* magazine. He asked if I had interest in a part-time shop steward position. I didn’t realize it at the time, but that was the beginning of my editorial career. Shop cleaning, research and prop

building led to my first story assignment. I ended up freelancing for *American Woodworker* for about 12 years.

When that magazine shut down, I found my way back to a small shop in partnership with a lifelong friend, building custom furniture and cabinets. I also did freelance magazine work, including set building. I got a call one day to do a “plans check” on a project to be featured in *Family Handyman*. I was offered a job after that and have been here ever since.

My house was built in 1884, so DIY home repair and maintenance are compulsory avocations, but my passion is woodworking. So, when our woodworking issue came around this year, I was very excited to be going to the lumberyard again!

BRAD HOLDEN
SENIOR EDITOR



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You can build this iconic 1960s chair for a fraction of the retail price.

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A masterpiece in cherry, this floor lamp is waiting for your personal stamp.

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WALNUT WATERFALL

Create this beautiful side table from a live-edge slab. We made it easy!



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REUSE, REFINISH, RETAIL

When we decided to salvage and refinish a vintage console stereo, we didn't realize how difficult it would be to find the perfect "piece of junk" for the project. A growing number of independent retailers are available to help with that task, whether you want to do the work or purchase finely refinished furniture. Find Furnish is a Minneapolis-based store that sources and sells vintage furniture and more.

"At least half of what we do is refinishing and refurbishing furniture," said Eric Wivinus of Find Furnish. "We have people on our team who specialize in woodworking or refinishing or working with metal. We also sell pieces that are still in the project stage, and people can bring those back to life as they want."

Brian Wilcox, one of the store's founders, travels extensively, towing a big trailer to collect furniture and other goods for the store. "You need to use your imagination and travel far to find these things," said Wivinus.

If you're looking to get rid of a furniture-refinishing project you can't complete, look for a store like Find Furnish in your area. Or check out findfurnish.com; Wilcox may be in your neighborhood with his trailer soon.

WHERE ARE YOU WORKING NEXT, INSIDE OR OUT?

According to research we conducted in the spring of 2021, **24%** of you planned a **kitchen remodel**, while only **17%** said that an "**outdoor living area**" was your next project focus. Where will you and your tools be working next? Shoot us an email at editors@thefamilyhandyman.com.



SPEAKING OF "REUSE"

A reader named Alan Peterson commented on our Getaway site prep story in the Sept. '21 issue (p. 30), where we said, "We removed the silt fence, disposed of the fabric and saved the wood stakes for reuse."

Mr. Peterson said we should know that "the silt fence fabric is a dual-purpose product" and can be used for weed control. He continued to say that his goal is always to repurpose items generally thought to be "single use." We applaud that thinking. However, most silt fence fabric is not biodegradable or recyclable, unless it's specifically designated as such.

You can find "biofence" fabrics made from coconut fiber or jute, and you could use biodegradable stakes made from corn by-products.





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HANDS ON

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SUPERB SQUARES

The Woodpeckers brand is known for its high-quality, accurate tools for woodworkers, and these Mini In-Dexable squares definitely measure up. If you do mostly rough carpentry, you're likely fine without them. But if you're venturing into fine woodworking and cabinet-making, consider upgrading your tools.

This Woodpeckers square set is something you should splurge on. You'll use the squares for accurate assembly of components and layout, as well as machine setup. Each has cutouts every 1/16 in. for parallel marking with a pencil. There's also a detent at each inch as you slide the head down the blade. The shoulder mechanism slides out of the end of the head to hold the tool perfectly level with your workpiece.

A full set of Mini In-Dexable squares (about \$250) includes 4-in., 6-in. and 8-in. blades, a double square head, a combination head and two racks to hang up your squares.

BRAD HOLDEN SENIOR EDITOR

MADE IN THE USA



POWERFUL POCKET LIGHT

This hands-free light has become my favorite flashlight. It's compact and easy to stash in my pocket or clip onto a hat brim. The clip is also magnetic and will stick to any ferrous metal. The light itself is 80 lumens with a 42-ft. beam distance, and with the rotating head I can direct the light exactly where I need it.

Called the Coast HX4, it has a white light for general use and an anti-glare red light if the white is too bright. And, bonus! If I'm working outside in the summer, the red light doesn't attract mosquitoes. The light has a run-time of nearly four hours on two "AAA" batteries, and it has a lifetime warranty on materials and workmanship. You can pick up the Coast HX4 for about \$15 online. 

NICK GRZECZOWIAK CHIEF CONTENT OFFICER

FOLDING 10-IN-1 TOOL

A standard painter's 5-in-1 tool is a must-have for painting projects. The folks at Purdy have taken it up a notch with their folding 10-in-1 tool. No doubt most people have used a 5-in-1 for some of the tasks that the 10-in-1 is made for, but the 10-in-1 does them better.

Of all the tasks on the list, it performs eight admirably—it's a roller cleaner, crack opener/cleaner, compound spreader, can opener, bottle opener, caulk scraper, cutter and general scraper. But it doesn't handle setting nails or driving screws as well as an actual nail set or a flat screwdriver. The best part is I can fold up this tool and clip it to my belt. You can buy the Purdy Folding 10-in-1 tool online for about \$12. 

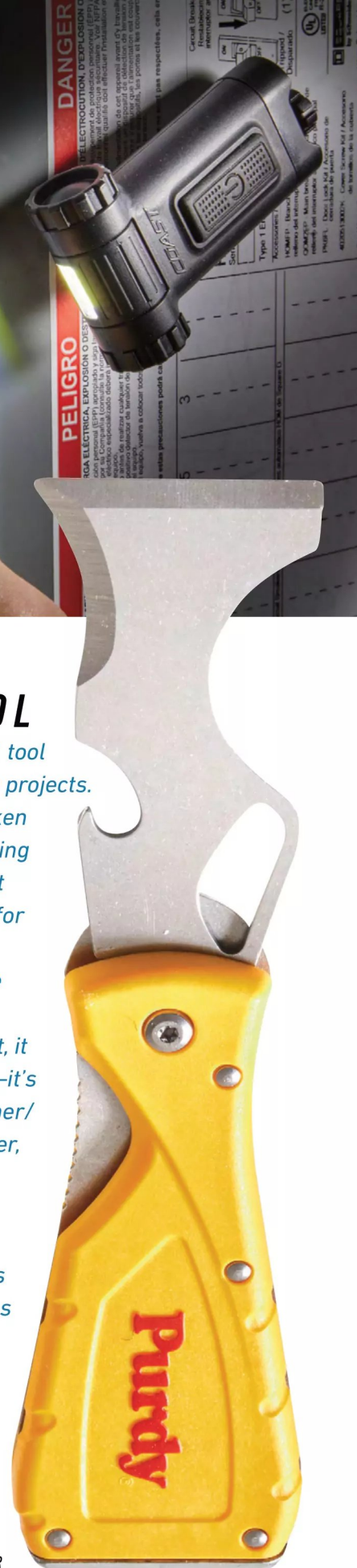
EASY-SQUEEZE STAPLER

Hand-powered staplers are ideal for upholstery, screening, roofing, wiring and many other tasks. This style, a forward-action staple gun, has been around a while but may be less well known. With its handle facing forward instead of backward, it requires less squeezing force than a typical staple gun. Also, you're applying force directly over the staple, instead of at the opposite end.

This new-school Arrow PowerShot shoots six types of Arrow T50 staples and also drives 9/16-in. brads easily with its forward-action design. The easy-loading chamber mechanism has a window so you can quickly see if you're due for a refill. You can find this stapler for about \$23 at most home centers. 

JAY CORK ASSOCIATE EDITOR

MIKE BERNER EDITOR





GET A BITE ON STRIPPED SCREWS

Whether I'm in the shop, camping or on a motorcycle adventure, I keep a pair of these versatile pliers from Vampire Tools close at hand. The Vampliers 6.25-in. model (\$32) is compact, lightweight, durable and designed for removing stripped screws; it features both vertical and horizontal serrations. The slender nose lets me get into tight quarters easily.

Along with removing screws, the Vampliers can cut wire, and the jaws work like those of a standard pliers, so this model is capable of performing any of my tasks that call for pliers. 

VERN JOHNSON CREATIVE DIRECTOR

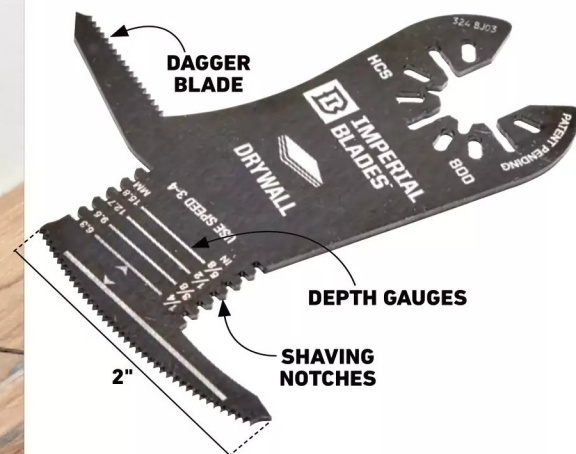


PRECISION DRYWALL CUTS

Oscillating multi-tools are the best tools for making precise cuts in drywall, and this Imperial One Fit 4-in-1 drywall blade is even more precise and functional than a standard blade. It's designed with standard electrical and plumbing fixtures in mind.

Its 2-in. blade cuts the exact width of a standard duplex outlet box. The dagger blade allows you to make tight circular cuts for plumbing, junction boxes and can lights. Two-gauged shaving notches help you refine a cut and measure cutting depth. Compatible with most brands of oscillating tools, the One Fit 4-in-1 costs \$15 at home centers and online. 

JOSH RISBERG LEAD CARPENTER



AFFORDABLE POCKET LASER LEVEL

Most DIYers can't justify spending hundreds of dollars on a high-end laser level, nor do many of us need one. At \$33, the Ryobi AirGrip is priced well and may be all you need. It's basic, offering just a single line, but a clever DIYer will find many uses for this little gem.

For example, anywhere you'd normally snap a chalk line, you can shoot a laser line instead. I've used it to lay out holes for can lights on a ceiling and to hang a wall cleat for mounting cabinets. It also excels at common household tasks, like making sure artwork is hanging level on a wall.

The AirGrip uses a suction cup with a battery-powered motor to hold it in place on smooth surfaces. A rubber gasket helps hold it in place on lightly textured surfaces. This way, you can work with both hands free and no helper. And you don't have to clean up a chalk line. 

BRAD HOLDEN SENIOR EDITOR



TOP-NOTCH ELECTRICAL CONNECTORS

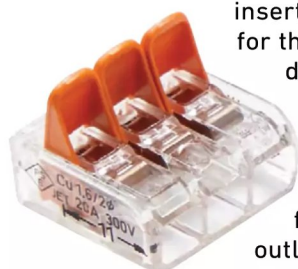
I don't trust wire nuts. Especially the ones often included with ceiling fans and light fixtures. After I discovered WAGO lever nuts, I tossed my color-coded traditional wire nut connectors.

I'll use only these nuts from now on.

I recently added several surface-mounted electrical outlets in my garage, and the small outlet boxes made regular wire nuts difficult to use for all the pigtailings I needed to do. On yet another trip to the hardware store, I bought a box of WAGO lever nuts—three-wire model 221.

At \$18 for a 50-count box, they're more expensive than regular wire nuts, but worth it. To use this lever nut, you flip open an orange lever, insert a stripped wire end and close the lever. Do that for the two or three wires you're joining and you're done. Give each wire a little tug to be sure it's locked in. It takes some force to open each lever, and they close with a noticeable snap; these are not just push-connect fittings.

It was easy to fit three WAGO 221s—one each for the neutral, hot and ground wires—in the small outlet boxes. For extra security, I wrapped each lever nut in color-coordinated electrical tape, so I can see what's what if I open any outlet box. These lever nuts work with solid and stranded wire, and they are available for different wire gauges and in two-, three- and five-wire configurations. 



GLENN HANSEN DEPUTY EDITOR



BACK-SAVING DRYWALL HANGING

Hanging a sheet of drywall can be a monumental effort, especially if you're working solo or hanging 12-ft. sheets. Stud Huggers can alleviate the struggle. Hammer one (or two) onto a stud just below the desired height of your drywall and let it hold your sheet up. Then, just a short upward shove gets the sheet perfectly in place for fastening. Once your sheet is attached, use your hammer claw to easily remove the Stud Hugger and move it to its next location. A simple yet ingenious tool—we just have to wonder, *what took so long?* Find a pair for about \$30 at Lowe's and studhugger.com. 

MIKE BERNER EDITOR

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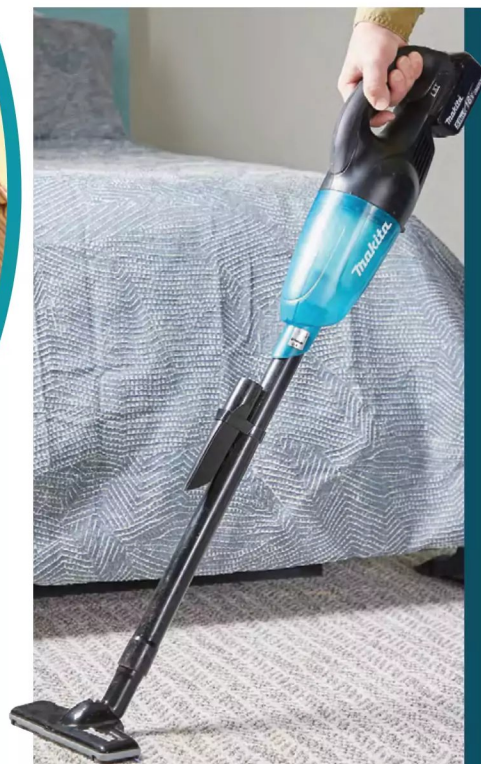


TIGHT-SPOT BIT HOLDER

Have you ever struggled to drive a screw because you couldn't reach it from the right angle? It's annoying, and you usually end up stripping the head. This DeWalt pivoting bit holder solves that problem. It has a sliding barrel that allows you to pivot the head 20 degrees. Slide the barrel down and you can use the bit holder like a standard, straight bit holder. The sliding barrel provides a nonrotating grip, so you can hold the bit steady while driving screws.

Like most bit holders, it's magnetic, so your screws stay on the bit while you're positioning them. This bit holder is made for use with impact drivers, and the set includes eight impact-ready bits. Available online and at hardware stores and home centers for about \$12.  **APPROVED**

JAY CORK ASSOCIATE EDITOR



COMPACT, POWERFUL VACUUM

My favorite electrician, who always cleans up after himself, let me use his Makita LXT stick vacuum on the job one day. I was so impressed that I bought one for my shop. That vacuum soon got hijacked to be our touch-up vac in the house, so now I need to buy another for my shop!

*This stick vac has job-site durability and power, and it'll run on the same battery system as my other Makita cordless tools. That's a plus—I saved money by buying the bare tool (no battery). The basic 18-volt LXT Makita I have costs \$100, and the three-speed version is \$190, both as bare tools. Available online and at home centers.  **APPROVED***

JOE CRUZ ASSOCIATE EDITOR

A KNIFE TO FIT YOUR POCKET—AND POCKETBOOK

My dad gave me my first pocketknife when I was eight years old, and I've carried one ever since. I've had various types over the years, including a Swiss Army knife and some pricier varieties. This Japanese utility knife—called a Higonokami—has been my favorite for quite a few years now, for a few reasons. First, the blade's high-quality steel holds a keen edge, and a lever allows for quick, one-handed operation. Second, it's very slender and easy to carry in any pants pocket. Third, this one runs about \$20 (there are more expensive options). At that price, I'm not concerned about abusing or losing this knife. There are a couple of disadvantages: The blade doesn't lock, and it can loosen over time. But you can easily tighten the blade by tapping the rivet with a hammer on an anvil. For me, those two disadvantages aren't deal breakers. You can find this knife online by searching "Higonokami folding knife."  **APPROVED**

BRAD HOLDEN SENIOR EDITOR



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HANDY HINTS



CLEVER SOLUTIONS FROM OUR READERS

WIRELESS WALL SCONCE

I wanted to add a few wall sconces in my hallway, but I didn't want to tear open the walls to run the cable and a switch. I came up with a wireless version that looks like the real deal. I mounted a sconce to the wall and glued a puck light to a 3/4-in. male threaded PVC fitting. The fitting then screwed into the lightbulb socket. These puck lights are battery powered and include a remote control switch.

BILL McNAMARA



CUSTOM-PROFILE SANDING BLOCK

I was refinishing a piece of furniture and had trouble sanding away the finish on the decorative molding. I tried a sanding sponge, but even that was missing some of the detailed crevices. After learning how a contour gauge works, I was inspired to grab a deck of playing cards, wrap it with flexible sandpaper and press the deck against the tricky profile. The cards formed to a custom sanding block.

CHRIS SCHULTZ





SOAP DISPENSER SWAP

Every time I refill my kitchen sink's built-in soap pump, I'd ponder why I fill this container from another bottle. Now, I simply connect clear tubing to the pump straw and feed the tubing into the soap bottle. It's perfect—I just swap the bottles when the soap runs out.

SARAH GILES



A PET COMB FOR PAINTBRUSHES

Years ago, I had trouble finding a good-quality paintbrush comb. So I went to my local pet store and bought a steel pet comb. They're inexpensive and really strong, and they do a great job of cleaning my brushes.

THOMAS H. MILLEN



DOOR HINGE TEMPLATE

When you hang a new door, aligning the hinges properly can be frustrating. Try this quick, accurate trick. First, take a straight 1x2 furring strip, the same length as the door, and mark the hinge locations on it. Next, drill holes in it using a hinge as a template. Then, transfer the identical hole positions to both the door and the jamb for perfect alignment. Be sure to leave a 1/8-in. gap at the top of the door.

HOWARD S. STEVENS



PAINT WITHOUT BUSHES IN THE WAY

Before painting my house, I trimmed back some of the tall shrubs, but getting near the house with a ladder was still an ordeal. Why struggle? Just tie a rope around each shrub about two-thirds of the way up. Pull the rope gently away from the house and stake it down. It takes a little time up front but saves time in the end, and you and the shrubbery take less of a beating.

RAY OSBORN



PLUMBING TAPE FOR LOOSE SCREWS

The leveling feet on our kitchen chairs were coming loose, so I removed each threaded foot, wrapped plumbing tape (PTFE) around the threads and screwed each back in. All have stayed tight. Now I use plumbing tape to tighten other loose screws and bolts.

RICHARD DECK



SHAVER STUD FINDER

If you don't have a stud sensor, try an electric shaver. Just turn it on, move it across the wall and listen for a change in pitch. The wall will vibrate differently where the studs are. This is an amped-up version of knocking on the walls—the vibrations make the pitch change much more apparent.

LARRY MORMINO



SUPER PAINT SCRAPER

When you're pouring paint from a gallon paint can, a lot of paint clings to the can's walls. To get all the paint, cut a notch in the handle end of a wood paint stick. Now you can scrape the inside of the can clean and use every last drop.

PAUL BARNES



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ON-DEMAND MAGNETIC SCREWDRIVER

Magnetic screwdrivers tend to accumulate metal debris from screw heads, and it's tough to remove it all. To provide on-demand magnetism instead, I often use this trick: I just stick a rare earth magnet on the screwdriver shank. Once I no longer need it, I simply remove the magnet and any metal debris comes off easily. This is especially helpful for assembling small parts with tiny screws!

RALPH NEUFARTH



MINI VACUUM NOZZLE

Sometimes my vacuum crevice tool isn't quite small enough, so I came up with a quick solution. Poke a straw-size hole in the bottom of a cup, stick a straw through a few inches, caulk the inside and outside of the cup near the straw, and let it dry. Stick the cup on your vacuum nozzle and you're all set.

JEROME ODEN

HOMELAB

fh A TESTING ZONE FOR INNOVATIONS

CLEAN FLOORS FAST

I ran this floor cleaner over the vinyl tile in my home's back entryway for about five minutes, and then I emptied its dirty water bucket. Now I'm a believer. Let me explain.



I don't mind cleaning my hard-surface floors by hand occasionally. Sure, it is a chore, but the results are quite good, and I can do it all with simple cleaning liquids and rags. The problem is, it can take a couple of hours to move all the furniture and sweep, clean and dry the wood. So I do it infrequently.

The Tineco Floor One S5 is a wet/dry vacuum designed to clean hard-surface floors, and its smart capability adjusts the cleaning power automatically. It has separate tanks for clean water and dirty water, and a soft cloth roller

BY GLENN HANSEN

for cleaning. Cordless, this device includes a dock receiver that plugs into a wall outlet for charging.

I was hesitant to run the wet cleaner over my wood floors on the first go. So, for my first test, I aimed at our vinyl tile flooring. Cleaning this small but high-traffic area normally requires sweeping or dry vacuuming before hand-scrubbing, usually taking an hour or so. With the Tineco, I was done in less than 10 minutes. The condition of the water in the dirty tank showed that the device removed a lot of grime.

While the Tineco is cleaning, its color LED display shows you what the device is doing. A lighted circle changes from red for cleaning mode to blue for cleaning success. When the circle is 100 percent red, the Tineco has recognized more cleaning is needed. The battery charge appears on a scale of 1 to 100.

After I saw how little cleaning liquid the Tineco applied on the vinyl tile, I knew I could clean the wood flooring that covers most of my main level. The manufacturer says this device is safe to use on hard surfaces, including sealed wood flooring.

With no precleaning, I ran the Tineco over my wood floors and watched the circle light modulate from red to blue. The light glowed red near my coffee station, around the dining table and throughout the front hallway. When finished, the floor was completely dry except for a few minor spots, and those dried quickly without my intervention. During our coffee-spill simulation test, I had to stop cleaning once to empty the dirty water tank (a larger container would be nice).

I tackled the bathrooms too—not a pleasant job to do manually. Then, for a torture test, I ran the device over my epoxy-coated garage floor. I usually clean this with a garden hose and push broom. The Tineco grabbed leaves, grass clippings and sawdust, and it cleaned a low spot regularly stained with drippings from the car.

Before trying this cleaner, I balked at its \$500 price tag. After using it, I would consider this a good investment in cleaner floors, and in saving time.



A SMART, ECONOMICAL LIGHTBULB

Its flickering cry for help caught my attention before it flashed its final light. That was the last incandescent lightbulb in my house, and it went dark. Elated, I quickly screwed in a new smart bulb and now feel as if my home has left the 20th century behind. Dramatic? Maybe, but the shift from heated wire filaments to LED bulbs that we can talk to is as big as it sounds. To replace that last old-school bulb, I twisted in a new Solana smart LED bulb from Bulbrite, a company that has been in the lightbulb business for more than 50 years.

Bulbrite's Solana smart bulb lineup includes standard bulbs in a range of lumens; globe, chandelier and reflector-style bulbs; and Edison-style bulbs with visible filaments. We tried a Bulbrite color smart bulb in the A19 size with a 60W equivalency. When buying smart bulbs, look at "brightness" measured in lumens (a measure of the visible light). Most manufacturers note the wattage equivalent on the packaging. A single bulb is about \$20; that's on the middle-to-low end of smart-bulb pricing.

Installation is just a bit more difficult than screwing in a lightbulb. Download the Bulbrite app to your phone and then spend some time learning how to make the bulb work best for you. No additional accessories are required; no remote or smart-home connection is needed. The Solana bulbs don't work with IFTTT actions. You can, however, easily set schedules for a Solana bulb with the easy-to-use app, and you can create scenes within those schedules. The bulb generates colors in a pleasing array for fun scene opportunities, and the scheduling options add convenience that makes these bulbs well worth the price. If you've not yet tried smart bulbs, the Bulbrite Solana lineup is a nice entry point.

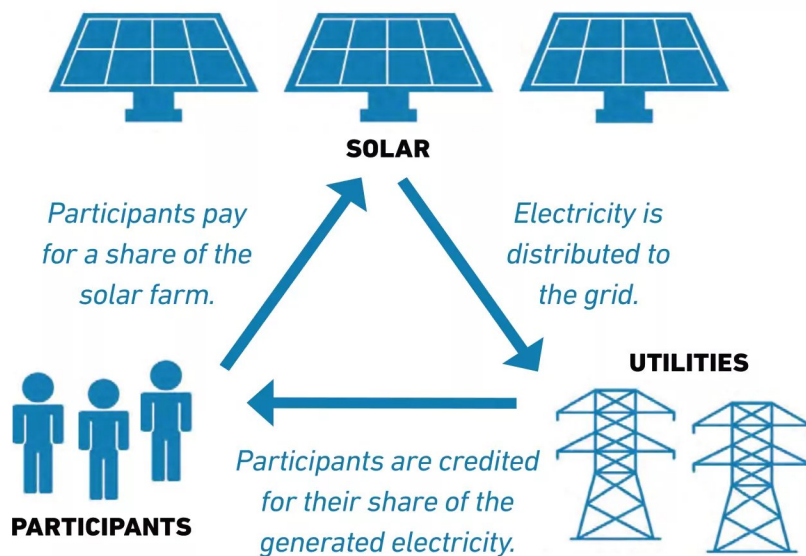




COMMUNITY SOLAR: IS IT FREE MONEY?

If you install solar panels on your home's roof, you can deliver excess energy (solar-generated electricity beyond that powering your home) directly to the electrical grid. The utility then gives you credit—they pay you. That's "net metering."

In some states you can take advantage of solar-power savings without having solar panels on your roof by joining a community solar garden. It works like this:



Owned by a local "farmer" or a cooperative with acres full of solar panels, the garden generates electricity, which it distributes to the local utility provider. Participating community members receive credit on each electricity bill for a share of the power generation. Members pay a lesser portion back to the solar farmer, and the rest is savings, estimated at about 10 percent of your monthly bill. This is called "virtual net metering" because the solar power is not counted on your actual meter. Not every state allows this, though about 25 states currently do, and the laws and rules are evolving.

The initial investment, by the way, would be \$0 for the solar garden in a community. Some solar garden farmers are giving incentives for new members to join. The "locked-in discount" would be \$0.01 (one cent) per kilowatt-hour, equal to about a 10 percent annual savings.

Ask your utility provider about community solar gardens in your area.

COMMUNITY SOLAR COULD BE RIGHT FOR YOU IF:

- You are a renter and have no rooftop on which to install your own solar panels.
- The roof of your home is too small for solar panels or does not get south-facing sunshine.
- You just don't want solar panels on your roof.
- You may relocate in the next year or two.

YOUR ACTUAL SAVINGS DEPEND ON SEVERAL FACTORS:

- How much energy the garden produces (weather, solar panel efficiency).
- The rate at which the utility's prices increase annually.
- The policies of your electric utility and your state.

FINGERPRINT ACCESS FOR YOUR HOME

Yes, I got a traditional key with this Kwikset Halo Touch door lock. And there is a keyhole for it. But I'm hoping to never use it. (I did use it once during installation so I know it works.) The actual key is my fingerprint. Or my wife's. Or my son's. Or my neighbor who has always had a house key. Or that of whomever I want to access my house.

This smart lock from Kwikset is a complete replacement for your existing door hardware. Even though I needed to grab a chisel and a drill to make the set's new strike plate fit my door, the whole installation took about 30 minutes. And that included downloading the Kwikset app, creating an account and scanning some fingerprints. For most installations, the job requires just a screwdriver.

The Kwikset Halo Touch has a circular fingerprint scanner just above the keyhole. On the inside of the door, a rectangular housing holds a motor, a few inches of wiring and a case for the four "AA" batteries.

To lock the door, simply place any finger on the scanner. No fingerprint security is needed to lock the door. Or activate the lock from the phone app or using Alexa or Google Assistant. We wish this Kwikset lock had an IFTTT interface; read more about that in our Winter '22 issue, p. 24. Feeling nostalgic? You can use the key.

Unlocking the door requires a saved fingerprint—up to 50 fingerprints (people) can be saved in your account. The app lets you limit access to any of those fingerprints by date or time of day. And you can shut off fingerprint access whenever you want. There is also a detailed history of who entered by fingerprint and when.

For its easy installation, attractive style and incredibly smart control interface, this Kwikset Halo Touch lock is a new favorite feature at my house. The lock shown costs about \$250 online and at home centers.



OLD CABLE & PHONE LINES: KEEP OR TOSS?

Q My house was built in 2006, and each room is wired for cable TV and ethernet. I don't watch cable TV, and I have a strong Wi-Fi signal throughout my house. Plus, my unfinished basement ceiling contains rivers of cable and cords and wires, all leading to a junction box that I opened once and then quickly slammed shut. Should I just remove all these cables and outlets?

Richard, via email

A With cable TV cord-cutting on the rise and wireless internet access increasing, our home's wiring needs are changing. Yes, you can remove all that coaxial cable and those ethernet wires in your walls and basement. Those wires do not carry electricity and are generally safe to remove. But wait; before you begin pulling wires, think about a couple of things:

First, those cables could benefit you, especially the ethernet ones. Compared with simple Wi-Fi connections, an ethernet connection is more reliable, more secure and considerably faster, maybe twice as fast. Plus, if you live in a large or multistory home, you can get better connectivity with wired ethernet connections.

Second, there's a thing called "power over ethernet" (PoE), and it may be applicable in your home. Through PoE, power and data communication are delivered through one cable. It's not brand-new technology, but it hasn't reached mainstream homeowner status yet.

PoE could be used to power a newer TV, a videoconferencing system or a security camera, to name a few things. It's likely to gain popularity in office buildings and schools, and it could also come to your home. But it is limited in the amount of current it can transmit. Standard Cat5, an

older but common version of ethernet cable, can handle up to 100 watts. You'll need a PoE Injector or other equipment, plus a knowledgeable installer.

As for that coax cable? It could have value in the future if you decide to sell your home. You can also now run "ethernet over coax" with an adapter. Coax wiring can handle high-bandwidth video signals, and that's useful for online gaming, videoconference calls and more. Look for an EoC or a MoCA (multimedia over coaxial alliance) adapter.

You may not be using these cables now, but consider yourself lucky to have them; most homeowners don't.





BY JAY CORK

CONSOLE STEREO REVIVAL

////////////////////////////////////
VINTAGE STYLE, MODERN SOUND!

This 1960s console stereo had so much potential. We weren't going

to let a little water damage and outdated electronics doom it to a landfill. Using simple woodworking techniques, we refurbished this console and added to its high style. Then we filled it with 21st-century audio goodies. The best part? We'll show you how to do the same.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
3-4 days	\$600	Intermediate

TOOLS

Table saw, band saw, random orbital sander, router, basic woodworking tools





PRO TIP:

I did this step first because it required the console to be upside down, and I needed to repair the top later anyway.



FIX COSMETIC DAMAGE

1 FIT A NEW BOTTOM PANEL

When I found this console, it was in rough shape. The legs had broken through the particleboard bottom, so my first step was to attach a new plywood base. I predrilled 16 holes in 1/4-in. Baltic birch plywood and spread the glue evenly with a glue spreader. Then I screwed the plywood to the old bottom with 3/4-in. wood screws.

2 INSPECT WATER STAINS

I got lucky with this water stain; only the finish was damaged—the underlying particleboard wasn't swollen and the wood veneer was only slightly discolored from UV light.

3 RUB SHELLAC INTO THE DAMAGED AREA

A little shellac helps restore the natural tone in the damaged wood where the finish is gone. With a piece of 600-grit wet/dry sandpaper, work a small amount of shellac into the damaged area. Wipe off any excess with a clean cloth dampened with denatured alcohol. This rejuvenates the natural tone of the damaged wood and fills in the grain.

4 ADD STAIN TO EVEN OUT THE COLOR

I let the shellac dry for an hour, then artistically applied the first layer of stain to blend out any evidence of damage. Let this stain dry for at least a day.

MATERIALS LIST

ITEM	QTY.
6/4 x 9" x 48" sapele	1
3/4" x 10" x 60" mahogany	1
Sapele veneer	4 leaves
3" No. 10 washer-head screws	10
3/4" No. 8 wood screws	16
Hide glue	Bottle
Cold press veneer glue	Bottle
White craft glue	Bottle
Gel stain, Antique Walnut	Pint
Gel stain, Java	Pint
Oil-based semigloss topcoat	Quart
Speaker cloth	1 yd.
QuikWood Epoxy Putty	2 oz.

5 FILL CHIPS AND NICKS WITH WOOD PUTTY

Before you apply the final coat of stain, repair surface flaws. I used QuikWood Epoxy Putty (\$10 online) blended with a bit of artist's oil paint (burnt umber) to match the existing color, and I filled the nicks along the edges. Let the putty dry, then use alcohol-based markers to match the surrounding wood.

6 STAIN AND TOPCOAT THE ENTIRE CONSOLE

After repairing damage with wood putty, I applied the first coat of stain to the water spots. When it was dry, I applied a final coat of stain to darken the entire console by about one shade.

REBUILD THE FRONT PANEL

The center panel needed to be covered in place. I chose a four-way bookmatch pattern, with sequence-matched leaves of figured sapele veneer. The speaker cloth was faded, so I replaced it with classic black (\$18 per yard, parts-express.com) and designed new slats to lay over the top.

1 PREPARE THE VENEER

I determined the size of each quadrant and cut two blocks of 3/4-in. plywood 2 in. longer and 2 in. wider. Stack four leaves of veneer and use the plywood as a guide to cut all four at once using a utility knife.

Figured veneer needs to be flattened before glue-up, so I sprayed the leaves with Veneer Tamer (\$14 at Woodcraft) and laid pieces of craft paper between the leaves. Stack everything between the two pieces of plywood and place heavy weights on top. Replace the paper once a day to help draw out all the moisture. Do this until the veneer is completely dry.

MEET THE BUILDER



JAY CORK HAS GUTTED HIS SHARE OF VINTAGE STEREO CONSOLES... A SLEDGEHAMMER IS HIS FAVORITE TOOL FOR THIS.





2 CUT THE VENEER TO SIZE

Drill small pilot holes along two edges and drive short screws through the stack. Make sure the screws won't go through the other side! Now, cut the block to width on a table saw, and then cut it to length on a miter saw.

3 VENEER THE PANEL

Spread a thin layer of veneer glue on the back of each veneer leaf and lay it face down (Photo 3A). The veneer may curl slightly as the glue dries, but don't worry, it'll lie back down. Spread a layer of glue on the substrate and allow everything to dry overnight.

Once the glue is dry, spread one more thin coat of glue on all surfaces and allow that to dry for about an hour. Perfectly center one leaf on the substrate, and with a household iron set to cotton, run the iron slowly and firmly over the entire leaf (Photo 3B). This briefly reactivates the glue, joining the veneer to the substrate. Once the first leaf is complete, repeat this process for the remaining three.



4 MAKE NEW BAFFLES

I used 1/4-in. Baltic birch to make the speaker baffles. To accommodate the new speakers, I cut a rectangular hole with rounded corners 1-1/2 in. from the bottom and 1 in. from the sides. Check for fit and paint the baffles black with water-based paint.

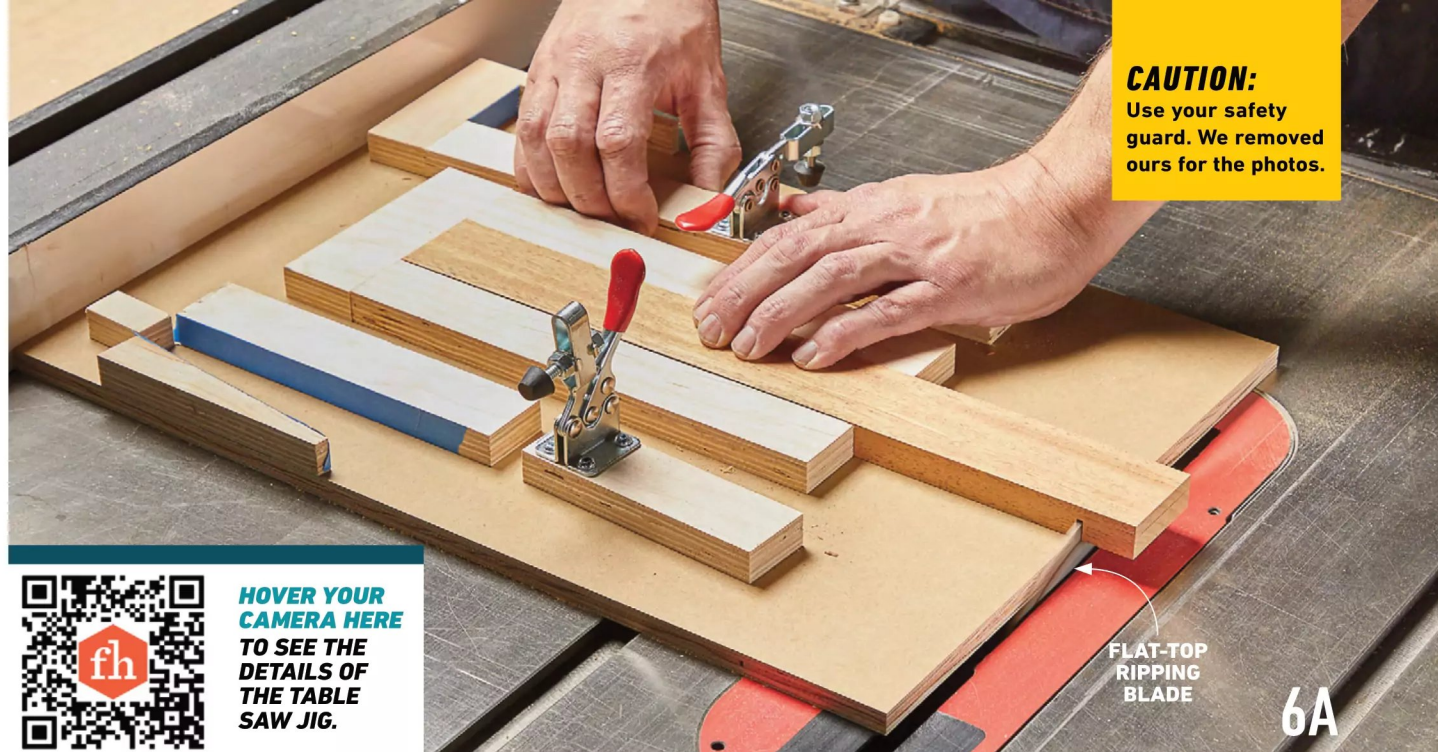
5 APPLY THE SPEAKER CLOTH

Spread white craft glue evenly on the painted baffles. Pay attention to the lines in the speaker cloth; make sure they stay straight and square as you place the cloth on the baffle. Place plywood on top to provide even pressure as the glue dries. Trim the speaker cloth with a utility knife.



CAUTION:

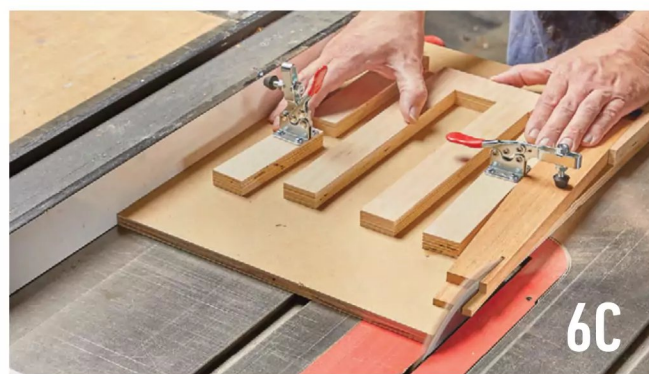
Use your safety guard. We removed ours for the photos.



**HOVER YOUR
CAMERA HERE
TO SEE THE
DETAILS OF
THE TABLE
SAW JIG.**

FLAT-TOP
RIPPING
BLADE

6A



6 CUT THE SLAT PARTS

Cut 2-in. x 16-1/2-in. blocks from 3/4-in. mahogany. This console needs eight. First, mill the rabbet on the ends of the stiles. Place the blank in the center portion of the jig (Photo 6A) and with a flat-top ripping blade set to 1/2 in. high, make multiple passes to cut the full width of the rabbet.

Next, make the first two angled cuts (Photo 6B) on each block. Clamp the stile blank in the jig. Make one cut and flip the blank over (Photo 6C) to make the second. Flip the sled 180 degrees and make the second two angled cuts (Photo 6D) on each block, creating a slender chevron shape.



1/2" x 1"
RABBET





18-GAUGE
BRADS

BOTTOM
RAIL

7



23-GAUGE
PINS

8

7 INSTALL THE SPEAKER BAFFLES

To ensure a good fit, I made the speaker baffles slightly smaller than the opening and attached them with glue and brad nails to mounting blocks on all four sides of the opening.

8 ASSEMBLE THE SLATS

I trimmed two slats flat on one edge and placed those on the left and right sides first, then attached the full slats that cover the joints between the veneered face and the speaker baffles. Finally, evenly space the inner slats and pin them in place.



FLUSH-CUT
SPIRAL BIT

1

PRO TIP:

Face the side with the screw holes inward so they're hidden underneath the console.

MAKE NEW LEGS

I chose sapele for the console's new legs because it was a good match for the veneer on the front panel. Sapele looks like mahogany and is similar to work with, but it often has a pronounced ribbon figure, which I love. I found 6/4 sapele at a local lumberyard.

1 CUT AND ROUT THE LEGS

Make a routing template from 1/2-in. MDF. Drill four evenly spaced holes in the template. Trace the template on the sapele and rough-cut the leg with a band saw, staying about 1/8 in. away from the line. I attached the routing template to the leg blanks with four small screws and cut it flush on the router table.



3"
WASHER-HEAD
SCREWS

2" SETBACK

2

2 ATTACH THE LEGS TO THE CONSOLE

Using a 5/8-in. Forstner bit, drill 1/8-in.-deep holes. This is the countersink for the washer-head screws. Finish predrilling through the leg with a 5/16-in. drill bit. I centered each leg on the bottom of the console using a centering rule and set them 2 in. back from the front and back edges.

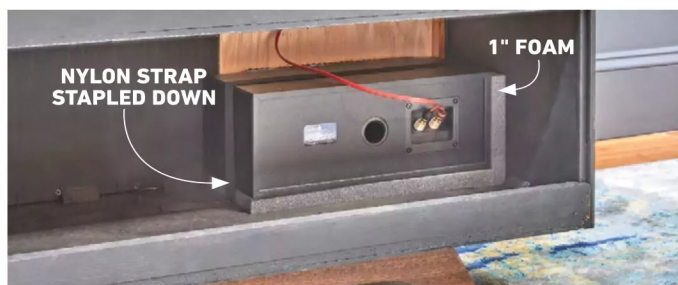
FINISHING THE CONSOLE

I stained the slats with gel stain in Antique Walnut. To topcoat the entire console, I applied six coats of General Finishes Arm-R-Seal semigloss wipe-on varnish.

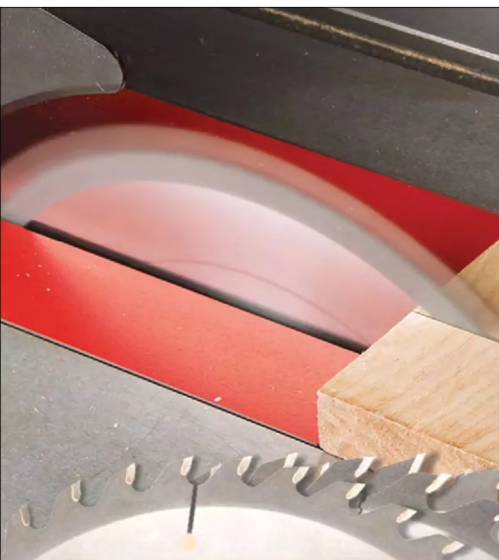


UPGRADING THE AUDIO COMPONENTS

How you handle the audio upgrade can be simple or complicated. I chose simple. I removed the original bits, then found a turntable (\$200 at uturnaudio.com) to fit inside the narrow console, a Bluetooth-capable tube amp and a pair of bookshelf speakers from Dayton Audio (\$150 and \$130 respectively at parts-express.com). Then, I removed the old components and added a panel to hold the new pieces. And it sounds great!



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EST 1928

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HELPING YOU MAKE WOOD WORK® To Find Your Local Woodcraft Store, Visit Woodcraft.com Or Call 800-225-1153.

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ROUND & AROUND

THE SHELVES SPIN TO HIDE, OR SHOW, WHAT'S INSIDE

"One step at a time, you CAN build this."

I repeated that mantra through each phase of this project. I try to stretch the limit of my skills every time I build something new. This round cabinet with revolving shelves stretched, and even bent, my skills. And I had so much fun!

If you are up for a challenge and want to learn new skills and create unique furniture, this is for you. Yes, it made my head spin. But once I started, I knew I could build this piece; you can too. Let me show you how.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
Several days	\$600 to \$900*	Advanced

TOOLS

Table saw or circular saw, router, narrow crown stapler, 18-gauge brad nailer, 23-gauge pin nailer, basic hand tools

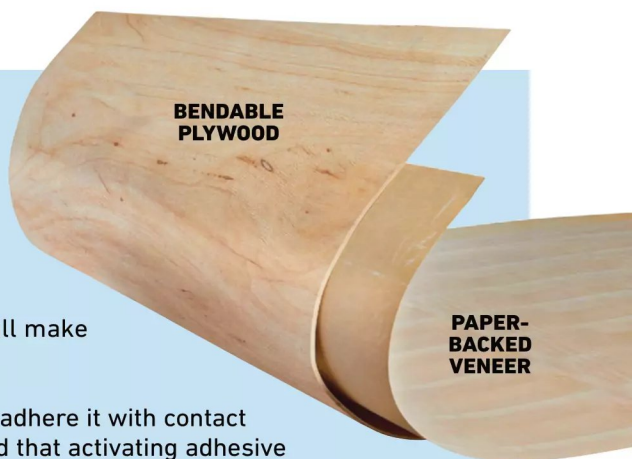
*Depends on your veneer. Our total cost was \$900.

BY MIKE BERNER

THOSE THAT BEND TOGETHER STAY TOGETHER

BENDABLE PLYWOOD is available in different thicknesses, with the thinnest version able to bend into a circle as small as 15-in. diameter. The 1/4-in. sheets I used easily bent into a 21-in. circle. The sheets are made to bend in one direction; an 8 x 4-ft. sheet will make a 4-ft.-tall column, a 4 x 8-ft. sheet will make an 8-ft.-tall column.

PAPER-BACKED VENEER is easy to cut with a utility knife, and you adhere it with contact cement, which bonds two coated surfaces instantly. I was concerned that activating adhesive on PSA (pressure-sensitive adhesive, aka peel-and-stick) veneer would require more force than the thin bendable plywood could handle. I used paper-backed quarter-sawn curly maple veneer.

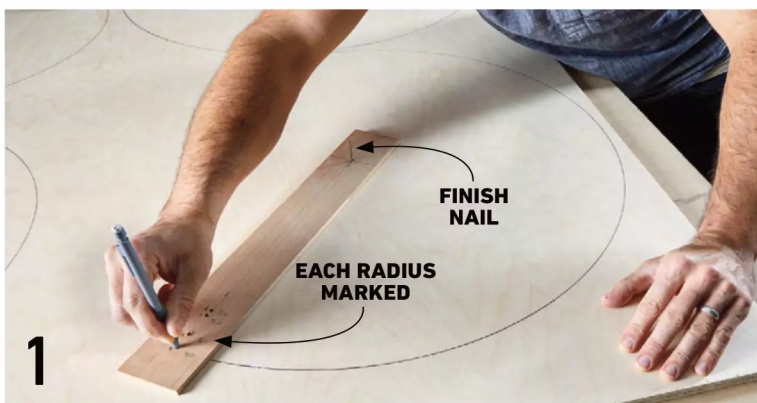


BUILD THE FORMS

The bendable plywood needs a structure to hold its shape. I built two forms, one for the inner shelf unit and one for the cabinet unit. I'm using pairs of plywood discs at the top and bottom of each cylinder.

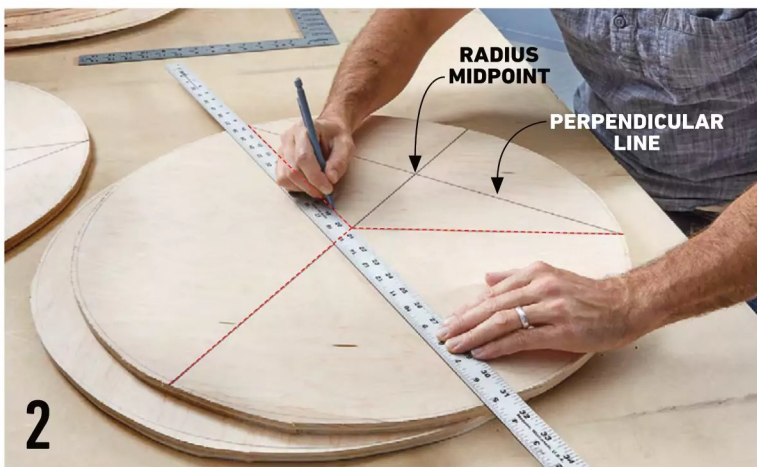
1 TRACE ALL THE CIRCLES

This cabinet consists of 10 plywood discs in four sizes. To draw perfect circles on plywood, I made a compass with a 1/4-in. plywood scrap. I drove a finish nail through one end and then measured from the nail to mark the radius of each of the four circles. I drilled holes at each mark to fit a pencil and then drove the nail into the plywood and pivoted the pencil around the nail. Then I roughly cut out all the circles with a jigsaw.



2 DIVIDE INTO THREE EQUAL SLICES

Dividing each disc into three slices (like a pie) helps align the discs when you build the forms. Draw a line through the center, then a perpendicular line through the midpoint of the radius. Connect the points on the outside of the circle to the center to outline the three equal slices.

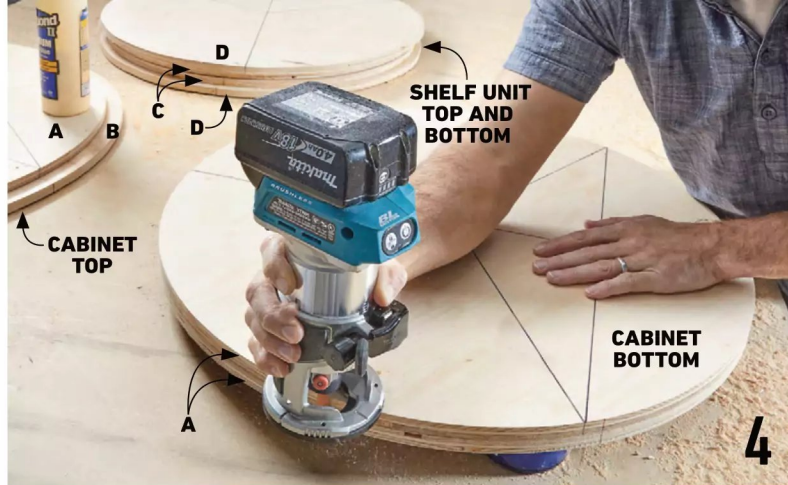


3 CUT PERFECT CIRCLES

With a compass jig, you can cut perfect circles. To attach the router to 1/4-in. plywood, start by removing the baseplate and using it to trace the holes onto the plywood. Then drill the holes and screw the plywood to the router using the baseplate screws.

Measure from the straight bit to mark the radii of the inner discs (A and C); drive a nail at each mark. Place a nail in the center of the disc and pivot the router around the nail counterclockwise. Trim the inner discs for the revolving shelf and two of the inner discs for the cabinet.





4 GLUE AND TRIM THE DISCS

Glue the inner discs to the top and bottom discs, centering them using the lines that divide the discs. The top and bottom of the shelf unit are identical, with the top/bottom discs larger by at least 1/4 in. than the inner discs. The top of the cabinet unit disc is larger than the inner discs by at least 1/2 in. Glue together the bottom discs of the cabinet unit and trim them flush with a pattern bit.

5 CONNECT THE DISCS

Join the tops and bottoms of the cylinders with form spacers. I cut three pieces (F) sized for the shelf unit and three more (E) for the cabinet unit from 1x6 boards, then drilled pocket holes on both ends. I lined them up to the dividing lines on the discs, pointing the pocket holes toward the opening (to make them easier to remove). Flush the form spacers with the outside of the discs and fasten them with pocket screws.

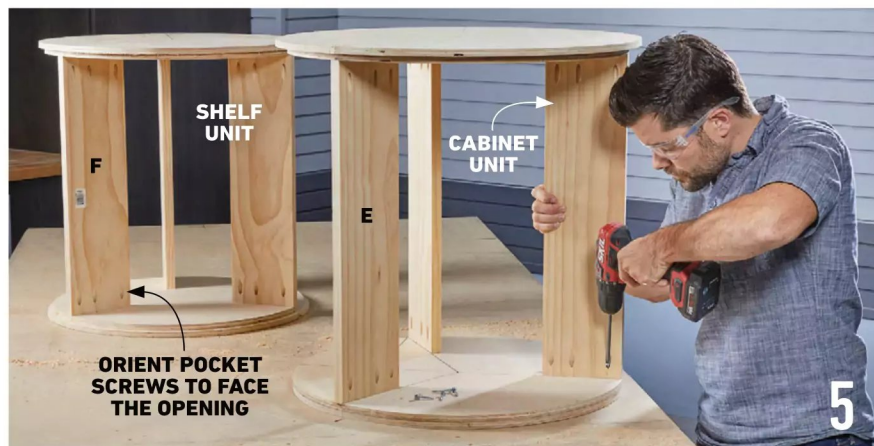


FIGURE A CABINET UNIT

OVERALL DIMENSIONS: 24-1/8"W x 24-1/8"D x 31"H

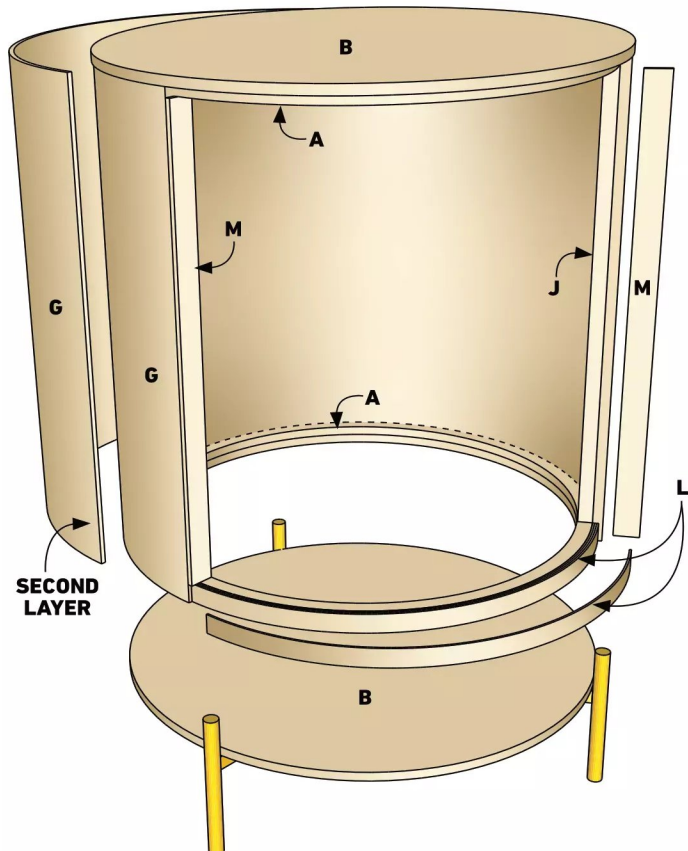
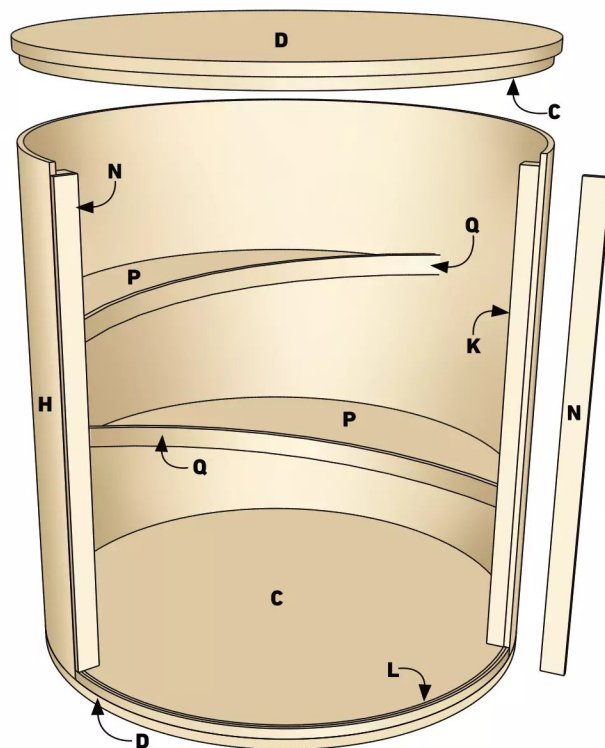


FIGURE B SHELF UNIT

OVERALL DIMENSIONS: 21-9/16"W x 21-9/16"D x 23-3/4"H





BEND THE PLYWOOD

The bendable plywood fits between the top and bottom discs on the shelf unit. The plywood for the cabinet unit will be cut wide, and the bottom will be trimmed after it gets fastened.

6 CUT THE BENDABLE PLYWOOD TO LENGTH

After ripping the bendable plywood to width, determine its length. To do this, start by making marks at each edge of the opening, 1 in. inside the form spacers. Drive a nail to loop the string at the "start" mark, then wrap the string around the back and mark the string at the "end" mark. Then use the marks on the string to transfer the measurements to the plywood. You can also calculate the total circumference using the formula $2\pi r$ and then subtract the opening size.

6

MEET THE BUILDER



MIKE BERNER, AN EDITOR AT
FAMILY HANDYMAN, LOVES
A GOOD CHALLENGE.

MATERIALS LIST

ITEM	QTY.
Maple plywood 1/2" x 4' x 8'	2
Bendable plywood 1/4" x 8' x 4'	2
Maple hardwood 1/2" x 5-1/2" x 3'	1
Maple hardwood 3/4" x 5-1/2" x 8'	1
Quarter-sawn curly maple paper-backed veneer 4' x 8'	2
Table legs	3
16" heavy-duty lazy Susan	1
1/4" glass top, 24-1/8" diameter	1
18-gauge 1-1/4" brad nails	
18-gauge 3/4" narrow crown staples	
Glue	
All-purpose wood filler	
Finishing supplies	



**HOVER YOUR
CAMERA HERE
TO SEE THIS
SPINNING BAR
CABINET IN
ACTION!**

CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
A	3	1/2" x 11-5/8" radius	Cabinet inner disc
B	2	1/2" x 12-3/16" radius	Cabinet top/bottom disc
C	3	1/2" x 10-3/8" radius	Shelf inner disc
D	2	1/2" x 10-11/16" radius	Shelf top/bottom disc
E	3	3/4" x 5-1/2" x 23-1/2"	Cabinet form spacer (Photo 5)
F	3	3/4" x 5-1/2" x 21-3/4"	Shelf form spacer (Photo 5)
G	2	1/4" x 25" x cut to fit	Cabinet shell
H	1	1/4" x 22-3/4" x cut to fit	Shelf shell
J	2	3/4" x 3/4" x 23-1/2"	Cabinet stiffener
K	2	3/4" x 3/4" x 21-3/4"	Shelf stiffener
L	Build layers to fit	1/8" x cut to fit	Bent wood strips
M	2	1/4" x 1-1/4" x 23-1/2"	Cabinet edge banding
N	2	1/4" x 1-1/4" x 21-3/4"	Shelf edge banding
P	1	10-3/8" radius	Shelf (halve the disc and shape to your preference)
Q	2	1/8" x 1" x cut to fit	Shelf edge banding



7 FASTEN STIFFENERS

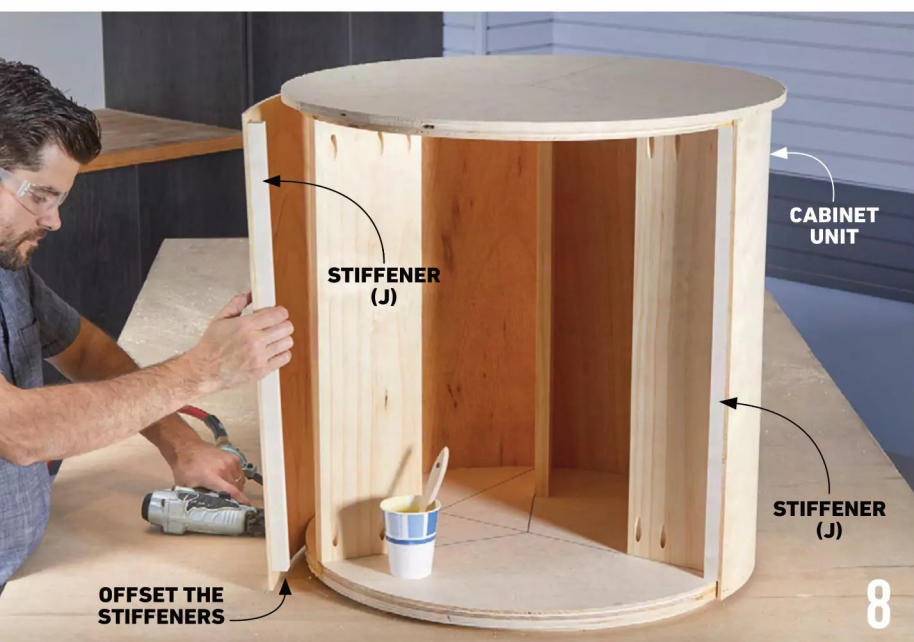
Staple and glue stiffeners to each end of the bendable plywood. The stiffeners are cut to fit between the tops and bottoms of the shelf and cabinet units to prevent the plywood from bowing while you bend it around the forms. Be sure to offset the stiffener so the plywood fits the form, then glue and staple the plywood to the form on one side of the opening.

8 BEND THE PLYWOOD

I temporarily screwed the form to my work surface. Brush glue on the edge of the top and bottom discs. Work in small sections and flex the plywood tight to the form as you staple it to the sides, alternating between top and bottom. Keep pressure on the plywood to keep it from springing back and pulling through the staples.

9 ADD A SECOND LAYER

The shelf unit needs only one layer of plywood, but the cabinet needs to be sturdier, so I added a second. Mark the length of the second layer by clamping one end of the bendable plywood flush with the opening and bend it around to the other side of the opening. Cut it to length and spread a layer of glue on the back side. Staple it to the stiffener, then bend and fasten it around the cabinet just like the first layer.



10 LAYER EDGE BANDING

I used a technique called “bent wood lamination” to cover the exposed plywood and build up the opening to match the rest of the cylinder. Using strips of 1/2-in. maple cut to 1/8 in. thick, I glued, bent and stapled them to the exposed edge until it was flush with the plywood. Don’t worry about a perfect fit; vertical edge banding will hide gaps.

EDITOR’S NOTE:

I had trouble stapling these at first. Staples drove through and split the strips at the ends. I ended up clamping the ends of the strips against the form spacers, and then I turned the output pressure on my compressor way down and stapled the strips toward the middle.

11 COVER BENT PLYWOOD EDGES

I cut a 1-1/4-in.-wide strip of 1/4-in. maple to fit between the top and bottom and glued it to the plywood edge and the stiffener. A few 23-gauge pin nails hold it in place.

12 TRIM THEM FLUSH

When the glue is dry, use a pattern bit to trim the top and bottom discs flush to the plywood and trim the plywood on the cabinet unit. The bent laminations at the openings weren’t quite flush with the bendable plywood, so I sanded and smoothed out the unevenness. This doesn’t have to be perfect, but applying the veneer will be easier if it is.

13 SMOOTH IT OUT

After sanding and smoothing, fill all the staple dimples and gaps on the outside with all-purpose wood filler. Let it dry and then sand it smooth.





FINISH THE SHELF UNIT FIRST

Once you put the shelf unit inside the cabinet unit, there's no way to finish it, so finish this part first.

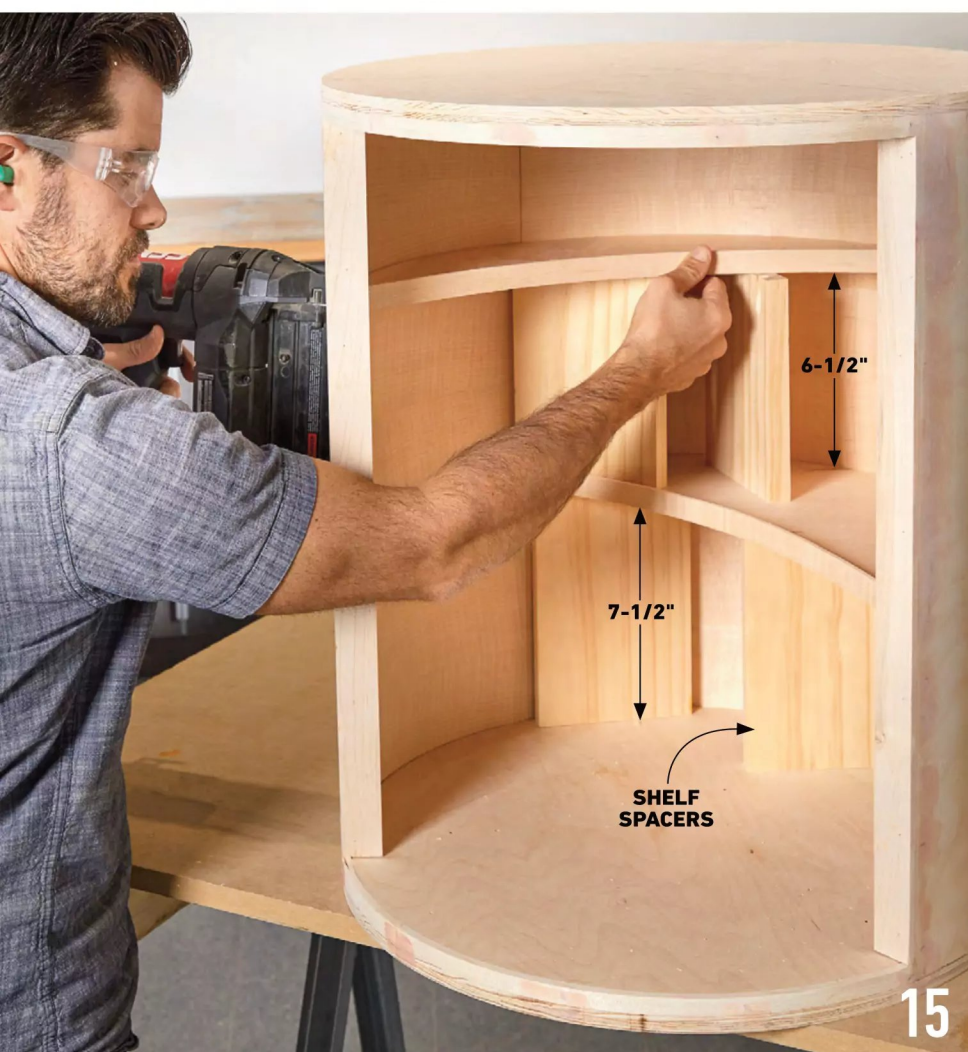
14 VENEER THE INSIDE The inside of the shelf unit is visible, so it needs to be veneered. But after cutting the veneer to width, I realized the difficulty of adhering this in one piece, so I sliced it into 12-in. lengths, keeping it in sequential order to keep the grain continuous.

To adhere the veneer, spread two coats of contact cement on the plywood inside and one coat on the paper side of the veneer. Let the contact cement dry until it's barely tacky after each coat (about 20 minutes). Then align the first piece to the plywood and press the veneer on. Butt the next pieces in sequence against the previous one. Trim the last piece and press the entire surface against the inside wall.

15 FASTEN SHELVES From the extra inner disc (C) cut for the shelf unit, trace two curved shelves. Glue a 1-in. strip of maple edge banding along the front edge of each. I cut spacers to hold up the shelves evenly, then nailed them into place from the outside.

16 VENEER THE OUTSIDE Rolling the veneer on the outside of the pieces wasn't the most difficult step, but it made me nervous anyway. Contact cement sticks permanently on initial contact, so I had one shot to apply it right. Here's how I did it.

- I attached a fence to my work surface to hold the veneer against, then I added a strip to that fence to act as a guide while I roll the cabinet. This gave me some wiggle room.
- I cut the veneer 1-1/2 in. wider than I needed, then spread two coats of contact cement on the plywood and one coat on the veneer.





- With the veneer and the shelf against the fence, I lined up the end of the veneer so it was within the shelf opening. I put craft paper at the corners to keep them from sticking.
- I rolled the shelf in place and pressed it against the fence until the outside was covered completely. I used a J-roller to ensure every inch of the veneer was adhered well.
- I used a sharp utility knife to roughly cut out the opening and to cut through both layers of the veneer at the seam. Then I removed the craft paper and pressed the veneer into the contact cement.
- Using a trim router with a pattern bit, I cut the overhanging veneer flush at the opening, top and bottom of the shelf.

17 INSTALL THE LAZY SUSAN

Flip the shelf unit upside down and fasten the lazy Susan hardware. Position the hardware as close to centered as possible; be sure the distance from the outside of the hardware to the outside of the shelf is even all the way around. Flip it upright and test how it spins—if it's off center, shift the hardware until it spins evenly. Lightly sand and apply finish to the shelf unit, inside and out.





18 CUT OUT THE CABINET BOTTOM

To get the shelf inside the cabinet unit, cut out the cabinet bottom using the router compass jig. I set my jig to cut a 10-7/8-in. radius, which is 1/4 in. bigger than the shelf unit. I cut it out in three shallow passes. The first two passes I routed a complete circle; on the final, I made two half-circle passes, leaving the cutout attached at two points. This way, I could safely remove the router and use a saw to finish the cuts and prevent splintering as the cutout fell.



19 FIT THE INNER SHELF

Place the shelf unit inside the cabinet, then glue and nail the final disc (B) to cover the hole. Once the shelf unit is sealed inside, trim the bottom disc flush to the outside of the cabinet. Fill and sand any staple dimples, veneer the outside of the cabinet unit and apply a finish.



20 FASTEN LEGS

Flip the finished cabinet upside down and fasten three legs. I aligned the two front legs with the edges of the cabinet opening and centered the third leg at the back of the cabinet. (These legs are from norseinteriors.com.)

21 POSITION THE SHELF AND THE GLASS TOP

I flipped the cabinet upright and adjusted the inner shelf to move smoothly without bumping the inside of the cabinet. I ordered a piece of round glass to fit the top and set it on rubber bumpers to keep it in place.



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500	+100	4	\$52.50	\$20.00	25%
750	+150	6	\$70.00	\$25.00	36%
1100	+400	10	\$99.00	\$36.00	44%
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60	+15	5	\$95.00	\$27.00	35%
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180	+45	15	\$190.00	\$60.00	56%

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////////////////////
**AN ICONIC CHAIR FOR A
FRACTION OF THE PRICE**



BY BRAD HOLDEN



Building a chair is a bit daunting because it needs to look good and feel good. That's why I based my chair on a time-tested 1960s design—and a stunning one at that.

Of course, you can build this Selig chair with a shop full of nice power tools, but you can also tackle it with tools you already own or make a minimal investment in a few new ones.

I ordered ready-made cushions from Joybird—a company that makes reproductions of this chair. The size of its stock cushions determined some of my chair's dimensions. You can buy your cushions there and know they will fit.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
4 days	\$600	Advanced

TOOLS

Table saw, circular saw, jigsaw or band saw, drill/driver, router/router table, doweling jig, belt sander, rasp, random orbital sander, angle grinder and flap disc sanders, hand tools



OLD-SCHOOL OR MODERN

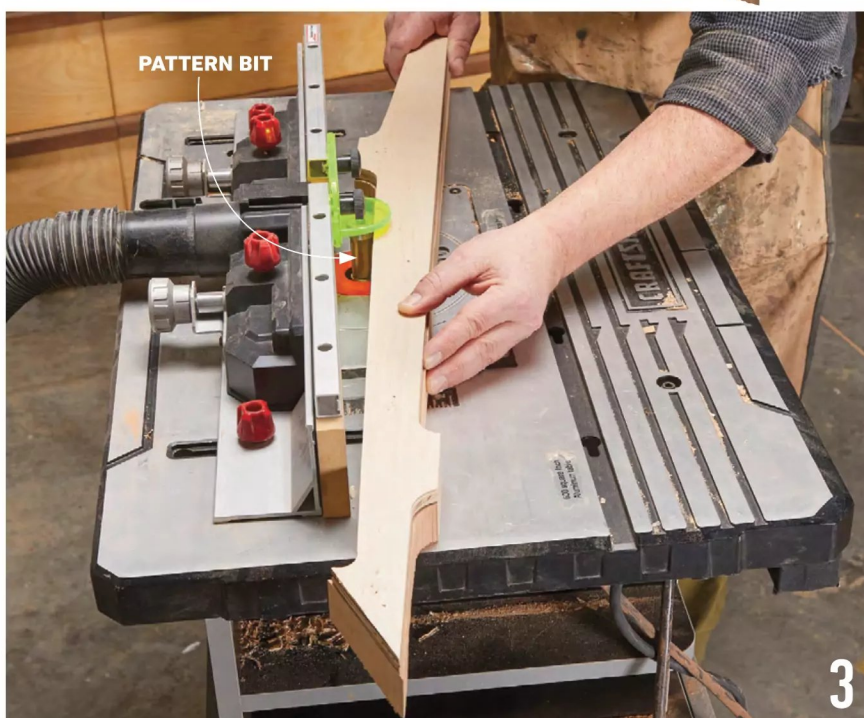
I fell in love with traditional hand tools many years ago. I love restoring them and working with them, so I used them a lot for this project. But you don't need to be a hand tool snob to make this chair. A few common, modern power tools will allow you to do all the necessary shaping and joinery.

MAKE A MOCK-UP

To customize your chair for a particular shape, start with a rough mock-up using scraps. You'll be able to get all your angles and dimensions perfect. If you do change the dimensions, you may need to have custom cushions made.

Once you have it just right, make a full-scale drawing. I do this on white melamine; it's easy to make changes by just wiping off pencil marks with mineral spirits.





1 MAKE PART PATTERNS

Print full-size patterns (see the QR code on p. 43), then cut them out of 1/2-in. MDF with a jigsaw or band saw, staying just outside of the line. Carefully sand your patterns, taking all the time you need to get them perfect. Your router's pattern bit will follow them exactly. If you don't have a router or router table, don't worry. I'll tell you about other options as we go.

2 TRIM THE PARTS

Trace your patterns on your lumber, and then cut them out, staying no more than 1/8 in. outside of the line. That leaves very little to rout off, making Step 3 much easier. If you're not going to use a router with a pattern bit, you'll still make the patterns, trace them onto your lumber and rough-cut them using a band saw or jigsaw.

3 ROUT THE PARTS

Tack the patterns to your rough-cut parts with 1-in. brad nails or finish nails. Using a pattern bit in your router or router table, trim off the excess. Pry off the pattern, attach it to the next rough-cut piece and continue. If you're not using a router, sand your parts to the line instead. For this, you can use a belt sander, edge sander, spindle sander or all of the above. For tight radii, you'll need to use a round file or sandpaper wrapped around a dowel if you don't have a spindle sander.

FIGURE A EXPLODED VIEW

OVERALL DIMENSIONS:
29-1/2"H x 29-1/2"W x 35-3/4"D

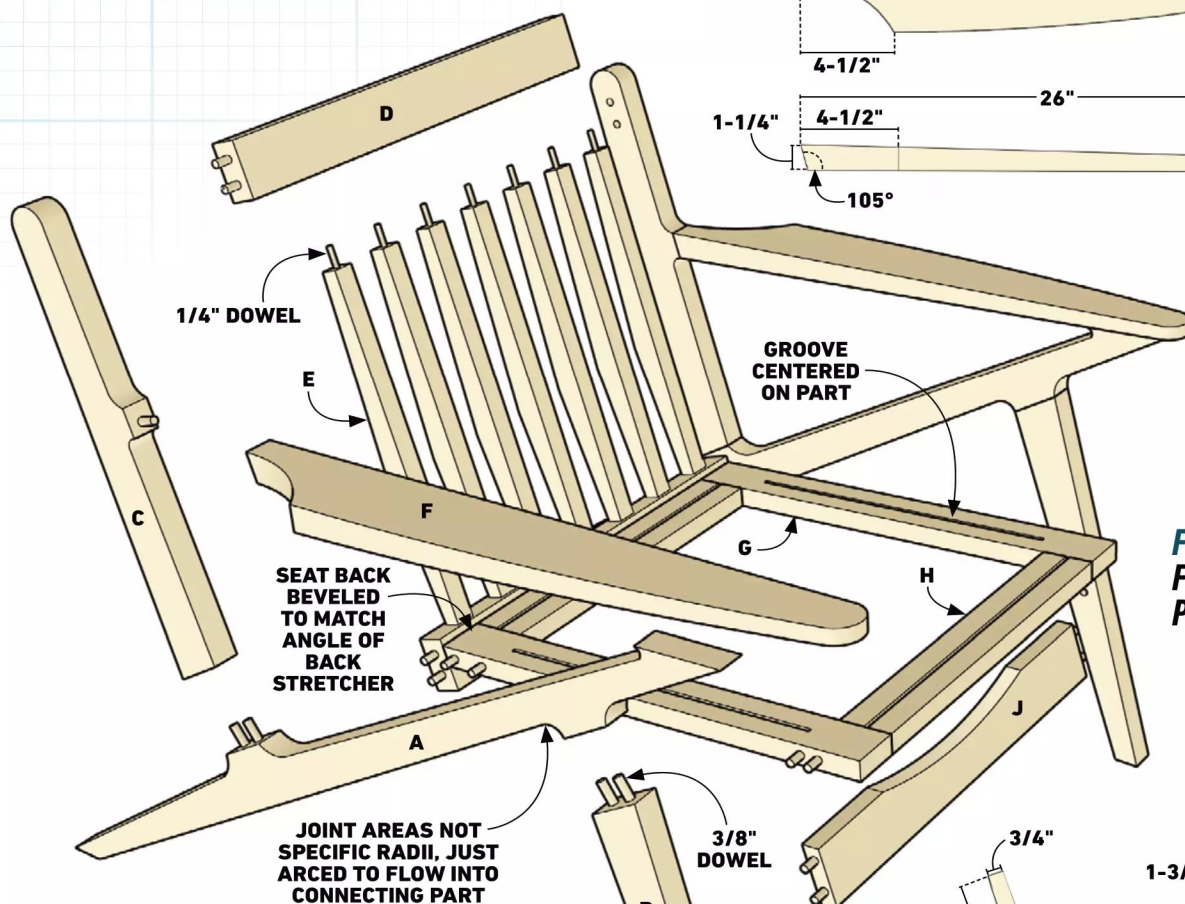


FIGURE B ARMREST PATTERNS

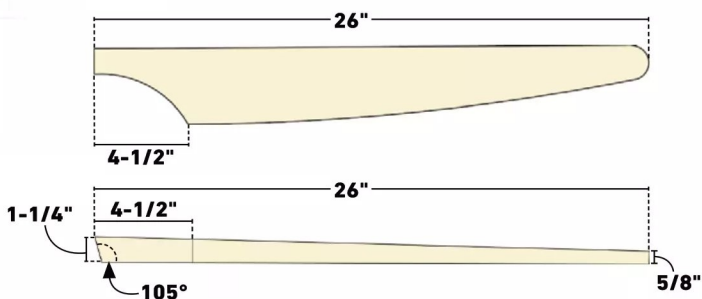


FIGURE C FRONT LEG PATTERN

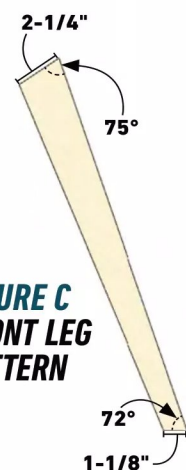


FIGURE F FRONT STRETCHER PATTERNS

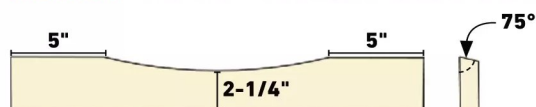


FIGURE G BACK LEG PATTERN

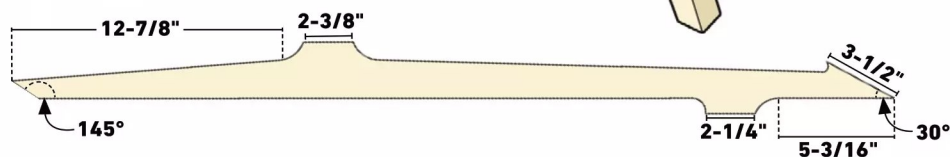
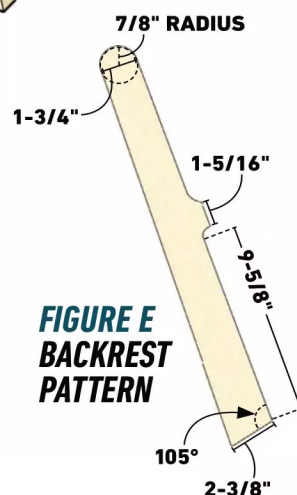


FIGURE D BACK SPINDLE PATTERN



FIGURE E BACKREST PATTERN



MATERIALS LIST

ITEM	QTY.
6/4 cherry	12 BF
4/4 cherry	3 BF
3/8\" dowels	
1/4\" dowels	
2\"-wide seat webbing	12'
Seat webbing clips	12
Wood glue	
Hide glue	
Gel polyurethane	
Sandpaper	

CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
A	2	1-1/4\" x 3-1/2\" x 41-1/4\"	Back leg
B	2	1-1/4\" x 2-1/4\" x 19-3/8\"	Front leg
C	2	1-1/4\" x 3\" x 21-5/8\"	Backrest
D	2	1-1/4\" x 2-5/8\" x 22\"	Back stretcher
E	7	1\" x 1-1/4\" x 17\"	Back spindle
F	2	1-1/4\" x 3-3/4\" x 26\"	Armrest
G	2	1\" x 2-3/8\" x 21\"	Seat frame side
H	2	1\" x 2-3/8\" x 17-1/4\"	Seat frame stretcher
J	1	1\" x 3\" x 22\"	Front stretcher



HOVER YOUR CAMERA HERE TO DOWNLOAD FULL-SIZE CHAIR PATTERNS AND TO WATCH AN IN-DEPTH VIDEO OF THE BUILD.



4 MAKE DOWEL JOINTS

Test the fit where the front legs and back supports meet the joint areas on the back legs. Those joint areas terminate at the outer edges of the back leg boards, so they should be perfect. If you need to make any adjustments, touch up the pieces with a sanding block, disc sander or edge sander. Once you're satisfied with the fit, mark each joint where the dowels will go. Clamp your dowel jig to the joint surfaces, lining up its registration mark with the marks you made, and then drill your holes. I used two 3/8-in. dowel holes in each joint. Use a brad point bit for this.



5 ASSEMBLE THE SIDES

Dry-fit the dowel joints to make sure everything lines up properly. Be sure you're using dowels made for joinery, not smooth dowel stock from the hardware store. Joinery dowels are fluted, allowing glue to escape the dowel holes as the joints are pressed together. A tight-fitting smooth dowel doesn't allow the glue to escape and can prevent a joint from closing.

Once you're satisfied with the fit, apply glue to the dowels and joint surfaces, insert the dowels and press the joints together. Use pipe clamps to coax them fully home. Stop blocks clamped to the parts keep the pipe clamps from sliding. Glue only one joint at a time, so you're never in a rush.



6 ROUT THE SIDE ASSEMBLES

Once the glue is dry, radius all the sharp edges with a 3/8-in. round-over bit. If you don't have a router, you can accomplish this easily with hand tools. A rasp, a belt sander, an orbital sander, hand planes, spoke-shaves or any combination of these tools is fair game. Avoid the armrest joints at this point.

MEET THE BUILDER



BRAD HOLDEN IS A SENIOR EDITOR, FORMER CABINETMAKER AND SELF-PROFESSED HAND-POWERED HAND TOOL SNOB.



7

7 GROOVE SEAT FRAME PARTS

Create $5/32 \times 1/2$ -in. grooves down the center of each seat frame part. The best way is to make two passes using a $1/8$ -in. bit in a compact router with an edge guide. That way you can make stopped grooves in the side frames. Otherwise, you can make these grooves on the table saw and fill the resulting gap afterward.

8 ASSEMBLE THE SEAT FRAME

Using your dowel jig, drill dowel holes in all the seat frame parts. Test the fit, then add the glue and dowels. When the glue is dry, bevel the back edge at 75 degrees.



8

9 MAKE THE BACK SPINDLES

Cut the seat's back spindles to their finished shape, staying just outside the line. Then sand them to the line and round over the edges with a $1/4$ -in. round-over bit, sanding block or block plane.

9





10 MAKE THE STRETCHERS

Cut the back and front stretchers, shaping the front stretcher as shown on the pattern. Round over only the bottom edge of the front stretcher and bevel its top edge at 75 degrees. After rounding over the back stretchers, drill seven evenly spaced 1/4-in. dowel holes in one edge of each back stretcher, centered on its thickness.



11 ASSEMBLE THE BACK

Use dowel centers and a 1/4-in. spacer to locate the dowel holes in the spindles (Photo 11A), then drill 1/4-in. dowel holes in the ends of the spindles. You can set up a vertical drilling jig on your drill press or just drill them freehand. Glue all the spindles into the bottom stretcher, then add the top stretcher (Photo 11B). For a complex assembly like this with lots of joints, I use hide glue because it has a long open time.

12 CUT THE ARMREST JOINT

Lay the assembled side on your workbench and set the armrest in place. Copy the angle from the backrest joint area onto the end of the armrest using a sliding T-bevel. Cut the angle with a miter saw.





13A

13 SHAPE THE ARMRESTS

You've already cut their basic shape—now the fun sculpting begins. The armrests taper in thickness from back to front, as shown on the pattern. I used a band saw to cut this taper. If you don't have one, you can cut the taper with a handsaw or just belt-sand it down. Don't shape the backrest-armrest joint area.

With the armrest set in place, trace the front armrest support on the underside of the armrest, so you know to stay away from that area too. Now you can simply smooth the tapered armrest, round over the edges and call it good. Or you can "scoop" the top, as I did (Photo 13A), and give the underside a more gradual round-over (Photo 13B). You can scoop the top using a flap-disc sanding wheel on a grinder.

14 ASSEMBLE THE CHAIR

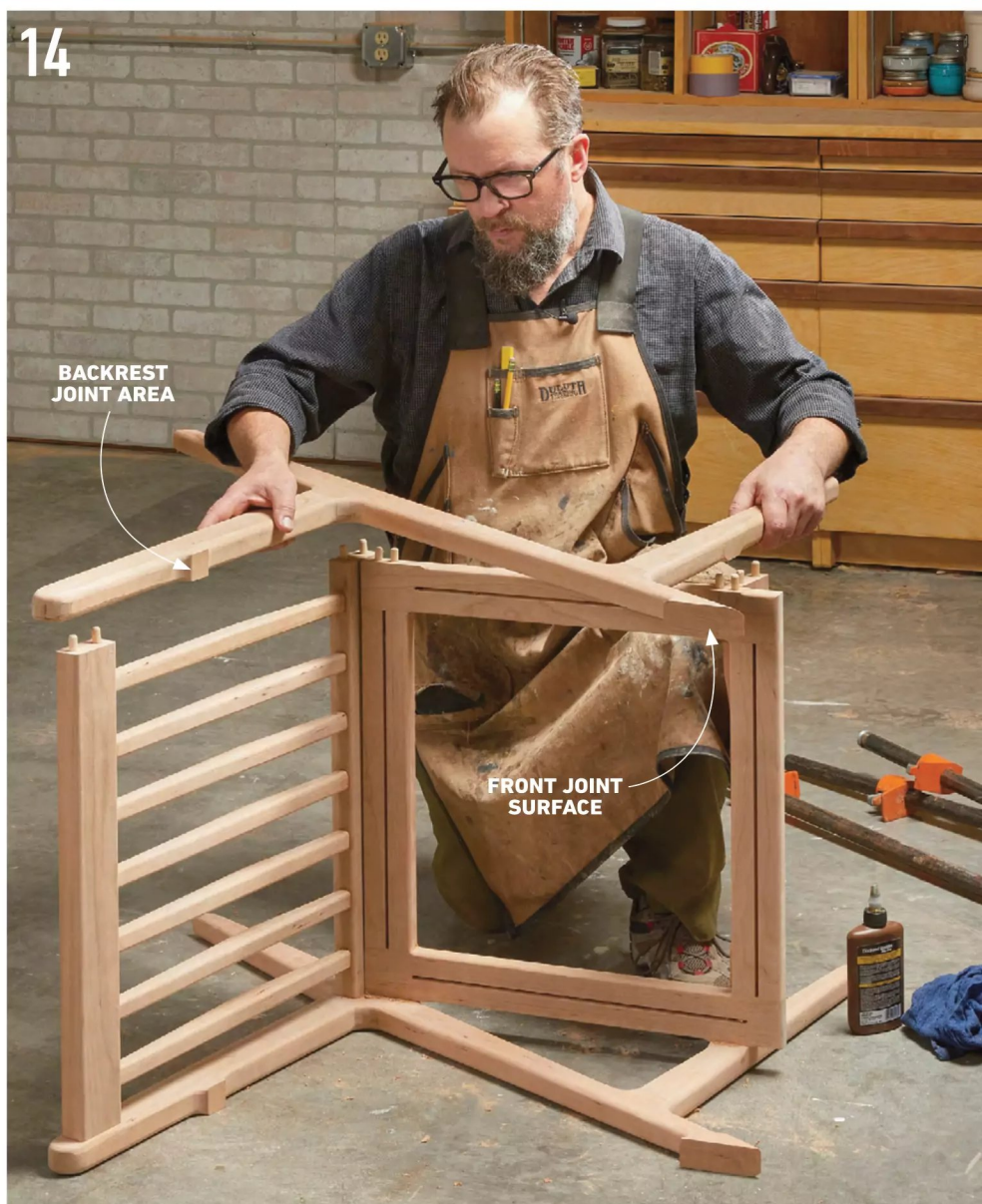
Dry-assemble the chair (without dowels) using pipe clamps, and then mark each part's location on its mating part. Mark and drill dowel holes in the seat frame and stretchers. With the chair disassembled, set the drilled parts in place on the chair sides and mark the dowel locations using dowel centers.

Drill the dowel holes in the chair frame. Apply glue to the dowels and the joint surfaces, and attach the back and seat frame to one side. Glue the dowels into the other ends of the seat frame and stretchers, and press the second side onto the dowels. Again, use hide glue to give yourself extra time. Use pipe clamps to press the joints fully home.



13B

14





15 ATTACH THE ARMRESTS

The back joint is a standard dowel joint. Drill the backrest first, using a doweling jig, and then mark the armrest with a dowel center. Next, put a dowel in the backrest hole, hold the armrest in position and trace the dowel's angle on the edge of the armrest. That will give you a reference for drilling that hole freehand.

I used one 3/8-in. dowel at these joints. Glue the dowel and joint surface, as well as the front joint surface. Press the joints together, using packing tape to hold the front of the armrest in place, and let the glue dry.



16 FINISH SHAPING

Shape and refine all the joint transition areas. Use everything at your disposal: flap-disc sander, belt sander, rasps, files and/or sanding blocks.

Once the shaping passes the eye test, sand the whole chair and apply a finish of your choice. I sanded up to 800 grit and used five coats of General Finishes Gel Topcoat. It's easy to apply, and you don't have to worry about drips or sags. But it doesn't build up as quickly, so you need to apply more coats than you would with a brushed-on finish.



17 PREP YOUR SEAT WEBBING

Cut three pieces of webbing to go across the seat, and three to go front to back. To find the right lengths, measure the distance between slots and add 13/16 in. Squeeze the webbing clips on the ends of all the webbing strips. You can do this in a vise, or use a Vise-Grips or similar pliers.



18 INSTALL SEAT WEBBING

Starting about 2 in. from the side frame, insert one clip for the first strip into the back frame member's groove and the other clip into the front frame groove. Continue across the whole seat, evenly spacing the three strips. Next, add webbing across the seat by weaving the strips in between front-to-back webbing.

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ART & LIGHT

MAKE YOUR OWN MASTERPIECE

BY GLENN HANSEN

I wanted a wooden floor lamp by my reading chair, but I couldn't find one at the giant light fixture retailer near me—there were no wooden lamps at all. I saw a sleek cherry lamp online, and it cost nearly \$3,000. So I decided to make my own, including the lampshade.

This elegant lamp is a simple project, and it gives woodworkers creative flexibility. Make a taller floor lamp, or a table lamp. Go with more dramatic curves. Lampshade fabric opportunities abound. And the lamp cord? I'll show you how to hide it.

WHAT IT TAKES

TIME
2 days

COST
\$400

SKILL LEVEL
Beginner to
Intermediate

TOOLS

Table saw, jigsaw, handsaw, drill, doweling jig, router/router table, random orbital sander, wire cutter, screwdriver



THE LAMPSHADE

Make your own lampshade from nearly any type of fabric or paper. I chose Japanese shoji paper for its elegant simplicity (eshoji.com). You'll back the shoji with styrene, a sturdy, adhesive-backed paper that comes in rolls. Styrene adds structure and acts as a fire-resistant layer. Narrow lampshades can retain heat if you use a high-wattage lightbulb, making styrene essential here.

1 ATTACH STYRENE TO LAMPSHADE PAPER

For my 17.5-in.-tall and 8-in.-diameter lampshade, my styrene needed to be 17.5 by 25.12 in. (that's 8 in. x 3.14). The lampshade paper needed an extra 1/2 in. or less on the top and bottom to wrap around the lamp rings, and 1/2 in. on one edge to overlap the completed circle.

Lay the paper face down on a clean work surface. Set the styrene on top, adhesive side down and still covered. Peel adhesive backing from one end that's flush to the lamp paper, slowly removing the backing while pressing the styrene to the paper. Smooth out wrinkles and bubbles as you go.

2 CONNECT THE LAMP RINGS

Apply double-sided tape to both rings. With your lamp paper and styrene face down, place each ring on edge, one at the top and one at the bottom of the styrene. Slowly roll the rings along the edges of the styrene to form a lampshade drum. Binder clips help secure the styrene to the taped rings. When you complete the circle, wrap your extra paper tab over and secure it with a clear-drying glue.

3 FINISH THE SHADE

Wrap the extra 1/2 in. of lamp paper around both rings, pinching the paper carefully as you go. Fabric would be easier to work with here than delicate shoji paper. Make small cuts in the paper to wrap around any metal bracing arms.



MEET THE BUILDER



GLENN HANSEN, DEPUTY EDITOR, CLAIMS HE ONCE BUILT A MINIATURE RAFT FROM POPSICLE STICKS. NO PHOTOGRAPHIC PROOF REMAINS.



THE LAMP

1 MAKE A TEMPLATE

Creating four identical legs—tall and gracefully curvy—is best done with a template. These 60-in.-tall legs are 4 in. wide at the top and 7-9/16 in. wide at the base. That makes a 16-in.-wide lamp around an 8-in. lampshade.

The outside edge of each leg has one gentle curve top to bottom. Inside, a gradual curve begins about 15 in. from the top and ends 8 in. from the bottom. The straight edges at each end will hold the lampshade (top) and act as a joining surface (bottom). Shape the curves to your liking. I used a 5-ft. straightedge, a clamp and a few nails to help establish my shapes.

NOTE:

Portable lamps are covered under UL 153, which permits a cord to pass through wood, or other insulating material, not less than 3/64 in. (1.2 mm) thick, with a smoothly rounded inner surface being equivalent to a bushing.



2 RIP ONE LEG

Before cutting any curves in the legs, you'll rip one leg to create a channel for hiding the lamp cord, and you need the straight outside edge for that. The channel needs to be near the center of the narrowest part of the leg. I measured 2 in. from the outside edge and ripped off a 2-in. strip. You'll glue this back in place after you cut the wire channel.

3 CREATE A WIRE CHANNEL

On that ripped cherry, cut a 1/2-in. channel beginning at the bottom and stopping about 14 in. short of the top. I made a few passes on the table saw to create this channel, but you can use a router if you like.

The lamp cord will run through that channel from the plug end at the floor to the lamp socket end inside the lampshade. Later, you will drill a 1/2-in. hole on the side of the base to allow the lamp cord out and then another hole on the inside edge 14 in. from the top where the cord will exit to connect to the lamp socket.



4 GLUE IT TOGETHER

After ensuring the wire channel is smooth inside and big enough for the cord to easily pass through, glue the ripped strip back onto the leg so you can begin cutting the curves.

5 CUT THE CURVES

Cutting long curves into cherry takes patience. Mark your curve lines well. And prep your jigsaw to make square cuts with a sharp blade. You could use a band saw to cut these, but you'll finish with a router and sandpaper so a jigsaw works well here. Cut no more than 1/8 in. proud of the curve line. With your template and a pattern bit in a router table, you'll finish these curves.



6 PATTERN-ROUT THE LEGS

I used a few dabs of hot glue to adhere the template to each leg. Glue is easy to remove and leaves no marks. Rout in the direction of the wood grain. Using a double-bearing pattern bit, I could flip my wood over to control that direction and avoid tear-outs that can happen when you're routing against the grain.



7 ROUND THE EDGES

I wanted radiused edges on the legs. With a 1/2-in. round-over router bit, I radiused all the sharp corners. However, I left the legs square on the bottom 8 in. where the four legs will unite.

8 CUT THE LAMP CIRCLE

On a square piece of the same cherry stock, draw a 10-in. (outside diameter) circle and an 8-in.-diameter concentric circle. You're making a cherry doughnut. Use your 8-in.-diameter lampshade as a guide for the inside circle. Using a jigsaw, cut this doughnut proud of both lines, then sand the outside and inside edges to the final size. Leave the edges square.





9 CUT THE NOTCHES

Use your circle to mark the four notch cutouts. Measure down from the top of each leg to ensure the circle will be level. Cut these notches by hand with a jigsaw or a handsaw. With a sharp chisel, clean up the joining surface. Test-fit the circle—you'll place it later.

10 JOIN THE LEGS

Cut a squared strip of cherry that's as thick as your finished legs and 8 in. long (or as tall as each leg's squared base). That strip will fit inside the space where the legs come together.

Using a doweling jig (Photo 10A), drill two holes on each leg. Use dowel centers to mark dowel holes around the joining strip. Offset the holes so the dowels don't hit each other. Glue two opposite legs and clamp them, then glue a third leg in place (Photo 10B) and clamp it. Don't add the final leg yet.



10A



10B

11 PLACE THE CIRCLE

After you've glued three of the legs at the base, place the circle inside the notched cutouts. I used a chisel to make each notch slightly concave to cleanly accept the circle. You won't need glue or nails to secure this. Then you can secure the fourth and final leg in place.

THE GEL FINISH

Sand the entire lamp, finishing with 220-grit paper. You can finish the lamp as you like. I chose General Finishes Gel Topcoat; I like what it does to cherry, and I wanted to match Brad's Danish modern chair (p. 40).

This oil-based product leaves a satin finish. With its thick consistency, it is easy to apply. I used a chip brush to apply the finish and then wiped off the excess with a clean, soft towel. The finish does require a long drying time, followed by light sanding in between. I repeated this process four times and was pleased with the result (but tired of sanding).



11



THE WIRING

1 FEED THE WIRE UP THE LEG

Even though I decided to hide the cord, I bought decorative lamp cord from Color Cord Co., which has a wide range of attractive wiring options. I still want the cord to look nice as it runs from the lamp and across the floor. To fish the cord through the lamp, wrap one end in electrical tape and feed it up the channel you cut.



2 WIRE THE PLUG END

Color Cord Co. makes it easy to buy the right pieces and to connect them. Follow the instructions to create secure connections at the plug and socket.

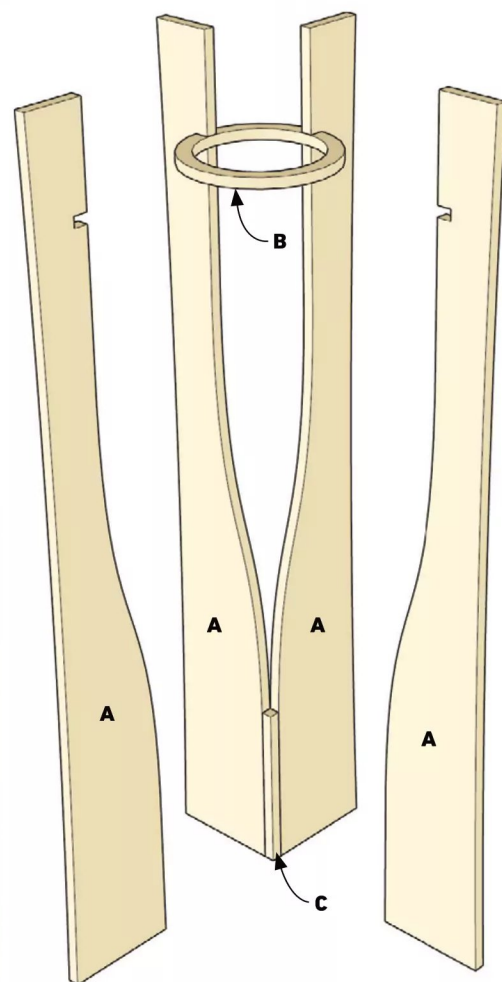


3 CONNECT THE SOCKET END

For the socket end of the wiring, I bought shade-ready sockets that fit with European-style lampshade rings. If you're using a lampshade with U.S.-style rings, you'll also need to buy the saddle and harp pieces of the lampshade. A company called I Like That Lamp sells kits on Amazon and Etsy.com.

FIGURE A ART LAMP

OVERALL DIMENSIONS:
16"W x 16"W x 60"H



MATERIALS LIST

ITEM	QTY.
4/4 cherry	24 BF
4/4 cherry, 11" square	1
Lampshade rings, 8"	2
Styrene, adhesive-backed roll	1
Lampshade paper or fabric	
Lamp wire, socket, plug, switch	
3/8" dowels	
Rice glue (or any clear-drying glue)	
Double-sided tape	
Gel polyurethane	
Sandpaper	

CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
A	4	7/8" x 7-9/16" x 60"	Lamp legs
B	1	10"-diameter circle	Cherry lampshade circle
C	1	7/8" x 7/8" x 8"	Joining strip

WALNUT WATERFALL

THIS TABLE IS SO SIMPLE—THE BEAUTY OF THE WOOD DOES MOST OF THE WORK!

Live-edge wood has a natural appeal that makes it popular for a variety of woodworking projects—dining room tables, shelving and more. But where do you find beautiful 2-in.-thick slabs of walnut or maple? Certainly not at home centers. Search online for local sawmills and hardwood suppliers to find live-edge wood slabs.

At the supplier, you're sure to find DIYers and pro woodworkers combing through stacks of wood slabs looking for that perfect piece. We sourced this walnut from a local hardwood supplier and had it surfaced-planed at a local sawmill.

BY JOE CRUZ

MEET THE BUILDER



JOE CRUZ IS AN ARTISAN WHO BRINGS SIMPLE, ELEGANT DESIGN TO EVERYDAY DIY.

IMAGINATION

The artistic challenge—or opportunity!—of any woodworking project is visualizing your finished item in the piece of wood even before you buy it, let alone pick up a tool. Have general measurements in mind and bring a tape measure when you go hunting for that superb slab.

A few things to think about when looking at a slab: Start with your overall dimensions, including the thickness of the piece. Then consider how much of the live edge is exposed, the amount of sapwood and how many cracks are in the piece of wood. (You can fill cracks. Don't let them deter you from buying an attractive piece.) Determine how much machining and milling it will take to make the piece of wood usable for your project. It's the science and art of woodworking.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
Full day	\$250	Beginner

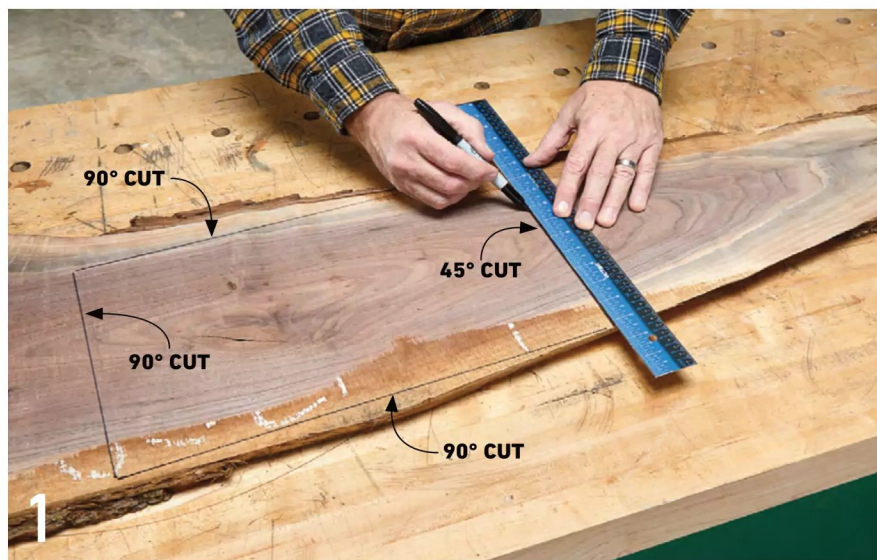
TOOLS

Circular saw, straightedge, miter saw, drill/driver, rubber mallet, orbital sander, wood chisel, safety goggles, dust mask, measuring tape, clear packing tape

1 LAY OUT THE TOP

Before you start cutting, examine the contours of the live edge and notice the wood's grain patterns. Decide which surface will be most pleasing for the top of your table. As much as possible, leave the live edge untouched.

Lay out the size of your table frame on the underside of the piece. Draw lines where you plan to make cuts. The front edge of the top will have a 45-degree angle, with the front edge of the table frame aligning at the short point of the 45-degree angle on the underside of the top. Some of your tabletop might have straight 90-degree cuts; that depends on the slab you chose and the shape of its live edges.



2 SET UP FOR CUTTING

Secure the slab on a stable workbench or sawhorses. You can make your cuts by letting the slab hang over the edge of your work surface or setting it on top of the 2x4s. This allows room for the saw blade underneath so you won't cut into your workbench.

Next, measure the distance between the edge of your circular saw's base plate and the saw blade (inset photo). Add that dimension to the perimeter lines you'll cut. Lay a straightedge or piece of plywood as a saw guide on top of the wood slab at the line you just made, and then clamp all the pieces to your work surface.





3 CUT 90-DEGREE ANGLES

Set the depth of your saw blade so it's slightly deeper than the thickness of your wood slab. Make all your 90-degree cuts first.

4 CUT 45-DEGREE ANGLE ON WATERFALL

Next, set your saw blade back to full depth and tilt the circular saw base plate to a 45-degree angle. Make your first 45-degree angle cut. The long point of the 45-degree angle should be the front edge of your waterfall.

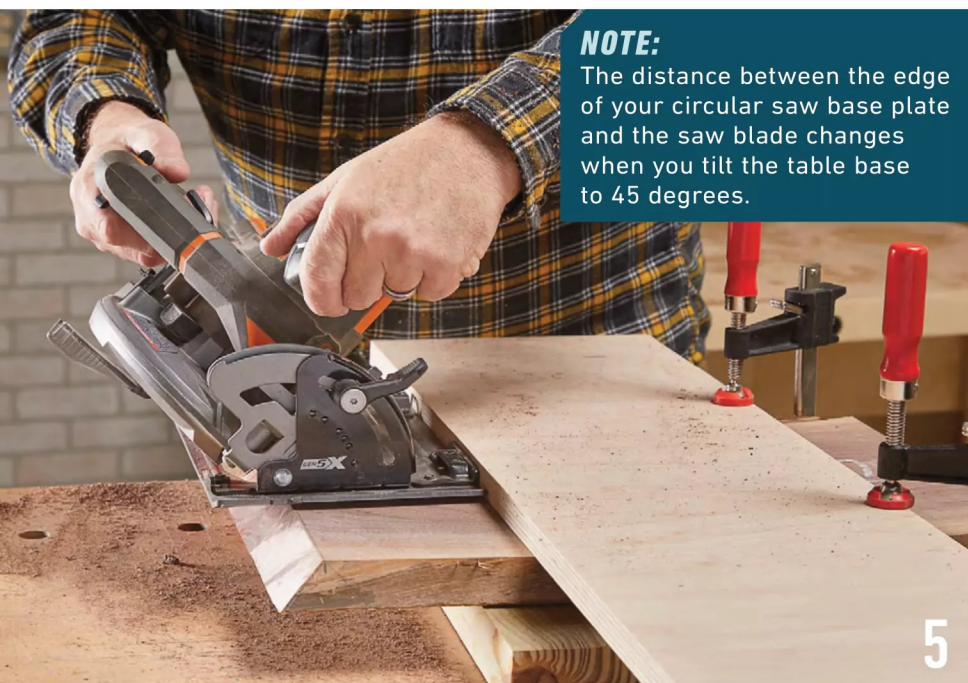


5 CUT 45-DEGREE ANGLE ON TABLETOP

To cut the angle on the tabletop, move your plywood saw guide to accommodate the next cut, clamping it to your work surface. Cut another 45-degree angle in the opposite direction along the line of the short point of the 45-degree angle.

6 EXPOSE THE LIVE EDGE

Using a chisel or multi-tool, carefully remove the bark to expose the natural edge—in some cases, the bark will pull off easily. Of course, you can always leave some of the bark on for a natural and rustic look.



NOTE:

The distance between the edge of your circular saw base plate and the saw blade changes when you tilt the table base to 45 degrees.





7 SAND THE PARTS

Once you've removed the bark, use an orbital sander with 150-grit sandpaper to smooth the surface and knock off any sharp edges. Always wear a dust mask when sanding.

8 TAPE THE TOP

To glue the tabletop and waterfall pieces together, position them so the long points of both 45-degree angles face each other. Next, stick three or four strips of clear packing tape across the seam to join the two pieces.

9 APPLY GLUE

Carefully turn both pieces over and apply wood glue to both 45-degree angles. Lift the waterfall piece to close the gap between the two 45-degree angles and create a 90-degree angle.

10 GLUE UP THE TOP

Hold the joint together and stretch packing tape from the waterfall piece to the tabletop. Use a damp cloth to wipe away any glue that squeezes out.





CAUTION:

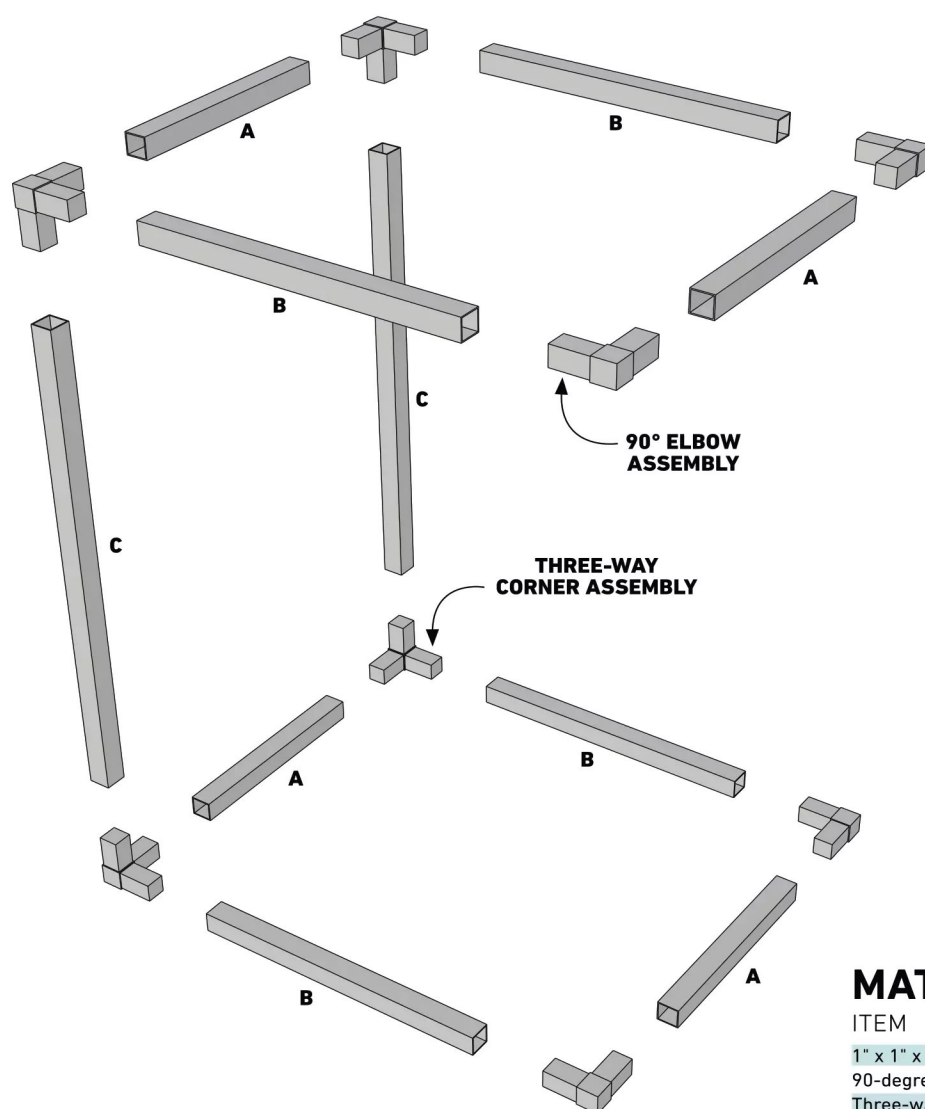
Wear proper eye protection.



90° ELBOW ASSEMBLY

FIGURE A METAL TABLE FRAME

OVERALL DIMENSIONS: 10"W x 16"D x 25"H



CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
A	4	1" x 8"	Front and back
B	4	1" x 14"	Sides
C	2	1" x 23"	Uprights

11 CUT THE SQUARE TUBING

Cut the square tubing using a miter saw with a carbide-tip saw blade.

12 ASSEMBLE THE TABLE FRAME

The frame of this table goes together quite easily. Start by constructing two rectangle frames using parts A and B, the 90-degree elbows and the three-way corner connectors. Then simply connect the two frames with the two uprights (C).

NO-WELD METAL TABLE FRAME

We built our table frame using 1-in. square aluminum tubing and press-fit framing connectors from grainger.com. Yes, we were originally eager to weld some steel for this, but then we found these materials—they're affordable, easy and strong.

You simply cut all the square tubing to length and assemble the table legs with nothing more than a rubber mallet.

NOTE: The size of your frame depends on the size of your tabletop.

MATERIALS LIST

ITEM	QTY.
1" x 1" x 12' square tubing (No. 18G632)*	1
90-degree press-fit connectors (No. 18G638)*	4
Three-way press-fit connectors (No. 18G639)*	4
1" x 12" x 36" live-edge walnut	1
Wipe-on polyurethane	
Spray paint and primer	
1-1/2" wood screws	
Wood glue	
Stick-on felt pads	4
Clear packing tape	

*Available from grainger.com



13

13 APPLY A FINISH

Once the glue is completely set, make another pass over the whole piece with the orbital sander. Apply three to four coats of wipe-on polyurethane to seal all the surfaces of the wood, including the bark if you chose to leave it on. Sand with 400-grit sandpaper between coats. Finish the table frame by spraying primer and paint on all sides in the color of your choice.



14

PRO TIP:

Set the depth of your drill bit or use a piece of tape as a stop so you don't drill through the top. Also, double-check the length of your screws to be sure they're not too long.

14 ASSEMBLE THE TABLE

To attach the top to the frame, drill two 1/4-in. holes into each of the two 14-in. square tubes (B) on the upper assembly, 3 in. from each end.

Lay the tabletop upside down so the waterfall is pointing up. Set the table frame on the underside of the top so the back of the waterfall aligns with the 23-in. uprights (C). Drill a 3/32-in. pilot hole into the underside of the top at each of the four 1/4-in. predrilled holes in the frame.

15 ATTACH THE FRAME

Attach the frame to the top with No. 8 1-1/2-in. wood screws in the four predrilled holes.

To prevent scratching an uncarpeted floor, stick four felt pads to the bottom frame assembly.



15

BEST PRO TIPS



EXPERT ADVICE FROM THE JOB SITE



HOME INSPECTION LESSONS

A CRASH COURSE IN HOUSE HEALTH

BY JAY CORK

When you're buying or selling a home, it helps to have an ally. Hiring a home inspector can help you avoid surprises at the closing table. I talked to Chris Meis of Honest Home Inspections to discover the most common issues he finds and what advice he has for buyers and sellers alike.

LEFT: NATIKKA/GETTY IMAGES. RIGHT: CONTRASTADICT/GETTY IMAGES

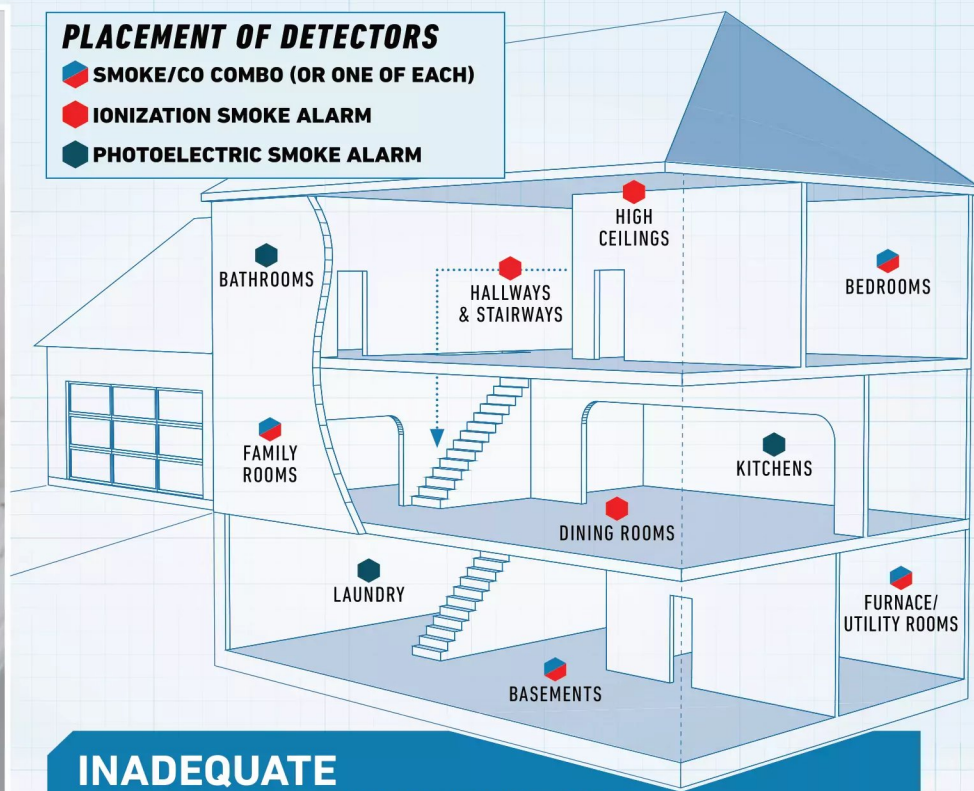
NUISANCE PLUMBING LEAKS

Ceiling stains mean there's a leak somewhere, but it might not be directly above the stain. Sinks, toilets and tubs are all potential sources of water leaks. If not repaired, leaks become water stains, rotten floors and mold.



PLACEMENT OF DETECTORS

-  SMOKE/CO COMBO (OR ONE OF EACH)
-  IONIZATION SMOKE ALARM
-  PHOTOELECTRIC SMOKE ALARM



INADEQUATE SMOKE AND CO DETECTORS

Chris often finds that houses have inadequate smoke and CO detectors. Your home needs a smoke detector in every bedroom and on every floor of the house. And you must have a CO detector within 10 ft. of every bedroom.



EXTERIOR WATER MANAGEMENT

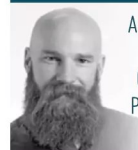
The most common problem Chris encounters is poor exterior water management. When full of debris, gutters will overflow and water will find its way right into the basement. If you keep your gutters clean and intact, you're one step closer to a dry basement and a healthy house.



ROOFING

The roof is the single most important protective element for any house, and Chris finds plenty of problems here. Vents, chimneys and flashing are all potential weak spots. Keep a close eye on a tile roof for storm damage or wear.

MEET THE EXPERT



AFTER CAREERS IN CONSTRUCTION, AUTOMOTIVE MECHANICS AND CABINETRY, **CHRIS MEIS** FOUND A PROFESSION WHERE HE CAN APPLY AND SHARE ALL HIS KNOWLEDGE.



RECEPTACLES AND SWITCHES

Chris commonly finds dropped grounds or swapped wires in electrical outlets and switches. His circuit tester quickly indicates problems with GFCI and normal receptacles. Buy your own tester, or hire a pro if needed.



PET STAINS

It's not uncommon for sellers to have the carpets cleaned just before they begin showings. A freshly cleaned carpet may mask pet stains from our eyes, but it may still be hiding a dirty little secret. Chris uses a black light to find evidence of pet stains. Eww!

CHRIS'S ADVICE FOR BUYERS & SELLERS



DON'T SKIP THE INSPECTION!

Unless you're a housing professional with the ability to spot and take care of any and all issues yourself, skipping an inspection is a dangerous game. Don't do it!



ASK ABOUT INSURANCE

Housing inspectors may not be required to keep Errors and Omissions insurance in your region. If they don't have insurance and they miss something that turns out to be significant, you may have no recourse. Always ask about this up front and make an informed decision.



NO REPAIR? BE READY TO ASK FOR A LOWER PRICE

It's important for buyers to understand that a seller may choose not to fix the problems highlighted in the inspection report. This is the buyer's opportunity to negotiate a better purchase price for taking on the repairs.



WHICH ISSUES DO YOU NEED TO TACKLE FIRST?

Once you've closed on your new home, the real work begins. Chris likes to help his clients formulate a plan to address the issues discovered in the inspection. You don't need to fix everything at once. Chris suggests prioritizing projects and creating a repair plan that fits your timing and budget.



DIY ... OR HIRE A PRO?

Determine which issues you're able to fix yourself and which ones are best suited for an expert. Roofing, electrical and plumbing are best left to the professionals.



BE PROACTIVE

Even if you're not in the market to sell, having an inspection is a fantastic way to gauge the health of your home.



DO A PRESALE INSPECTION

Position yourself for a quick and happy sale by doing a prelisting inspection. It highlights any issues up front and avoids surprises at the closing table.



CHECK FOR MOLD

Selling a home with mold is difficult; mold may even be a deal breaker. Mold is most commonly found in attics, basements and bathrooms. If you think your home has mold contamination, Chris recommends scheduling a comprehensive mold inspection right away to find out if there is a problem and how big it might be. It's always best to deal with this issue before listing for sale.

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CHRIS'S GO-TO TOOLS

Here are the inspection tools Chris brings with him every day.



FLASHLIGHT

This rechargeable lithium-ion flashlight from Milwaukee (\$80 online) has served Chris for years.

MASK

Home inspection is often a dirty business. Chris protects himself with a Rikon half mask respirator (\$50).



BLACK LIGHT

Even after carpet cleaning, pet stains can still be detected with a black light. Not for the faint of heart.



RADON MONITOR

This RadStar monitor (\$1,400) allows Chris to test for radon, but it also gives him insight into other environmental variables.

CAMERA

Chris and his crew document everything. A digital camera is essential for this.



COLLAPSIBLE BUCKET

Chris never knows when he may need a bucket. This one fits in his toolbox.



LASER THERMOMETER

A laser thermometer can help Chris determine whether in-floor heating is working. Expect to pay about \$45 for one.

SCREWDRIVER

Basic? Yes.
Indispensable?
Absolutely!



MOISTURE METER

If water damage is hidden, a Protimeter moisture meter (\$400 and up online) will find it.

REPORT APP

With an app on his phone, Chris is able to provide detailed reports to his clients via email.



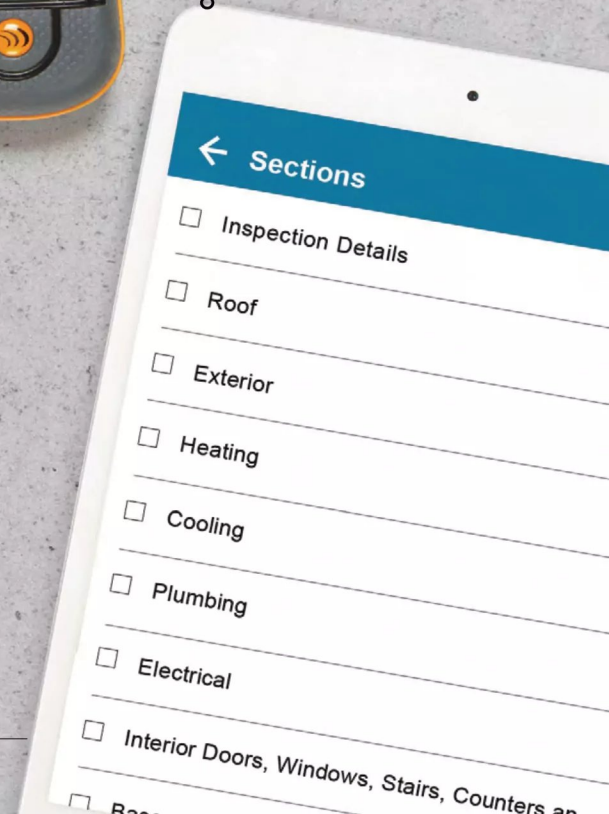
WATER PRESSURE GAUGE

This Rain Bird water pressure gauge (\$65 online) gives Chris an accurate reading of water pressure throughout the house.



OUTLET TESTERS

This outlet tester reveals whether an electrical outlet has a dropped ground or swapped lines. You can find testers at any hardware store.



Sections

☐ Inspection Details

☐ Roof

☐ Exterior

☐ Heating

☐ Cooling

☐ Plumbing

☐ Electrical

☐ Interior Doors, Windows, Stairs, Counters, and

☐ Bas

HOME CARE

 MAINTENANCE & REPAIR | STORAGE & ORGANIZATION | HEALTH



WHAT'S DOWN THE DRAIN?

THE WHAT, WHY & HOW ON P-TRAPS

BY GLENN HANSEN

It's shaped like a "P" and can be found under sinks, tubs and showers. A simple device, a P-trap holds just enough water to create an airtight seal that prevents sewer gas from backing up into your home. As you run water down a drain, you're continuously refilling that trap. This plumbing masterpiece has been in use for about 250 years. Here's what you need to know about it.

P-trap pipes are available in different materials, but the assemblies are similar. Your P-trap can be polypropylene (white or black), ABS (black), PVC (white) or 18-gauge brass (either chrome-plated or natural). Plastic traps come in inside-diameter sizes of 1-1/4 in. (for a standard bathroom sink), 1-1/2 in. (for a laundry sink, bathtub or standard kitchen sink) and 2 in. (for a shower or floor drain).

If your bathroom sink drains slowly, you may have a clog of hair around the stopper below the drain. Those clogs can usually be removed with a long wire hook.

If the clog is deeper than that, it could be inside the P-trap. The same design that traps water can also trap hair, food and diamond earrings. To clear the first two, try a plunger; block the sink overflow or other openings before plunging. Drain cleaners can damage fixtures and pipes. A plumbing snake can also clear the trap, but it won't retrieve that diamond earring. For that, you may need to disassemble and reassemble a P-trap in your kitchen or bathroom. Here's how.

If you're lucky, your sink's trap has a cleanout nut located on the lowest portion of the bend. You can remove that and clear many clogs. Grab an empty bucket and place it under that nut, then remove the nut and let the contents drain out. If your trap doesn't have a cleanout nut, you can easily disassemble the trap and find that earring; you might not even need tools.

The P-trap is connected to the tailpiece at the sink end and the drain line (also called the waste line) at the opposite end. Those connections use slip nuts and beveled cone washers. An older home with metal P-traps might use squared and thick rubber washers with accompanying flat metal washers. Either way, if you're taking apart your P-trap to remove a

clog, pay close attention to the placement of the washers and reassemble them the same way.

If you're tackling this job because the P-trap is leaking, it's best to buy a new PVC P-trap. It will last longer than metal and costs only about \$10. If your plumbing is visible—underneath a pedestal sink, for example—you can purchase decorative P-traps.

REMOVE THE P-TRAP

If your P-trap was installed properly, you should be able to remove it using only your hands, but a V-jaw tongue-and-groove pliers, sometimes called a water pump pliers, will give you a good grip on slip nuts.

First, grab some rags and place an empty bucket below the trap. Slowly loosen the nut connecting the P-trap on the outflow side. Pay attention to the placement of the washers inside, and be ready for water to come out. You might find the clog in the trap or the union joint. Clean those areas with water and a brush, and replace the slip nut washers if the connection shows any sign of leakage—and I hope you found the diamond earring.

REASSEMBLE THE P-TRAP

To reassemble the P-trap, start by replacing the drain line end, then reconnect the tailpiece to the

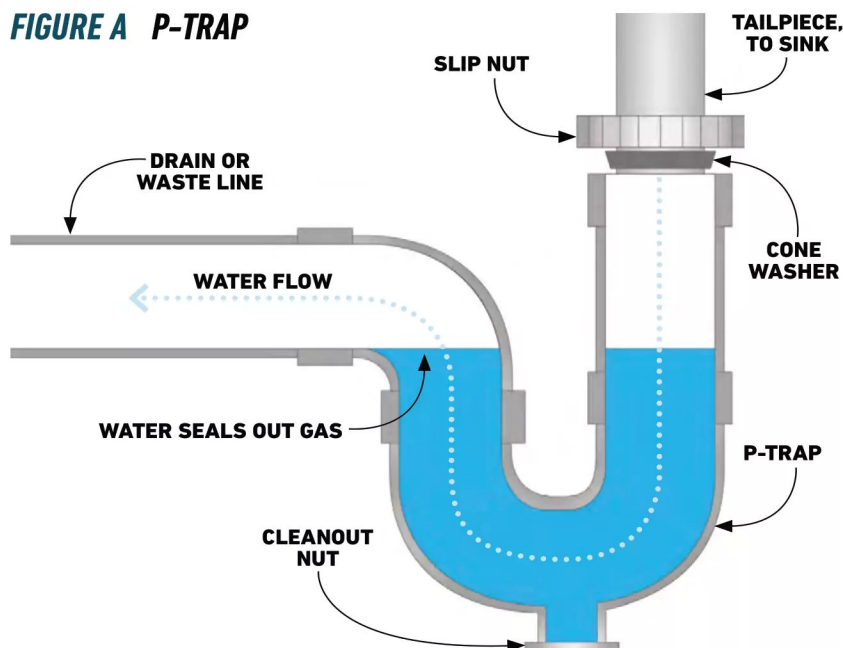
sink. Keep any slip nut connections loose for now. Connect the sink side of the P-trap to the tailpiece and position the drain line end to align with the drainpipe. That drainpipe slides into the wall with some adjustability for length, easing the final connection to the P-trap. Each beveled washer is placed so the large end contacts the slip nut. When tightened, a slip nut eases the washer into a leak-free connection.

Do not use plumbing tape or putty on any of these connections. Some plumbers use plumber's grease on threaded connections, but that's not necessary. Tighten all the connections by hand. If you overtighten them, you risk distorting the washer or cracking the pipe.

Once all the fittings are secured, run two tests. First, turn on the tap and run water through the sink while inspecting the P-trap connections for leaks. Second, fill the sink basin with a couple of inches of water, then remove the drain plug and let the water flow through the trap.

If you have a leak, loosen the slip nut where the leak appears, inspect the placement of the washers, then reinstall. Most leaks happen because a washer is installed incorrectly or because a slip nut is threaded improperly or overtightened.

FIGURE A P-TRAP



P-TRAP OPTION

Designed to make installation even easier, the Insta-Plumb from Keeney costs about \$15 at home centers and hardware stores. Its hero features are the push-connect fittings where this P-trap connects to the sink and the drain. They eliminate the need to align a cone washer or properly thread and tighten a slip nut. Inside each fitting there's an O-ring and a locking ring. A release collar at the top of each fitting secures the connection. To undo a fitting, compress the release collar and disconnect the pipes. No tools necessary.

The Insta-Plumb is available in 1-1/4-in. and 1-1/2-in. P-trap sizes. For small cabinets with hard-to-reach pipes and P-traps, it can ease installation and service work. The system is approved in most plumbing codes, but check in your area. The Insta-Plumb is for use with drainpipes, not for pipes under pressure or potable water pipes.



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"I hate putting down mulch every year. No mulch for me," says Larry, my neighbor to the west. "Mulch is way easier for landscaping and our annual flowers, and that's why Amy likes it," says Amy's husband, Tom, my neighbor to the east, "but I prefer rock, and we use both."

For me? Mulch. "Rock can look nice, yeah, but once you have to dig through or move rocks, they turn from beauty to beast," I told them both.

That's the type of chatter you hear in my neighborhood. Want more substance? Here are the facts of the Mulch vs. Rock battle. (To be clear, we're talking about organic mulch here, not inorganic mulch like recycled rubber.)

LESS WATERING: Mulch helps soil retain moisture, and it reduces evaporation on the soil surface; you can water less often.

MORE NUTRIENTS: Mulch is a natural product, and its breakdown adds nutrients to feed plants and soil.

FEWER WEEDS: With small pieces and a fine texture, mulch covers soil more completely to help prevent weed growth.

JUST THE RIGHT TEMPERATURE: Mulch is a natural insulator, keeping plants warm in the winter and cool in the summer.

EASY INSTALL: If you buy bags of mulch, it's simple to tote them around your yard to places where you'll spread the goods.

ANNUAL REPLACEMENT: While mulch decay is good for plants, it's bad for your purse. Mulch needs to be replaced, and it can move in heavy rains and wind.

TOO MUCH MULCH: A layer of mulch more than 3 in. deep can stress plants.

TIMING MATTERS: Spread mulch too early and your soil won't warm naturally, meaning late blooms. If it's spread too late, weeds will develop.

SEEDS & WEEDS: Spreading organic mulch might introduce new weeds to your landscape.

LOW MAINTENANCE: Rock doesn't decay, and it will stay where you place it for years.

FIREPROOF: If you live in an area with wildfires, rock can make a good fire break.

VARIETY: Rock gives you countless options of size, shape and color.

LOW LONG-TERM COST: Rock costs more than mulch initially, but there is little to no replacement cost.

FEWER BUGS: Unlike mulch, rock will not attract bugs or pests, which are drawn to decaying matter.

EROSION PROOF: Rock can prevent soil erosion, and it will stay in place on hillsides.

TOO HOT: Dark rock holds heat and raises ground temps, and light-colored rock will reflect heat onto plants. Both increase evaporation; you'll need to water more.

NO BENEFIT TO PLANTS: Rock doesn't aid plant growth or soil health. **MESSY pH:** In different parts of the United States, different types of rock will increase the acidity or alkalinity of your soil.

WEED BED: The spaces between rocks invite leaves, seeds and weeds.

REMOVE BY HAND: Moving rock, whether for replanting or new landscaping, is simply dreadful work.

TOO HEAVY: Gravel is heavy, hard to transport and not DIY friendly.



CAULK A TOILET BASE?

We posted this question on our Facebook page some time ago, and the comments were ... well, it was Facebook. Here is the argument against caulking a toilet base: If the toilet develops a leak, the caulk will prevent you from noticing that leak until it's too late and the damage will worsen out of sight. But that argument doesn't hold water. Toilets rarely leak from the base onto the floor. They generally leak below, and the evidence appears on the ceiling below.

The argument for caulking:

CAULK KEEPS WATER OUT

Caulking a toilet base prevents water on the floor from seeping under the toilet. Whether from tub splashes, a soaking-wet mop job or an errant potty trainer, any spills that get under your toilet will cause smelly messes. Some installers leave a small section uncaulked at the back of the toilet.

CAULK SECURES THE TOILET

Yes, your toilet is secured to the floor with bolts, but if your floor is uneven at all (most floors are), caulk will provide a cushion of support around the entire base. Grout can do an even better job of securing and stabilizing the toilet, and you can add clear silicone over the grout to protect it.

CAULK LOOKS BETTER

Fill that small gap between the toilet base and the floor with a color-matched caulk or grout.

IT'S REQUIRED

The International Plumbing Code and the Uniform Plumbing Code both require a watertight seal (408.2 2000 UPC): "Where a fixture comes into contact with the wall or floor, the joint between the fixture and the wall or floor shall be made watertight." Many home inspectors also list this as a requirement in purchase processes.



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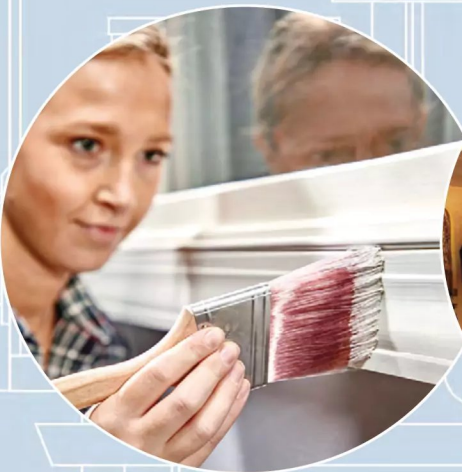


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EVER-FLOWING WATER HEATER

When the plumber replaced one of the heating elements in my electric water heater, I watched carefully, knowing the other element would eventually need replacing too. Sure enough, a year later the other one went. I checked it with an ohmmeter, confirmed my diagnosis and headed to the plumbing supply store.

When I got home, I killed the power supply at the box and at the wall switch. Feeling proud and confident, I dragged the garden hose into the house, connected it to the heater and ran it into the floor drain to empty the heater—just as the plumber had done. Then I sat and waited for the water to stop flowing. After about an hour of a good, steady flow, it occurred to me to SHUT OFF THE WATER SUPPLY! Fifteen minutes later and hundreds of gallons of water poorer, I replaced the element.

DIANNA TUCKER



EXPLODING TOILET TRICK

Our toilet kept running because the float wouldn't turn off the water completely. I had fixed the same problem in our old toilet by bending the float arm down a little to increase the pressure on the shutoff valve in the tank. But since our new toilet had a plastic arm, I decided to apply a little heat to soften it so I could bend it.

First I sprayed silicone lube on everything in the tank to help things slide better. Then I leaned over the tank with my lighter, clicked it and ... WHOOOOMP! The aerosol silicone spray I had just shot into the tank exploded. Luckily, I escaped with only singed hair and eyelashes. But now my wife can't stop telling people about our exploding toilet.

RON WOODWARD



CRACKED THE CASE!

When I remodeled our bathroom, I made a pine frame for our 4 x 8-ft. mirror. I routed the back of the frame to create an edge for the mirror on the wall side but left about 1/16 in. so I could tighten it to the wall. All seemed fine until the first shower. My daughter came out and told me the mirror had cracked. I was sure something must have hit it, but she denied that.

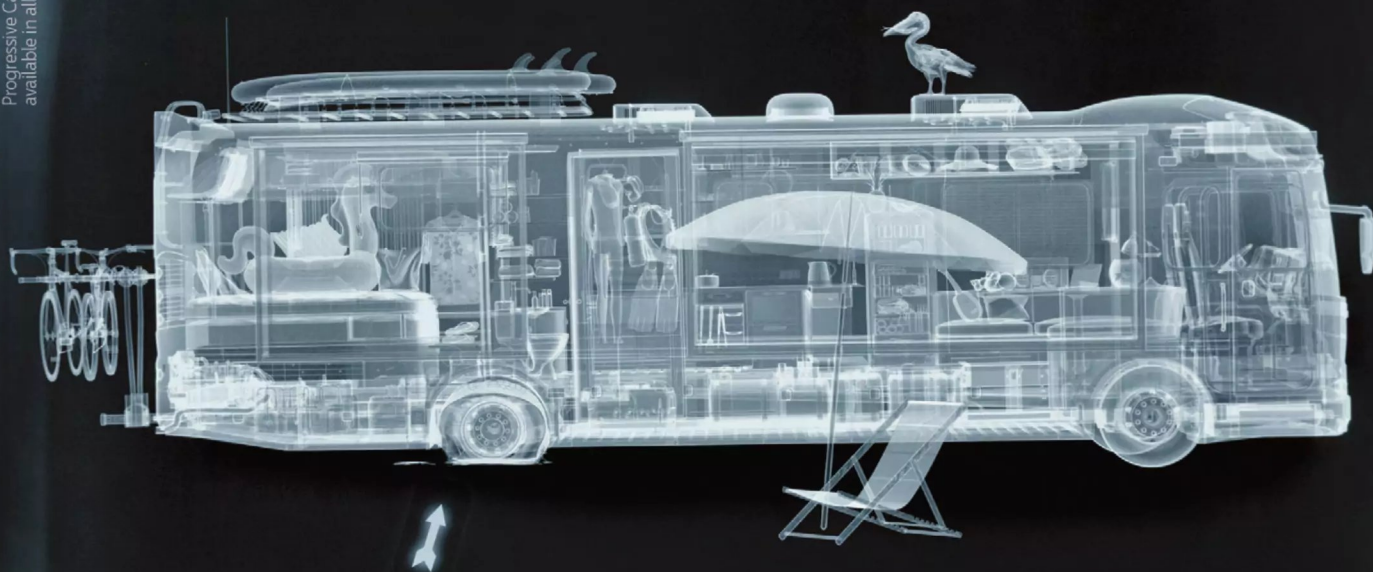
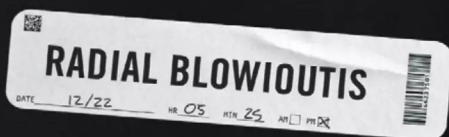
I bought a new 4 x 8-ft. mirror and framed it. Then the same thing happened to my son! I was able to save half of it, buy a 4 x 4-ft. mirror and put a board down the center. Finally I started to realize that moisture makes wood swell. I took down the frame and rerouted the back to allow about 1/6-in. clearance between the mirror and the wall. No more cracks!

ED VAN WICKLEN

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