

1 family 1 handyman

SMART HOME IMPROVEMENT™



BUILD YOUR OWN

BACKYARD SAUNA

CATCH
SOME
SHADE!
P. 40

ARTISAN
PIZZA OVEN

WOOD-FIRED
HOT TUB

CORNHOLE
BOARDS

+

MAKE
A FOLD-UP
HAMMOCK
STAND

8 EASY GARAGE DOOR
MAINTENANCE TIPS

JUNE 2023

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DO-OVER!

IS YOUR BACKYARD
READY FOR A
REFRESH?



The renovation of our postage-stamp-size backyard had been on the list for—well, let's just say a few years. The fence was barely standing and in constant need of repair, and the deck I built in 1998 when we moved in was overdue for replacement.

In November 2019 my wife and daughter came home from the local humane society with a rescue puppy, a wonderful little pit bull mix named Lula. At the top of the list of talents for terrier breeds is hole digging. So, her top-notch talents moved our backyard renovation to the top of our to-do list.

Tackling those projects, I got to try out equipment, materials and techniques I hadn't used before. First on the list was

Ryobi's battery-powered hole auger for the fence posts, which proved to be easily up to the task. Second was Sika fence-post foam. It's significantly more expensive than concrete but far easier on the back. It's not as solid as concrete, but for a light-weight fence such as mine, that wasn't an issue. Third, instead of overseeding or buying sod, I decided to till the whole yard and start from scratch. For the price of renting a heavy gas-powered tiller, I bought a Sun Joe corded electric tiller instead. Again, my backyard is tiny, but I was done in an hour.

Now that our yard is hole-free, lush and green again, the only trick will be to get Lula to take up a new hobby!

How about you? Even if your backyard isn't calling

out "Do-over!" you'll find lots of backyard projects in this issue that can add to the fun and usefulness of your space. They range from simple and practical to very ambitious, and we hope you're inspired to try one or more of them.

And if you have any backyard projects you're proud of, we'd love to see them! Send your photos and stories to submissions@familyhandyman.com.

BRAD HOLDEN
DEPUTY EDITOR



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WHAT'S NEW?

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A FRESH TAKE

Gardening season is underway, even here in the Midwest where we're still keeping our snow shovels handy just in case. If you're in the market for new ideas for what to grow in your backyard or on your deck or patio, hop over to **familyhandyman.com**. We have a lot blooming there!

"15 Native Plants to Add to Your Yard" outlines all the benefits of adding native species to your yard. You can not only boost biodiversity and support wildlife but also enjoy plants that have adapted to local weather extremes and are easier to maintain. You'll find plant recommendations for your region; shown here is orange butterfly milkweed, one recommended for the Southeast.

There's so much more—spring flowers, weed identification, tips for choosing lilies, even a guide for converting to organic. Check it all out!

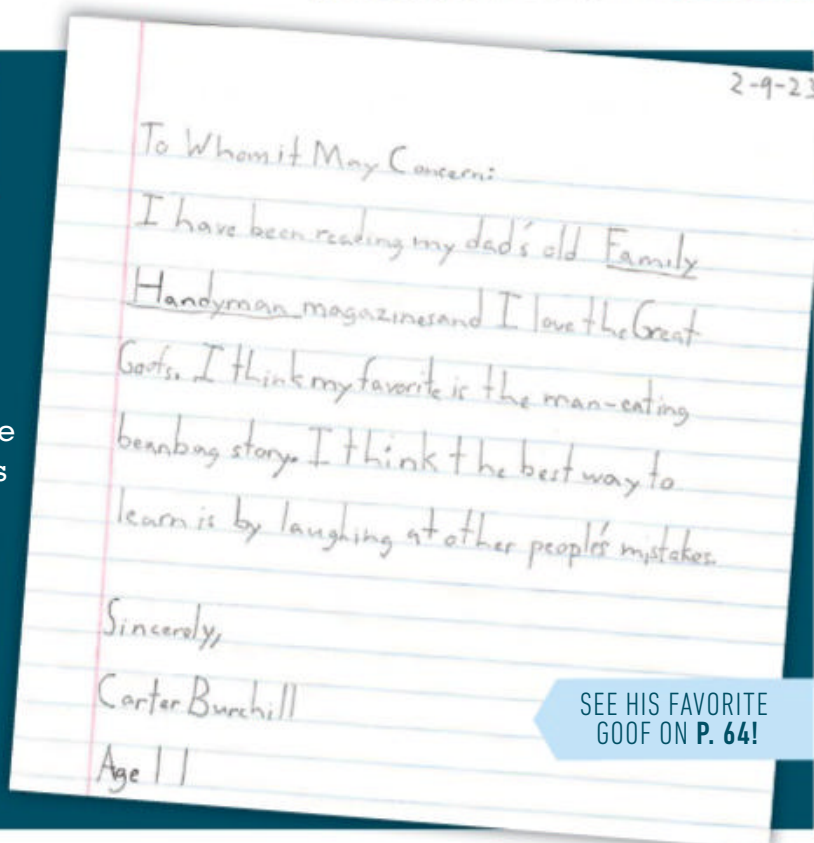


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of our favorites
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agree that
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HANDS ON



TOOLS, GADGETS + GEAR WE RECOMMEND



PORTABLE FIRE PIT

The Blue Sky Ridge is a 15-lb. portable steel fire pit. It stands about 16 in. tall and 12½ in. wide with an 11½-in. wide burn chamber. It's a dual-fuel device, so it can burn standard firewood, wood pellets or a mixture of both. The low-sheen, solid black design is modern and sleek.

The Blue Sky Ridge sets up and breaks down in seconds. With pellets and some firewood, you'll have a raging fire in minutes. The Blue Sky website says the Ridge can handle fires up to 1,900 degrees. If you build a strong fire, you'll be able to feel the heat a couple of yards away.

Smokeless fire pits work by pulling outside air into the bottom of the burn chamber. The heated air then travels up the hollow walls and is released into the top of the burn chamber, infusing the fire with an extra burst of oxygen. This vaporizes any wood or moisture particles, creating little or no smoke.

Wood pellets burn thoroughly and quickly. A 2-in. pile of pellets burned for 20 to 25 minutes. To keep the fire going a few minutes longer, just toss on a handful or two of pellets rather than a log.

If you're using firewood, it's best to use smaller pieces that will fit in the bottom of the fire

pit to contain the fire there.

When it's time to pack up and head home, allow plenty of time to let it cool down. The fire pit breaks down easily, and the pieces nest and slide into an included carrying bag for easy transport.

Comparably sized portable smokeless fire pits cost nearly double the price of the \$140 Blue Sky Ridge, and with fewer features. The Ridge also includes an easy-to-clean ash-catching base and comes with a three-year limited warranty. It's available online and at home centers and camping stores.

JOE CRUZ CONTRIBUTING EDITOR

LEAD PHOTO COURTESY OF BLUE SKY OUTDOOR LIVING



BUG REPELLENT

Ranger Ready Repellent uses picaridin as its active ingredient. Picaridin is a safer yet equally effective alternative to the neurotoxin DEET. Picaridin can be safely applied directly to the skin and is recommended by the Centers for Disease Control and Prevention for adults (including pregnant women) and children at least 1 year old.

A single application of Ranger Ready with 20% picaridin has been proven effective against a long list of pests—including mosquitoes, ticks, biting flies, chiggers, gnats and sand flies—for up to 12 hours. Another tick in the pro column: Picaridin is not a plasticizer like DEET, so it won't break down elastic, leather, rubber, plastic, paint or vinyl on your clothing or outdoor gear.

I tested it on a recent camping trip. The mosquitoes were horrendous. I was completely swarmed when I got out of the car. I doused myself with the Ranger Ready Repellent and was relieved at how well it performed. The mosquitoes just found a few spots I had missed. A 5-oz. bottle of Ranger Ready Repellent is about \$15 at camping stores, discount stores and online.

BRAD HOLDEN

DEPUTY PROJECT EDITOR



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CORDLESS MICRO-PINNER

I have been a fan of 23-gauge nailers since I got my first one over a decade ago. These ultra thin headless nails are just right for holding light trim or edging in place while the glue dries. They're inconspicuous and easily hidden without filler, even on unpainted surfaces.

The Craftsman Cordless 23-Gauge Pin Nailer drives pins from $\frac{5}{8}$ in. to $1\frac{3}{8}$ in. long. It features a powerful 20-volt brushless motor and tool-free jam release. This nailer also has bright LED lights and a non-marring tip. It comes with a few hundred 1-in. nails, a battery, a charger and an optional belt hook. Weighing less than 5 lbs., the nailer is comfortable to use.

To test battery life, I shot nails into $\frac{1}{2}$ -in. MDF for well over an hour before the battery finally died, and the tool didn't jam once. This pin nailer is available at home centers and hardware stores for \$180 (tool only) or \$230 (battery and charger included). 

MIKE BERNER SENIOR PROJECT EDITOR

BUILT-IN UV PROTECTION

I thought I was diligent about applying sunscreen, but after a dermatologist visit, I've learned I don't reapply nearly as much as I should. So I started buying some UV-protective clothing.

This Dickies Temp-iQ Cooling Performance Long Sleeve Sun Shirt is made of 60% polyester and 40% cotton. It features a built-up raglan neckline paired with UPF 40+ sun protection. The advanced Temp-iQ intelligent cooling fabric effectively controls your core body temperature while wicking away moisture, keeping you cool and dry. It features a comfortable hood and anchor thumbholes to provide extra coverage for your head and hands.

The shirt comes in five colors, with sizes from small to 4XL. After doing some research, I learned that the UV protection wears down over time. Though one of these shirts won't have the full UPF 40+ protection after 10 washes, it's still better than your old concert T-shirt. The Dickies Temp-iQ Cooling Performance Long Sleeve Sun Shirt is available online for about \$40. 

ETHAN O'DONNELL EDITOR 



BOTTOM PHOTOS: DICKIES

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HANDY HINTS



CLEVER SOLUTIONS FROM OUR READERS



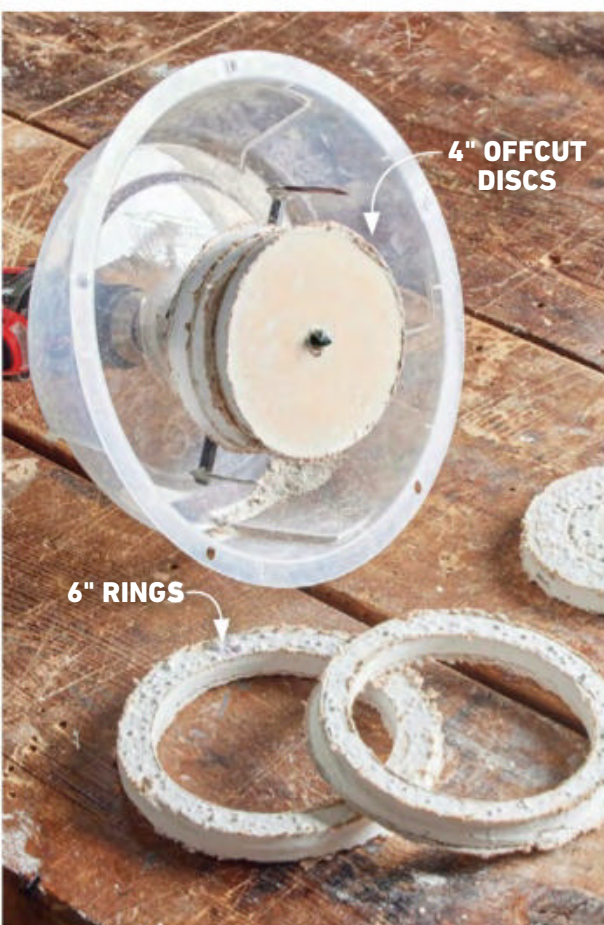
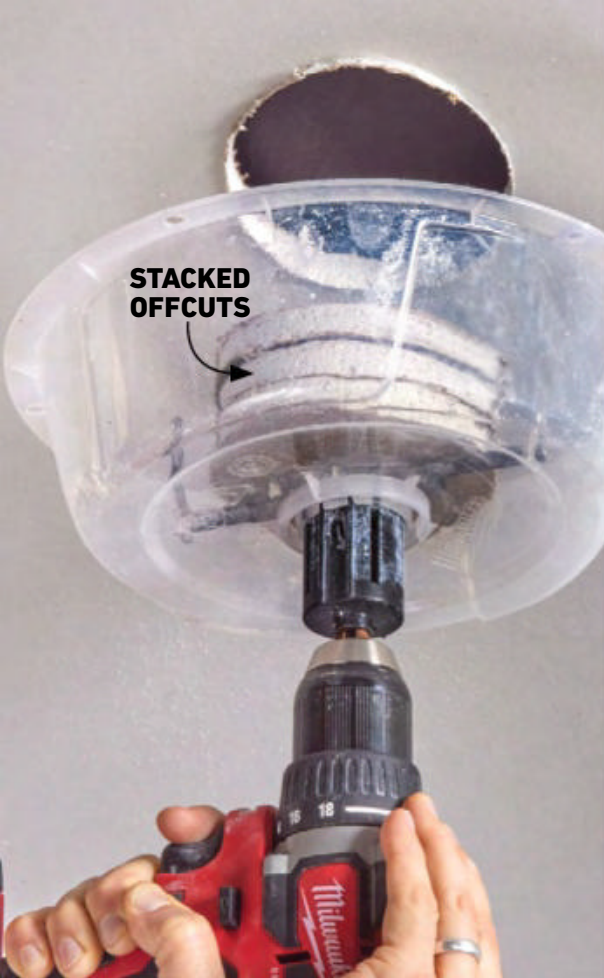
QUICK-CHANGE SOAP & RINSE

To wash my car, I attach a twin shutoff wye (Y) to the hose, with a hose nozzle on one side and a lawn sprayer on the other. I put concentrated liquid auto soap in the lawn sprayer. This lets me apply soapy water for washing or clear water for rinsing at the turn of a lever.

DONALD BROTHERS



BOTTOM: VIA AMAZON



HOW TO FIX A HOLE SAW MISTAKE

I cut eight holes in my ceiling to install can lights, but when I was done, I realized I had made 4-in. holes instead of 6-in. At first, I thought I would have to enlarge them all by hand. But instead, I stacked the 4-in. offcut discs onto my circle cutter to keep the blades from wandering and was able to cut all the holes to the right size the second time.

MIKE BERNER

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DUSTER FOR HARD-TO-REACH PLACES

Unless you play in the NBA, dusting ceiling fans and other high objects is a real chore. Next time, try this: Wrap a dryer sheet around a clean paint roller and secure the ends with rubber bands. Attach an extension handle to the roller and dust away.

SAVANNAH SANCHEZ



CONCRETE-MIXING PLATFORM

If you have a batch of concrete to mix but nothing to mix it in, try a 4 x 8-ft. sheet of 1/4- or 3/8-in. plywood. Place a few bricks or scraps of 2x4 under all four of the plywood corners to form a shallow, concave mixing surface. Clean the concrete off thoroughly, and when you're finished, you can still use the plywood's other side.

JOHN GANDOLFO



ALIGN BOARDS FAST

I picked up this trick the first day on the job as a carpenter. To make two stubborn boards flush with each other, drive a screw or nail in the center of the lower one. Then hook it with a hammer claw and pull it up using the other board and the hammer for leverage. When the boards are flush, nail or screw them together.

MIKE BERNER 

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Ralph G.
- Online Customer

★★★★★

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THE HEAT IS ON

BUILD THIS SAUNA IN YOUR GARAGE AND ASSEMBLE IT WHEREVER YOU LIKE

BY JOE CRUZ

Last fall I built this compact, four-person sauna with materials I picked up at a local home center. Using this modular design, I was able to easily construct the four walls, floor, roof and benches in my garage. Then I strapped the sections to a trailer and transported them to the site shown here. Our sauna is 5 ft. x 4 ft. x 7 ft. 8 in., but you can change the size to meet your needs. You can build it on site or take it to your cabin or other remote site for assembly.

EASY TO
TRANSPORT
THEN
REBUILD!

WHAT IT TAKES

TIME	COST	SKILL LEVEL
Multiple days	More than \$1,000	Intermediate

TOOLS

Miter saw, circular saw, table saw, 18-gauge finish nailer, router, flush-trim router bit, cordless drill/driver, eye and hearing protection, bar clamps, Speed square, staple gun, tin snips

Before you start cutting parts, make a flat work surface such as a 4 x 8-ft. sheet of plywood on sawhorses. This makes assembling the components much easier. And you'll want a helper once you're ready to lift walls and roof components.

1 BUILD THE BASE

Assemble the outer base frame (A and B) using pressure-treated 2x4s. Then measure the inside of the outer frame to get the dimensions for the inner frame (C and D). Cut and assemble the inner frame parts as shown in Figure A. Attach the inner frame in the outer frame, raising the inner frame 1½ in. from the bottom of the outer frame.

2 INSTALL THE FLOOR

Cut the floor (E) and attach it to the inner frame with No. 8 x 2-in. exterior screws. Flip the base over and glue 1½-in. foam insulation between the floor joists.

3 CUT FRONT WALL PARTS

Cut all the front wall parts to length (Figure B). Rip a 15-degree angle down the center of a 2x4 for your top plate (G). Save the offcut for the top plate of the back wall (GG). To lay out the stud placement on the wall, hold the top and bottom boards together and mark where each stud will be attached.

4 ASSEMBLE THE FRONT WALL

Lay all the front wall parts (F-K) down on a flat surface. Using No. 9 x 3-in. deck screws, attach all the studs to the top and bottom plates. Attach the door header as shown in Figure B.

MEET THE BUILDER



JOE CRUZ IS A CONTRIBUTING EDITOR, ALL-AROUND HANDYMAN, AND BUILDER OF ALL THINGS.



CUTTING LIST

KEY QTY. DIMENSIONS PART

SAUNA

A	2	1½" x 3½" x 60"	Floor base outer frame front & back (pressure treated)
B	2	1½" x 3½" x 45"	Floor base outer frame sides (pressure treated)
C	2	1½" x 3½" x 57"	Floor base inner frame front & back
D	5	1½" x 3½" x 42"	Floor base inner frame stringers
E	1	¾" x 45" x 57"	Floor base plywood floor
F	2	1½" x 1½" x 57"	Front & back walls bottom plate
G	2	1½" x 1⅞" x 57"	Front & back walls top plate
H	2	1½" x 1½" x 84⅞"	Front wall 2x2 stud
J	2	1½" x 3½" x 84⅞"	Front wall 2x4 stud
K	1	1½" x 3½" x 22¼"	Doorway header
L	4	1½" x 3½" x 12¾"	Back wall bench blocking
M	5	1½" x 1½" x 72⅜"	Back wall studs
N	2	1½" x 1½" x 48"	Side wall bottom plate
P	2	1½" x 1½" x 49⅞"	Side walls top plate
Q	2	1½" x 3½" x 85"	Side walls front stud
R	2	1½" x 1½" x 81¾"	Side walls stud
S	2	1½" x 1½" x 78¾"	Side walls stud
T	2	1½" x 1½" x 75¾"	Side walls stud
U	2	1½" x 3½" x 73⅞"	Side walls back stud
V	4	1½" x 3½" x 9¾"	Side wall bench blocking
W	2	1½" x 3½" x 17"	Heater mount blocking
X	2	1½" x 1⅞" x 60"	Roof frame front & back
Y	5	1½" x 1½" x 46⅞"	Roof frame studs
Z	1	¾" x 73" x 63"	Roof deck
AA	13	¼" x 3½" x 55⅞"	Roof cedar shi lap
BB	46	¼" x 3½" x 57"	Front & back walls cedar shi lap
CC	50	¼" x 3½" x 44⅞"	Side walls cedar shi lap
DD	2	¾" x 2½" x 74½"	Front & back roof trim
EE	2	¾" x 2½" x 63"	Side roof trim
FF	2	⅞" x 48" x 89¾"	Side wall panel
GG	1	⅞" x 61⅞" x 76¾"	Back wall panel
HH	1	⅞" x 61⅞" x 89¾"	Front wall panel
JJ	4	¾" x 2½" x 89¾"	Front wall corner trim
KK	4	¾" x 2½" x 76⅞"	Back wall corner trim
LL	2	¾" x 3½" x 73½"	Door trim sides
MM	1	¾" x 3½" x 30"	Door trim top

BENCHES

NN	4	1½" x 3½" x 56"	Front & back frame boards
PP	2	1½" x 3½" x 12"	Upper bench frame sides
QQ	5	1½" x 1½" x 53"	Nailing cleats
RR	2	1½" x 3½" x 23"	Lower bench frame sides
SS	2	1" x 5½" x 12"	Upper bench decking
TT	5	1" x 5½" x 23"	Lower bench decking

GLASS PANEL DOOR

UU	2	1½" x 3½" x 70¼"	Stile
VV	1	1½" x 10¼" x 14¼"	Bottom rail
WW	4	1½" x 4½" x 14¼"	Rail
XX	8	¼" x 1½" x 3¾"	Short spline
YY	2	¼" x 1½" x 9½"	Long spline

FIGURE A EXPLODED VIEW

SAUNA OVERALL DIMENSIONS:

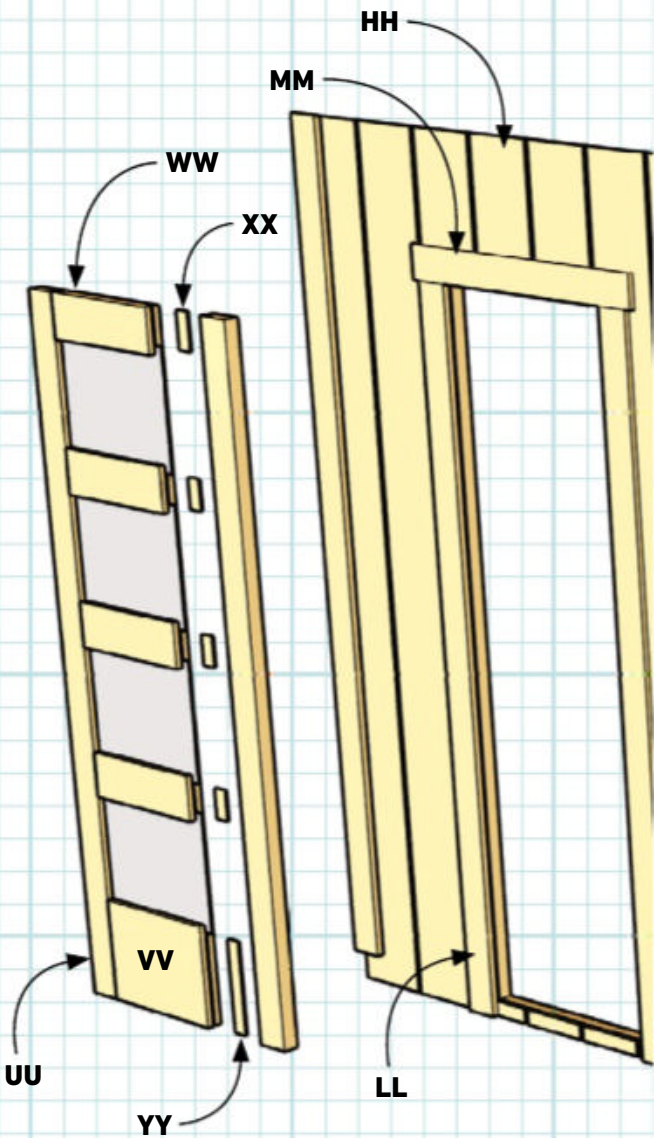
62⅝"W x 50"D x 103"H

UPPER BENCH DIMENSIONS:

56"W x 15"D x 3½"H

LOWER BENCH DIMENSIONS:

56"W x 26"D x 3½"H

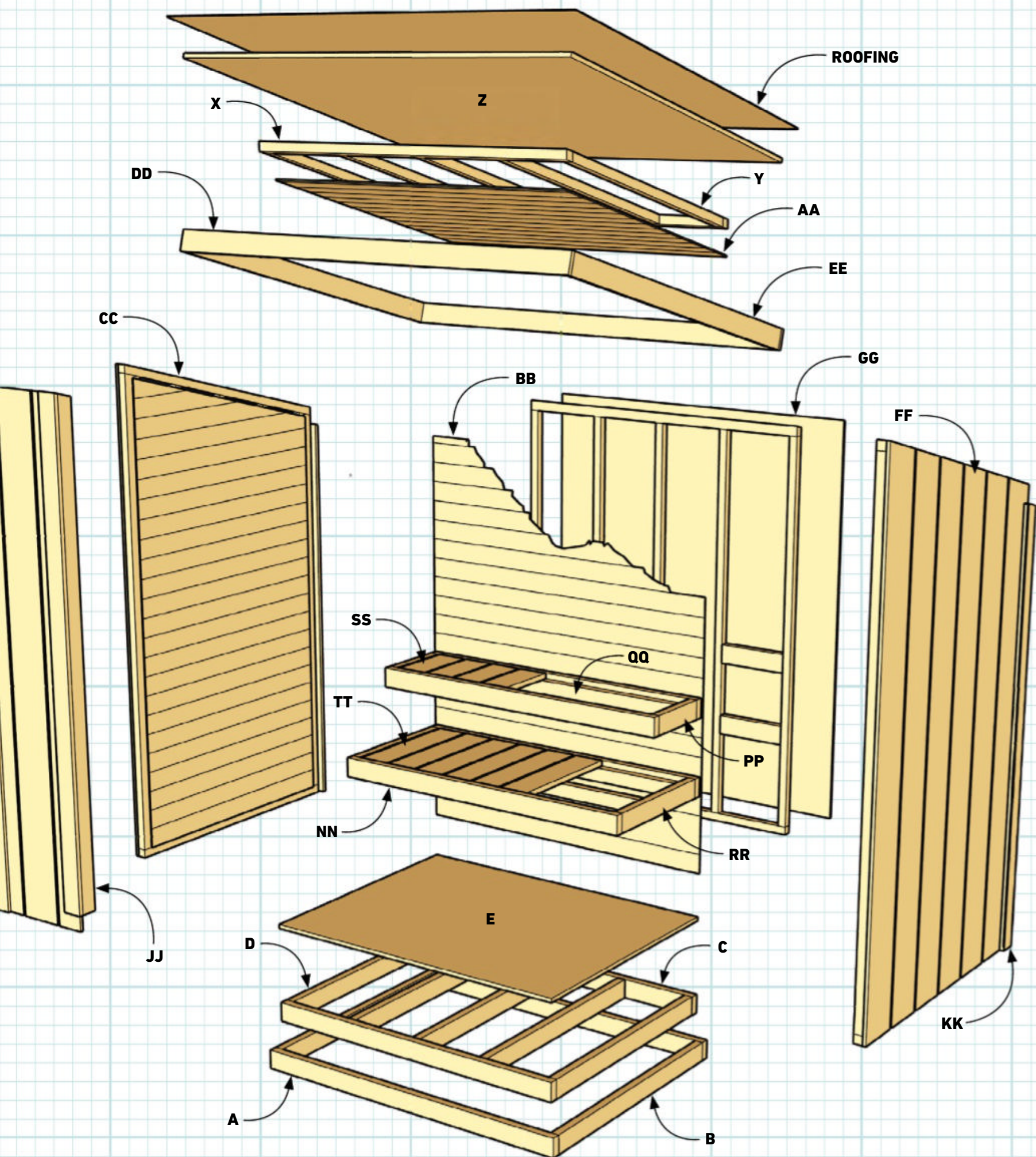


THE HEATER

You can heat your sauna with natural gas, propane, electricity or wood. Natural gas or propane heaters are efficient and work well for larger saunas. You'll need to plumb and vent the heater just the same as a gas furnace. Electric heaters are the most common and affordable. They're also convenient, providing heat with the flip of a switch. You can find them in different kilowatt sizes to fit any size sauna. Depending on the heater, you may need a 220-volt circuit. If no gas or electricity is available for your sauna, use a wood-burning heater. Vent it just the same as a wood stove. Infrared panels and infrared lightbulbs are other options if electricity is nearby.

BUILD A PANEL DOOR

You can build your door using the same method as the walls if you like. Your sauna door should always open out and never have a lock. We made our door using tempered glass cutting boards, which are inexpensive and come in many sizes. The other components of the door will vary in size depending on the glass you buy.



MATERIALS LIST

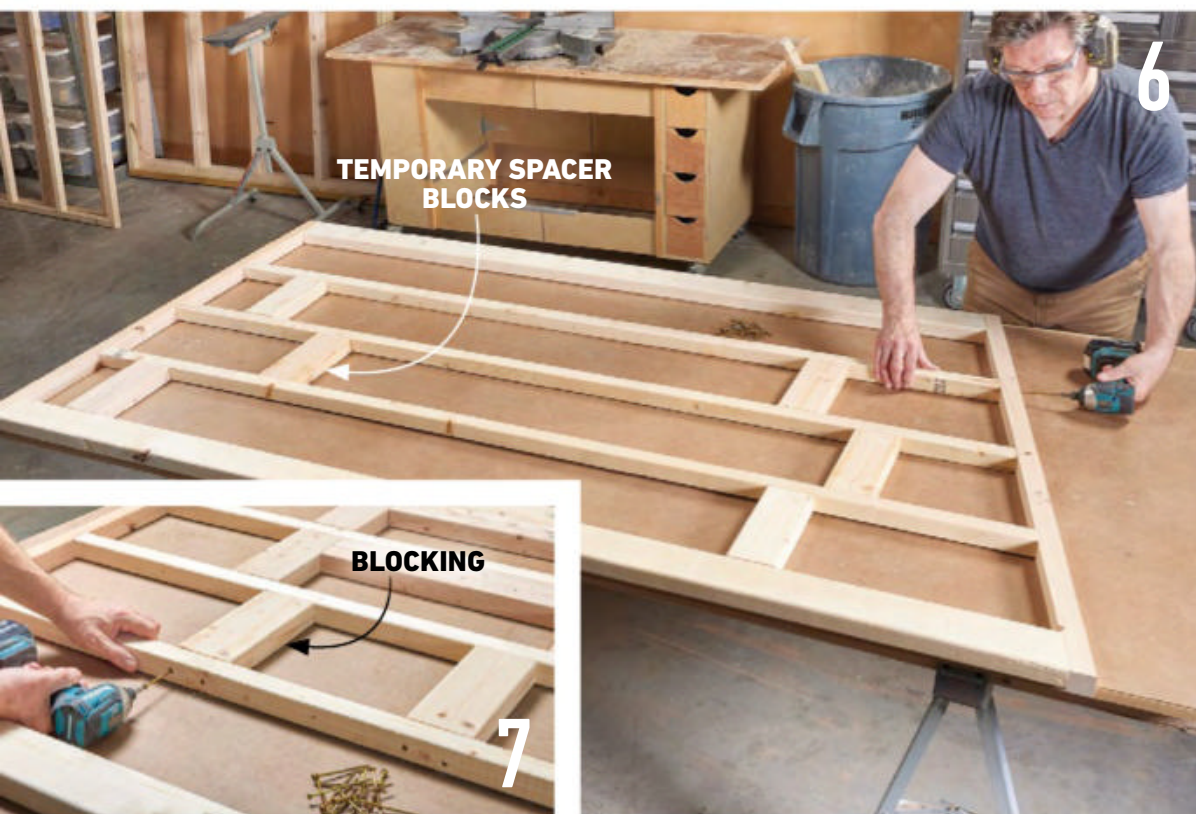
ITEM	QTY.	ITEM	QTY.	ITEM	QTY.
No. 11½ x 2" galvanized siding nails		4' x 8' x 1½" foam insulation	4	¼" x 1½" x 8' furring strips	18
No. 13 x 2" galvanized finish nails		4' x 8' T1-11 plywood (wall sheathing)	5	Ice and water shield	40 sq. ft.
No. 8 x 2" finish screws		4' x 8' x ¾" plywood	3	Rubber gasket roofing screws	
No. 8 x 2" exterior screws		⅝" x 4" structural screws		Aluminum foil tape	
No. 9 x 3" deck screws		⅝" x 6 x 8' cedar deck boards	4	Butyl sealant tape	
1x4 x 8' cedar trim	14	8' 2x2s	24	Door handle	1
¼" x 3½" cedar shiplap	123 sq. ft.	8' 2x4s	14	Glass cutting boards	4
26" x 8' corrugated metal roof panels	3	8' 2x4s, pressure treated	3	2x12 x 3'	1
2x4 x 8' cedar	7	Drive-in ball catch for door	1	2x6 x 8'	1
3½" hinges	#	Foil vapor barrier	123 sq. ft.	2x4 x 8'	2
⅜" staples	#	Horizontal plastic closure strips	2		



5

5 BUILD THE BACK WALL

Cut all the back wall parts (F and G, L and M) to length. Assemble the back wall frame the same way you did the front wall (Figure C), using the angled offcut from the front wall top plate for the back wall top plate and No. 9 x 3-in. deck screws.



6

6 BUILD THE SIDE WALLS

Since the side walls (Figure D) are identical, cut all the parts (N-W) for both. I cut the 15-degree angles on the ends of all 2x2 and 2x4 studs, then trimmed the studs so that when they were assembled, the high point of the side wall was the same height as the front wall, and the low point of the side wall matched the height of the back wall. Attach the front and back studs (Q and U) to the top and bottom plates. Working from right to left, attach the interior studs, using 2x4 blocks to keep the spaces uniform. You may have to trim the studs before attaching them.

7 ATTACH BLOCKING

Add blocking (L, V and W) between the studs on the back and side wall where the benches and heater will be attached.

FIGURE B FRONT WALL FRAME

15° ANGLE

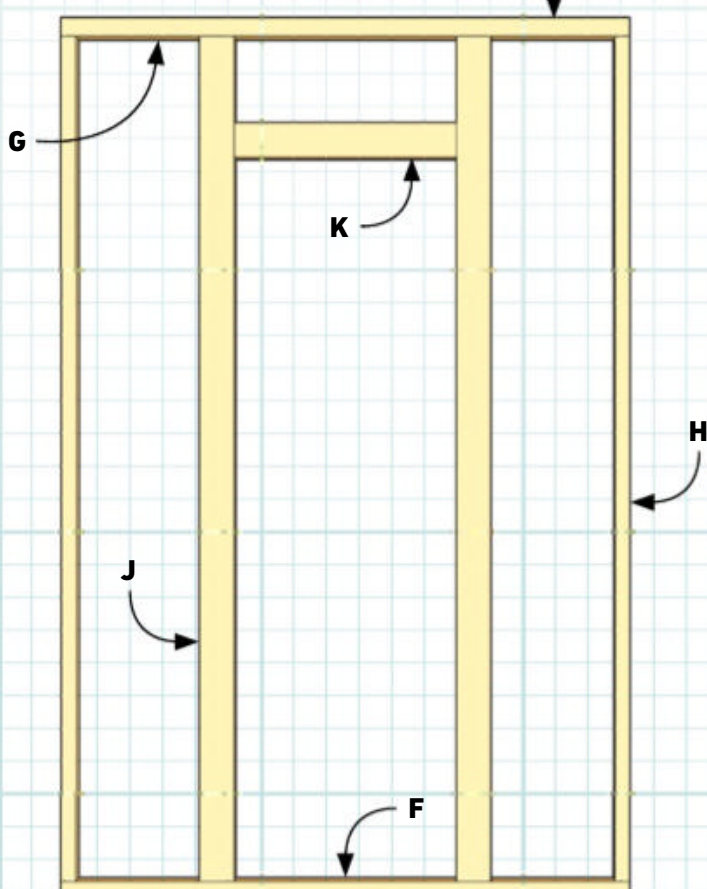
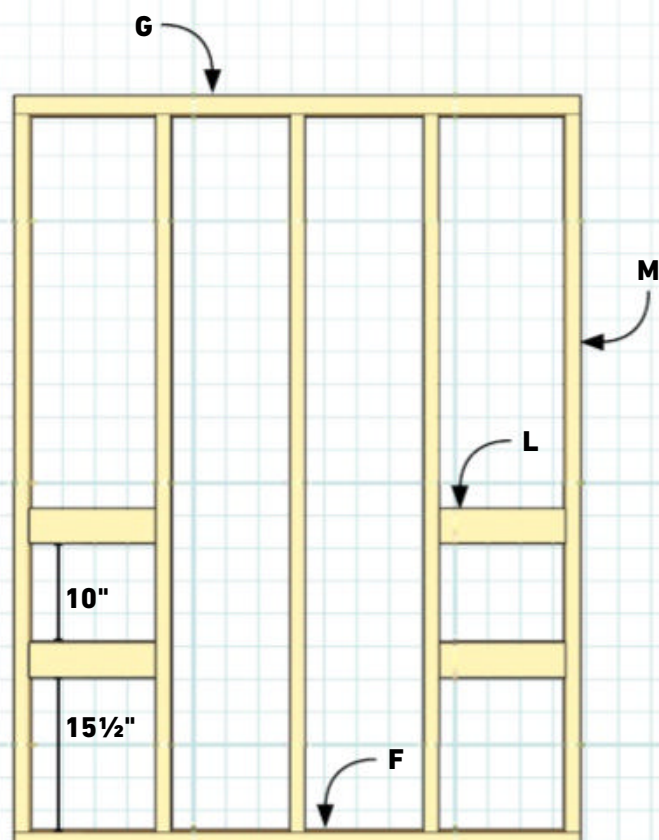


FIGURE C BACK WALL FRAME



8 SKIN THE WALLS

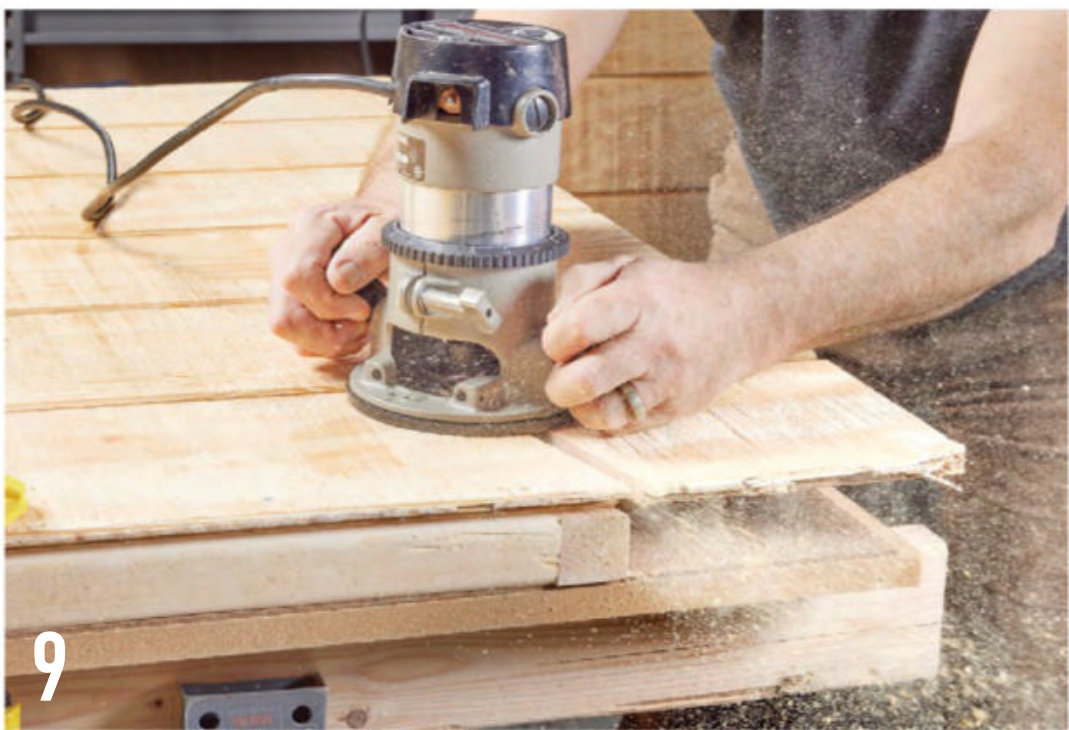
Place a sheet of siding (FF-HH) on top of your wall frame, keeping it flush with the bottom of the frame. Hold it in place with some clamps or drive a few nails along the bottom edge. Once the wall frame is square with the long edge of the siding, finish nailing it to all the studs with No. 11½ x 2-in. galvanized siding nails.

For the front and back walls, you'll need to cut an extra strip to span the width. To install, cut the top edges flush with the frames. Let the front and back wall siding hang 2¼ in. over both edges.



9 TRIM THE SIDING

Cut the angle along the top edge of the side walls using a router with a flush-trim bit. Use the router and flush-trim bit to cut out the door opening on the front wall as well.



10 INSULATE THE WALLS

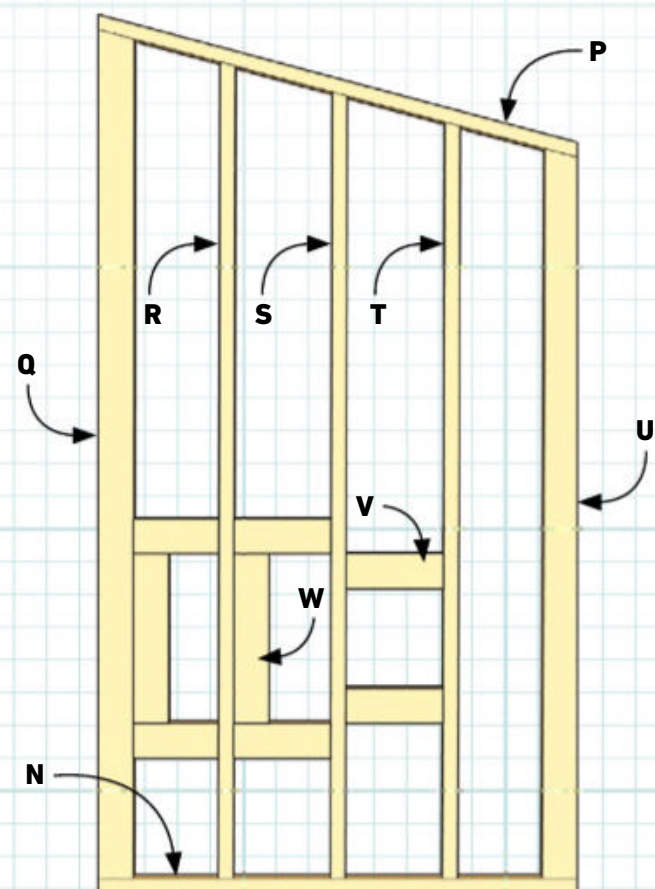
Measure the spaces between studs. Using a table saw or a long-blade utility knife, cut pieces of 1½-in. foam insulation for each stud cavity. The foam insulation simply friction-fits into each space.

11 ADD A VAPOR BARRIER

Staple radiant foil vapor barrier to the interior of all four walls. Seal the edges and seams with foil tape.



FIGURE D SIDE WALL FRAMES





12

12 FINISH THE INTERIOR

Nail $\frac{1}{4}$ -in. x $1\frac{1}{2}$ -in. wood strips onto each stud, the full length of all four walls. This creates a gap between the interior siding and the vapor barrier, allowing moisture to evaporate. For the side walls, start the first row of shiplap siding (CC) $2\frac{1}{4}$ in. from the bottom and $1\frac{1}{2}$ in. from each edge, using $1\frac{1}{4}$ -in. nails into each stud. When you reach the top of the wall, let the shiplap hang over the angle, then trim off the pieces using a router with a flush-trim bit. For the front and back wall shiplap (BB), start your first row $2\frac{1}{4}$ in. from the bottom but run it out to $\frac{1}{2}$ in. from each edge.



13

13 ASSEMBLE WALLS

Set the back wall on the base. If you don't have a helper to hold it in place, attach a 2x4 from the edge of the wall to the base. Set one of the side walls on the base and clamp it to the back wall. Check to see if the tops of the walls line up, then join the two walls with $\frac{5}{16}$ - x 4-in. structural screws. Attach the other side wall to the back wall in the same manner. Set the front wall on the base and clamp all four walls together, checking to see if the tops of the walls line up. Then secure both side walls to the front wall with $\frac{5}{16}$ - x 4-in. structural screws.



14

14 CUT THE DOOR PARTS

Straight-line your boards with a track saw or on a jointer, then cut all pieces (UU-WW) to length.



15

15 CUT SPLINES AND GROOVES

Using a table saw with a dado blade or a router with a slot-cutting bit, cut a groove the thickness of your glass (and a minimum of $\frac{1}{4}$ in. deep) on the edges of the boards as follows: one long edge on both stiles, three edges on the rails, and on all four edges of the mullions. Rip splines (XX and YY)

the thickness of your glass and the width of two slots put together. Cut the spline pieces to length.

16 CHECK THE FIT

Set one stile on its edge with the groove facing up. Dry-fit all the pieces starting with the bottom rail, adding a piece of glass and one mullion at a time until you get to the top rail, then add the second stile.

17 ASSEMBLE THE DOOR

Add glue to each spline joint. Be sure to wipe away any glue that squeezes out. Clamp the door together. Use scrap pieces of wood between the clamp jaws and the door edge to prevent dents. When the glue is dry, sand the door up to 220-grit and apply spar varnish or exterior paint.

18 MAKE THE ROOF FRAME

To cut the roof frame front and back (X) rip a 2x4 in half at a 15-degree angle just like the top plates of the front and back walls. Clamp those two boards along the top of the front and back walls, each aligned with the 15-degree angle. Measure the distance between the two boards, then cut the five roof studs (Y) to that length. Attach the studs to the front and back roof frames with 3-in. screws.

Cut $\frac{3}{4}$ -in. plywood for the roof deck (Z). Center the roof frame on the deck and attach it with No. 8 x 2-in. exterior screws. To finish the roof interior, insulate each stud cavity and attach a vapor barrier and vapor gap strips to the frame as you did for the walls. Apply the shiplap siding (AA), keeping it flush on all four edges of the frame.



**SCAN THIS CODE
TO WATCH JOE
BUILD THIS
SAUNA—AND
THEN PACK IT
UP AND TAKE IT
TO THE CABIN!**



19

19 TRIM THE ROOF EDGES
Install roof trim (DD and EE) along all four sides of the roof deck with No. 13 x 2-in. galvanized finish nails.



20

20 INSTALL THE ROOF
Starting at the bottom of the roof, staple ice and water shield to the roof deck, overlapping the seam 3 in. as you work your way up the roof.

Cut corrugated metal roof panels so they overhang the roof deck at least 2 in. on all four sides. Attach horizontal plastic closure strips at the top and bottom edges of the roof deck to seal the gaps between the corrugated roof panel and the ice and water shield.

Attach the roof panels with roofing screws. Overlap the panels at least 3 in., sealing the seam with butyl tape. With a helper, lift the roof assembly and set it into place. Secure it with $\frac{5}{16}$ - x 4-in. structural screws along the top rim of the walls.



22



21



21 PAINT THE EXTERIOR
Protect the siding with an exterior paint or deck stain.

22 APPLY TRIM
Attach 1x4 cedar trim (JJ and KK) to the four exterior corners. Use No. 8 x 2-in. finish screws to attach the trim so it can be removed later if you disassemble the sauna for transport. Add trim around the exterior of the door (LL and MM) if desired.

23 BUILD BENCHES
In a sauna, you typically have two benches: an upper bench about 30 in. from the floor, and a cool-down bench no more than 18 in. from the floor. These benches are simply 2x4 cedar frames (NN, PP and RR) with 1x6 cedar (SS and TT) attached to nailing cleats (QQ) set inside the frames.

If your sauna is a different width than ours, measure it and adjust the front and back frame boards as necessary. Cut all the parts to length, assemble the frames and attach the nailing cleats. Attach the deck boards with No. 8 x 2-in. finish screws, with a 1/2-in. gap between boards.

24 INSTALL THE BENCHES
Attach the benches to the back and side walls using 5/16-in. x 4-in. structural screws through the cedar shiplap into the bracing inside the walls.

25 INSTALL A GUARDRAIL
No matter what heater you choose, always build a guardrail around it to protect you and your sauna guests from burns. 

23



24



25



BACK-BREAKING WORK REQUIRES SOME HELP

Everyone feels the hurt as you age, but CBD can help you deal with it

By: Beth Giles

Life really does fly by. Before I knew it, my 60s had arrived, and with them came some new gifts from dear ol' Mother Nature—frequent knee pain, stress, low energy and sleeplessness. Now, I'm a realist about these things, I knew I wasn't going to be young and springy forever. But still, with "golden years" nearly on my doorstep, I couldn't help but feel a little cheated. That is until I found my own secret weapon. Another gift from Mother Nature.

It began a few months back when I was complaining about my aches and pains to my marathon-running granddaughter, Jen. She casually mentioned how she uses CBD rub to help with her joint pain. She said that CBD gave her more focus and clarity throughout the day and that her lingering muscle and joint discomfort no longer bothered her. She even felt comfortable signing up for back-to-back marathons two weekends in a row this year. That made even this self-proclaimed skeptic take notice.

But I still had some concerns. According to one study in the *Journal of the American Medical Association*, 70% of CBD products didn't contain the amount of CBD stated on their labels. And, as a consumer, that's terrifying!

If I was going to try CBD, I needed to trust the source through and through. My two-fold research process naturally led me to Zebra CBD.

First, I started calling my family and friends. Call me old fashioned but I

wanted to know if there were people whom I trusted (more than anonymous testimonials) who've had success using CBD besides my granddaughter.

Secondly, I wanted cold hard facts. Diving deep into the world of CBD research and clinical studies, I came across Emily Gray M.D., a physician at the University of California at San Diego (UCSD) Medical School and medical advisor to Zebra CBD who is researching the effects of CBD. Dr. Gray wrote "early results with CBD have been promising and we have a lot of research underway now. I've had several patients using CBD with good success. It's important that you know your source of CBD and how to use it properly."

After hearing it from the doctor's mouth, I returned to my research, asking more people and was amazed by the number of close friends and family who were already on the CBD train. Apparently, I was the only one without a clue! And funny enough, a couple of friends who commented were using the same brand as my granddaughter—Zebra CBD. There was no consensus as to why they were using CBD, but the top reasons given were for muscle & joint discomfort, mood support, sleep support, stress and headaches, as well as supporting overall health & wellness.

Eventually, even the most skeptical of the bunch can be won over. With a trusted CBD source in mind, I decided to give it a go.

When I viewed Zebra CBD's selection online, I was impressed by its array of products, including CBD oils called tinctures, topicals, chewable tablets, mints and gummies. After reading on their website that all their products are made with organically-grown hemp, I ordered... and it arrived within 2 days!

The first product I tried was the Rub. Now this stuff was strong. Immediately after rubbing it on my knee, the soothing effects kicked in. It had that familiar menthol cooling effect, which I personally find very relieving. And the best part is, after two weeks of using it, my knee pain no longer affected my daily mobility.

The Zebra Sleep Gummies, on the other hand, had a different but equally positive effect on my body. To take it, the instructions suggest chewing thoroughly. This was simple enough, and the taste was, well, lemony. After about 15 minutes, a sense of calm came over my body. It's hard to describe exactly; it's definitely not a "high" feeling. It's more like an overall sense of relaxation—and then I fall fast asleep. Needless to say, I slept great and woke up refreshed. I haven't slept like that in a long time.

While it hasn't been a catch-all fix to every one of my health issues, it has eased the level and frequency of my aches. And it sure doesn't seem like a coincidence how rejuvenated I feel.

All-in-all, CBD is one of those things that you have to try for yourself. Although I was skeptical at first, I can safely say that I'm now a Zebra CBD fan and that I highly recommend their products.

Also, I managed to speak with a Zebra CBD spokesperson willing to provide an exclusive. If you order this month, you'll receive \$10 off your first order by using promo code **"FH10"** at checkout. Plus, the company offers a 100% No-Hassle, Money-Back Guarantee. You can try it yourself and order Zebra CBD at ZebraCBD.com/FH or at 1-888-762-2699.

LET THE GAMES BEGIN

GRAB A BEVERAGE AND JOIN THE FUN!

Cornhole is fun to play and a great game to include all ages. And frankly, I'm a fan of anything that encourages us all to set down our phones and do something real outdoors with family and friends. With that in mind, I designed this cornhole set to be easy to build and easy to tote.



MEET THE BUILDER



PROJECT EDITOR **JAY CORK**
CAN'T RESIST A GAME
THAT INVOLVES THROWING
BEAN BAGS WHILST SIPPING
SOMETHING TASTY.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
2 days	\$200	Beginner

TOOLS

Table saw, jigsaw, cordless drill

BY JAY CORK



MAKE THE SKIRT

1 CUT THE SKIRT BOARDS

Gang-cut the skirt ends and skirt sides from 1x4 select pine boards. This will ensure they're the exact same length.

2 CUT THE HANDLE SLOTS

Cut a handle slot in two of the skirt sides, one for each board. Mark the center lengthwise, and mark a line 1½ in. from the bottom. Measure out 2½ in. from both sides of center and, using a 1-in. Forstner bit, drill two holes on those marks. Use a jigsaw to remove the rest of the waste.

3 ROUND OVER THE SLOT

Round over the handle slot with a ⅜-in.-radius router bit. Round over both the outside profile and the inside.

4 DRILL THE POCKET HOLES

Drill pocket holes in the skirt sides and ends every 8 in. for fastening the top. Drill two pocket holes on the skirt ends to fasten the skirts together.



REGULATION SPECS

According to the American Cornhole League, cornhole boards must be 24 in. wide and 48 in. long. The 6-in.-diameter hole needs to be centered 9 in. from the top of the board. The top edge of the board should sit no higher than 12 in. off the ground.

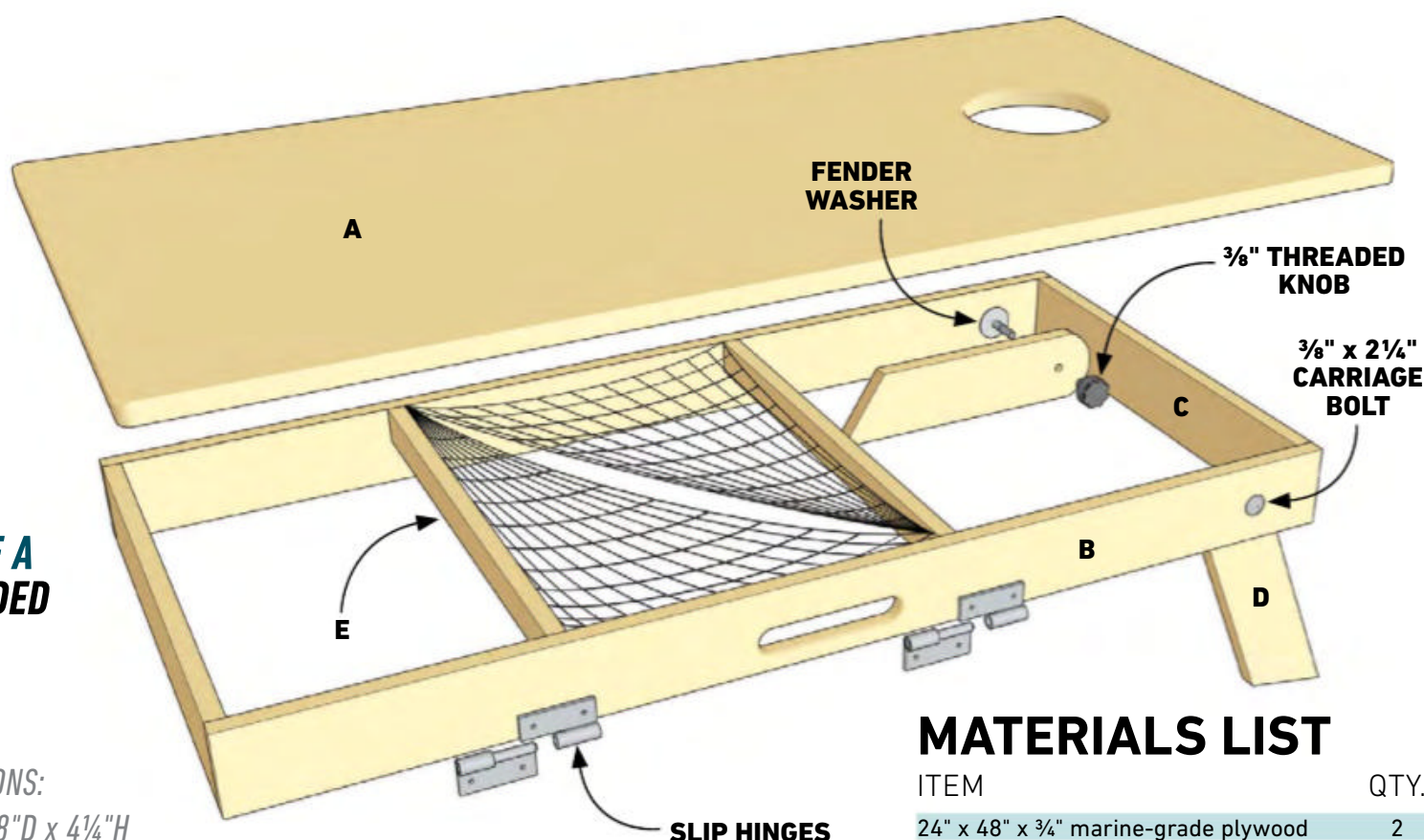
Regulation cornhole bags have a smooth side and a rough side. They should be 6 x 6 in. and weigh 14 to 16 oz.



**SCAN THIS CODE
TO WATCH JAY
BUILD AND FINISH
THIS BEAUTIFUL
GAME SET!**

**FIGURE A
EXPLODED
VIEW**

OVERALL
DIMENSIONS:
24"W x 48"D x 4¼"H



MATERIALS LIST

ITEM	QTY.
24" x 48" x ¾" marine-grade plywood	2
1x4 x 8' pine boards	8
Shellac	1 qt.
Spar varnish	1 qt.
TransTint wood dye	4 colors
¾" threaded knob	4
¾" x 2¼" carriage bolt	4
1¼" pocket screws	
2" washer-head screws	
Slip hinges	2
Motorcycle cargo netting	2

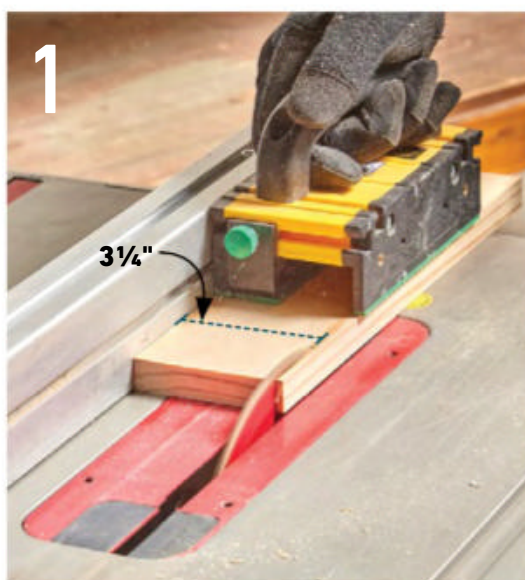
CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
A	2	24" x 48" x ¾"	Board tops
B	4	22" x 3½" x ¾"	Skirt sides
C	4	20½" x 3½" x ¾"	Skirt ends
D	4	14" x 3½" x ¾"	Legs
E	4	20½" x 2" x ¾"	Cross braces

MAKE THE LEGS

1 TRIM THE LEGS

The legs need to be slightly narrower than the skirt boards so they sit inside the frame when stowed away. Cut them to 3¼ in. wide on the table saw. Once they have been cut down, tack or tape the legs together and mark the cuts for the angled foot, the bolt hole, and the half-round shape at the top of the leg.



2 CUT TO SHAPE

Cut the half-round shape using a band saw or jigsaw while the legs are tacked together. Make the 30-degree angled cut for the foot with any saw you like—I used the band saw. Then drill a ⅜-in. hole for the carriage bolt centered on the width, 1⅝ in. down from the top.

3 FINISH THE LEGS AND SKIRT

I chose a dark stain for the frame to accent the bright colors of the cornhole boards. Apply a coat of stain to both the skirt and the legs. Let them dry for 24 hours and then top-coat with three coats of spar varnish.



FINISHING MATERIALS

Shellac and TransTint wood dye make coloring the boards fast and easy. General Finishes gel stain made quick work of the underside and the frame. Behr spar urethane dries fast and provides plenty of protection for years of outdoor use.

MAKE THE BOARDS

1 CREATE A CUSTOM LOOK

This step is optional, but I wanted to make these cornhole boards unique. Cut the plywood tops to size and seal them with two coats of shellac. Allow them to dry and then use painter's tape to outline the design. I made the four colors by blending thinned (with denatured alcohol) shellac with alcohol-soluble dyes and applied it with a Preval sprayer.

2 CUT THE HOLES

Draw a 3-in.-radius circle centered on the board's width and 9 in. down from the top. Drill a 1/4-in. pilot hole and cut out the holes with a jigsaw. Sand the inside of the hole smooth with 180-grit sandpaper.

3 ATTACH THE SKIRT

When the topcoat is dry, attach the skirt. Put the board face down on a towel to protect the finished surface. Center the frame on the underside of the board, keeping it stable with a clamp while driving the 1 1/4-in. pocket hole screws. Then attach the cross braces with 2-in. flat-head screws.

4 MOUNT THE LEGS

Connect each leg to the skirt with a 3/8-in. carriage bolt, a thin fender washer between the skirt and the leg, and a threaded knob to hold its position. This allows each leg to be positioned independently to accommodate uneven ground.

PRO TIP

I used Frog Tape and wiped the tape with a damp cloth before I sprayed the colors. This seals the edges to prevent the color from bleeding under the tape.

PREVAL SPRAYER

1

2

PILOT HOLE

3

SKIRT

TOP

CROSS BRACE

4

FENDER WASHER

CARRIAGE BOLT

D

THREADED KNOB

5 INSTALL SLIP HINGES

To allow both cornhole boards to be ganged together for storage, add two slip hinges and two small latches. This step is optional.

6 ATTACH A SPIRIT LEVEL

Let's play fair! Adding a spirit level to each cornhole board ensures your boards aren't tilting to either side. I attached the levels to the top end of the frames with 3/4-in. screws. Make sure they are perfectly parallel to the top!

7 ADD BAG STORAGE

To store the cornhole bags, I attached an elastic net that's used for cargo storage on motorcycle seats. Use 1-in. washer-head screws to fasten the net to the frame of the cornhole boards.

8 ADD PROTECTION

Once the color coats are dry, it's time to add heavy-duty protection. I applied three coats of marine spar varnish as a topcoat. This protects the wood from moisture and UV light—and cornhole bags! 🛡️



WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal,
providing you various content:
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fresh magazines, hot games,
recent software, latest music releases.

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Cheap constant access to piping hot media

Protect your downloadings from Big brother

Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages

Brand new content

One site



AVXLIVE • ICU

AvaxHome - Your End Place

We have everything for all of your needs. Just open <https://avxlive.icu>

BRICK PIZZA OVEN

MAKE WOOD-FIRED PIZZAS
AND MORE, RIGHT IN YOUR
BACKYARD



SKY: GETTY IMAGES/NOVADSOU.L, TOP RIGHT: DICK DEGRÖD

If you crave wood-fired pizza and the brick oven to make it in your own backyard, we have the plans for you. With advanced skills, attention to detail and a helper, you can build this brick pizza oven for a fraction of what it would cost to have a professional mason build it for you. And once you've mastered the skill of controlling the temperature, you can bake anything you'd normally make in a conventional oven.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
About one week	\$3,000 to \$5,000	Advanced

TOOLS

Table saw, drill/driver, masonry tools, wet saw, concrete tools

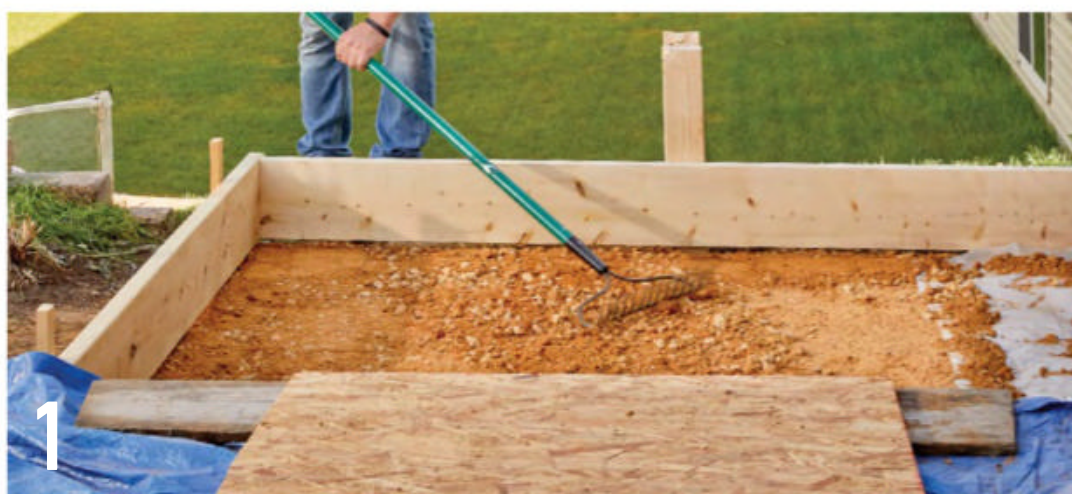
MEET THE EXPERT



DICK DEGROOD, PRESIDENT, TWIN CITY BRICK & STONE, HAS OVER 46 YEARS IN THE MASONRY SUPPLY INDUSTRY. "I BUILT MY OWN WOOD-FIRED OVEN OVER 20 YEARS AGO, AND IT'S STILL WORKING AS IT DID THE DAY IT WAS BUILT."

1 DIG AND PREP THE PAD SITE

Build a form for the concrete pad using 2x10s. Our pad is 8 in. thick, so we spread Class V gravel in the form, leaving 8 in. to the top of the form. Tamp down the base to compact it. Make sure your form is braced and sloped to shed water.



2 POUR THE PAD

Pour concrete mix into the form, and then screed off the top. Once the concrete begins to set, trowel the surface and tool the edges. Allow the concrete to cure for a day before removing the form.



3 CAST THE CAPSTONE

Build a form for the capstone using melamine. Set the form on sturdy sawhorses with 2x4s underneath for full support. Apply a bead of silicone at the bottom corners of the form. Once the silicone is dry, fill the form with lightweight countertop concrete mix. We used fiberglass rebar here to reduce the weight and avoid rust stains. We set the rebar grid and then pressed it into the concrete. When the concrete begins to harden, trowel the surface and tool the corners. The capstone is only 3 in. thick, so we allowed it to cure for several days before removing the form.





4 LAY THE FIRST COURSE OF BLOCK

Lay out the outline of the base on the pad and set the first course of concrete blocks. Because our pad is sloped, we set the first course of block in mortar. That way we could build up the back enough to make our base level.



5 FINISH THE BASE

Set the rest of the block for the base using landscape adhesive. This is much easier and faster than using mortar. Pay close attention to keeping the whole thing square, plumb and level as you build.

6 FILL THE CORES

When the adhesive is dry, fill all the cores of the block with concrete mix and rebar. Before setting our first course of blocks, we drilled the pad and added rebar. This way, after filling the cores, the base is firmly attached to the pad.

7 PLACE THE CAPSTONE

Remove the form from the capstone. Clean off any silicone that's stuck to the corners and smooth any sharp edges with a rub block. Apply landscape adhesive to the top of the base, and then set the capstone in place. This thing is very heavy—find a few friends to help you!



8 SET THE PERIMETER

Set bricks around the perimeter of the capstone. Mix your mortar according to the directions on the bag. Use a grout bag to apply a ½-in. bed of mortar under each brick and about a ½-in. layer between bricks. We didn't want the hollow sides of the bricks to show, so we cut ends off extra bricks to cover the hollow faces. Let the mortar cure for 24 hours.



9 ADD FIRE BRICK BASE

To bring the fire bricks up to the height of the perimeter bricks, we set them on a thick-bed floor-mix mortar. We set PVC pipe in place as a temporary guide to screed the mortar to the height we wanted.



10 SET THE BASE FIRE BRICKS

Set the fire bricks in place using refractory mortar to bring them to final level on top of the floor-mix base. Use a level or straightedge to keep them flush with the tops of the perimeter bricks. Traditionally, mortar isn't used between the fire bricks in the oven base.



FIGURE A
WOOD-FIRED OVEN

OVERALL DIMENSIONS:
44"W x 48"D x APPROX. 72"H
INCLUDING THE CHIMNEY

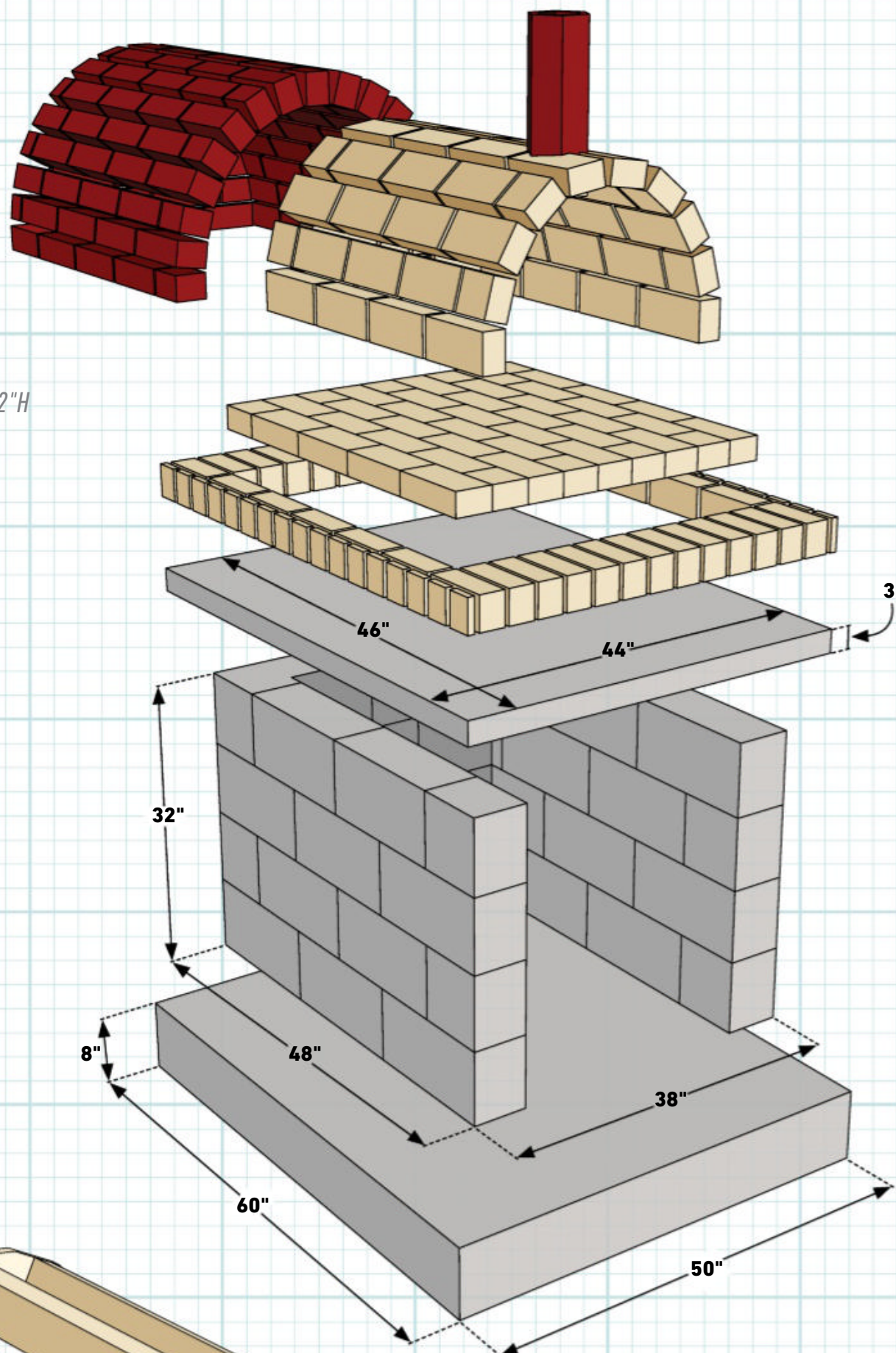
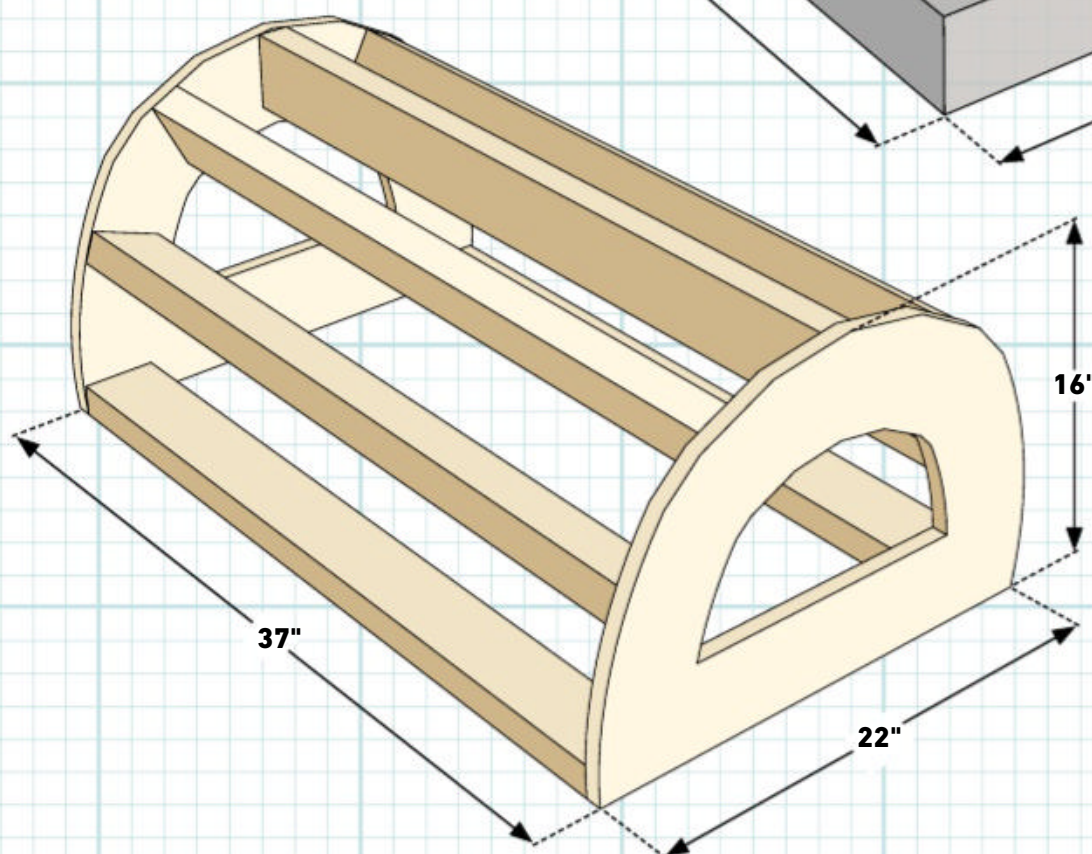


FIGURE B
ARCH FRAME



SCAN THIS CODE
TO WATCH US
BUILD THIS OVEN
FROM THE
GROUND UP!



11 CUT THE ARCH ENDS
Cut the ends for the arch form as shown in Figure A. These can be made from any scrap plywood or MDF.

12 ATTACH THE RIBS
Connect the arches using straight 2x4s and construction screws. Don't add glue; you want the form to be easy to take apart later.

13 FINISH THE ARCH FORM
Attach the tempered hardboard skin to the arch framework with roofing nails. Cut a large hole in the center of each arch. This makes removing the form much easier.

14 START THE FIRE BRICK ARCH
Center the arch form on the oven base and start setting fire brick from both sides of the form. Determine the width of the mortar by setting the fire bricks in place, making adjustments to avoid using partial bricks. Use refractory mortar to set the fire bricks.



MATERIALS LIST

ITEM	QTY.
Concrete block	36
Bricks	
Fire bricks	80
60-lb. bags countertop mix concrete	9
1/2" x 10' rebar	15
1/2" x 10' fiberglass rebar	10
Cultured stone	30 sq. ft.
Class V base	1 yd.
Refractory mortar	
Type S mortar	
50-lb. floor mix thick-base mortar	2
Concrete mix	1 yd.
3/4" x 4' x 4' plywood	1
8' 2x4s	4
3/16" x 4' x 8' tempered hardboard	1
3 1/2" I.D. chimney	1



15



16



17



18

15 FINISH THE ARCH

Continue working up the arch, staggering the fire brick joints on each consecutive course. We left the fire bricks in the flue area loose for the time being.

16 APPLY THE BRICK VENEER

After setting all the fire bricks, we applied a parge coat of mortar to the whole arch. This thin coat of mortar provides a smooth, continuous surface for setting the outer bricks. Add the outer brick veneer once the mortar has set on the fire brick arch. We applied mortar to each brick, then filled in as necessary with a grout bag. Once the mortar begins to set, tool the mortar joints.

17 SET THE FLUE

Using a diamond wheel on an angle grinder, cut out an area in the two top front fire bricks to accommodate the opening in the flue. Set those fire bricks, and then mortar the flue into place. When the mortar is firm, continue setting the remaining outer bricks, cutting them to fit around the flue.

18 REMOVE THE FORM

Let the arch cure for a day or two, then carefully remove the arch form. Start by unscrewing the ends. Then, you can—as gently as possible—pull the ribs free of the hardboard. Avoid any prying or pounding. You don't want to crack the mortar.

19 FILL THE BACK

Fill in the back of the oven with fire brick followed by a parge coat. Cover the back using slices of the outer brick mortared to the parge coat. Use a grout bag to fill in the joints.

20 VENEER THE FLUE

We used brick slices to veneer the flue. We staggered the corner joints and filled in mortar around the flue as we built up the veneer. At the top, we capped the bricks with a coat of mortar sloped to shed water. You can skip veneering the flue if you like.

21 VENEER THE FRONT CORNER

To cover the concrete block base, we used landscape adhesive to apply cultured stone. We started on the inside and wrapped around the front corner, then worked around the whole base. Cardboard shims hold the stone up off the slab for water drainage.

22 FINISH THE BASE

Continue applying the cultured stone all the way around and inside, working your way up. At the corners and the top, you'll need to trim the stones. They're easy to cut with a diamond wheel on an angle grinder. 





CATCHING SOME SHADE

ENJOY YOUR YARD
EVEN AT ITS HOTTEST!

BY ETHAN O'DONNELL

Now that the weather's warm, my family likes to head to our backyard patio for barbecues, games and quiet evenings alone with a book or tablet. As much as we love it, sometimes we just can't stay out there in full sun. If you need to keep your patio shaded and comfortable too, here are the options.

PERGOLAS

Adding a pergola is a beautiful and permanent way to shade a deck or patio. Generally made of metal or wood, these structures add a visually pleasing and shade-giving framework to any outdoor space.

Pergolas usually come as a pre-fabricated kit that has to be assembled. In addition, they need to be attached to a solid patio, deck or footing. They can be quite costly and in some municipalities would require a building permit.

Pergolas that are designed to support climbing plants will have openings that let in light. To provide shade, they are usually best used in conjunction with another option. Many have fabric awnings to help block the rain or sun.

PROS

- Attractive and long-lasting
- Most kits are easy to assemble

CONS

- Costly
- Permanent installation with sturdy base, and possible permits required
- Usually not a standalone shade solution

MEET THE WRITER



ETHAN O'DONNELL IS A STAFF EDITOR WHO ENJOYS BUILDING CUSTOM FURNITURE AND OTHER PROJECTS.

PATIO UMBRELLAS

This go-to option is now available in a variety of styles, including the traditional center-of-table model as well as popular cantilever or tilting models. All come in a wide variety of shapes and canopy styles.

Manufacturers have improved tilting and cantilever umbrellas in recent years, but many patio umbrellas have the same problems they had years ago: They require a sturdy, heavy base that is often not included, and they can bounce or blow over in the wind. Also, because cantilever umbrellas hold their canopy off to one side, they tend to spin if not securely anchored.

Patio umbrellas remain the best choice for those with a smaller patio set that they would like to cover, and also for renters, since umbrellas don't require permanent installation.



PROS

- Plenty of size and canopy options to fit your specific patio
- Mobile or easily adjusted to the sun level
- No permanent installation required

CONS

- Cannot be used in windy conditions
- Require a sturdy base, usually sold separately



ROLL-DOWN AWNINGS

Roll-down or motorized awnings may seem old-fashioned, but they do have one key advantage—they can provide shade both inside and outside a house.

Say your home has a bay window on the south side of the house and it receives direct sunlight throughout the summer. If your deck or patio is in front of this window, a roll-down or motorized awning could be your best option for providing shade outside for your family, as well as for lowering the inside temperature and reducing energy costs.

These awnings require permanent installation into sturdy wood-framed or cinder block walls and tend not to handle high wind or heavy rain well. But they could be your ticket to more comfort indoors and out.

PROS

- Limits the sun exposure both inside and outside the house
- Can be partially or fully rolled out depending on the coverage needed
- Neatly rolls up when not in use

CONS

- Permanent installation required
- They need to be rolled down before each use
- Not for use in high wind or heavy rain



SHADE SAILS

These triangular or rectangular fabric swaths are an inexpensive, effective method of shading large areas. Available in a wide range of sizes and colors, shade sails are unique in that they can be configured in overlapping patterns to shade patios, swimming pools and any areas of your yard.

A shade sail is an excellent option for homeowners who have existing permanent anchor points in their yards and want an option that doesn't require setup for each use. However, they aren't waterproof, and because they can be quite transparent, may not be adequate for strong sunlight.

PROS

- Inexpensive
- Can be configured for unique shapes
- Doesn't require daily setup

CONS

- Sturdy rigging and anchor points required
- Doesn't completely block harmful UV rays
- Won't block rain



SHADE ON THE GO

The need for shade never ends, and sometimes a portable option is the solution. A packable canopy such as the Neso Sidelines (\$135 at REI) can provide sun protection at the beach, picnics and weekend soccer tournaments. Constructed with quality materials, it can be set up and broken down in minutes and is available in a variety of sizes and colors. 

WOOD-FIRED HOT TUB

////
A SOOTHING SOAK
IN YOUR OWN BACKYARD



SEE THIS
FIRE PIT IN
HANDS ON,
P. 8!

BY JOE CRUZ

Whether it's summer or winter, you don't need to go to a resort to enjoy a relaxing soak in an outdoor hot tub. For a relatively small price, you can build this hot tub in your own backyard and take a dip whenever the mood strikes. Fill the tub with a garden hose, light a fire to heat the water, hop in and relax!

WHAT IT TAKES

TIME	COST	SKILL LEVEL
2 days	\$550	Intermediate

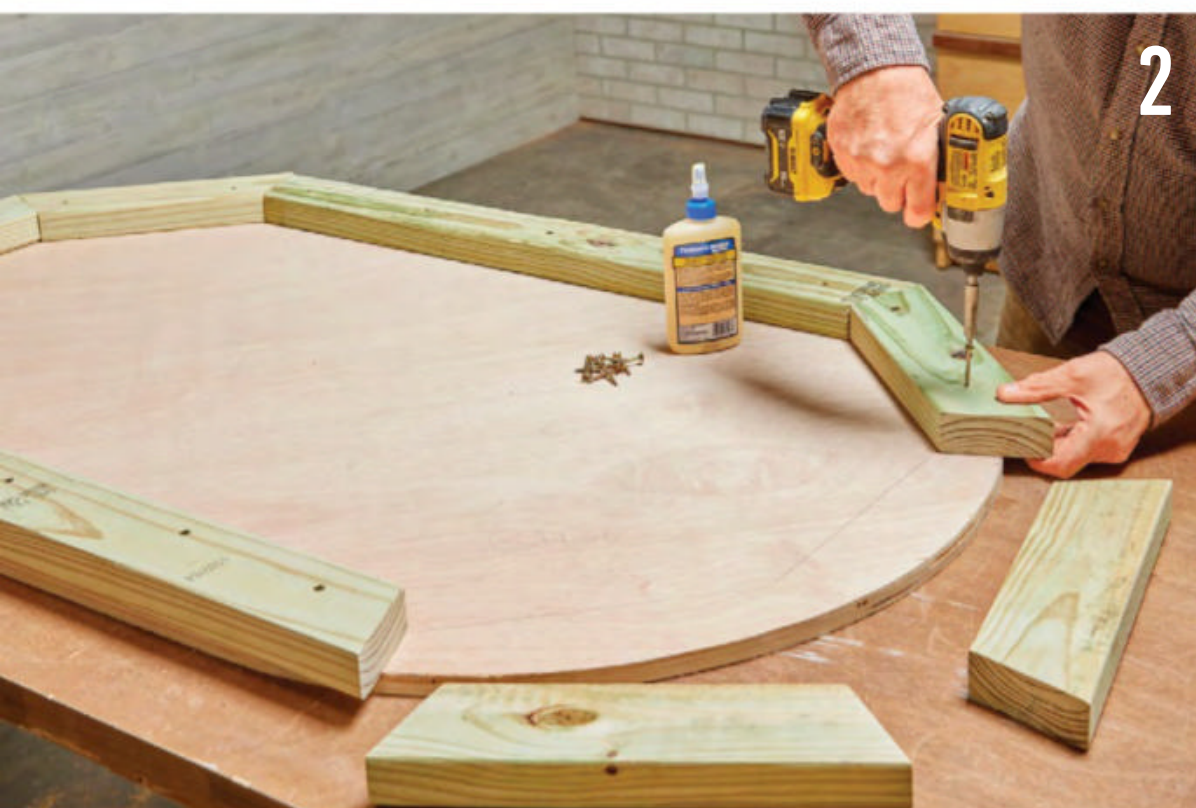
TOOLS

Jigsaw, miter saw, table saw, router with flush-trim bit, router table, bead and cove router bit set, carpenter's square, caulking gun, hot glue gun, drill, 1 1/4" hole saw, 1/4" spade bit, rubber mallet, screwdriver, garden hose

THE TUB

I chose this Rubbermaid stock tank for a few reasons. First, it's deeper than the metal tanks I saw. Second, the plastic itself is a more comfortable temperature in hot or cold weather than metal. Third, its rounded top edges have a larger radius than the edges of metal tanks, so they're more comfortable to rest your arms on.

Lastly, you'll find it more comfortable to lean back against the angled ends of the stock tank than the straight sides of a metal tank. This tank had molded-in brackets for supporting it on a wood frame. I didn't like the look, and they would have made it harder to clad the tank, so I cut them off with a multi-tool.



THE WATER HEATER

To heat the water, we used a wood-fired thermosyphon heat exchanger. This $\frac{3}{4}$ -in. stainless steel coil circulates the water in the tub without the need for a pump. It's based on natural convection, called thermal siphoning. Cold water enters at the bottom of the heater and expands. Convection moves the heated water upward, pushing it through the coil and out into the tub; at the same time the heated water is replaced by cooler water below. So, no need for electricity—just good dry wood.

You can go out and purchase a 60-ft. roll of $\frac{3}{4}$ -in. copper tube and bend a heating coil yourself. But the copper alone costs about the same as this stainless steel coil that I found online and had delivered to my doorstep.

1 CUT THE PLATFORM

Set the stock tank upside-down diagonally on one end of a 4 x 8-ft. sheet of plywood. This lets you get the platform and a tub cover from one 4 x 8-ft. sheet. With your pencil at a slight angle as shown, trace around the perimeter of the stock tank. Cut out the platform with a jigsaw. Cut the cover the same size.

2 BUILD UP THE BASE

Cut treated 2x4s to form an elongated octagon (see Figure A). Secure the 2x4s to the platform with water-resistant wood glue and exterior screws.

MEET THE BUILDER



JOE CRUZ IS AN EDITOR, ALL-AROUND HANDYMAN AND BUILDER OF ALL THINGS.



3

FLUSH-TRIM BIT

3 TRIM THE BASE

Trim the 2x4 base so that it's flush to the edge of the platform. Use a jigsaw or a router with a flush-trim bit.

4 ADD MOUNTING BLOCKS

Cut plywood squares to fill the areas between the reinforcement ribs on the bottom of the stock tank. Secure the plywood using construction adhesive and self-tapping screws through the ribs into the plywood edges.

5 ATTACH THE BASE

Apply construction adhesive to the plywood squares. Set the assembled base on the upturned stock tank and center it. Secure the base with 1 1/4-in. screws through the platform into the plywood squares you installed in the previous step.



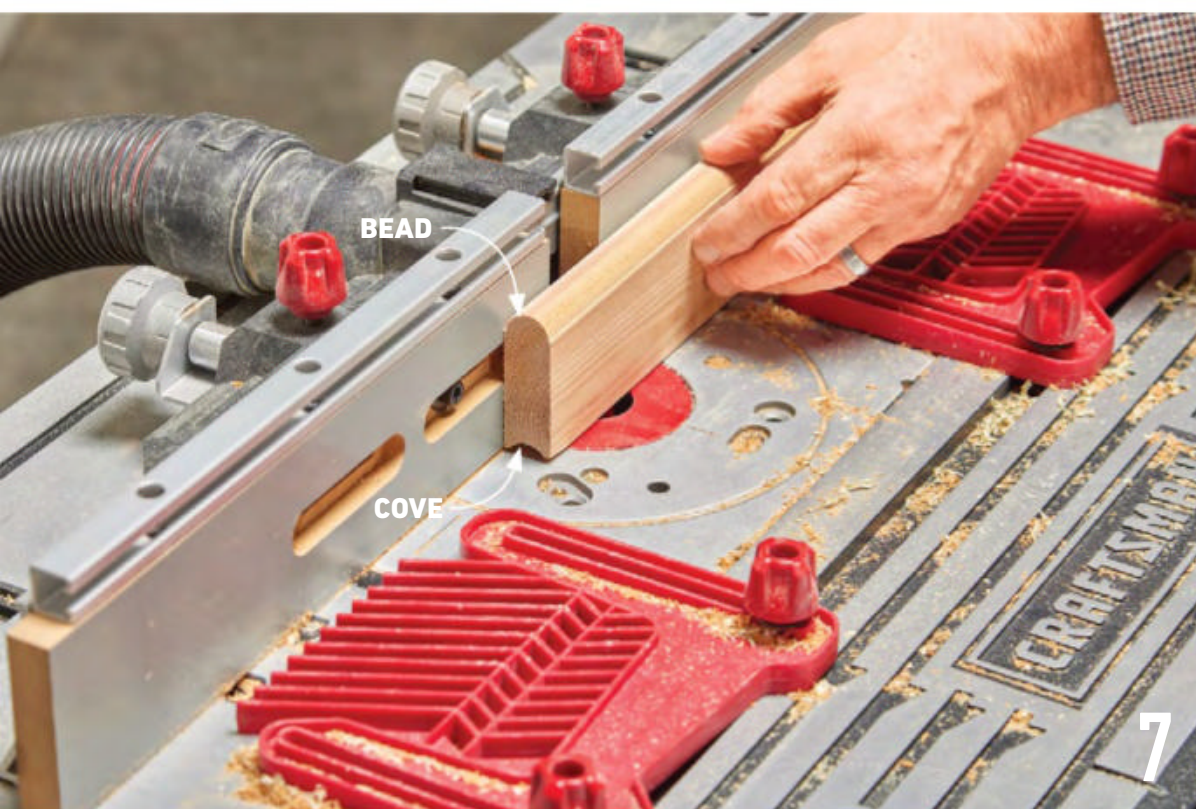
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MATERIALS LIST

ITEM	QTY.
4' x 8' x 3/4" plywood	1
1 1/2" x 3 1/2" x 8' green treated (2x4)	2
3/4" x 3 1/2" x 8' cedar (1x4)	3
3/4" x 2 1/2" x 8' cedar (1x3)	12
100-gal. poly oval stock tank	1
Stainless steel coil heat exchanger	1
Stock tank drain plug	1
Smokeless fire pit	1
4' x 8' x 1" pink foam insulation	1
Tube of construction adhesive	1
Exterior wood glue	1
1 1/4" construction screws	1 box
1 1/2" finishing screws	1 box
Plumber's tape	1 roll
Drain valve	1
3/4" galvanized tee	1
3/4" rubber couplers	2



5



6 INSULATE THE TUB

Cut 1-in.-thick insulation to size using a table saw or utility knife. Make kerf cuts in the insulation on the pieces that curve around ends of the tank to allow the insulation to bend without breaking. Attach the foam insulation to the stock tank with hot glue and construction adhesive.

7 MAKE THE CLADDING

Using a router table, rout a bead on one edge of all the cladding boards and then rout a cove on the other edge of the boards. You can cut your boards to length before you run them through the router or leave them at full length and cut them to final length after routing.

8 ATTACH THE CLADDING

Set the tub assembly on sawhorses to make it easier to work on. The first cladding board is the most important. Place the board under the lip of the stock tank. Then use a carpenter's square to check that the board is square to the platform. Attach the board to the edge of the platform with finish screws.

Work your way around the tub, keeping the bead on each board tight to the cove of the preceding board. Check for square as you go. The very last board may need to be custom cut and routed again to fit tightly.

9 ADD THE PIPING

Drill a 1/4-in. pilot hole from the inside of the tank through the tank's drain plug and through the cladding. Using the pilot hole as a guide, drill a 1 1/4-in. hole through the cladding from the outside. Wrap the thread of a pipe nipple with plumber's tape and thread it into the drain plug hole. Next, attach the coil to the pipe extension with a rubber coupler.

10 SECOND HOLE

Thread a pipe nipple onto the upper end of the coil and mark on the cladding where to drill the top hole. Again, drill a 1/4-in. pilot hole, only this time through the cladding into the stock tank. Remove the board and drill a 1 1/4-in. hole at your pilot hole into the board. Remove enough insulation to make space for the drain plug, then drill a hole to fit the threads of your drain plug and install it.

11 ATTACH THE COIL

Reinstall the bored cladding and, as before, wrap the thread of a pipe nipple with plumber's tape and thread it into the drain plug. Then attach the coil to the pipe nipple with a rubber coupler.



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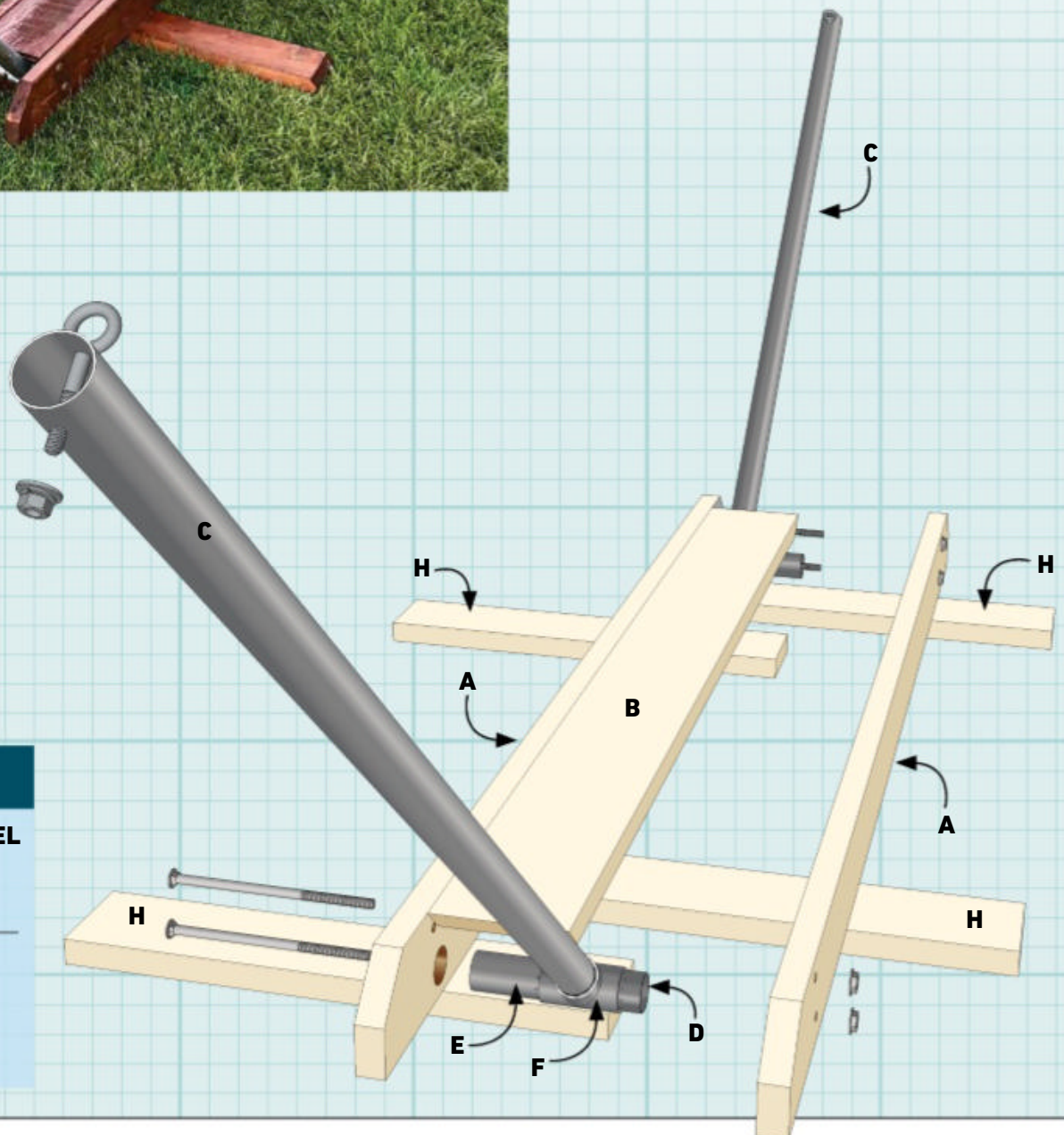
BY JOE CRUZ



If that perfect lounging spot in your yard doesn't have trees to hold your hammock, this stand is the ticket. It's fold-able, portable and easily storable, and it will take only a few hours to build.

FIGURE A
FOLD-UP FRAME

OVERALL DIMENSIONS:
84"W x 49 $\frac{3}{4}$ "D x 7"H

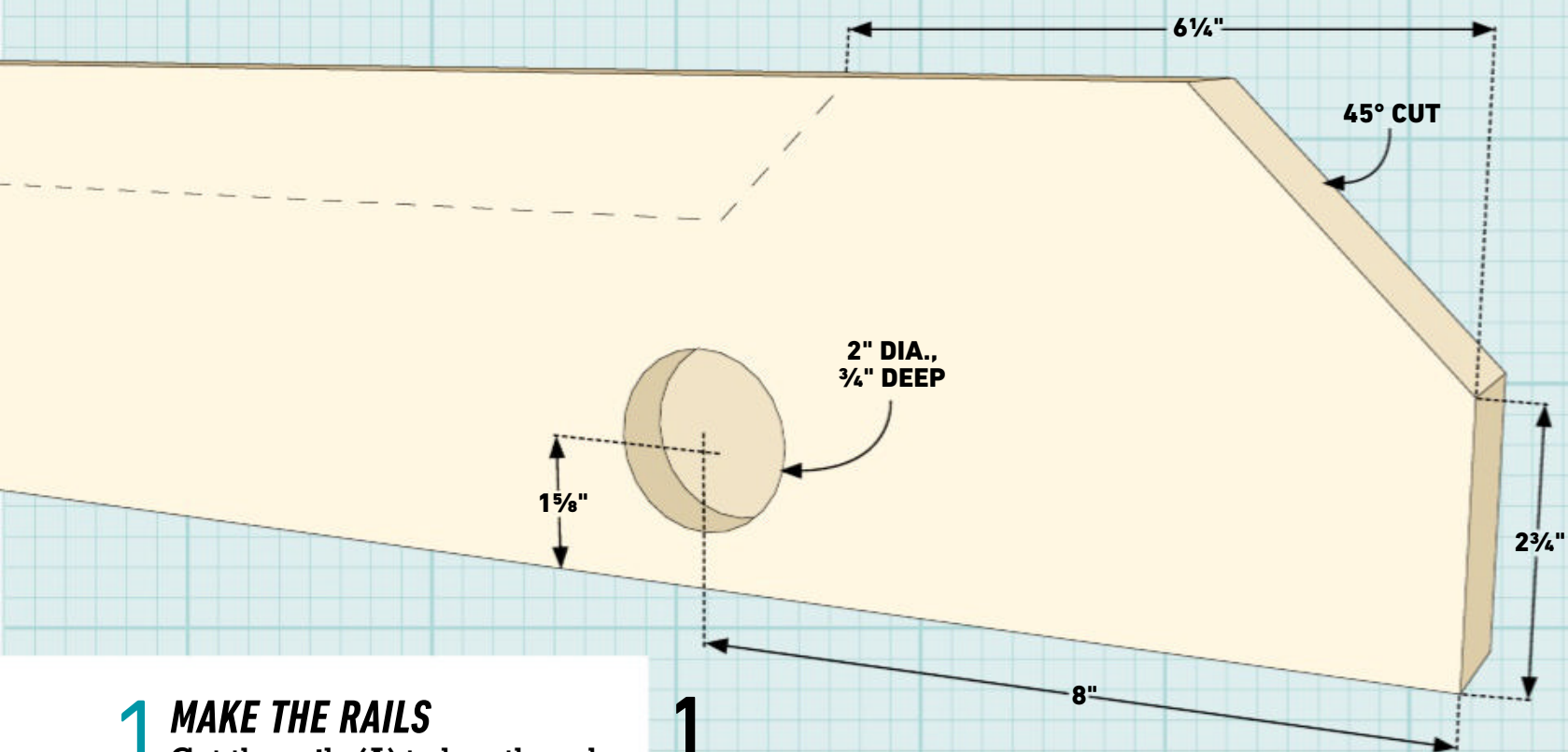


WHAT IT TAKES

TIME	COST	SKILL LEVEL
Half day	\$150 to \$200	Beginner

TOOLS

Circular saw, hacksaw, drill/driver, Forstner bit, basic hand tools



1 MAKE THE RAILS

Cut the rails (A) to length and cut each of the top corners at 45 degrees. Use a 2-in. diameter Forstner bit to drill $\frac{3}{4}$ -in. deep recesses on the inside face, and then mark the position of the top (B) on the ends of each rail.

2 CUT THE TOP

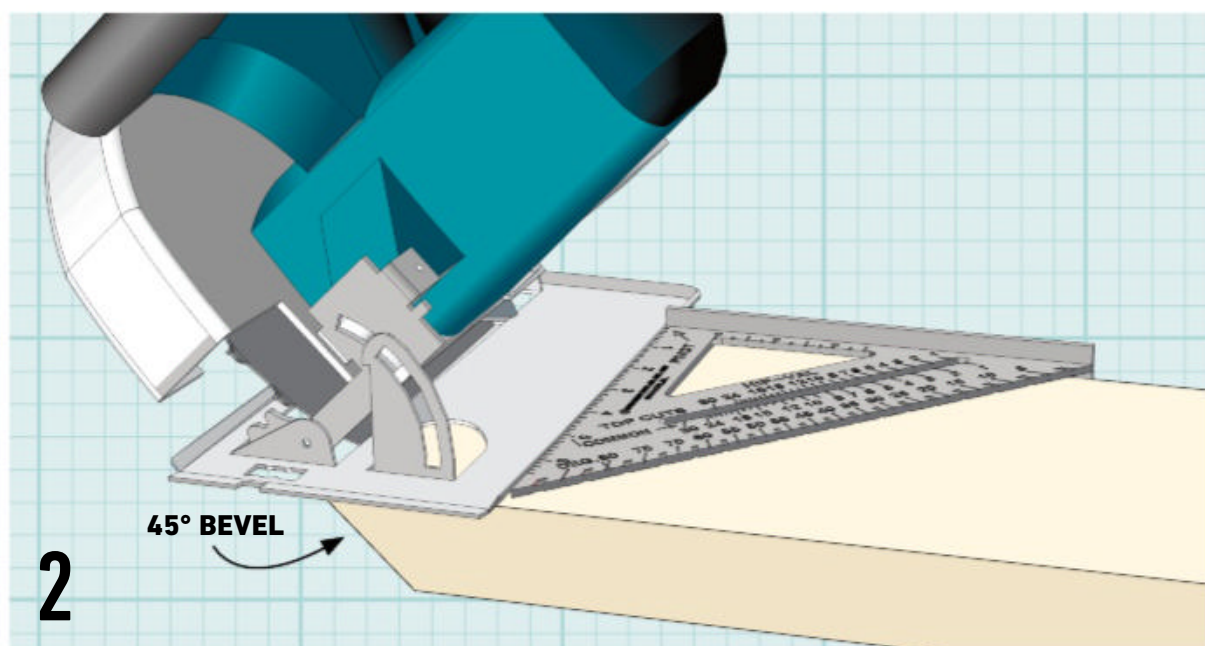
Using a miter saw or circular saw with a Speed square as a guide, cut the top (B) to length with a 45-degree bevel at each end.

NOT SHOWN: Cut two 5-ft. arms (C) from the 10-ft. pipe. Then cut two 6-in. nipples (D) to $4\frac{1}{4}$ in. Don't discard the $1\frac{3}{4}$ -in. cutoff. Always clamp pipes to a sturdy surface for cutting.

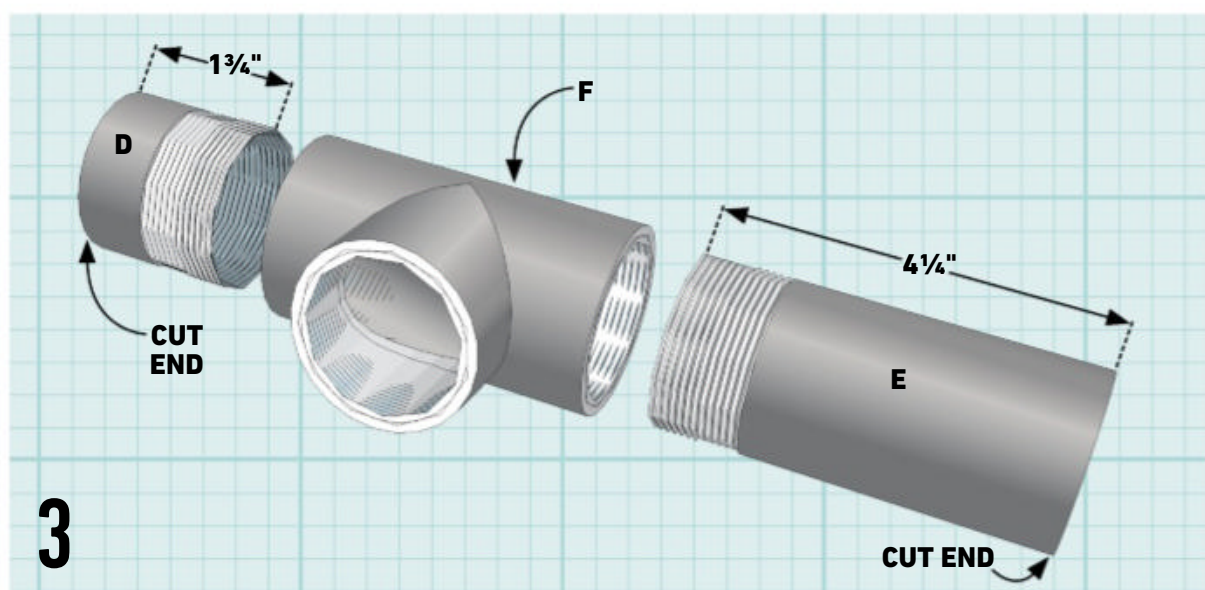
3 ASSEMBLE THE TEES

Screw the $4\frac{1}{4}$ -in. and $1\frac{3}{4}$ -in. pieces into the two ends of the $1\frac{1}{2}$ -in. galvanized tees (E). The assembled length of the tee should be no more than $8\frac{3}{4}$ in.

1



2



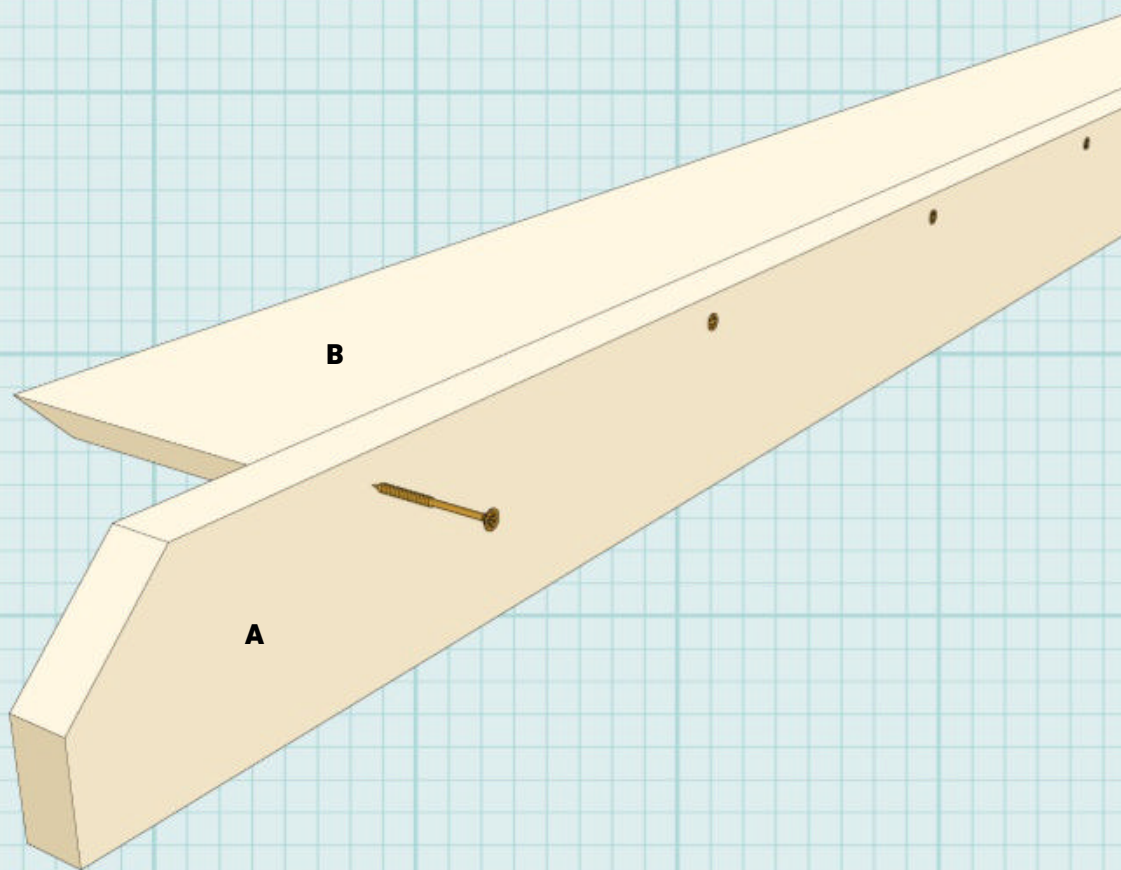
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MATERIALS LIST

ITEM	QTY.
2x6 x 96"	5
1 1/2" dia. x 10' threaded pipe	1
2" x 2" x 2" tee	1
2" x 6" threaded pipe nipples	2
3/8" x 2 1/2" eye bolts	2
1/2" x 12" carriage bolts	4
1/2" locknuts	4
1/2" washers	4
3/8" washers	2
3/8" lock washers	2
3/8" hex nuts	2
1 1/2" plastic end caps	2
No. 10 x 3 1/2" deck screws	
1/4" x 3 1/2" exterior lag screws	
Hammock	

CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
A	2	1 1/2" x 5 1/2" x 84"	Rails
B	1	1 1/2" x 5 1/2" x 71 1/2"	Top
C	2	2" x 60"	Arms (galvanized pipe)
D	2	2" x 1 3/4"	Short pivot pipe
E	2	2" x 4 1/4"	Long pivot pipe
F	2	2" x 2" x 2"	Galvanized pipe tee
G	4	1 1/2" x 5 1/2" x 30"	Feet

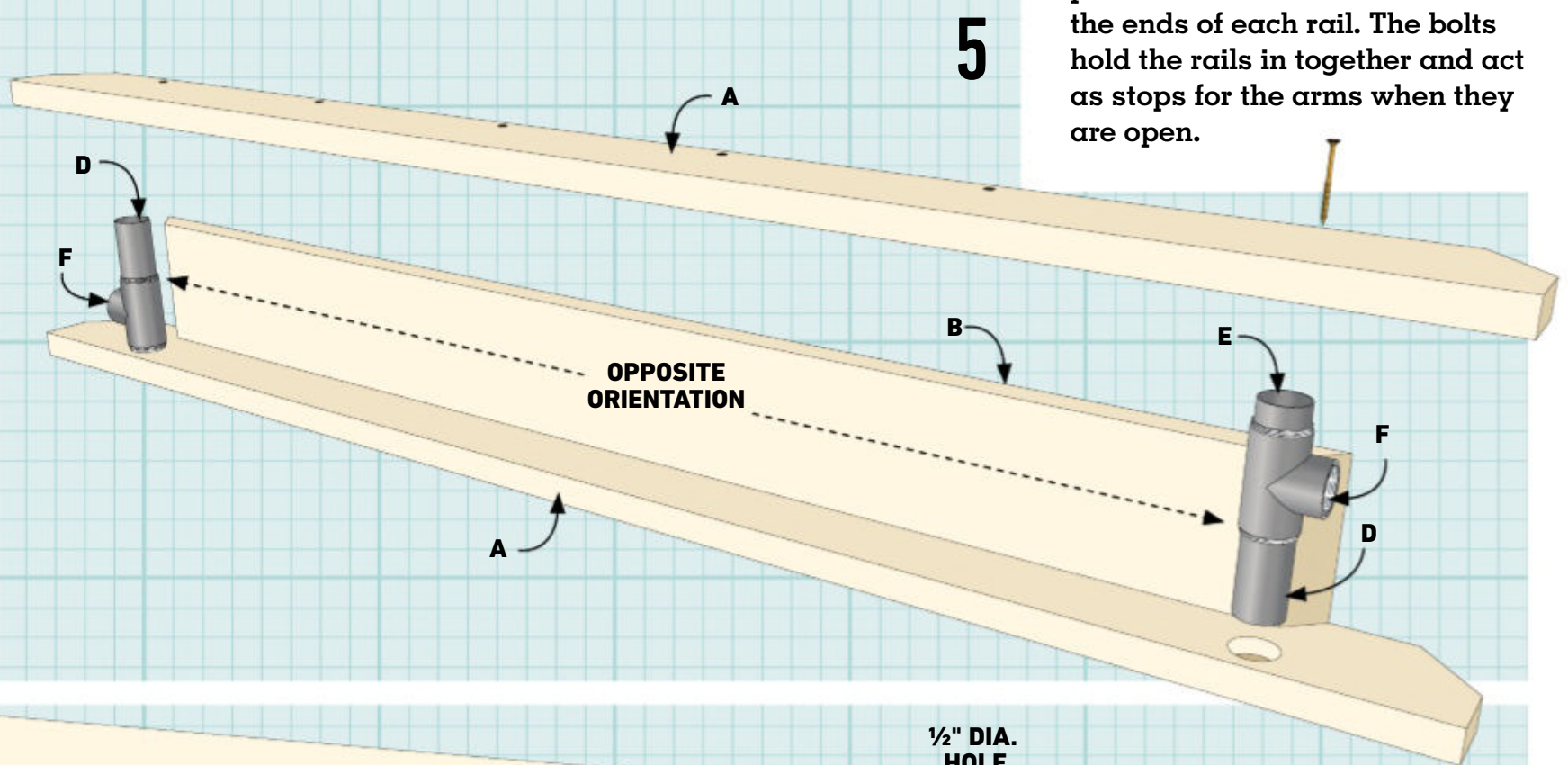


4 ATTACH THE RAIL

Attach one rail to the edge of the top, lining it up with the layout marks made in Step 1. Fasten them together using 3½-in. screws every 12 in., making sure the pipe recesses face inward.

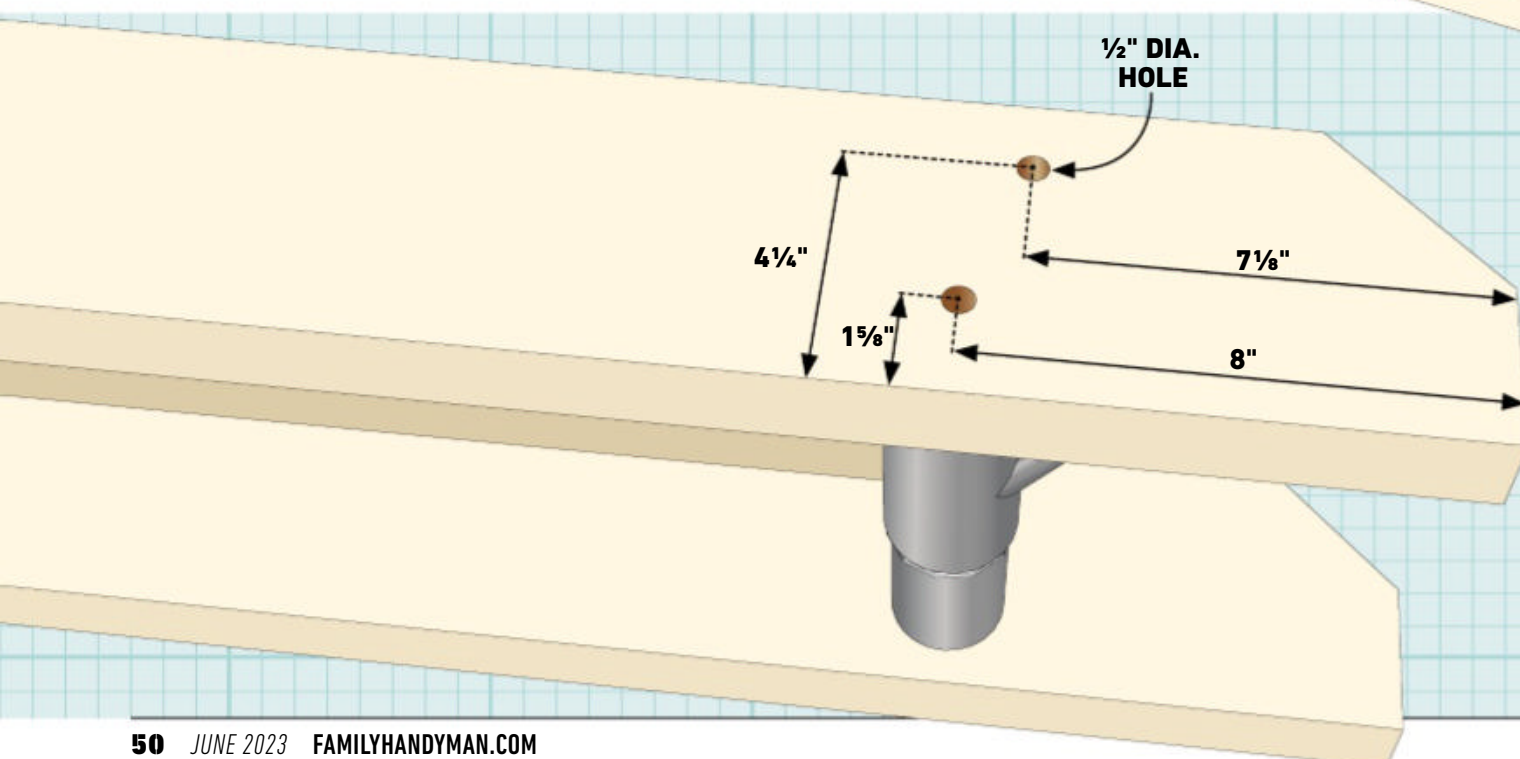
5 COMPLETE THE RAIL/TOP ASSEMBLY

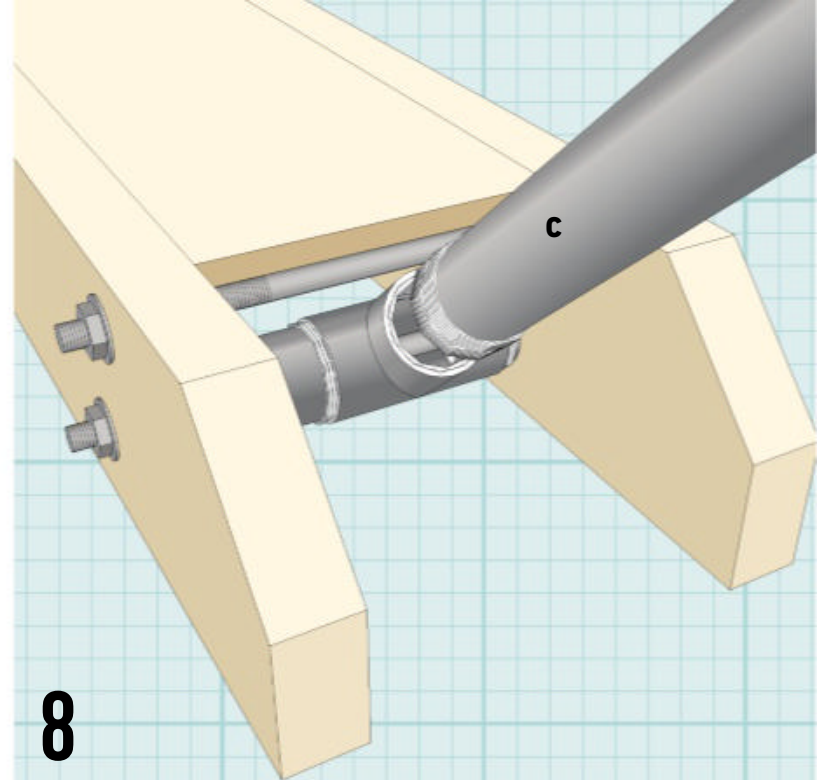
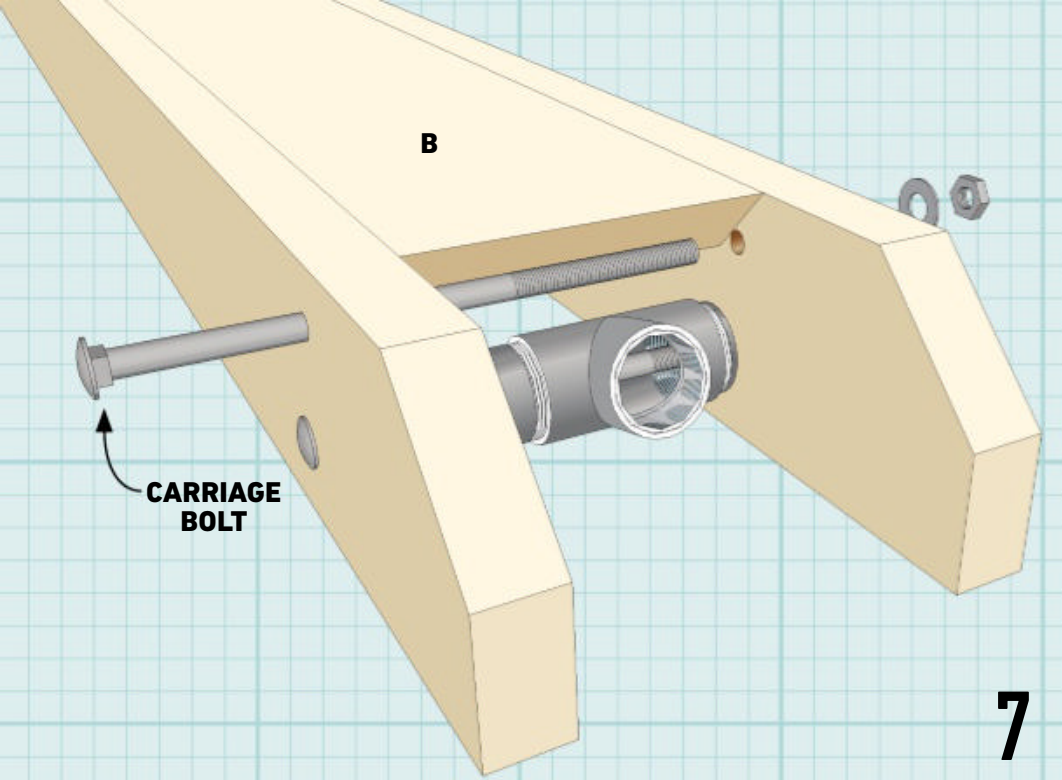
Lay the top and rail assembly on its side then set the tee assemblies in the 2-in. recesses in opposite orientations. Place the other rail on the top edge, guiding the tees into the recesses. Then attach the rail with 3½-in. screws.



6 DRILL CARRIAGE BOLT HOLES

Use a ½-in. spade or brad point bit to drill the two holes on the ends of each rail. The bolts hold the rails in together and act as stops for the arms when they are open.





7 INSTALL CARRIAGE BOLTS

Insert the $\frac{1}{2}$ -in. x 12-in. carriage bolts in the holes in the rails. Add a flat washer to the threaded end of each bolt and tighten the nuts.

8 INSTALL PIPE ARMS

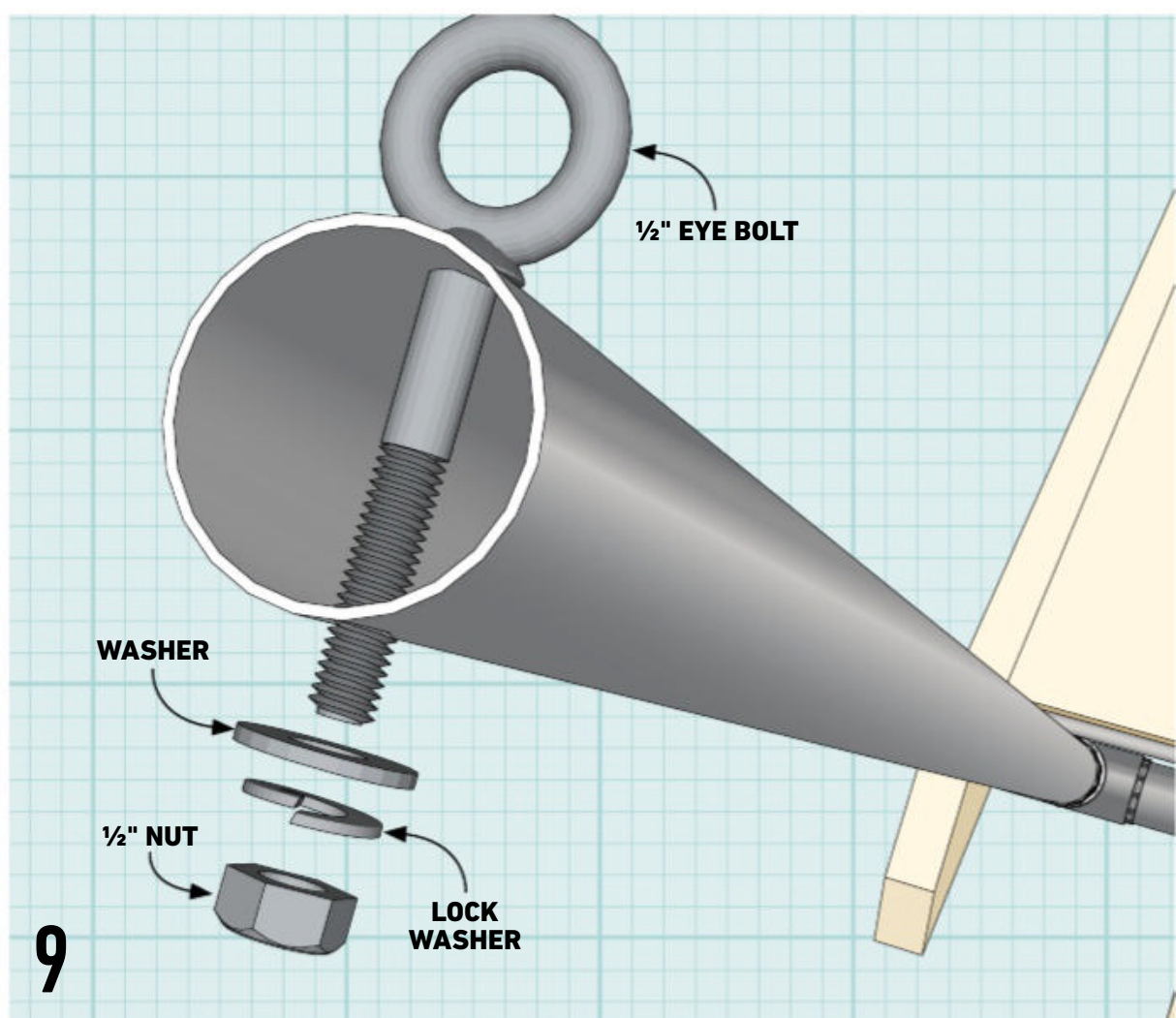
Rotate the tees and thread the pipe arms (C) tight with a pipe wrench.

9 INSTALL EYE BOLTS

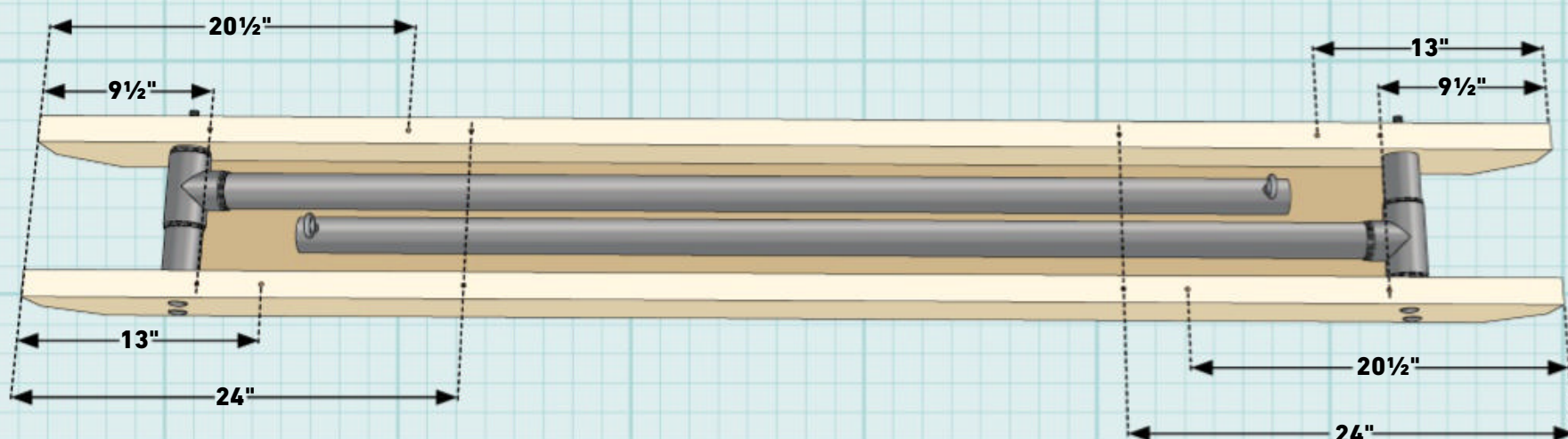
Drill a $\frac{3}{8}$ -in. hole 1 in. from the end of each pipe. Insert an eye bolt and secure it with a lock washer and nut. Then cap each end with a $1\frac{1}{2}$ -in. plastic cap.

10 LAYOUT HOLES IN THE RAILS

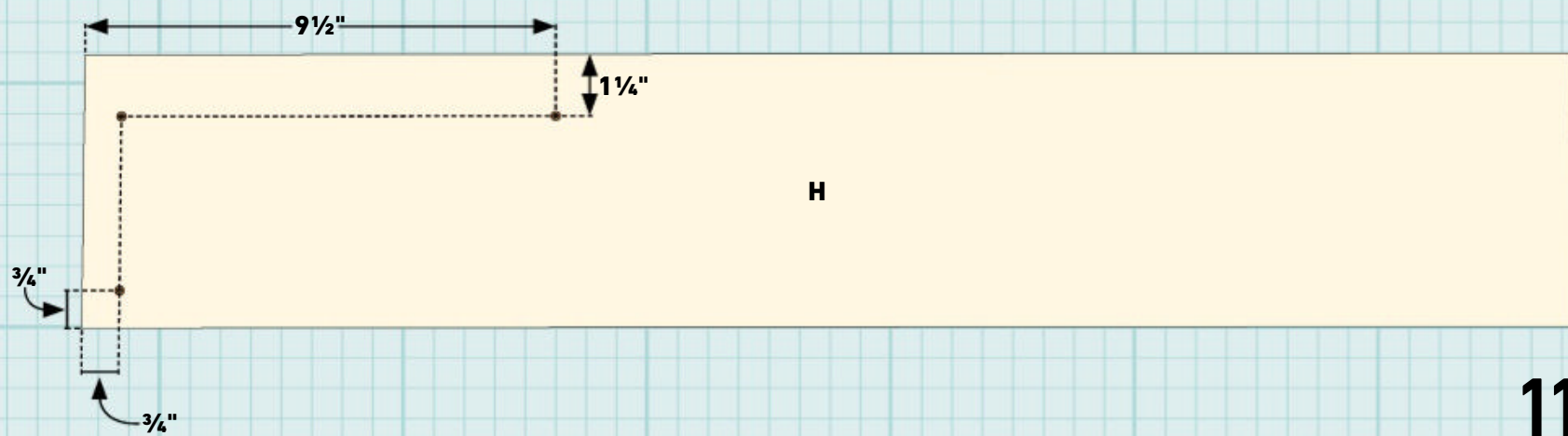
Make layout marks on the bottom of each rail as shown. Drill $\frac{3}{16}$ -in. pilot holes 2 in. deep at the marks.



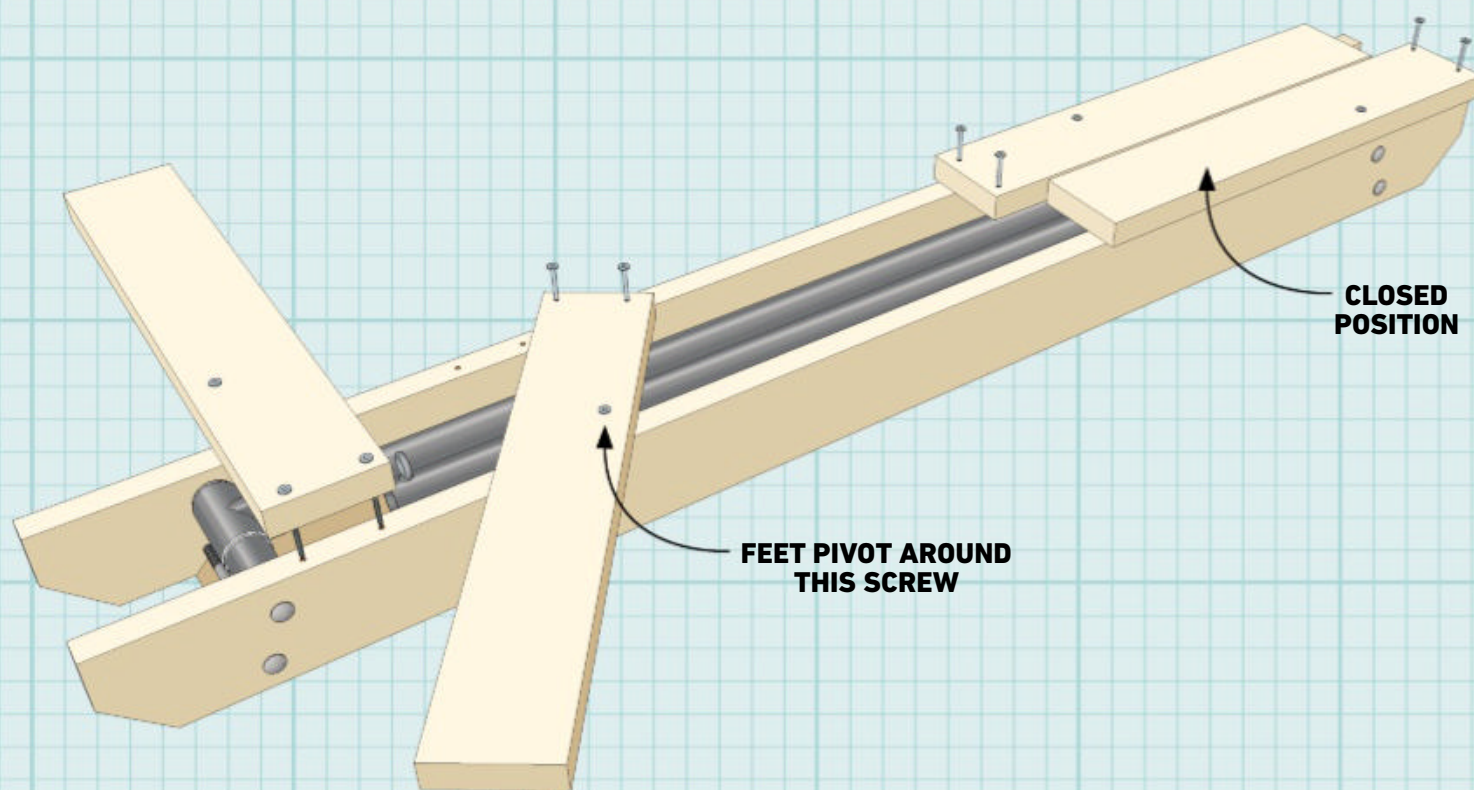
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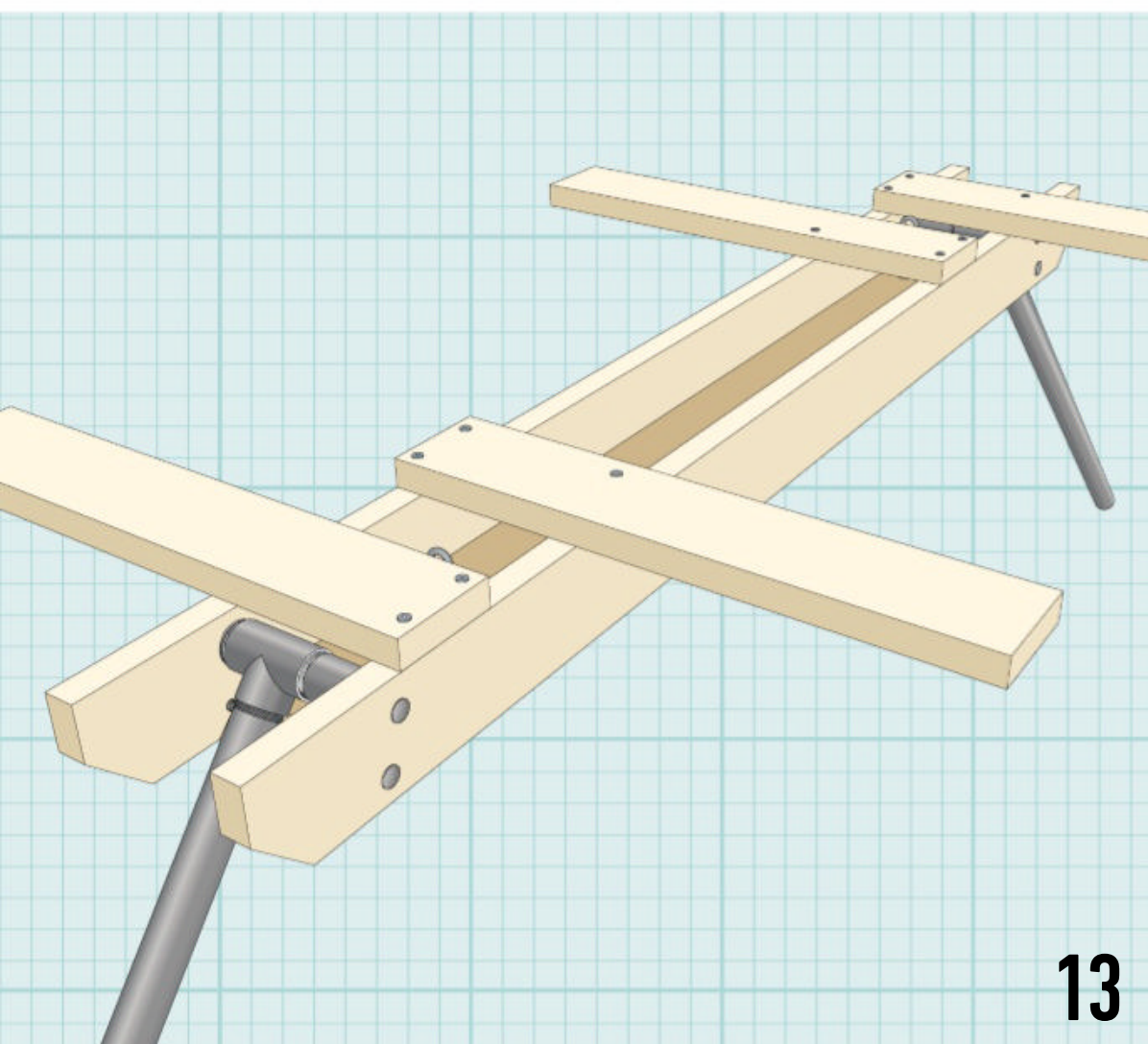
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11



12



13

11 PREDRILL THE FEET
Cut the feet (H) to length and drill 1/4-in. diameter holes in the feet.

12 INSTALL THE FEET
Attach all four feet to the bottom rails as shown. Use 1/4-in. x 3 1/2-in. lag screws through the pilot holes in the feet. At this point, apply your stain and finish.

13 SET UP THE STAND
With the feet in the closed position, transport the hammock stand to your favorite sunny or shady spot. Pivot the feet and swing the pipe arms out. Then rotate the feet to line up the pilot holes with those in the bottom of the rail. Fasten the feet to the rails with 1/4-in. x 3 1/2-in. exterior lag screws. Flip the stand onto its feet, attach the hammock and enjoy! 

BEST PRO TIPS

 EXPERT ADVICE FROM THE JOB SITE

WORKSHOP LESSONS

////////////////////
THINGS I LEARNED
ALONG THE WAY

BY JAY CORK

Whether you share your shop with cars and a lawn mower or you have your own dedicated wood-working space, you want to make the most of your time there. I've worked in some tight spaces as well as spacious shops, and I have enough tips, tricks and techniques to write a book. Here are just a few of my favorites.



PORTABLE DUST CONTROL

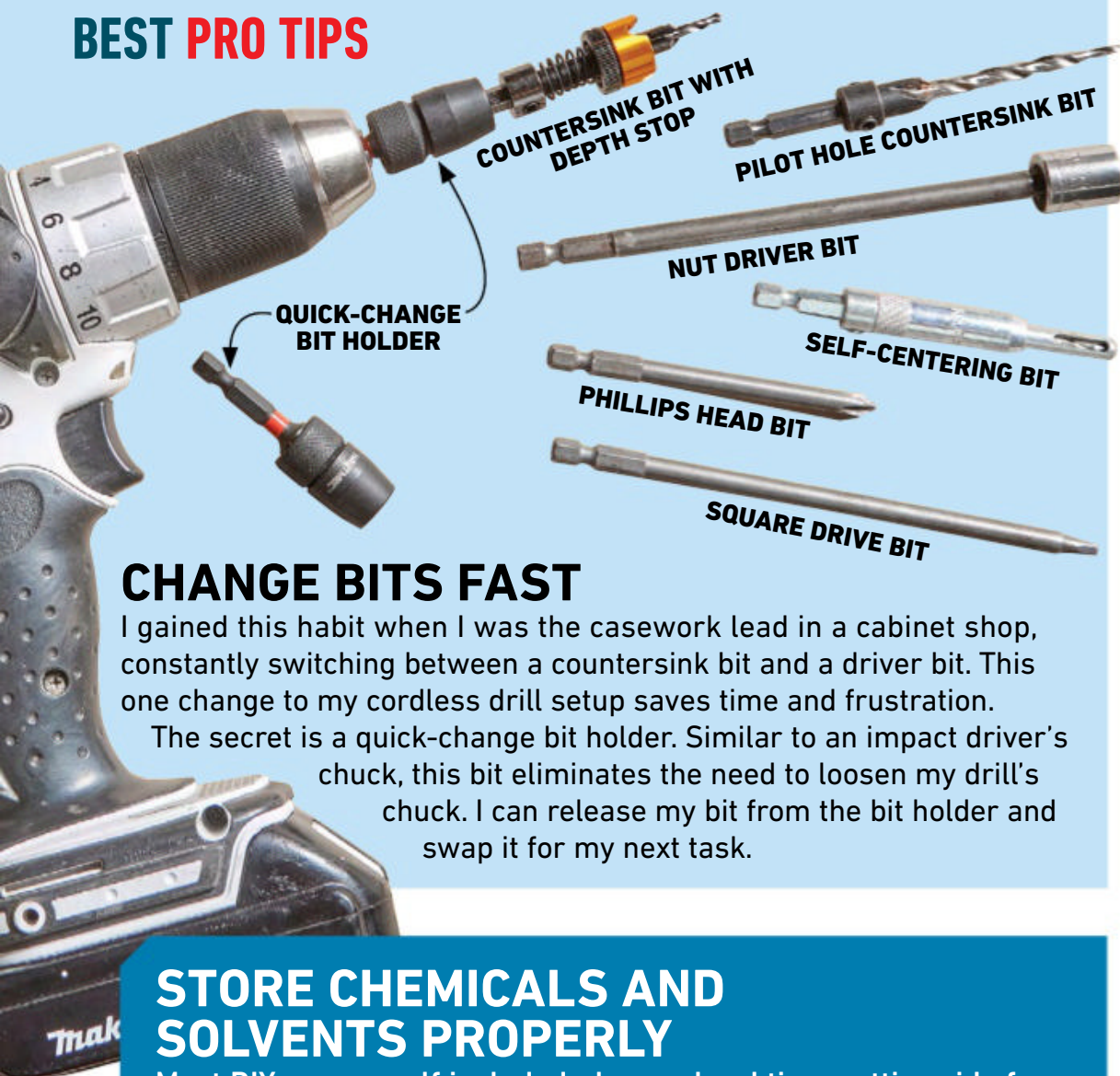
You can buy box fans with attached filters, like the one shown, or you can simply attach a filter to the back of an old box fan. Either way, having one of these portable dust-control devices on hand lets you keep it close to the dust. I also like to use mine as a downdraft table when I'm sanding!

MEET THE EXPERT



PROJECT EDITOR **JAY CORK** ENJOYS SHARING HIS BEST PRO TIPS WITH YOU, WHETHER YOU LIKE IT OR NOT.

BEST PRO TIPS



CHANGE BITS FAST

I gained this habit when I was the casework lead in a cabinet shop, constantly switching between a countersink bit and a driver bit. This one change to my cordless drill setup saves time and frustration.

The secret is a quick-change bit holder. Similar to an impact driver's chuck, this bit eliminates the need to loosen my drill's chuck. I can release my bit from the bit holder and swap it for my next task.

STORE CHEMICALS AND SOLVENTS PROPERLY

Most DIYers—myself included—have a hard time getting rid of anything. But when it comes to solvents, finishes and cans of paint, it's best to recycle them once they're too old to use. For the solvents that are still usable, follow these simple rules:

- Keep them in their original containers with a legible label.
- Store out of reach of children and pets.
- Keep them out of extreme temps—freezing will spoil them; heat will make them more dangerous.
- Consider a lockable, fire-safe storage cabinet.
- Know what to do in case of an emergency. Call hazardous waste management or poison control immediately.



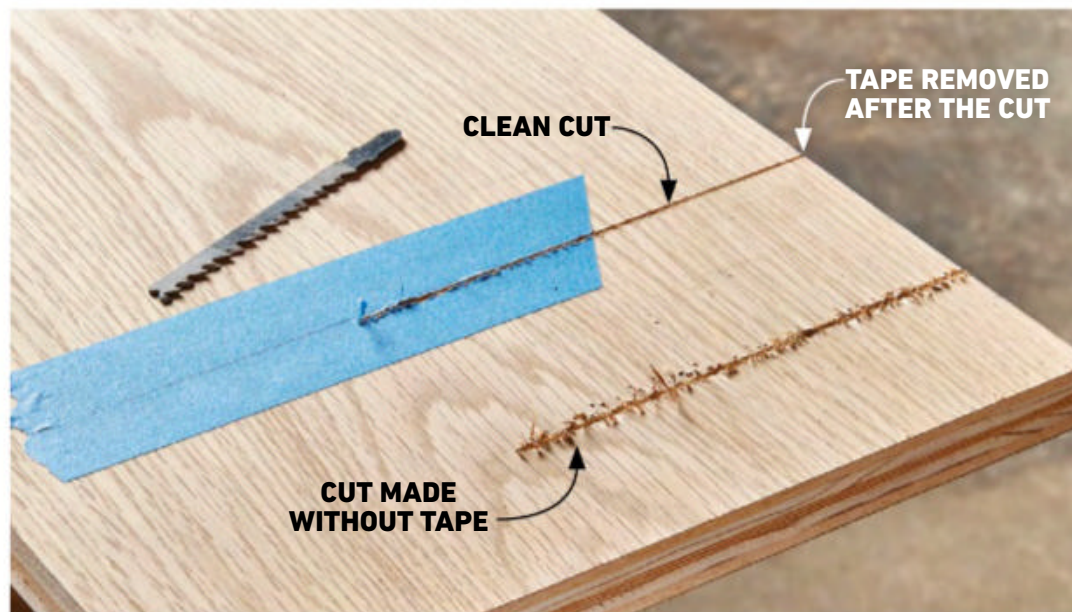
REMEMBER TO BRUSH YOUR TEETH

Clean teeth stay sharp longer. To ensure you're getting the best cuts from your saws, clean the pitch and resin from your blades. Set the blade in a special container that holds circular saw blades. Then spray the blade with a blade and bit cleaner and scrub them with a brass wire brush.



KEEP YOUR ROUTER BITS SHARP

Sending router bits out to be sharpened is risky. Profile bits might get slightly altered, and flush-cut bits may no longer match the bearing diameter after a traditional sharpening. Instead, use a diamond card. Carefully run the flat, back face of the carbide bit along the diamond card to sharpen the carbide edges. Keep the card handy and give your bits a quick tuneup before each use.



MAKE CHIP-FREE CUTS

If you're cutting plywood with a jigsaw or a circular saw, chip-out is just part of the game. Here's my preferred way to reduce it. First, start with a sharp blade. Next, apply a strip of painter's tape where you are cutting. Mark your cutting lines right on top of the tape, then make your cuts.



MAKE DUST COLLECTION FITTINGS FIT

Vacuum hoses, tool-specific dust fittings and hose adapters can be frustrating to piece together. But there are a few tricks to make most fittings work. If the inside diameter of a fitting is too large, wrap duct tape around the smaller fitting until they fit snugly. When a dust fitting is just slightly too small—which seems to happen all the time—soften the fittings with a heat gun to save the day.



DON'T BURN DOWN YOUR SHOP—OR HOUSE!

It's often considered a myth that oily rags spontaneously ignite. But they do and they will. I've witnessed it firsthand. When you're finished with a rag soaked in solvents like stain or oil-based finishes, drape it over your waste bucket or on a pair of sawhorses. Tossing it into a bin with sawdust and wood scraps could turn into a barrel fire. 

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HOME CARE

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8 SIMPLE GARAGE DOOR MAINTENANCE TIPS

BY GARY LEGWOLD

An overhead garage door is the largest moving object in the typical home, and as such, it merits regular maintenance. It gets heavy use, has a lot of moving parts and is expensive to replace. The typical price range for a 16 x 7-ft. garage door is \$1,000 to \$5,000.

Here's how to prolong your garage door's life and keep it running smoothly.

1. TEST THE AUTO REVERSE

This safety feature forces the garage door to quickly reverse if it detects an obstacle, like a car, animal or child. It's activated by a pressure sensor or photocells on each side of the door.

Test your auto reverse monthly by placing a 1½-in. block on the floor under the door. The door should reverse within two seconds after striking the block. To test the photoelectric system sensors, which are mounted 4 to 6 in. above the floor on each side of the garage door frame, start your door downward and move a board in the door's path. The door should reverse and move up.

If the auto reverse fails, disconnect the door opener and call a pro to fix it. Older garage door openers without this basic feature—now mandated by building code in many areas—should be replaced.

LEAD PHOTO: SHUTTERSTOCK / BRIZMAKER

2. LUBRICATE

Twice a year, spray lubricant on the rollers and hinges, then wipe off excess. Lubricating the rollers and other moving parts reduces stress on the rollers and opener.

"Dust collects and builds up on parts, creating noise," says Dave Krzyzak of Palm Valley Garage Doors in Goodyear, Arizona. "The original version of WD-40 breaks down gunk and prevents rust and corrosion. In my 20 years in the industry, I've found WD-40 works best."



3. CLEAR TRACKS & TIGHTEN HARDWARE

Remove rust and debris from the tracks on both sides of the garage door. Check the brackets that hold the tracks to the wall and ceiling, as well as the fasteners that secure the garage door opener unit. Door vibration can loosen hardware, so use a socket wrench to tighten loose bolts.

"With garage doors, you should not touch anything that requires special tools," says Krzyzak. "Also, I see customers who have fiddled with red nuts and bolts on garage doors. Some of them end up in a hospital—the red is a danger warning."

4. LIMIT USE

Many homeowners with an attached garage enter and exit their home almost exclusively through the garage door. If that's you, it would be smart to break that habit.

"Go through your house doors more often," says Krzyzak. "I tell customers to use their house key, and some of them smile and say, 'What's a house key?'"

"The garage door typically has five to 10 up-down cycles a day," Krzyzak says. "At 10 cycles daily, you may have to replace the springs every 2½ years. But if it's two cycles a day, spring replacement may be every seven or eight years."

5. TEST THE DOOR BALANCE

Springs balance the door so it opens and closes smoothly. An unbalanced garage door makes the opener work harder, shortening its life span.

Here's how to test the balance: Close the garage door and pull the release handle, which disengages the automatic opener. Then manually lift the door until it's about halfway open. The door should not go up or down more than a foot, and then remain in place without help.

If it creeps up or down, the door is not balanced or the springs are worn. Call a professional to have it repaired.

6. SCHEDULE INSPECTIONS

"People tend to overlook their garage door until there is a major problem that's costly to fix," says Krzyzak. "They don't think twice about scheduling an oil change for their car, and they should do the same for their garage door." Inspect your doors twice a year to check the panels, hinges, pulleys, rollers, cables and springs. It's helpful to periodically book an inspection with a garage door specialist.

7. CLEAN & PAINT

Protect and preserve your garage door, which often takes a beating from the sun and the weather. Sand, prime and paint rust spots on steel garage doors. Wash fiberglass doors with an all-purpose cleaner. For wood doors, which are subject to warping and water damage, remove chipped and peeling paint before sanding and painting.

"Here in Arizona's sun and heat, you have to regularly treat garage doors," says Krzyzak. "You may install a new high-end, \$10,000 cedar overlay door, and within six months without treatment it can look like it's 15 years old."

8. REPLACE WEATHERSTRIPPING

The rubber weatherstripping keeps out cold, water and debris. Sold at hardware stores and home centers, it has a flange that slides into a groove in the bottom of the garage door.

Weatherstripping for wood garage doors is usually nailed in place. If the bottom weatherstripping is torn, replace it. Reattach loose weatherstripping along the sides of the door, or replace it if it's badly worn or damaged.



FIRST AID FOR YOUR LAWN: WHAT TO DO ABOUT THATCH

If your grass feels soft and spongy when you walk on it, your lawn may have a thatch buildup. Thatch is a fibrous mat of dead stalks and roots that settles between the lawn's green leaves and the soil. When this mat becomes greater than $\frac{3}{4}$ in. thick, it can cause your lawn to suffer from heat and drought. Affected lawns will rapidly wilt and turn blue-green, indicating they're hot and dry.

Thatch is typically caused by cutting off too much at each mowing (letting the grass get too long) and cutting too low. Both will produce more dead grass tissue than microbes and earthworms can recycle. Thatch can develop in any soil but is most often associated with high clay content. Other causes are over-fertilization and frequent, light watering, which encourage a shallow root system.

So what's the fix? Slice open a section of your lawn (**Photo 1**). If your grass shows $\frac{3}{4}$ in. or more of thatch, it's time to rent an aerator (about \$110 per day). An aerator is a heavy machine that opens the soil by pulling up finger-sized soil

Before you aerate, go to call811.com (or call 811) to arrange to have your underground utility lines marked.

1 Slice the turf grass with a shovel and pry it back. If the thatch depth measures more than $\frac{3}{4}$ in., aerate at least 3 in. deep.

cores. The lawn will absorb more oxygen and water, which will then encourage healthy microbe growth and give worms wiggle room.

Cool-season grasses should be aerated in the late summer or early fall. Spring is best for warm-season types. (If you're not sure what type you have, take a sample to an expert at a local garden center.)

Aerate when the grass is growing but the weather is not so hot that it stresses the plants (**Photo 2**). If the machine isn't pulling plugs, your lawn may be too dry. To avoid this, water thoroughly the day before you aerate. You can also rake in some topsoil (**Photo 3**) to increase the healthy microorganisms that aid thatch's natural decomposition. Topsoil is available at any garden center.

As for the recovery time, you can expect the thatch layer to decrease by about $\frac{1}{4}$ in. per year, about the same rate at which it forms.

AN OUNCE OF PREVENTION:

1. Mow often and cut no more than one-third of the grass height.
2. Water your lawn less often but for longer periods to prevent shallow root systems.
3. Reduce the amount of fertilizer you spread at any one time.
4. Reduce the use of pesticides. This will help keep the worm and microorganism population healthy.
5. Aerate at least once every year if your lawn is prone to thatch.

RENTING A LAWN AERATOR

Gas-powered aerators are available at most tool rental stores. They're slow-moving but powerful machines, so ask the clerk for handling directions. An aerator weighs about 200 lbs., so be prepared for heavy lifting or ask for a ramp to get it into a truck bed or van.

A rented power rake isn't a good substitute for an aerator. Power raking typically removes less than 15% of thatch and may damage the healthy grass as well.



2 Make two or three passes with an aerator until you've made 3-in.-deep holes 2 in. apart throughout your yard.



3 Spread $\frac{1}{4}$ in. of topsoil on the yard's most thatchy areas and then rake vigorously to fill the holes with loose soil.

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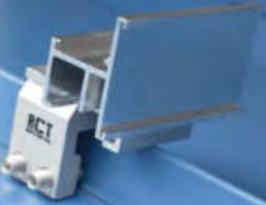


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LAUGHS AND LESSONS FROM OUR READERS

WITH FRIENDS LIKE THESE...

All winter long, whenever it snowed, our next-door neighbor Ron came out with his snowblower and cleared off our 225-ft. driveway. He even did it at night! So when spring arrived and his grass had reached an unprecedented height and was almost ready to drop its seed, I thought I'd return his kindness and surprise him by mowing his yard while he was at work. Several other neighbors stopped by to encourage me as I gamely pushed the mower through the knee-high grass. Ron, returning home from work, came running across the yard with tears in his eyes. Turns out he'd been waiting for the grass to reseed itself.

ALEX JONES

HOLE-Y CATS!

My neighbor asked me for help installing a cat door so his kitty could access the basement litter box. I confidently showed him how to remove the interior door and then took it outside to make the cuts. I measured twice and cut once, and we screwed the cat door into the opening. He was suitably impressed—until we took the door inside and discovered that I had installed the cat door at the top! Sheepishly, I drove him to the store and bought him a new door, and we installed the cat door correctly—at floor level.

PETE ANDERSON

MAN-EATING BEANBAG

When I remodeled my third-floor home office, I splurged on a new memory-foam beanbag chair, which came packaged in a highly compressed cube. No one was around to help, so I proceeded to carry it by myself up two flights of stairs and a narrow spiral staircase. The box wasn't big, but it was heavy—maybe 75 lbs.—and hard to get a good grip on. After the first flight of stairs, I ditched the box so I could hold on to the shrink-wrapped bundle.

Bad idea. After a couple of steps, I snagged the plastic on a piece of rough railing, and I knew I was in trouble when the foam started to expand. By the time I hit the spiral staircase, the beanbag had expanded so much that it sagged into a large, squishy dome around my head and shoulders, and I couldn't see where I was going! By the time I found the door to my office, I was completely stuck inside the chair. It took me 15 minutes to push it through the door and extricate myself.

JOEY BRAMLAGE



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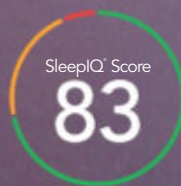
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