

1 family 1 handyman

SMART HOME IMPROVEMENT®

DIY PROJECT

HIDDEN TV

NEXT-
GENERATION
OUTDOOR
GRILLS!

WITH THE
CLICK OF
A BUTTON

LEAK-FREE
PLUMBING
PRO TIPS FOR
INSTALLING
PEX

INSTALL
A STORM
DOOR
IN 10
EASY
STEPS

TOOLS &
TRICKS FOR
PULLING
WIRES
ANYWHERE

SMOOTH
SLIDING
DOORS



MAY 2021

POLARIS

TACKLE ANY TASK
ACROSS EVERY ACRE



You've got no shortage of land to tend to, but only so much time in the day. Make every acre more accessible with a vehicle built on the values you live your life by. Strong, hard-working and versatile. Offering plenty of cargo space to carry the day's load—hauling rock, moving brush or high-tailing it across your property to mend a fence line. Making more time for family—hunting, fishing or making camp creek side.

Meet your next multi-tool at offroad.polaris.com



FLY YOUR DIY FLAG

Building projects in my first house was difficult at best. It just wasn't possible to get a sheet of plywood down to my basement "workshop." In that small space downstairs, cutting any board required skillful maneuvering—between the laundry area and the boiler. But I managed to knock together a lot of Adirondack chairs and window boxes working under the low-slung piping of the old boiler.

We've matured, my workshops and me. Three houses later, I have a dedicated space for projects. By "dedicated," I mean sometimes I can access the workbench without even moving two bicycles and the lawn mower.

I'm your new Deputy Editor, and I'm thrilled and humbled to call *Family Handyman* my home. I may be the new guy in the office, but I feel like I already know everyone here. My garage workshop holds tattered recent issues of this magazine as well as vintage torn-out projects. I have a collection of pristine 1990s copies too. And in my home and yard, you'll find tables and chairs and repairs, all inspired by stories *Family Handyman* editors have created.

Along with helping me learn to be a capable homeowner, this magazine has given me the confidence to DIY—yeah, DIY is both a verb and a state of mind. Today I'm a DIY advocate in my neighborhood. It's not an official title, but when I open the shop garage door on a Saturday morning, I'm flying the DIY flag. It's not really a flag, just repeated clouds of sawdust hovering over the sound of an air compressor. You know.



Recently, I was ripping reclaimed lumber for a simple blanket ladder when my neighbor Amy came by, asked what I was doing and said, stepping over the sawdust, "Oh, I love that smell." She saw the flag flying.

From your garage or basement or dedicated shop, keep flying your own DIY flag.

One more thing: I'm more like newly recycled to *Family Handyman*; I've been here before, even appeared in the pages of the magazine. I'll save that story for the next issue.

GLENN HANSEN
DEPUTY EDITOR

MAY 2021

family
handyman

EXPERT
ADVICE
SINCE 1951



FEATURES

26

The Art of Hiding a TV

Want your family to talk instead of stare? Cover up the TV in a flash!

35

Next-Generation Grills

Top-notch tech, plus grilling tips from the masters.

42

Pull Wires Anywhere

Learn how to “fish” so you can put power right where you need it.

48

Install a Storm Door

Easy-to-use kits mean you can have a new door in an hour.

52

Trouble-Free PEX

Let our pro show you how to make plumbing jobs leakproof.

Progressive Casualty Ins. Co. & affiliates. Coverage features subject to policy terms, and may not be available in all states or for all vehicles. Additional charge and deductible apply. Prices vary based on how you buy.



RACCOONNEAL INFESTATIONUS

Translation: Your RV that sleeps four is now home to a family of 12.

But no matter the diagnosis, we're here for you with optional Pest Damage Protection™. Get coverage you can really see with Progressive.

1-800-PROGRESSIVE | PROGRESSIVE.COM

PROGRESSIVE



DEPARTMENTS

10 Stuff We Love

Precision tweezers for pulling splinters; a rotary-action ratchet wrench; and all-in-one soap.

16 Handy Hints®

How to mix paint without making a mess—plus 10 more tips for getting things done.

22 homeLAB

Color-matching apps for your phone, smart locks, and stick-on concrete wall panels.

58 Best Pro Tips

Keep your house running smoothly with these tips from a maintenance pro.

65 Home Care

Tune up your hedge trimmer blades, keep your car rust-free, and replace a cracked window.

78 Reader Info

Here's how to subscribe, renew, send us a hint, and more!

80 Great Goofs®

A man-eating beanbag; the immovable miter saw table; and a beautiful, useless closet.



The risk information provided here is not comprehensive. To learn more, talk about IMBRUVICA® with your healthcare provider or pharmacist. For more information, call 1-877-877-3536 or go to www.imbruvica.com.

What is IMBRUVICA®?

IMBRUVICA® is a prescription medicine used to treat adults with:

- Mantle cell lymphoma (MCL) who have received at least one prior treatment
- Chronic lymphocytic leukemia (CLL)/Small lymphocytic lymphoma (SLL)
- Chronic lymphocytic leukemia (CLL)/Small lymphocytic lymphoma (SLL) with 17p deletion
- Waldenström's macroglobulinemia (WM)
- Marginal zone lymphoma (MZL) who require a medicine by mouth or injection (systemic therapy) and have received a certain type of prior treatment
- Chronic graft versus host disease (cGVHD) after failure of 1 or more lines of systemic therapy

It is not known if IMBRUVICA® is safe and effective in children.

What should I tell my doctor before taking IMBRUVICA®?

Before taking IMBRUVICA®, tell your healthcare provider about all of your medical conditions, including if you:

- have had recent surgery or plan to have surgery. Your healthcare provider may stop IMBRUVICA® for any planned medical, surgical, or dental procedure.
- have bleeding problems
- have or had heart rhythm problems, smoke, or have a medical condition that increases your risk of heart disease, such as high blood pressure, high cholesterol, or diabetes
- have an infection
- have liver problems
- are pregnant or plan to become pregnant. IMBRUVICA® can harm your unborn baby. If you are able to become pregnant, your healthcare provider will do a pregnancy test before starting treatment with IMBRUVICA®. Tell your healthcare provider if you are pregnant or think you may be pregnant during treatment with IMBRUVICA®.
 - **Females** who are able to become pregnant should use effective birth control (contraception) during treatment with IMBRUVICA® and for 1 month after the last dose.
 - **Males** with female partners who are able to become pregnant should use effective birth control, such as condoms, during treatment with IMBRUVICA® and for 1 month after the last dose.
- are breastfeeding or plan to breastfeed. Do not breastfeed during treatment with IMBRUVICA® and for 1 week after the last dose.

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements. Taking IMBRUVICA® with certain other medicines may affect how IMBRUVICA® works and can cause side effects.

What should I avoid while taking IMBRUVICA®?

Do not drink grapefruit juice, eat grapefruit, or eat Seville oranges (often used in marmalades) during treatment with IMBRUVICA®. These products may increase the amount of IMBRUVICA® in your blood.

What are the possible side effects of IMBRUVICA®?

IMBRUVICA® may cause serious side effects, including:

- **Bleeding problems (hemorrhage) are common** during treatment with IMBRUVICA®, and can also be serious and may lead to death. Your risk of bleeding may increase if you are also taking a blood thinner medicine. Tell your healthcare provider if you have any signs of bleeding, including:
 - blood in your stools or black stools (looks like tar)
 - pink or brown urine
 - unexpected bleeding, or bleeding that is severe or that you cannot control
 - vomit blood or vomit looks like coffee grounds
 - cough up blood or blood clots
 - increased bruising
 - dizziness
 - weakness
 - confusion
 - change in your speech
 - headache that lasts a long time or severe headache
- **Infections** can happen during treatment with IMBRUVICA®. These infections can be serious and may lead to death. Tell your healthcare provider right away if you have fever, chills, weakness, confusion, or other signs or symptoms of an infection during treatment with IMBRUVICA®.

- **Decrease in blood cell counts.** Decreased blood counts (white blood cells, platelets, and red blood cells) are common with IMBRUVICA®, but can also be severe. Your healthcare provider should do monthly blood tests to check your blood counts.
- **Heart problems.** Serious heart rhythm problems (ventricular arrhythmias, atrial fibrillation and atrial flutter), heart failure and death have happened in people treated with IMBRUVICA®, especially in people who have an increased risk for heart disease, have an infection, or who have had heart rhythm problems in the past. Tell your healthcare provider if you get any symptoms of heart problems, such as feeling as if your heart is beating fast and irregular, lightheadedness, dizziness, shortness of breath, swelling of the feet, ankles or legs, chest discomfort, or you faint. If you develop any of these symptoms, your healthcare provider may do a test to check your heart (ECG) and may change your IMBRUVICA® dose.
- **High blood pressure (hypertension).** New or worsening high blood pressure has happened in people treated with IMBRUVICA®. Your healthcare provider may start you on blood pressure medicine or change current medicines to treat your blood pressure.
- **Second primary cancers.** New cancers have happened during treatment with IMBRUVICA®, including cancers of the skin or other organs.
- **Tumor lysis syndrome (TLS).** TLS is caused by the fast breakdown of cancer cells. TLS can cause kidney failure and the need for dialysis treatment, abnormal heart rhythm, seizure, and sometimes death. Your healthcare provider may do blood tests to check you for TLS.

The most common side effects of IMBRUVICA® in adults with B-cell malignancies (MCL, CLL/SLL, WM and MZL) include:

- diarrhea
- tiredness
- muscle and bone pain
- rash
- bruising

The most common side effects of IMBRUVICA® in adults with cGVHD include:

- tiredness
- mouth sores (stomatitis)
- pneumonia
- bruising
- muscle spasms
- diarrhea
- nausea

Diarrhea is a common side effect in people who take IMBRUVICA®. Drink plenty of fluids during treatment with IMBRUVICA® to help reduce your risk of losing too much fluid (dehydration) due to diarrhea. Tell your healthcare provider if you have diarrhea that does not go away.

These are not all the possible side effects of IMBRUVICA®.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

What are the ingredients in IMBRUVICA®?

Active ingredient: ibrutinib

Inactive ingredients:

IMBRUVICA® capsules: croscarmellose sodium, magnesium stearate, microcrystalline cellulose, and sodium lauryl sulfate. The 70 mg capsule shell contains gelatin, titanium dioxide, yellow iron oxide, and black ink. The 140 mg capsule shell contains gelatin, titanium dioxide, and black ink.

IMBRUVICA® tablets: colloidal silicon dioxide, croscarmellose sodium, lactose monohydrate, magnesium stearate, microcrystalline cellulose, povidone, and sodium lauryl sulfate. The film coating for each tablet contains ferrousferic oxide (140 mg, 280 mg, and 420 mg tablets), polyvinyl alcohol, polyethylene glycol, red iron oxide (280 mg and 560 mg tablets), talc, titanium dioxide, and yellow iron oxide (140 mg, 420 mg, and 560 mg tablets).

Distributed and Marketed by: Pharmacyclics LLC, Sunnyvale, CA USA 94085
Marketed by: Janssen Biotech, Inc., Horsham, PA USA 19044

For more information, go to www.imbruvica.com or call 1-877-877-3536.



To learn more about
IMBRUVICA® By Your Side,
call 1-888-YourSide (1-888-968-7743),
Monday-Friday, 8AM - 8PM or visit
ImbruvicaByYourSide.com

WHAT'S NEW

Social links

facebook.com/thefamilyhandyman
pinterest.com/family_handyman
youtube.com/thefamilyhandyman
instagram.com/familyhandyman
tiktok.com/@familyhandyman

at *Family Handyman*

OUTDOOR DECOR

Need some fresh ways to liven up your outdoor spaces? New furniture, classic table lanterns or a colorful outdoor rug can transform your patio or deck into a comfortable backyard retreat. For more outdoor décor inspiration, hover your camera here:



WANT EVEN MORE PRO TIPS?

Get more of our trusted techniques to help elevate your projects to the next level. Find tips from carpenters, electricians, plumbers, landscape pros and more. It's all here: familyhandyman.com/pro/tips/



'21 PAINT COLORS OF THE YEAR

Add some color to your life with paint manufacturers' colors of the year. We looked at five national brands and compared our favorites here: familyhandyman.com/list/colors-of-the-year-comparison/



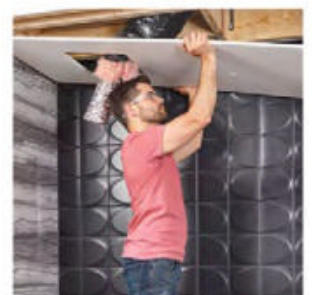
BRAND NEW BOOK!

Don't miss out on this limited-time offer! Enjoy a free 30-day preview of the *Whole House Repair Guide 2021*. You'll start saving money instantly when you follow the expert instructions in this 288-page book. familyhandyman.com/HS21



ALL ABOARD, HANDYMAN PRO!

Check out our *Handyman Pro* newsletter to get timely news on construction industry trends, products and tips to help pros run their businesses better. Sign up here: familyhandyman.com/pro



DIY UNIVERSITY

With a DIYU Quick Class Subscription, you'll get unlimited access to *Family Handyman's* complete library of DIY University on-demand classes. This includes two new projects per month! Sign up today for a free 7-day trial at DIYUniversity.com



Do it Right with DR®

America's Original Field & Brush Mower



- Mow grass up to 8' high
- Cut brush up to 3" thick
- Engines up to 22 HP
- Decks up to 34" wide
- Power steering

TOW-BEHIND MODELS



★ **USA**
ENGINEERED AND BUILT

Assembled in the USA using domestic and foreign parts.

WALK-BEHIND MODELS



DRfieldbrush.com

World's Most POWERFUL Leaf Vacuum!



Tow-Behind

- Rated #1 in vacuum power
- Huge capacity up to 321 gallons
- Folds flat for storage



EASY
1-hand
dumping!

Walk-Behind

- For landscaped or smaller properties
- Easy on/off 8-bushel collector bag
- Self-propelled models available



★ **USA**
ENGINEERED AND BUILT

Assembled in the USA using domestic and foreign parts.

DRleafvac.com

SALE!

Including
FREE SHIPPING | **EASY FINANCING**

Some limitations apply. Go online or call for details.

GoDRpower.com

Request your **FREE PRODUCT CATALOG**
Online or Toll-Free at 888-200-3210





Do it Right with DR®

Make Yard Cleanup *EASY* with a Chipper Shredder!

★ **USA**
ENGINEERED AND BUILT

Assembled in the USA
using domestic and
foreign parts.



- CHIP big branches up to 5" thick
- SHRED lighter yard and garden waste
- REDUCE it all to a fraction of its original volume



DRchipper.com

PULSE™ 62V BATTERY-POWERED TOOLS

Powered by LiPRO™ 62 VOLT Interchangeable Lithium-Ion Batteries



DRbatterytools.com

SALE!

Including
FREE | **EASY**
SHIPPING | **FINANCING**

Some limitations apply. Go online or call for details.

DR Power Equipment
A GENERAC POWER SYSTEMS COMPANY

Haul up to 800 lbs with a Powerwagon!



- Self-propelled hauler
- Powers up hills with ease
- Powered dumping
- Converts to a flatbed



DRpowerwagon.com

Trim and Mow the Easy Way!

- TRIM fencelines & perimeters
- MOW waist-high grass & weeds
- 5X the power of handheld trimmers
- Self-propelled models
- Gas- or battery-powered



★ **USA**

ENGINEERED AND BUILT

Assembled in the USA
using domestic and
foreign parts.

DRtrimmer.com

Make Your Driveway Like NEW with a Power Grader!

- Fill in potholes and smooth out washboard
- Loosen & redistribute existing material
- Tow with your ATV, UTV, or tractor



DRpowergrader.com

Make Stumps Disappear!

- Grind away stumps fast
- Tungsten carbide-tipped teeth
- Rotary head takes 360 "bites" per second
- Self-propelled available

★ **USA**

ENGINEERED AND BUILT

Assembled in the USA
using domestic and
foreign parts.



DRstumpgrinder.com

GoDRpower.com

Request your **FREE PRODUCT CATALOG**
Online or Toll-Free at 888-200-3210



Stuff We Love

Our favorite DIY tools, materials + gear

Double-Duty Paint Pail

When I paint trim, I often use both a mini roller and a brush. The roller gets the paint on quickly, but I don't like its "orange peel" finish, so after I roll it on, I brush it out. This two-fisted approach is much easier with the Purdy Painter's Pail because it accommodates a 4-1/2-in. roller and a brush.

A magnet holds the brush on one side by its metal ferrule—in or out of the paint—and the roller hooks over the side of the pail. The easy-to-hold hand strap and bail safeguard against spills. The liner inserts let you work with more than one paint color at a time, and they make cleanup easy. The pail is available online for \$15; a set of three liners costs \$8.

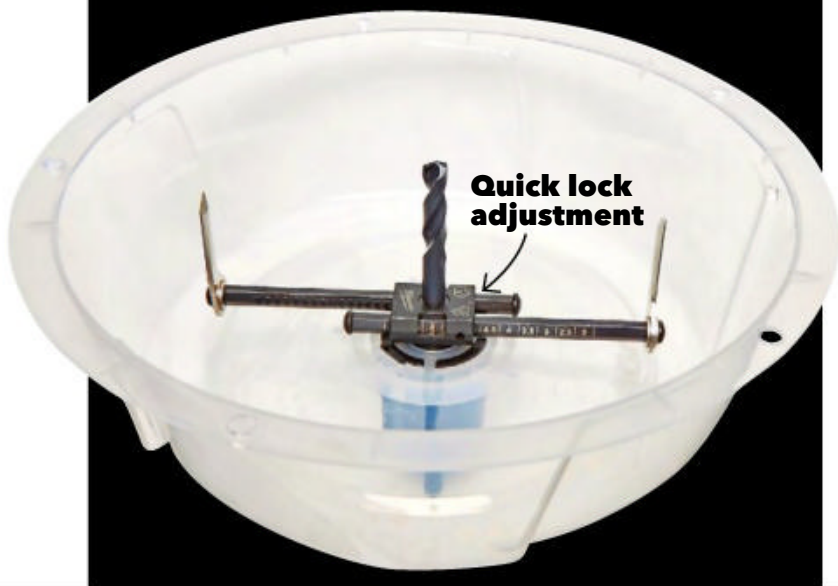
JOSH RISBERG, LEAD CARPENTER



Mess-Free Drywall Cutter

I used to keep several hole saws in my toolbox to cut drywall for plumbing, electrical, and recessed lighting, but I no longer need them. This Milwaukee hole cutter cuts 2- to 7-in. holes in 1/4-in. increments, and a quick lock adjustment makes setting a breeze. The debris shield keeps the dust out of your face and minimizes cleanup. It takes up far less space in my toolbox than my hole saws and is sturdy enough for day-in, day-out use. The cutter costs \$35 at home stores and online.

BRAD HOLDEN, SENIOR EDITOR



LIGHT-DUTY PRESSURE WASHER

If you need more "oomph" than your garden hose nozzle can supply, but you don't want to go all out and rent or buy a pressure washer, try a high-pressure wand for your garden hose. The Hydro Jet Power Washer Nozzle has easy-to-change spray tips—jet, fan or conical—and can handle most light-duty pressure washing chores. I found it perfect for flushing out my gutters and washing off splashes on my lower siding. It doesn't have the power of a pressure washer, but it's a significant step up from a hose nozzle. Made by DBR Tech, it is available online for \$35.

MIKE BERNER, ASSOCIATE EDITOR



CLASSIC WORK SHORTS, REINVENTED

I've always loved duck-cloth work pants and shorts for their durability. But when it's hot, they do get uncomfortable. These Dickies Tough Max shorts, however, are duck cloth with Lycra, making them breathable and flexible without sacrificing durability. They have the classic triple-stitched and riveted construction with a hammer loop and two utility pockets, one large enough for an average-size cell phone. Found online and at some department stores for about \$30, they're a real bargain, especially for "high-tech" work wear.

BILL BERGMANN, ASSOCIATE EDITOR

STUFF WE LOVE



SOLUTION FOR A WRENCHING SITUATION

How many times have you encountered a nut or a bolt in a tight spot with zero room to swing a ratchet handle? An ordinary ratchet handle might give a few clicks for several short swings, but a rotary-action ratchet wrench like this Blackhawk Rotator Ratchet will get the job done quicker. Set the drive direction as you would normally and then rotate the handle to spin your socket. It works like a conventional ratchet wrench, so you can still get leverage when you need it. This 3/8-in. Blackhawk model costs about \$45 online. Quarter-inch and 1/2-in. drive versions are also available.

JAY CORK, ASSOCIATE EDITOR



ALL 18 USES

PERSONAL USES:

- Face
- Body
- Hair
- Bath
- Shaving
- Teeth
- Foot bath
- Clearing congestion

HOUSEHOLD USES:

- Dishes
- Laundry
- Mopping
- All-purpose cleaning
- Windows
- Toilet

OTHER USES:

- Dog washing
- Plant spray for bugs
- Fruit and veggie rinse
- Ant spray

THE ALL-IN-ONE SOAP

The original “hippie soap,” Dr. Bronner’s 18-in-1 Pure-Castile Soap has persevered into the 21st century, making it more than a counter-culture fad. It’s often used as a body wash for a tingly clean feeling, but don’t overlook its 17 other recommended uses. Despite its safe, nontoxic formula, I’ve yet to get up the nerve to brush my teeth with it, but it’s an excellent multipurpose household cleaner and laundry and dish soap.

It now comes in eight scents, each with unique attributes. Tea tree and lavender are said to be effective for controlling kitchen ants. The liquid version (bar soap is also available) comes in a variety of sizes up to a gallon jug. A 16-oz. bottle costs about \$12. This size is just big enough to make the crazy 3,000 or so words on the label readable, always good for cosmic insights and a little brain cleansing too!

BILL BERGMANN, ASSOCIATE EDITOR

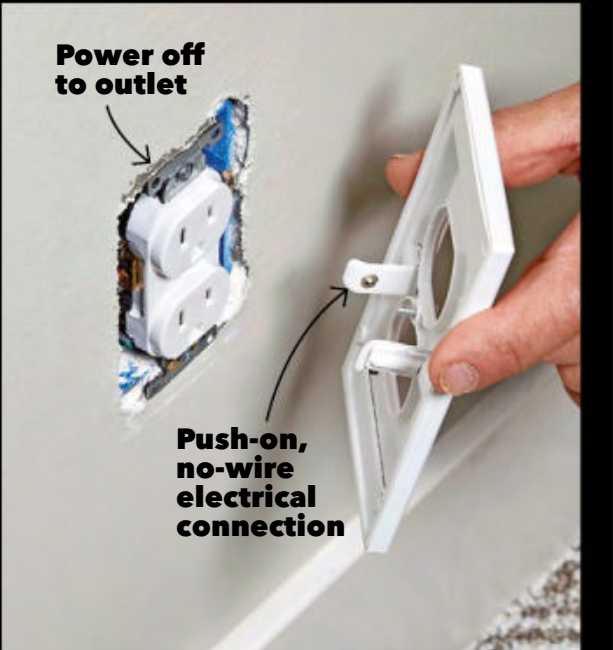


Don’t get left in the dark

Outlet covers integrated with night-lights aren’t new, but now you can get covers with a built-in rechargeable battery—a definite bonus in a power outage. The battery in this briteOWL light can supply 90-plus minutes of light when the power goes out; that’s plenty of time to find other options if the outage persists.

Installing a briteOWL light is easy—no wiring required. It has two prongs that clip onto the terminals of your existing outlet. All you have to do is turn off the power to the outlet, push it onto your outlet, tighten the cover plate screw, turn on the power and let your little light shine! Find them at owlpowersolutions.com for \$33.

BRAD HOLDEN, SENIOR EDITOR



The All-In-One Grill

No other outdoor cooker can match the quality and versatility of a Big Green Egg. Whether searing a steak at 750 degrees, roasting, baking or smoking low and slow, everything tastes better cooked in an EGG.

EST.
1974

Shop online for
home delivery by
a certified dealer in
your own community
BigGreenEgg.com



Big Green Egg®

© COPYRIGHT BIG GREEN EGG • BIG GREEN EGG®, EGG®,
THE GREEN COLOR® AND THE ULTIMATE COOKING EXPERIENCE®
ARE REGISTERED TRADEMARKS OF BIG GREEN EGG INC.



PRECISION
TWEEZERS

Be ready for the next pesky, painful splinter by attaching Uncle Bill's Sliver Gripper to your tool belt or key chain. Having this precision-pointed stainless steel tweezers on hand helps you get that splinter as soon as it gets *in hand*, increasing the odds of tweezing it out on the first try. It's available for \$8 at Rockler stores and online.

BILL BERGMANN
ASSOCIATE EDITOR



More projects
for your recip saw

Reciprocating saws replace the back-and-forth motion of a human arm, only at an accelerated rate. Previously only cutting blades were available for reciprocating saws. Now Spyder, Milwaukee and others make additional attachments that let you use it for other tasks.

I recently made quick work of extracting a few broken floor tiles with Spyder's grout removal tool and 4-in. scraper blade. I wouldn't attempt to take out an entire tile floor—a task better suited for a small demo hammer—but for light jobs like this, the tool was perfect. I could see it being effective at removing carpet adhesive or other gummy residue as well. Spyder's wire brush attachment would also speed up small-scale paint prep work. For about \$25, you can find a Spyder combo pack with 2-, 4- and 6-in. scrapers. Its 1/16- or 3/16-in. grout removal tools cost about \$10, and the wire brush is about \$15. All the attachments are available online and at home centers.

JAY CORK, ASSOCIATE EDITOR



6" SCRAPER
Use this tool for general scraping on soft materials. It's designed for maximum volume removal in the shortest amount of time.



4" SCRAPER
Easily remove tile, linoleum flooring, mastics and more. The carbon steel blade rips through many semi-tough materials quickly.



GROUT TOOL
The carbide-grit edge makes it easy to replace damaged tiles. Power through any grout—including urethane and epoxy.



WIRE BRUSH
The tough bristles remove stubborn layers of rust, paint, dirt and grime in a snap. Use on metals, concrete, stone and wood.

Take Back Your Power with Generac!

GENERAC®

PWRCELL

SOLAR + BATTERY STORAGE SYSTEM

Power your home, save money and be prepared for power outages with the Generac PWRcell™, a solar + battery storage system.

From the #1 Providers of Backup Power Systems!



Request a **FREE** copy of the **PWRcell Buyer's Guide!**

PWRcellGuide.com
(844) 383-8845

LEARN MORE TODAY!



Get this with your money at a typical auto parts store.



Or ALL this at www.RockAuto.com!



- ✓ Reliably Low Prices
- ✓ Easy To Use Website
- ✓ Huge Selection
- ✓ Fast Shipping

Handy Hints®

Clever solutions from our readers

SHARE
YOUR
HANDY HINT
WITH US!
.....
submissions@
familyhandyman.com

Easy-read rain gauge

Drip food coloring into the bottom of your rain gauge the next time you empty it. The coloring tints the rainwater, making the gauge easier to read. This may stain plastic rain gauges.

KATHEE GRIFFITH

Food
coloring



SOCKET WRENCH HELPER

When you're using a socket wrench to ratchet on a bolt in a spot where your fingers can't reach, how do you keep the bolt from falling out of the socket? Simple. Stick a little piece of plastic bag between the bolt head and the socket. The plastic holds the bolt tight while you get it into place, then falls right off when you take the socket off the bolt.

ROGER WADE



Easy ID system for fasteners

I keep a lot of different-size screws and doodads in a plastic storage bin. I got sick of pulling out 15 drawers to find what I needed, so I came up with this easy system. I take one doodad from each drawer and hot-glue it to the drawer front. Now I can instantly find exactly what I need.

CARL SHORTT



MAINTENANCE REMINDERS

It's hard for me to keep track of my furnace maintenance schedule. To make it easier, I stuck a small magnetic whiteboard to my furnace duct. I write down the furnace filter size, the brand, the date I last changed the filter, and the date my furnace was last cleaned and checked. When I put in a new filter or have the furnace cleaned, I erase the old date and write down the new.

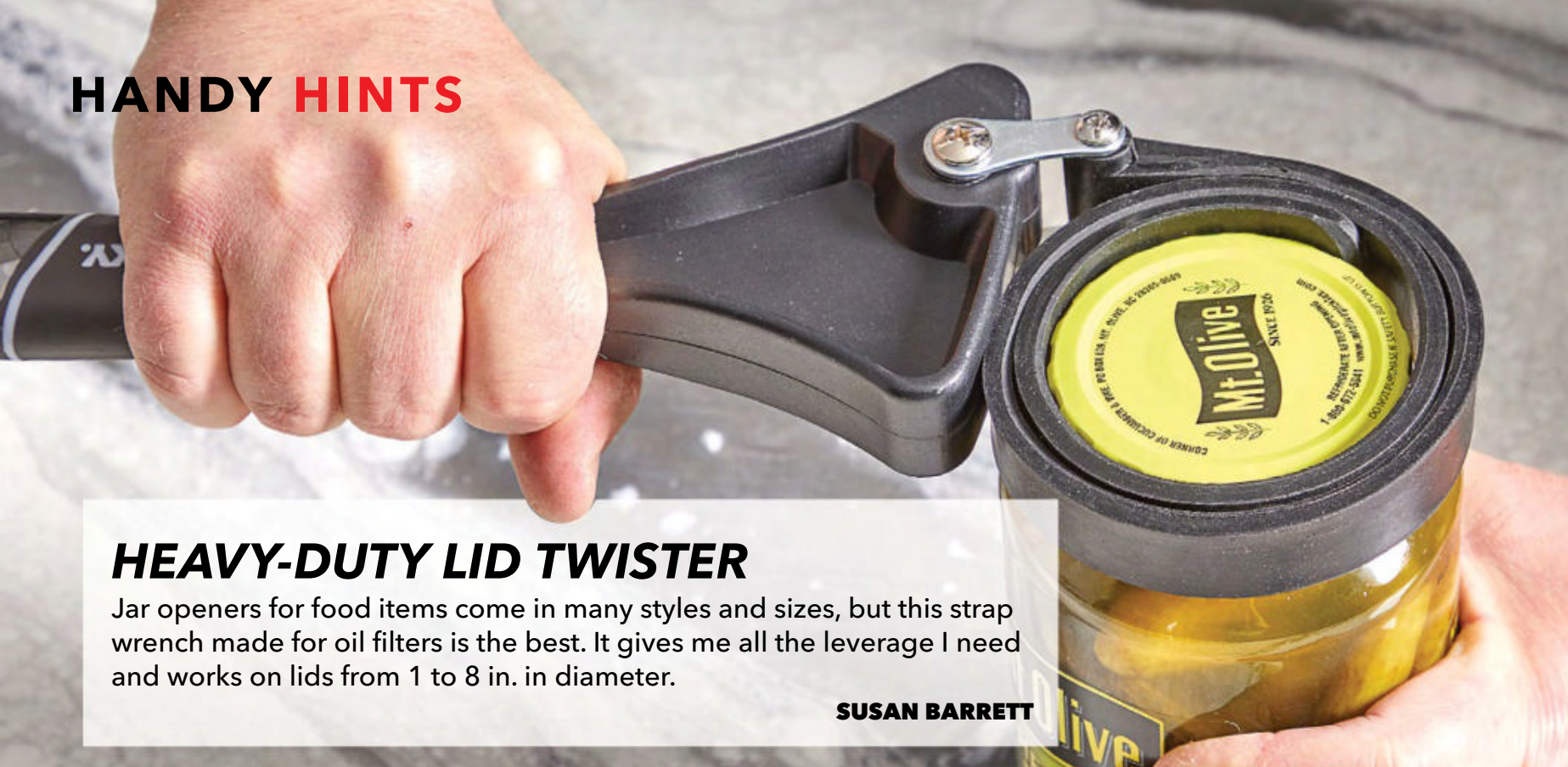
TONY HALL



SUPER-FAST FLOOR SQUEEGEE

Here's a classic handy hint for rounding up water on your garage or basement floor. Assemble this simple squeegee by slipping a piece of foam pipe insulation over the tines of a rake. Then just push the water to the drain or out the door.

ART ROOZE



HEAVY-DUTY LID TWISTER

Jar openers for food items come in many styles and sizes, but this strap wrench made for oil filters is the best. It gives me all the leverage I need and works on lids from 1 to 8 in. in diameter.

SUSAN BARRETT



Better cord connections

I'm always surprised at how many people don't know this tip. When I connect two extension cords, I also "tie" them using an easy overhand knot. That way, they don't come unplugged when I'm pulling them across the garage or dragging them around a job site.

RICH HAYES



SNAKE OUT SPOUTS

Your plumber's snake is a great tool for pulling clumps of wet leaves out of clogged downspouts. Remove the section that directs water into the yard, then start the snake right at the bend.

ROBERT MODDERMAN



WE DIG DIRT

SOIL YOURSELF.

Well, that came out wrong.

CS SERIES

- ☐ 2 ALL-NEW MODELS
- ☐ LOADER WITH QUICK ATTACH BUCKET*
- ☐ DRIVE OVER MID-MOUNT MOWER OPTION
- ☐ 22-25 HP KIOTI DIESEL ENGINES

FLEXIBLE FUN FOR ALL YOUR DIRTY BUSINESS.





EASY TILE REMOVAL

To remove a damaged vinyl tile that needs replacement, put a cloth down on the tile. Then hold a medium hot iron on it for about 10 seconds. The heat will soften the adhesive backing; the cloth will keep the tile from melting. Tease a corner free with the tip of a utility knife and the tile will peel right up. This works with both peel-and-stick and glue-down tiles.

NOAMA GALLAGHER



Tidy paint mixing

Mixing paint is messy, but here's a neat solution. Drill a hole through the paint can or bucket lid, insert a mixer through the hole and then put the lid back on the container. Now you can mix the paint without splashing it everywhere. This works great for driveway sealant and anything else you have to mix in large quantities.

TOM WYLIE



CURLING IRON HOLSTERS

I hated the messy look of my curling irons lying on the vanity or the toilet tank. They were always in the way, and the cords kept falling into the sink or onto the floor. I solved the problem with PVC pipe. I used hook-and-loop tape to attach 5-in. lengths of 2-in.-diameter pipe to the vanity door to hold my curling irons. Three-inch pieces of 1-1/2-in.-diameter pipe hold the cords. Measure your curling irons to see how long your holsters need to be. Let your curling irons cool before you store them.

CAROL SCHELL

Now, THIS is a Knife!

This 16" full tang stainless steel blade is not for the faint of heart —now **ONLY \$99!**

In the blockbuster film, when a strapping Australian crocodile hunter and a lovely American journalist were getting robbed at knife point by a couple of young thugs in New York, the tough Aussie pulls out his dagger and says "That's not a knife, THIS is a knife!" Of course, the thugs scattered and he continued on to win the reporter's heart.

Our Aussie friend would approve of our rendition of his "knife." Forged of high grade 420 surgical stainless steel, this knife is an impressive 16" from pommel to point. And, the blade is full tang, meaning it runs the entirety of the knife, even though part of it is under wraps in the natural bone and wood handle.

Secured in a tooled leather sheath, this is one impressive knife, with an equally impressive price.

This fusion of substance and style can garner a high price tag out in the marketplace. In fact, we found full tang, stainless steel blades with bone handles in excess of \$2,000. Well, that won't cut it around here. We have mastered the hunt for the best deal, and in turn pass the spoils on to our customers.

But we don't stop there. While supplies last, we'll include a pair of \$99, 8x21 power compact binoculars, *and* a genuine leather sheath **FREE** when you purchase the **Down Under Bowie Knife**.

Your satisfaction is 100% guaranteed. Feel the knife in your hands, wear it on your hip, inspect the impeccable craftsmanship. If you don't feel like we cut you a fair deal, send it back within 30 days for a complete refund of the item price.

Limited Reserves. A deal like this won't last long. We have only 1120 **Down Under Bowie Knives** for this ad only. Don't let this beauty slip through your fingers at a price that won't drag you under. Call today!

Down Under Bowie Knife ~~\$249*~~

Offer Code Price Only **\$99** + S&P **Save \$150**

1-800-333-2045

Your Insider Offer Code: DUK135-01

You must use the insider offer code to get our special price.

Stauer® 14101 Southcross Drive W., Ste 155, Dept. DUK135-01
Burnsville, Minnesota 55337 www.stauer.com

*Discount is only for customers who use the offer code versus the listed original Stauer.com price.

California residents please call 1-800-333-2045 regarding Proposition 65 regulations before purchasing this product.

• Etched stainless steel full tang blade ; 16" overall • Painted natural bone and wood handle • Brass hand guards, spacers & end cap • Includes genuine tooled leather sheath

**EXCLUSIVE
FREE**

Stauer® 8x21

Compact
Binoculars

-a \$99 value-
with purchase of
Down Under Knife



BONUS! Call today and you'll also receive this genuine leather sheath!

**What Stauer Clients
Are Saying About
Our Knives**

★★★★★

"This knife is beautiful!"

— J., La Crescent, MN

★★★★★

*"The feel of this knife
is unbelievable...this
is an incredibly fine
instrument."*

— H., Arvada, CO



Rating of A+



Stauer... *Afford the Extraordinary.®*



homeLAB

A TESTING ZONE FOR *INNOVATIONS*

WHAT A SMART LOCK CAN DO

My home's main entry lock needs to deliver on two equally important fronts: security and convenience. And since smart locks claim to be all about both, I decided to give one a try.

I wanted a retrofit model that didn't look like a smart lock from outside. I also knew I needed one that wasn't overly complicated to install and that my kids could regularly use with ease. That's why the August Wi-Fi Smart Lock Gen 4 was the perfect smart lock choice for my family.

KEY BENEFITS

1. RETROFIT DESIGN. It fastens on the interior of our door, so we could keep our existing dead bolt. Also, you can't tell from outside that it's a smart lock, which I like because I find many smart lock styles to be too industrial looking.

2. NO MORE NEED FOR A KEY. No more leaving keys under the front mat for friends or neighbors when they check on our house

while we're away. No more wondering if our son is going to lose his house key somewhere. No more keeping track of duplicate keys or having copies made at the hardware store. We can, however, still use a key with this lock.

3. NO MORE LOCKOUTS.

We cannot physically lock ourselves out of our house anymore. With three kids coming and going, you'd be surprised how many times this has happened or almost happened.

4. AUTO LOCK AND UNLOCK.

This lock can tell when you're nearby or on your way out and can be set to automatically lock or unlock the door. The lock works with not only Wi-Fi but also Bluetooth and GPS, enabling it to sense when you're in physical proximity to automatically lock and unlock your door. I can't tell you how many times I've had to set crying toddlers or armloads of groceries on the steps while I dug for my house key. No more.



5. REMOTE ACCESS. I can temporarily grant access to others and track who is opening and closing the door and when. The guest access option on the app grants unlimited digital keys with set time frames.

6. EASY TO INSTALL. It took me about 10 minutes to install it over our existing dead bolt by myself.

7. EXTRA SECURITY. You can also use your smartphone's fingerprint or facial recognition as added security verification and integration with Apple home kit, Google Assistant and Alexa. Our family doesn't use this extra security feature, but it's nice to know it's there if we ever wanted to.

AMY NOVAK
EXECUTIVE DIGITAL EDITOR



HOVER YOUR CAMERA HERE
See how easy it is to install this lock—and check out the Best Smart Locks for 2021!



LIVE LIFE WITHOUT PAIN

Back Pain • Knee Pain • Ankle Pain • Foot Pain • Diabetic-Friendly

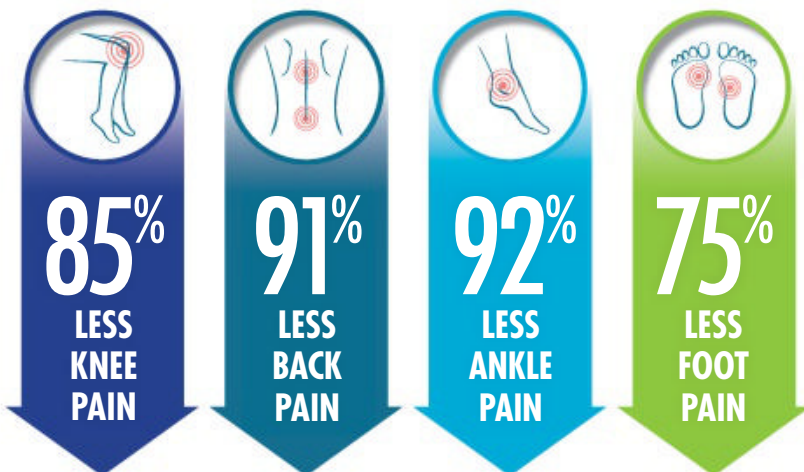


PATENTED VERSOSHOCK® SOLE
SHOCK ABSORPTION SYSTEM



Corrective Fit Orthotic*
\$50 Value Free
podiatrist-grade support with
every shoe purchase
Excludes sandals.

**helps with Plantar Fasciitis*



*In a clinical double-blind study by Olive View UCLA Medical Center

**Enjoy the benefits of exercise
with proven pain relief.**

- ✓ Ultimate Comfort
- ✓ Renewed Energy
- ✓ Maximum Protection
- ✓ Improve Posture

G-DEFY MIGHTY WALK \$135

**X-WIDE
WIDTH
AVAILABLE**

Men Sizes 7.5-15 M/W/XW

- Gray TB9024MGS
- Blue/Black TB9024MLU
- Black TB9024MBL

Women Sizes 6-11 M/W/XW

- Gray TB9024FGS
- Salmon/Gray TB9024FGP
- Purple/Black TB9024FLP



**\$20 OFF
YOUR ORDER**

Promo Code PH2ENQ2

www.gdefy.com

Expires August 31, 2021

Free Exchanges • Free Returns
100% Satisfaction Guaranteed

Call 1(800) 429-0039

Gravity Defyer Corp.
10643 Glenoaks Blvd. Pacoima, CA 91331



VersoShock® U.S Patent #US8,555,526 B2. May be eligible for Medicare reimbursement. This product is not intended to treat, cure or prevent any disease. \$20 off applies to orders of \$100 or more for a limited time. Cannot be combined with other offers. 9% CA sales tax applies to orders in California. Shoes must be returned within 30 days in like-new condition for full refund or exchange. Credit card authorization required. See website for complete details.

STICK-ON CONCRETE WALL PANELS

The look of exposed concrete has found a home in modern interior design. But since most residential construction in North America is wood framed, getting that modern aesthetic of concrete on interior walls can be difficult.

A company called Sustainable Materials has created a wall covering that makes it easy. Its Concrete Flex panels come in interior (2mm) and exterior (3mm) thicknesses. Applied with water-based contact cement or troweled-on adhesive, the extruded 19 x 39-in. panels look like poured concrete.

The panels are available in light and dark natural concrete, as well as black and white. The material is similar to Durock cement board or other cementitious tile substrate, only thinner and more pliable. You can apply it flat or wrap it around a curved wall or pillar. Its fire resistance makes it a good choice for a fireplace surround. In exterior applications, Concrete Flex panels are impermeable to moisture and unaffected by freeze/thaw cycles and mold.

At about \$16 per square foot, it's a high-end wall covering for a variety of

applications. It's sustainable as well. Concrete production typically has a high carbon footprint, but this real concrete composite is certified by LEED, the green building rating system recognized worldwide.

BILL BERGMANN
ASSOCIATE EDITOR



COLOR-MATCHING APPS FOR YOUR PHONE

When you're decorating, matching the colors of paint and furnishings can be challenging. An app can ease the process, suggesting sample colors and giving color codes for matches from major paint manufacturers. We tried the Nix Mini

2 Color Sensor (\$100) in our homeLAB and we were impressed.

Using the small sensor and app, we sampled colors from pillows, furniture, plants and rugs, and each time the Nix app brought up several accurate color matches from

different paint brands. We then tested its accuracy by painting six color swatches on the wall. Each time, the actual manufacturer's color came up along with a few other reasonable matches. If you're beginning a major renovation

or a new home build, the Nix Mini 2 can remove a lot of color guesswork. If you're just repainting a room or two, consider Color Muse or Datacolor ColorReader EZ, which cost less, about \$60 each.

BILL BERGMANN
ASSOCIATE EDITOR

IF GLUE WON'T DO, TRY WELDING WITH PLASTIC

Light-cured bonding resins originated in dentistry in 1969 and are starting to gain a foothold in DIY. The Bondic pen came out in 2013 but is still heralded as new technology. I picked one up to see what it could do.

One end of the Bondic pen dispenses the plastic resin; the other provides the UV light required to cure it. The light won't bond resin that's hidden between two parts. You create the bond by building up the resin on the surface. For this reason, Bondic is good for connecting parts with very small contact area. It adheres to just about any material, but smooth surfaces require scuff-sanding. You can use it on larger parts if they're transparent, allowing the UV to cure the resin. I did repair some broken glassware, but with opaque materials, I found epoxy to be a better choice.

My most successful fix was a phone charger cord with frayed casing at the charger end. I was able to reattach the wire casing to the charger cord tip and conceal the exposed wire. A few repairs like that and the Bondic pen (\$25) will pay for itself.

BILL BERGMANN, ASSOCIATE EDITOR



THE ART OF HIDING A TV

BY MIKE BERNER



WHAT IT TAKES

TIME	COST	SKILL LEVEL
<i>A few days</i>	<i>\$400</i>	<i>Intermediate</i>

TOOLS

Table saw, drill, level, miter saw, wire stripper, 18-gauge nailer, screwdriver

Sliding doors can make the TV room a family room again

I'm willing to bet that a TV is the focal point in at least one room in your home. That's great for movie nights and sporting events, but when you're focusing on friends or family, you'd like the TV to disappear. Unlike a phone or a tablet, a TV can't just be put away, so I developed this system that lets you hide it with artwork instead!

AUTOMATE IT!

This double sliding door belt system is slick: When you slide one door, the other slides too. To make it happen, all you need are a belt and pulleys (about \$20). Even better, I added a motor and remote control (\$50). It took a lot of experimenting, but now that I've figured out a system, you can replicate it in an hour or two. The automation is optional: You can keep it simple and slide the doors by hand.



PRINTS IN FRAMES: AESTHETIC APPARATUS





MEET THE BUILDER
Mike Berner is an editor at *Family Handyman*—and a former science teacher who loves a good problem to solve.

1 MOUNT THE CLEAT

Determine the height of the floating shelves, making sure to leave 3 in. between the cleat and the TV. Locate the wall studs, but before attaching the cleats to the wall, fasten the shelf end supports (G) to the ends of the cleat.

2 BUILD UP THE SUPPORT ARMS

Fasten the center spacer (B) to the cleat with glue and brad nails, then glue and nail track support arms (C) to each side of the spacer. Add narrow spacers (D) and arms the full length of the pocket door track. I'm using a two-door pocket door kit, and I cut the tracks to 60-3/4 in. The

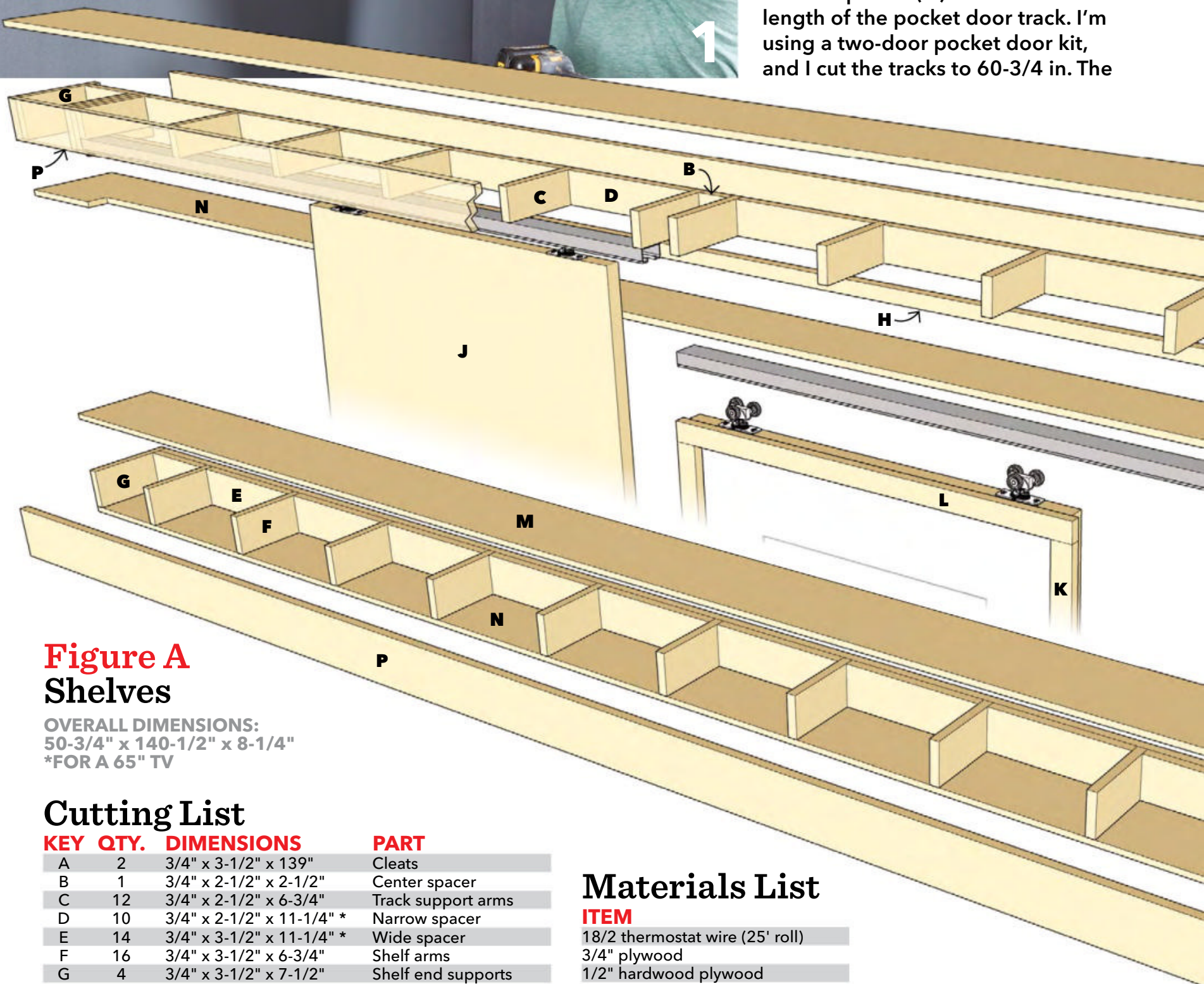


Figure A Shelves

OVERALL DIMENSIONS:
50-3/4" x 140-1/2" x 8-1/4"
*FOR A 65" TV

Cutting List

KEY	QTY.	DIMENSIONS	PART
A	2	3/4" x 3-1/2" x 139"	Cleats
B	1	3/4" x 2-1/2" x 2-1/2"	Center spacer
C	12	3/4" x 2-1/2" x 6-3/4"	Track support arms
D	10	3/4" x 2-1/2" x 11-1/4" *	Narrow spacer
E	14	3/4" x 3-1/2" x 11-1/4" *	Wide spacer
F	16	3/4" x 3-1/2" x 6-3/4"	Shelf arms
G	4	3/4" x 3-1/2" x 7-1/2"	Shelf end supports
H	1	3/4" x 1" x 124"	Nailer
J	2	3/4" x 30" x 40-1/4"	Doors
K	2	3/4" x 1-1/2" x 37-1/4"	Picture frame stiles
L	2	3/4" x 1-1/2" x 31"	Picture frame rails
M	2	1/2" x 7-1/2" x 140-1/2"	Shelf top
N	2	1/2" x 7-1/2" x 140-1/2"	Shelf bottom
P	1	3/4" x 4-1/2" x 140-1/2"	Shelf fascia
Q	2	60-3/4"	Pocket door tracks

* Cut end pieces to fit

Materials List

ITEM

18/2 thermostat wire (25' roll)
3/4" plywood
1/2" hardwood plywood
Two-door 72" pocket door kit
24V DC motor
Motor bracket
Belt kit
Drive wheel
Two-channel RF transmitter
24V power adapter
Limit switches
Extra-strong hook-and-loop tape

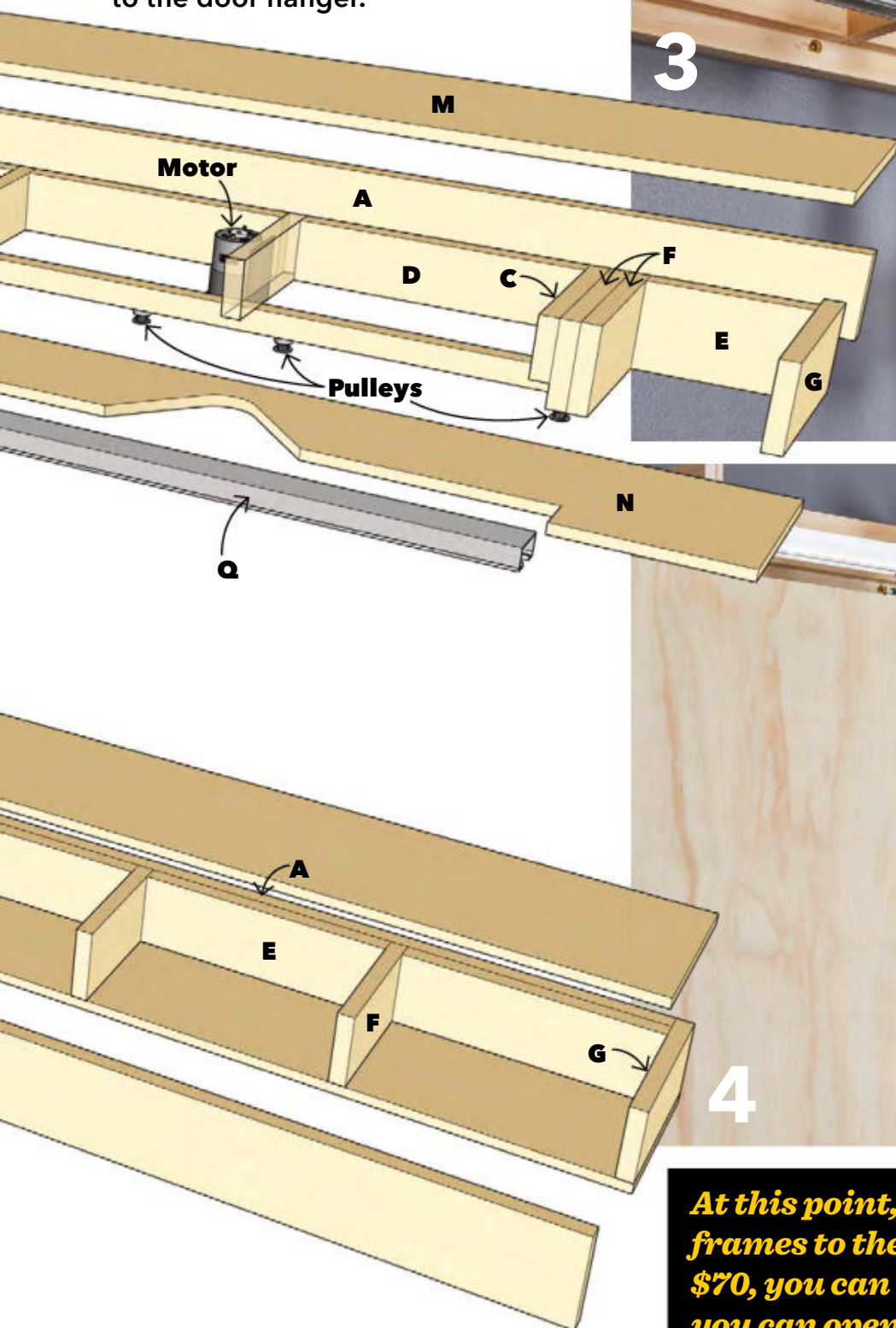
track support arms are 1 in. narrower than the cleat to hide the track inside the finished shelf.

3 MOUNT THE TRACK

Drill holes in the track to line up with the track support arms. Hold the track in place, flush to the front of the arms, and drill pilot holes into the arms. Fasten the track to the arms with wood screws. Then fasten a nailer (H) behind the tracks and cap the outside ends with full-height shelf arms (F) to contain the wheels.

4 HANG THE DOORS

Predrill and screw two door brackets to the top of each door, about 4 in. from the door's edges. Slide the door hangers into the tracks and connect the door brackets to the door hanger.



At this point, you could finish the shelves, add picture frames to the doors and call it a day. But for about \$70, you can add a pulley system and a DC motor so you can open the doors from your favorite seat!



5 INSTALL THE MOTOR

Fasten the motor bracket to a mounting block, then bolt the motor to the bracket. Secure the mounting block to a support arm near the end of the track, then slide the drive wheel over the shaft. Make sure the wheel is level and just below the track, then tighten the drive-wheel setscrews.



6 PLACE THE PULLEYS

At each end of the track, screw a pulley to the shelf arm, centered on the track. I attached two more pulleys to add tension to the belt, screwing them to the nailer on each side of the drive wheel, 3 in. from the motor.



7 ROUTE THE BELT

Glue and clamp one end of each belt around the door hanger posts. I used polyurethane glue and a binder clip. Center the doors on the track in their closed position, then route the belts around the pulleys and clamp the other end around the post on the opposite door. Don't glue the ends of the belts yet. Just clamp them until the motor is hooked up in case you need to adjust the belt tension.

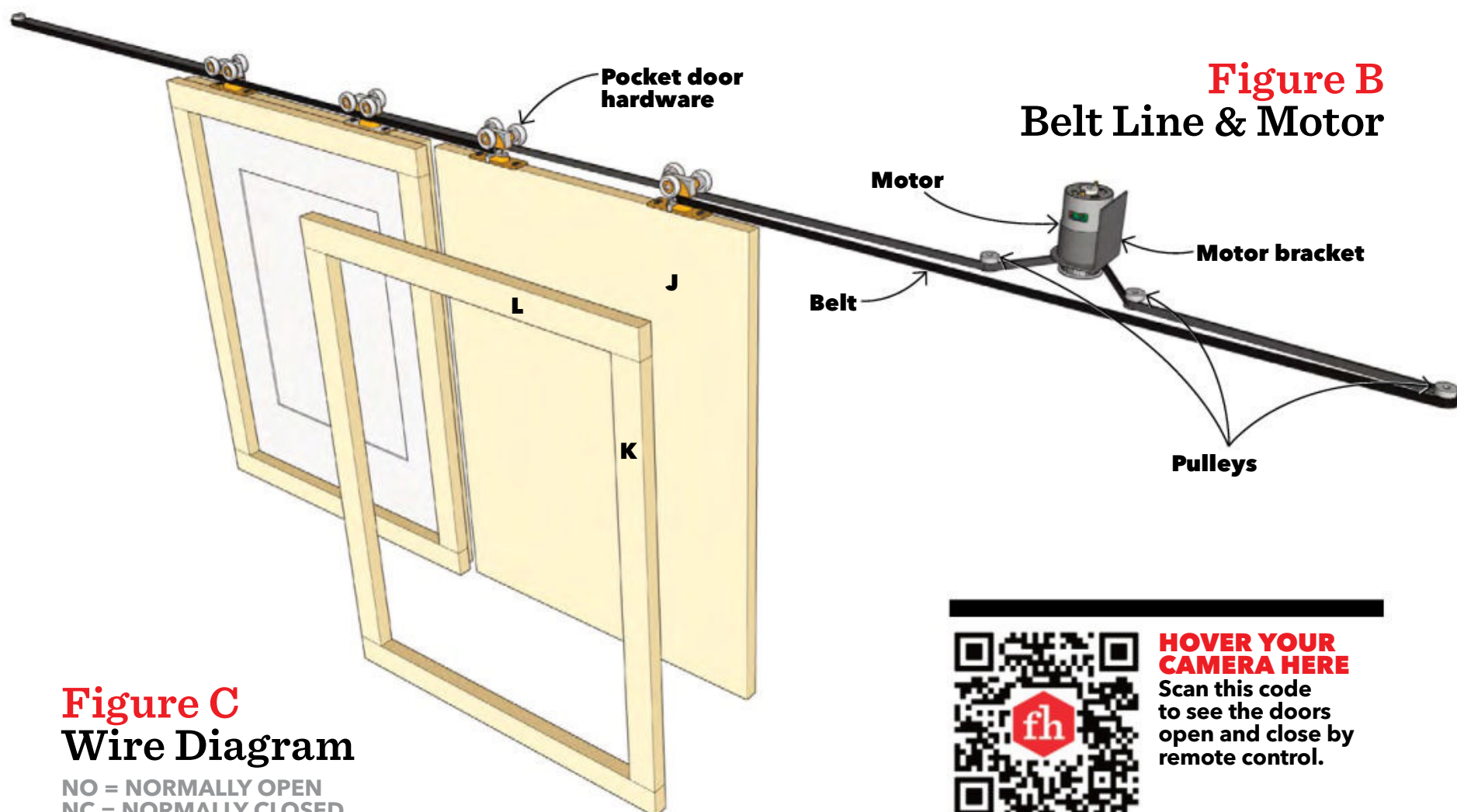
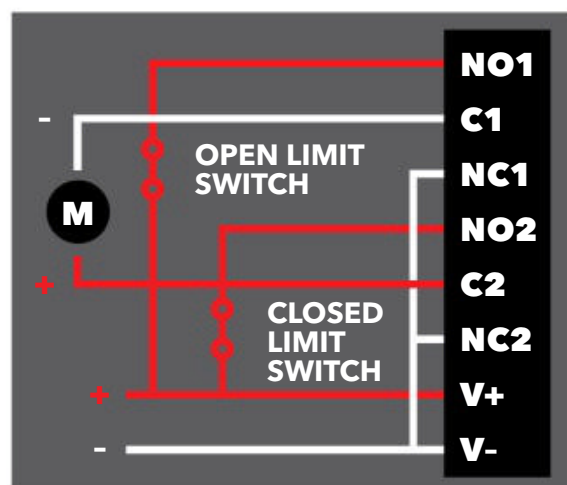


Figure B
Belt Line & Motor

Figure C
Wire Diagram

NO = NORMALLY OPEN
NC = NORMALLY CLOSED
C = COMMON



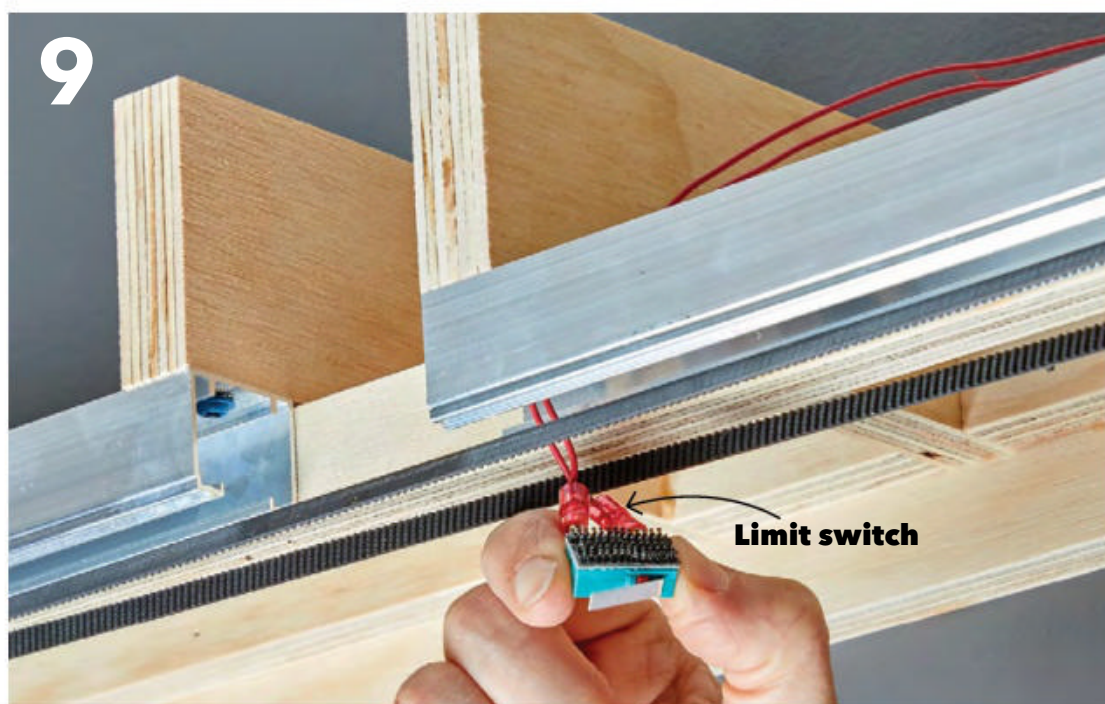
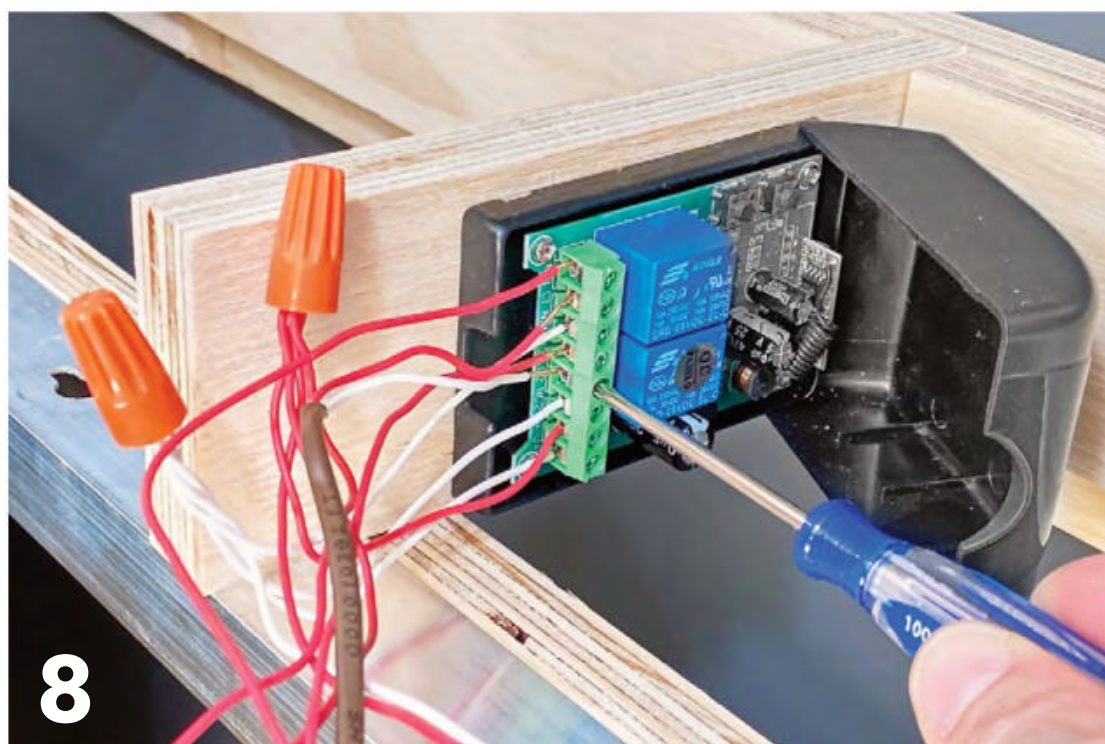
HOVER YOUR CAMERA HERE
Scan this code to see the doors open and close by remote control.

8 WIRE THE TRANSMITTER

This transmitter uses two channels: one to make the motor spin clockwise, one for counterclockwise. I used the included wiring diagram to make the connections but added limit switches between the (+) lead and each "NO" terminal.

9 POSITION THE LIMIT SWITCHES

You'll need limit switches at each end of one track. When the wheels contact them, they tell the motor to stop. Connect lengths of wire to the "common" and "normally closed" terminals on the limit switches, then feed the wires through a hole in the top of the track. I secured the switches with strong hook-and-loop tape so I could adjust their positions.





10

10 SKIN THE SHELVES

Nail the shelf top to the arms. Then trace and cut a large notch out of the underside to fit the pulleys and the track. Nail the shelf bottom to the nailer, the cleat and the arms at the ends of the shelf. Finish it off with a hardwood fascia to cover the plywood edges. I tacked scraps to the top of the fascia to hold it while I nailed it on.



11

11 ASSEMBLE THE PICTURE FRAMES

Put the picture frames together using glue and pocket hole joinery. To keep the frame pieces flush, clamp the joints to your work surface while you drive the screws.



12

12 RABBET THE FRAMES

Rout a 1/2-in. x 3/8-in. rabbet around the inside of each frame's back. The frame screws are close to the action here. It's a good idea to remove them and reinstall them after routing. Don't make my mistake and nick the router bit!

13 SQUARE THE CORNERS

The router leaves a rounded corner in the rabbet. Mark the corner square and chisel it out to fit the matting and glass. Your chisel work won't be seen, so don't worry if it's a tad sloppy.

14 INSTALL THE HARDWARE

Drill a recess for the turn buttons. Use a 5/8-in. Forstner bit to ensure the screw heads are flush with the frame's back surface. You'll need to do the same with the keyhole hangers. Trace the hangers, then line up the Forstner bit and drill out just enough material for the hanger to sit flush with the surface. Drill a little deeper in the center to allow room for the screw head, then clean up the recess with a chisel.

15 ADD YOUR ARTWORK

I had custom matting and glass cut at the local frame shop to fit the frame and the artwork perfectly. I carefully placed a screw in the door to accept the keyhole hanger and then hung my artwork.



ROTATE YOUR ART COLLECTION

You can easily change up your décor by replacing the artwork in the frames. Just take the frames down to switch out the current artwork with a new set.

**SAVE WATER,
...SAVE MONEY**



REPLACE YOUR FAUCET AERATORS



75% Savings!
0.5 gpm



55% Savings!
1.0 gpm



45% Savings!
1.2 gpm



30% Savings!
1.5 gpm



Savings based on switching from 2.2 gpm standard.



in stores and online at
www.homedepot.com

NEOPERL®

flow, stop and go®

www.neoperl.com/consumer
For more information

DR® SP30 WIDE-CUT MOWER



UP TO
30"



42% WIDER!
than standard mowers*

BUILT TOUGH with a one-piece cast aluminum mowing deck that comes with a **LIFETIME WARRANTY!**

SELF-PROPELLED with the **FLEX-SPEED™** Drive System that lets you control your speed with a pressure-sensitive hand throttle.

DUAL BLADE DESIGN provides a precise high-quality cut.

3-IN-1 PERFORMANCE—side discharge, mulch, or collect clippings with high capacity 2.5 bushel bagger.

* Most walk-behind mowers are 20"-21" wide.

SALE! Including
FREE SHIPPING
Limitations apply.

GoDRpower.com

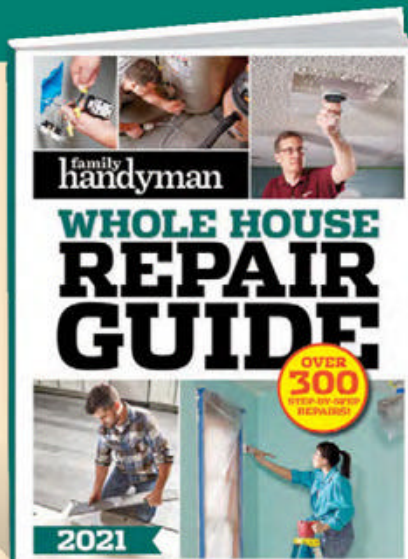
Request your **FREE Product Catalog!**

Toll Free: 877-330-9753



Eliminate **FREE** 30-DAY PREVIEW! Costly Repairs

by fixing, updating & maintaining your home yourself!



Fix your home like a pro with the proven tips, tools & techniques inside **Whole House Repair Guide 2021**. This handy DIY book can help you save hundreds of dollars in home repair costs by showing you how to...repair a leaky faucet, stop a running toilet, fix a sticking door and more...**all without calling expensive contractors!**

Claim your **FREE PREVIEW** now at:
familyhandyman.com/HS21

NEXT-GENERATION GRILLING

The outdoor grill, reinvented



BY BILL BERGMANN

We've been grilling food since the domestication of fire. By the 12th century, this outdoor ritual went indoors when we devised ovens for our "modern" kitchens. In the 1950s, cooking went outdoors again with the postwar boom that brought us the Weber-style charcoal grill. Today, we're enjoying a outdoor cooking renaissance, with the grill becoming an essential extension of our indoor kitchens and dining rooms.

Knowing how your grill works is the secret recipe for great food. In this article, you'll learn about the operation and cooking characteristics of three popular grill types—from a few modern grilling masters.

"I think finally we're at the point where the grill is an appliance and people aren't going to just go get that poorly made \$200 grill that happened to be at the corner hardware store. They want something that's going to last and yields consistent results year-round."

DIVA Q



PELLET GRILL

Traeger pellet grills are highly regarded and are the choice of many celebrated outdoor chefs. Diva Q is one of those chefs, and I caught up with her to find out what makes her such a devotee.

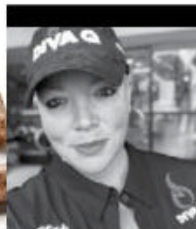
"When I first started in competitive BBQ, lots of guys were put off by a woman with a pellet grill. But once I proved myself, those same guys are now asking advice on how to use the pellet grill, wishing they'd listened when I said, 'You know I'm working smarter, not harder, right?'" For Diva Q, her pellet grill yields the "most consistent results with the easiest learning curve," opening the door for grilling newbies and enabling veterans to experiment. While the new app-controlled pellet grills are easy to use, there are some essentials to learn.

"One of the key things is, not all pellets are created equal." Diva Q says the compression rate, moisture content and sourcing of the wood all play key parts in

a quality pellet. Softwood is not great and is usually what's in cheap pellets. All-natural hardwood gives the best fire and flavor. The flavor profiles of apple, cherry, hickory and oak are all different. Diva Q feels it's best to establish a base flavor that's softer and then mix in a harder one like mesquite. Also, the hotter a pellet grill gets, the less smoke it produces. This is good for baking and high-temperature dishes that don't need smoke. But at temps less than 250 degrees F, "they produce all kinds of beautiful mild smoke that brings that great flavor to the food."

Most pellet grills don't sear a steak as well as a gas or charcoal grill. But Diva Q says she's learned a lot about the science of grilling, and she now knows that caramelization for the desired char from searing still happens with low, indirect heat. With a pellet grill, you can still get what's called the "Maillard reaction," which gives browned food its singular flavor, but not with the same high-heat char like on a direct heat charcoal or gas grill.

Diva Q says she can smell when the sugars are changing with low heat, and that she doesn't really need an app to cook. She will use the Traeger app if she leaves the grill unattended. She says the real benefit of the app is its library of recipes. They designate timing, temperature and serving size, all enabling anyone to execute exceptional grilled food.



MEET THE EXPERT

Diva Q lives, breathes and eats barbecue all over the world. She has starred in countless barbecue competitions and can be found teaching, judging and tasting anywhere BBQ is served.

TOP: **TRAEGER**

A SMOKING OVEN

Pellet grills/smokers resulted from the 1973 oil crisis, as we searched for alternative fuel sources for furnaces. Joe Traeger figured out how to use compressed sawdust pellets to fuel a grill. His original design shines through in today's pellet grills. The pellets go in a hopper from which a motorized auger delivers them to a fire pot, which has an electric heating element. A fan then aids combustion and circulates the hot air. Traeger held the patent on this grill until 2006. Then mass production brought a wave of innovation, transforming them into sophisticated appliances.

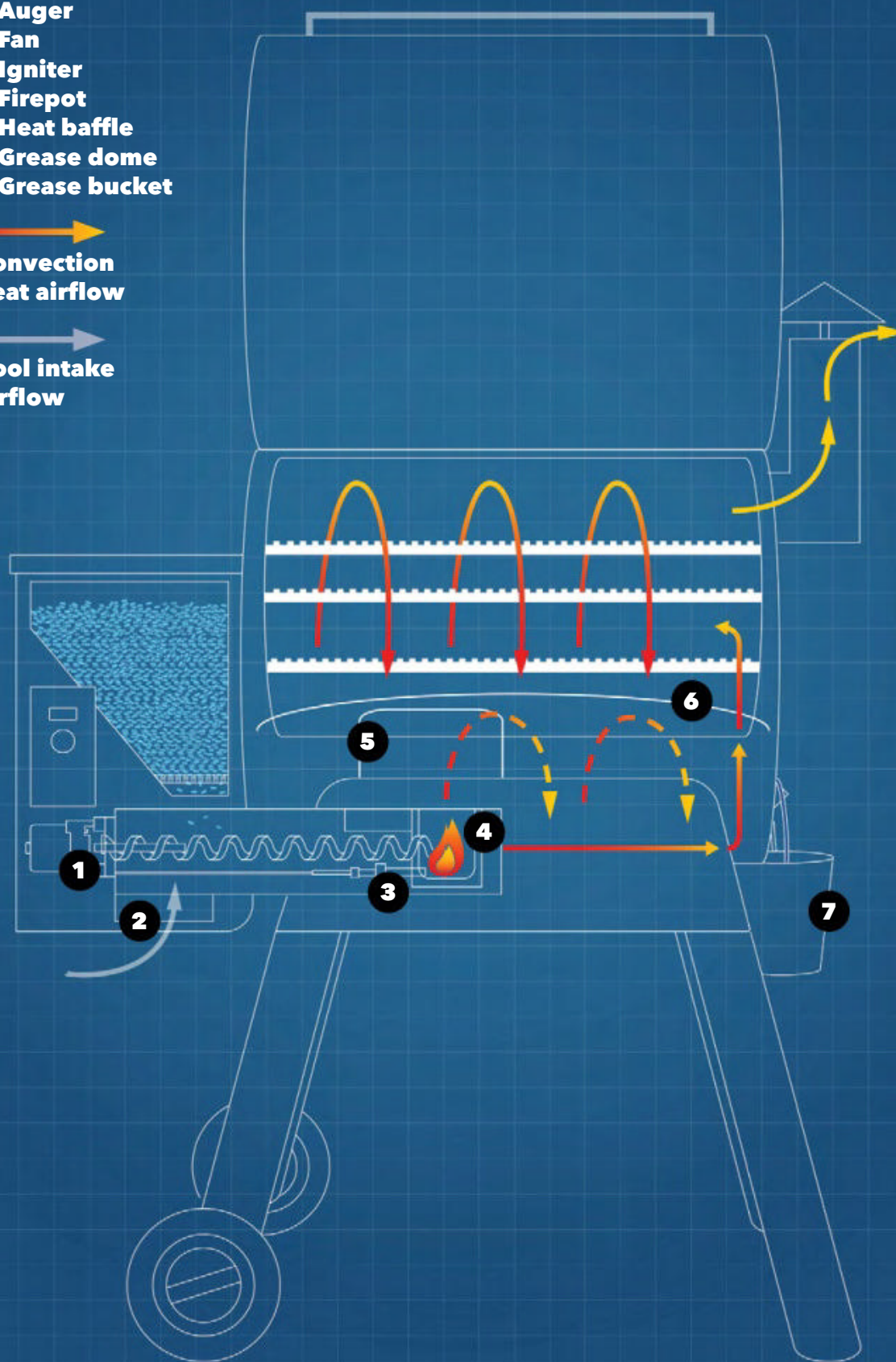
Most modern pellet grills employ digital automation for app-based control. A thermostat in the cooking chamber automates the fan and auger operation. You can program your grill to cook at a specific temperature for a determined length of time. Some grills integrate leave-in meat probes to hold a temperature once the food reaches a set point.

How it works

- 1 Auger
- 2 Fan
- 3 Igniter
- 4 Firepot
- 5 Heat baffle
- 6 Grease dome
- 7 Grease bucket

Convection heat airflow

Cool intake airflow



Recommended wood pellet pairings

	BEEF	POULTRY	PORK	LAMB	SEAFOOD	BAKING	VEGETABLES	WILD GAME
ALDER	X	X	X		X	X	X	
APPLE		X	X			X	X	
CHERRY	X	X	X	X		X		
HICKORY	X	X	X				X	X
MAPLE	X		X	X		X	X	
MESQUITE	X	X			X			X
OAK	X				X	X		
PECAN	X	X	X	X		X	X	

"It's a primal way to cook, which is a beautiful thing these days. You're in the moment, you're interacting with the charcoal, you're building that fire, you're present. It's about mindfulness and, hopefully, not thinking about your cell phone."

CHEF ERIC



KAMADO GRILL

These grills have been around for thousands of years, but only since WWII has the Japanese kamado been grilling deliciousness in the United States. The kamado grill's ceramic outer shell and inner parts retain heat far better than a steel grill. This results in a slower, more efficient and controlled burn. Their popularity coincided with the rise of "foodie" culture, and they're now available at most home centers and hardware stores. I spoke with kamado guru "Chef Eric" Gephart to glean some knowledge about this archaeologic treasure of a grill.

Many say a kamado heats up slower than other charcoal or gas grills. Chef Eric says that if you have quality lump charcoal and the right approach, you'll have a usable fire in 10 to 15 minutes. Once you have flame, close the lid and adjust the draft door and control cap

to find your desired temp. This is a crucial point of control with a kamado. If you leave that cap and draft door open too long, the draft will stoke the coals and the temp can quickly climb as high as 750 degrees F. A kamado is so efficient at holding heat that it's difficult to drop temperature quickly. If you want a slow, low-temp cook, increase the temperature gradually. The upside of the kamado's quick flash heat is that you can slow-smoke food and then finish it with a quick sear by opening up both vents and even the lid for immediate, high heat.

The most popular kamado grills are 18 to 22 in. in diameter, but they come as large as 42. Chef Eric said all grill sizes perform the same way. The only difference is what he calls "grill estate." The more grill space you have, the greater the options for different cook zones, or "heat signatures," as he referred to them. Banking the charcoal to one side creates separate areas of direct and indirect heat, allowing you to cook different foods simultaneously. Larger grills often have secondary grates or racks for even more "grill estate." Combine this with a rotisserie or other accessories and "you can have a culinary jungle gym," says Chef Eric.

Chef Eric sees more and more culinary aspirants drawn to kamado grills. Chef Eric has used a kamado grill to execute everything from Bretagne-style apple cake to triple cream beer bratwurst and, yes, of course, some serious BBQ brisket.



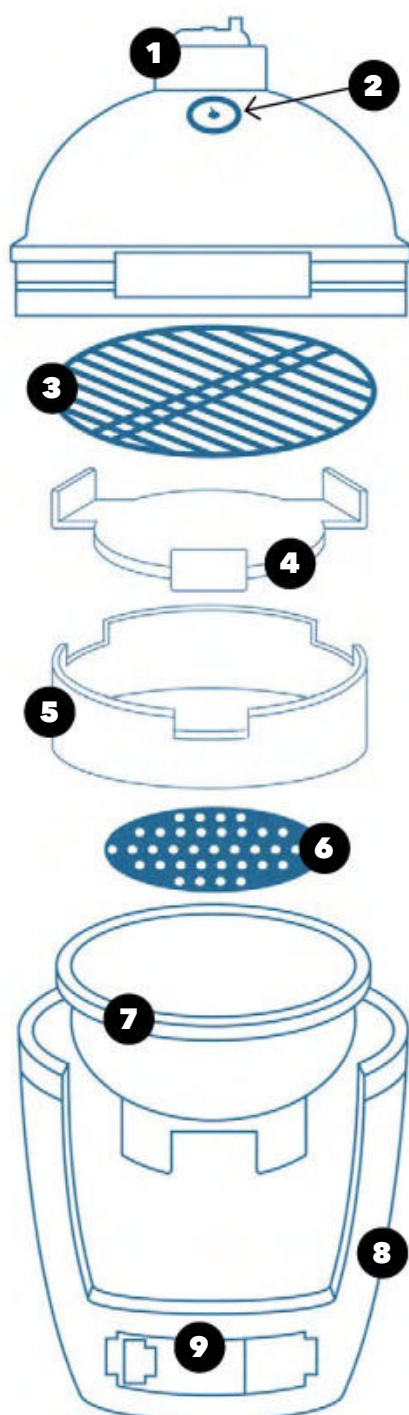
MEET THE EXPERT

Chef Eric Gephart is the "Live Fire Culinary Expert" at Kamado Joe. He has taken his high-performance grilling adventures around the world, spreading his passion for food, sustainability and mindfulness to everyone he meets.

TOP: KAMADO JOE

THE CLAY POT COOKER

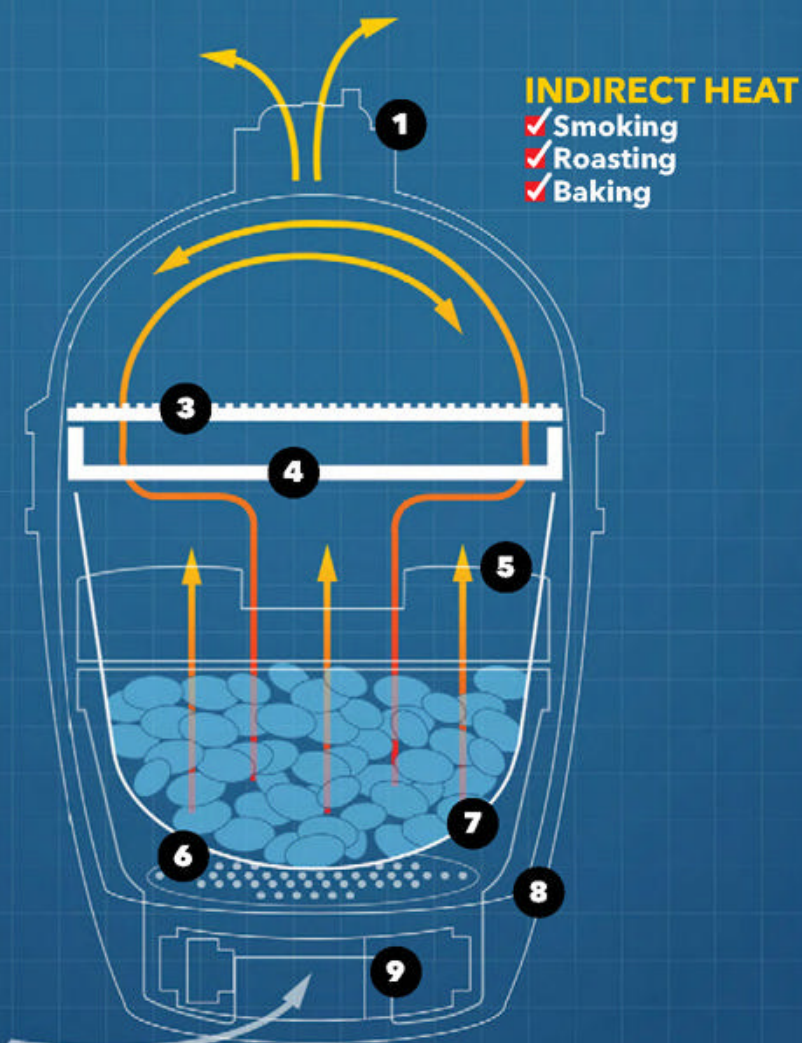
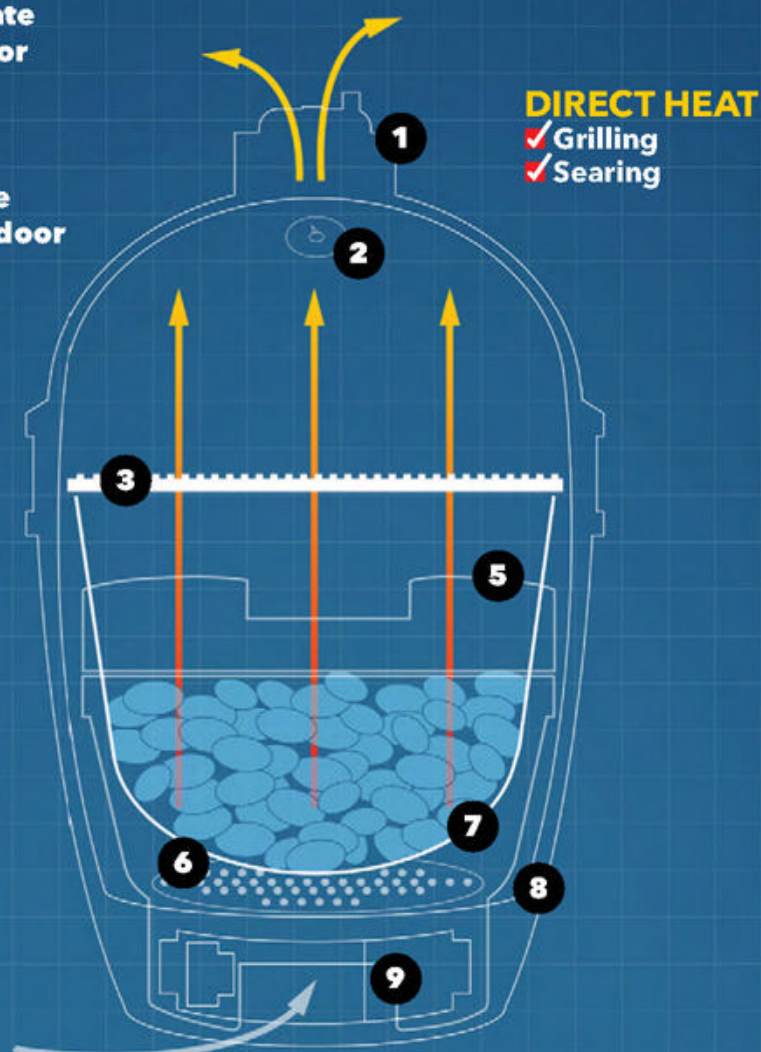
Other than the lid, a kamado grill has two moving parts: the lower draft door, and the top control or chimney cap. Chef Eric sees the draft door as a heat pump, sucking in ambient air to create convection. Closing that draft door is like putting on the brakes; this is where you execute big temperature changes. The chimney cap regulates smaller changes in temperature. The cooking grate sits on the fire ring above the firebox, also ceramic. An optional heat deflector aids indirect cooking. All these ceramic components retain temperature for an even distribution of heat.



How it works

- 1 Chimney cap vent
- 2 Thermometer
- 3 Standard grate
- 4 Heat deflector
- 5 Fire ring
- 6 Fire grate
- 7 Firebox
- 8 Ceramic base
- 9 Lower draft door

→ Convection heat airflow
→ Cool intake airflow



“The design of this grill allows both the novice and the seasoned grill chef to execute more creative and adventurous recipes because their focus is on the food, not the flame.”

DANIEL MERCER



GRAVITY-FED CHARCOAL

Gravity-fed charcoal smokers came on the competitive barbecue scene in the 1990s. Their self-feeding mechanism put an end to staying up all night stoking smokers. Initially these were custom DIY builds, made by a handful of boutique manufacturers. But their popularity quickly put them into the home consumer market.

Until recently, most gravity-fed units were for serious barbecue enthusiasts with big budgets. But design innovations have made these units more user-friendly

and affordable. Adam Carter and Daniel Mercer from Masterbuilt have taken gravity-fed charcoal to a new level of “set it and forget it” with automation technology, bringing capabilities not previously seen on this grill type. A fan stoking the firebox automatically adjusts to maintain temperature. It’s linked to your phone, so you can monitor your grill remotely. This adds convenience and pinpoint temperature control but also means fast temperature change—up to 700 degrees F within 15 minutes—no fussing with fuel or airflow dampers. With this temperature control, you can sear a steak just as easily as slow-cook a rack of ribs.

Does all this convenience remove the art and craft from grilling? Daniel says, “The creativity with this grill comes in how you layer wood chips in with your fuel or use the fast temperature control to cook several different things for a meal.” The ability to use technology to dial in that delicious charcoal flavor without tending a fire removes the barrier to having a great grilling experience every time.



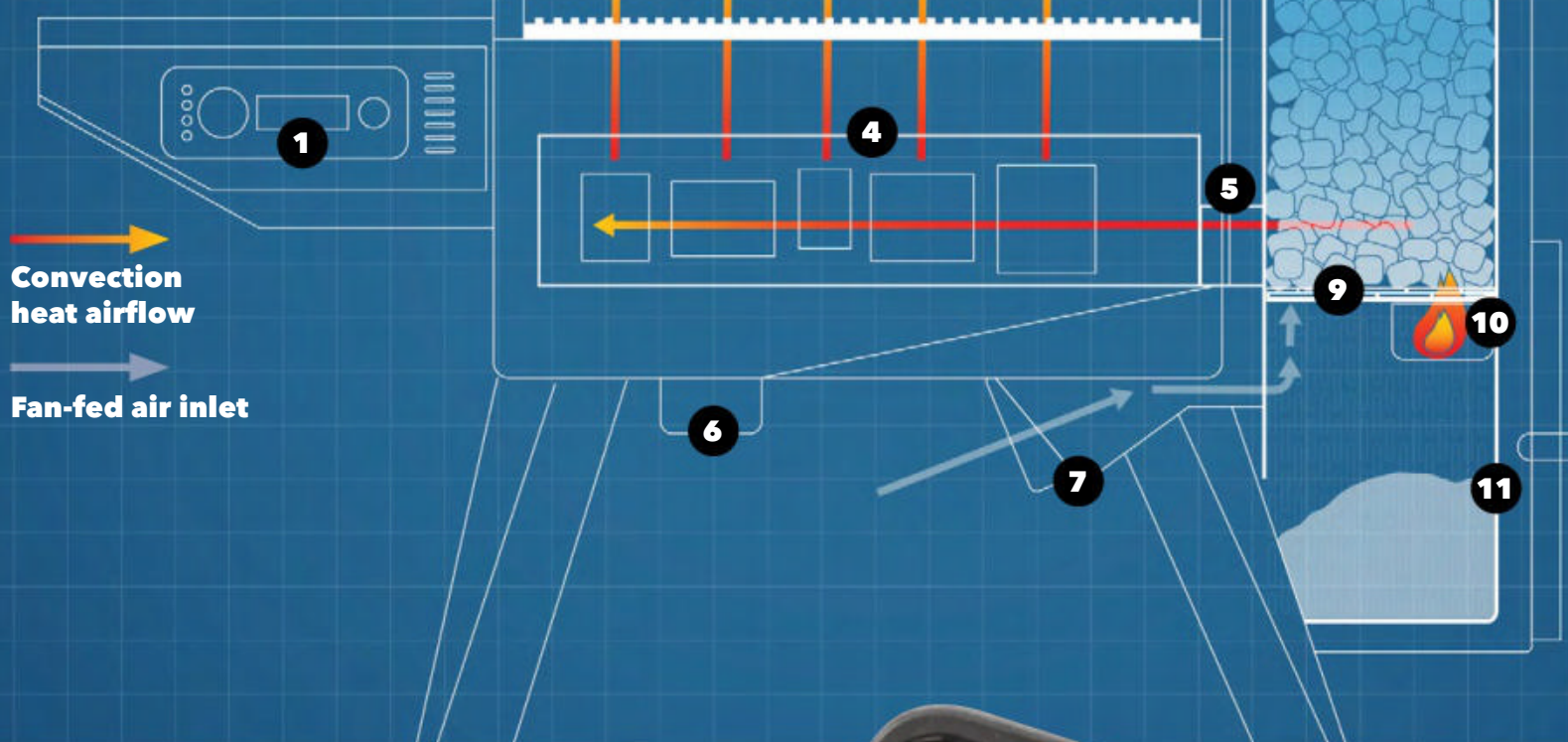
MEET THE EXPERTS

Daniel Mercer (left) and Adam Carter are the masterminds behind Masterbuilt’s gravity-fed charcoal grills. Their passion for engineering is as strong as their appetite for good southern BBQ.

TOP: MASTERBUILT

How it works

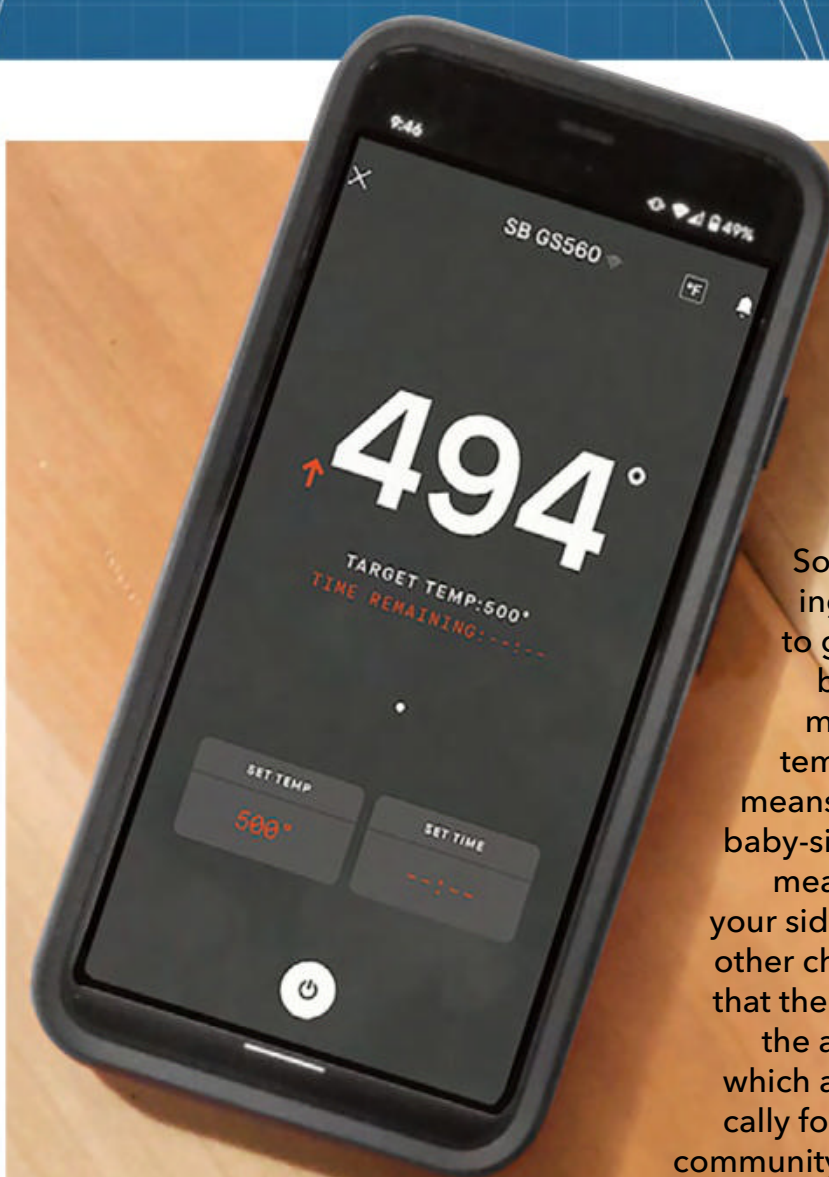
- 1 Digital controller
- 2 Vent
- 3 Cook zone
- 4 Heat baffle
- 5 Transfer chute
- 6 Grease cleanout
- 7 Fan
- 8 Charcoal hopper
- 9 Fire grate
- 10 Fire starter tray
- 11 Ash cleanout



MORE THAN JUST GRAVITY

The basic design of gravity-fed charcoal cookers is simple: A tall charcoal hopper sits to one side of the cooker, gravity-feeding fuel into the firebox. An air inlet in the firebox regulates oxygen. Heat and smoke from the firebox flow through a transfer chute and hit the heat baffle that's centered below the cooking zone.

Above the heat baffle sits a grease shield or drip pan with a cleanout tray. The cook chamber has a cooking grate directly over the heat baffle and two or more cooking racks above it. At the top of the chamber, a chimney vents heat and smoke from the firebox up around the cooking zone. There's typically an ash cleanout below the fire grate.



GRILL APPS

Some might see grilling as a good reason to get off your phone, but monitoring and modulating cooking temperature remotely means you don't have to baby-sit that slow-cooked meal; you can prepare your side dishes or tend to other chores. Our pros say that the biggest benefit of the apps is the recipes, which are created specifically for your grill and the community that shares them.

PULL WIRES ANYWHERE YOU WANT THEM

“Fishing” wire is easier
with these tips and tools

BY MIKE BERNER

One of the basic skills of DIY electrical is knowing how to make connections inside switch, light and outlet boxes. But being able to “fish” wire, as the pros call it, through your walls lets you add new switches, lights and outlets exactly where you want them or add communication cable like Cat 6 yourself. You don’t have to settle for stepping over extension cords or seeing wires draped across your walls. With these wire-fishing tips and tools, you can get wires where you need them.



MEET THE EXPERT
Mike Berner was a schoolteacher until his summer job building homes turned into a year-round career. Now he’s an editor at *Family Handyman*.

DON'T FISH POWER CORDS

Cords that power appliances, TVs and power strips cannot be placed inside a wall. The National Electrical Code says these cords cannot replace permanent wiring. To avoid seeing these power cords, you can fish cable to add a new outlet nearby.



▲ MAKE A BEVEL CUT

If you have to cut an access hole, make the cut at an angle. Then, when it's time to patch it, spread joint compound around the hole and press the cutout back in. The mud will hold the plug in place—there's no need for screws or backing and the plug won't fall through the hole.



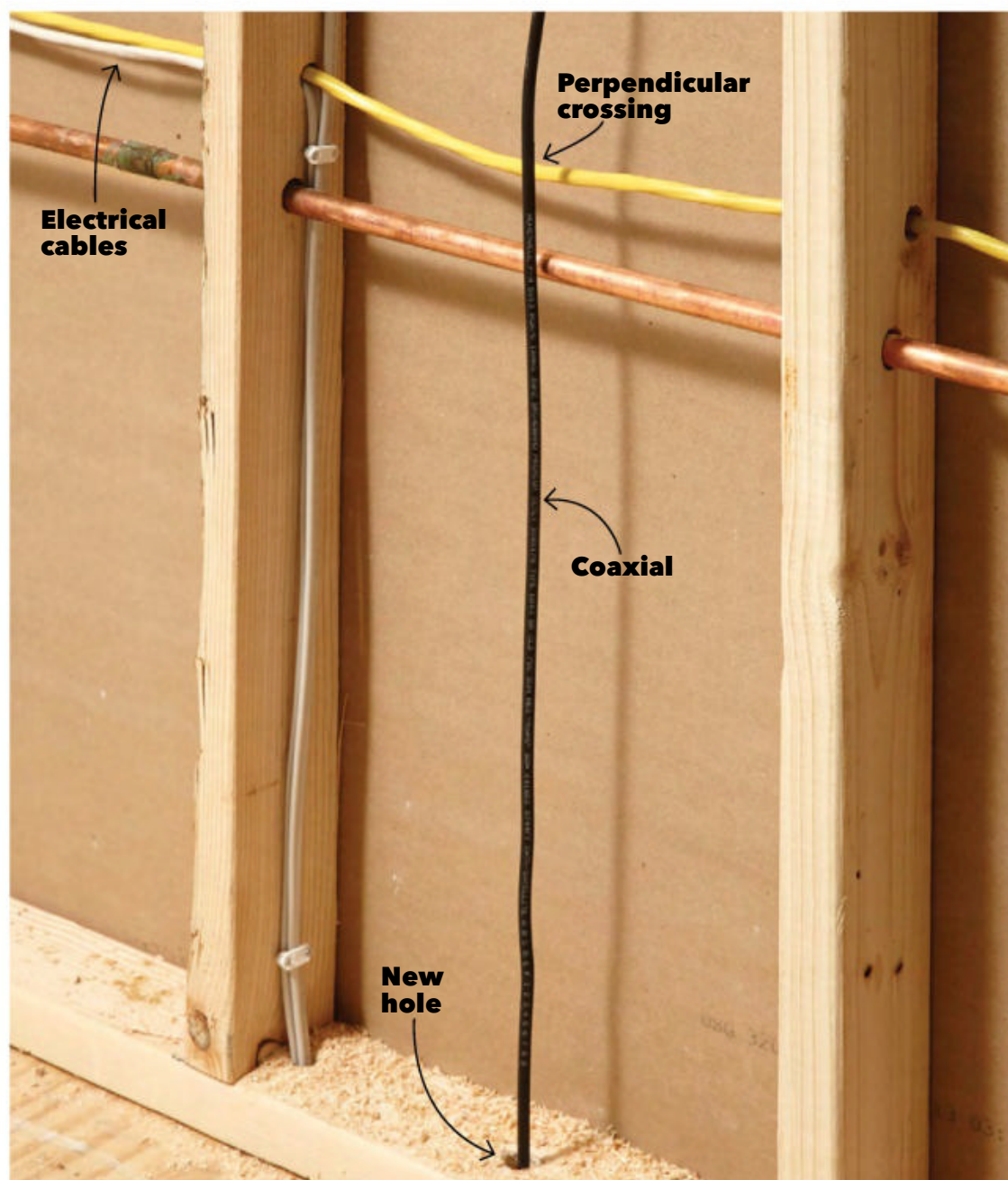
▲ MAKE A CHASE WITH TRIM

Run conduit or BX cable (armored cable) along the top corner of a wall and cover the cable with crown molding. You can cut small holes in the wall or ceiling where the wiring needs to exit the room.



▲ ROUTE CABLE BEHIND BASEBOARD

If you're like me and would rather install miles of trim than patch drywall, this is the way to go. Remove the baseboard and cut a long, narrow hole in its place. Then drill holes in the studs for your wire to pass through. This works best with wide base trim but can be done with narrow base trim as well. Be sure to keep the holes in the studs at least 1-1/4 in. away from the stud edges to avoid the need for protective metal plates.



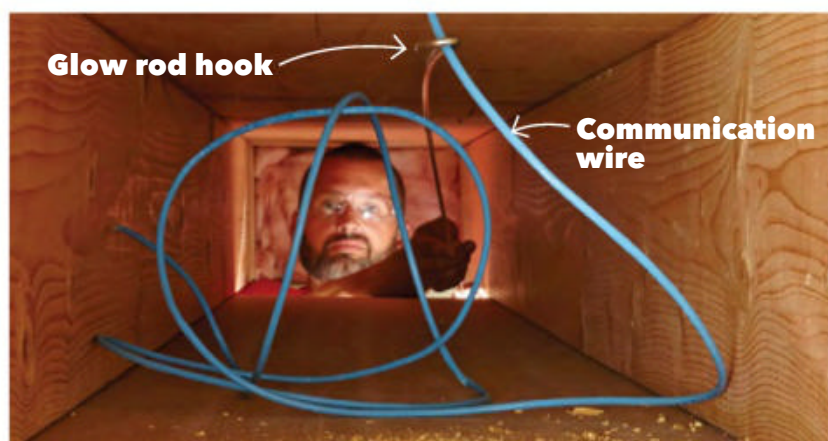
▲ GIVE COMMUNICATION CABLE ENOUGH SPACE

Communication cable like coax or Cat 6 should be kept away from cables that carry high voltage to outlets and lights. Pros recommend keeping them 12 to 16 in. away. If you must cross these cables, do so at a 90-degree angle.



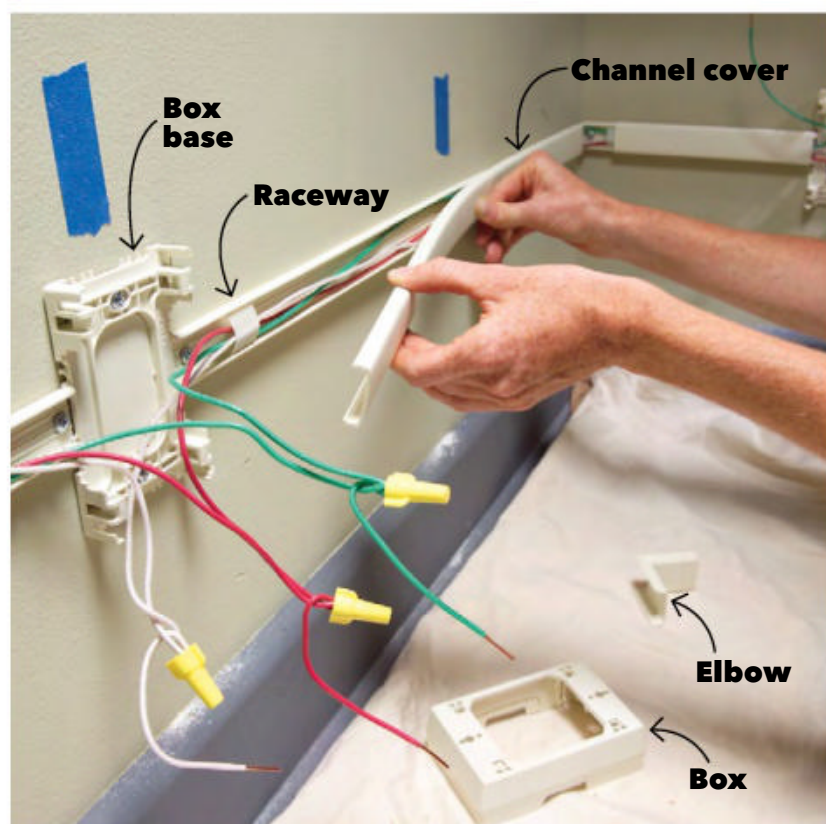
▲ FIND THE EASIEST ROUTE

The easiest route is not always the most direct. Take advantage of unfinished spaces like basements and attics to run wire from one end of the house to the other. You might use an extra 50 ft. of wire, but it will save you lots of time.



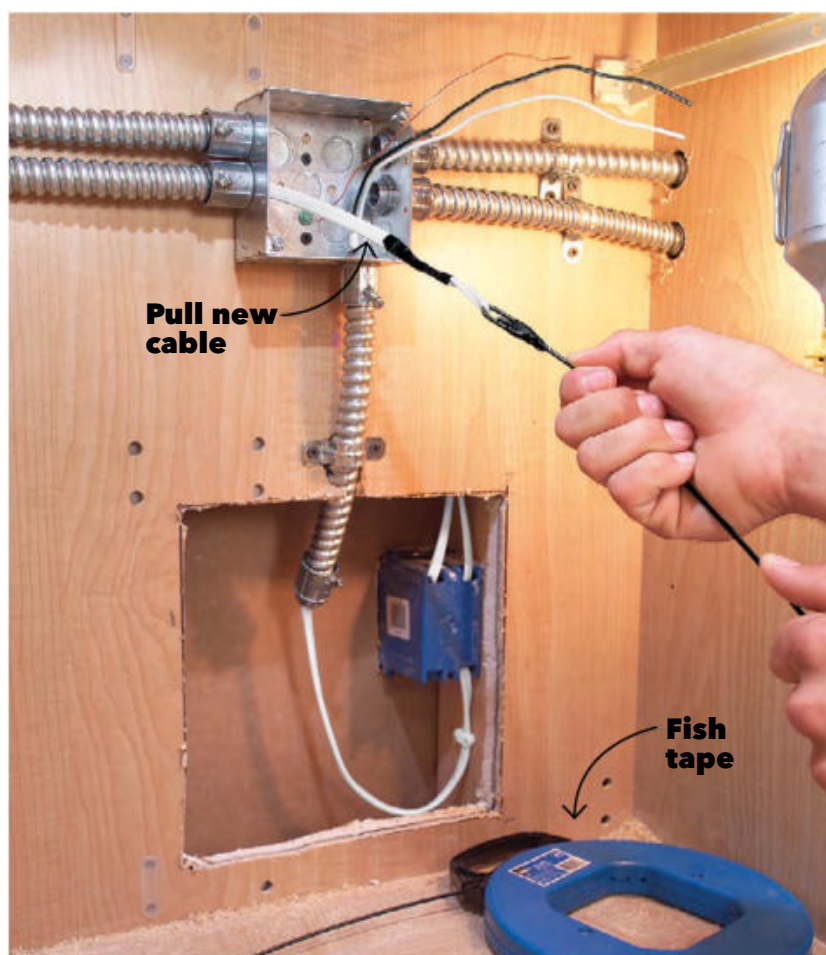
▲ USE A LOT OF CABLE

Pushing far more cable than you need into the walls or ceilings is helpful for a few reasons. First, it makes the job of hooking the cable you're fishing much easier. It also eliminates lots of tugging, which can damage fragile Cat 6 cables.



▲ HIDE WIRES WITH RACEWAY

Running wire on the wall surface with raceway is a great way to get power right where you want it without fishing wires through walls. You can hide the raceway behind furniture and paint it to match the wall. Build the raceway from an existing electrical box with snap-together components and hide the wire inside the channel.



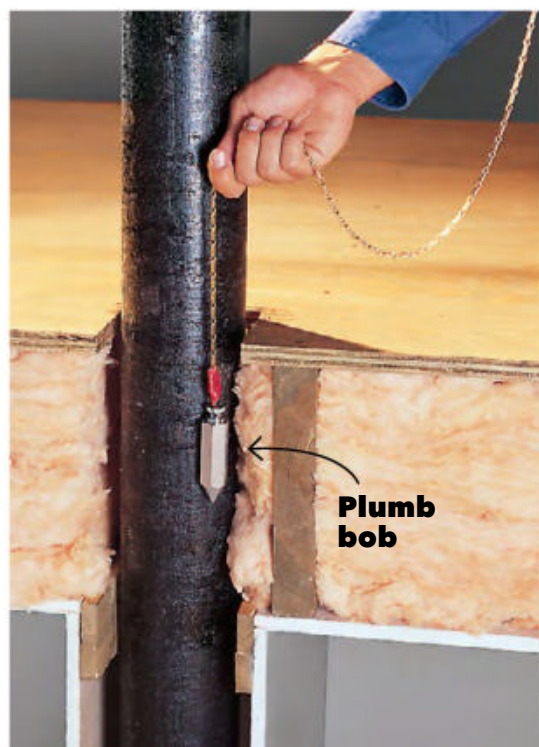
▲ RUN CONDUIT IN CLOSETS OR CABINETS

Conduit or armored cable is another great option for surface wiring, and it's about half the cost of raceway. You wouldn't want to run it over your walls like you would raceway, but it won't be visible in a dark closet or along the backs of cabinets.



▲ SPLICE LIKE A PRO

Sometimes you have to pull hard to get a cable through a wall, so make sure the cable is securely tied to your pulling tool, whether it's a fish tape or a coat hanger. This is my favorite method: Put the wire through the eyelet or around the hook, then wrap it around your fishing tool. Tape them together with electrical tape, making sure to taper the wrapped section so it will slide through holes.



▲ WIRE ALONG THE PLUMBING STACK

Adding power in an upper level can mean running wires from the basement to the attic. In a two-story home, you'd have three ceilings to go through. But in older homes, sometimes this is as easy as lowering a plumb bob along the plumbing vent stack and pulling up the cable. Newer homes might not have enough space around the stack, but it's worth checking first.

DON'T RUN CABLE IN DUCTWORK

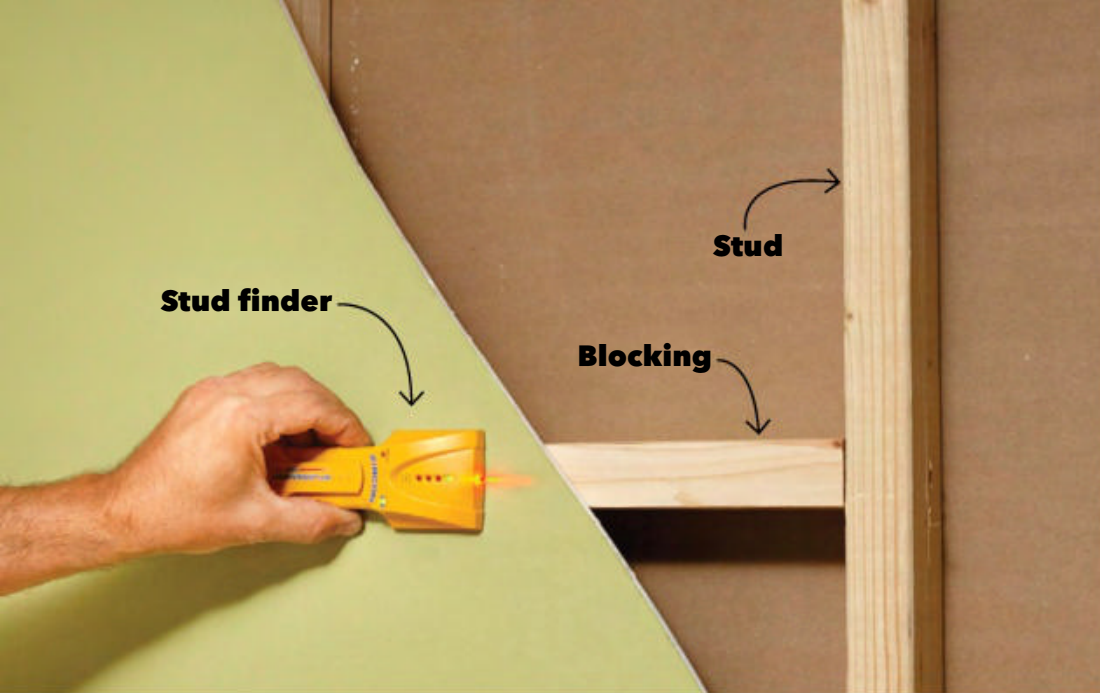
Running cable inside ductwork, as convenient as it may be, is not allowed by code. You can run cable in plenum spaces like stud and joist bays for return air, but you'll need a plenum-rated cable. These cables have special jackets that are nontoxic and rated for fire. You can find plenum-rated Cat 6 and security cable at electrical supply stores. It will cost about twice as much as standard versions.



▲ DRILL TWO HOLES TO TURN A CORNER

Running wire around corners isn't as hard as it seems; the key is to cut holes on each side of the corner. With a spade bit in an angle drill, or an angle attachment, drill a hole in each of the corner studs. This will give you a path to pull wire through.





▲ FIND OBSTRUCTIONS

Before cutting any holes in walls, map out the route you want your wire to take. Scan the wall with a stud finder to locate any blocking that might obstruct that route. If there's blocking in one stud bay, the next one over might make a better path. You don't want to find out the hard way.

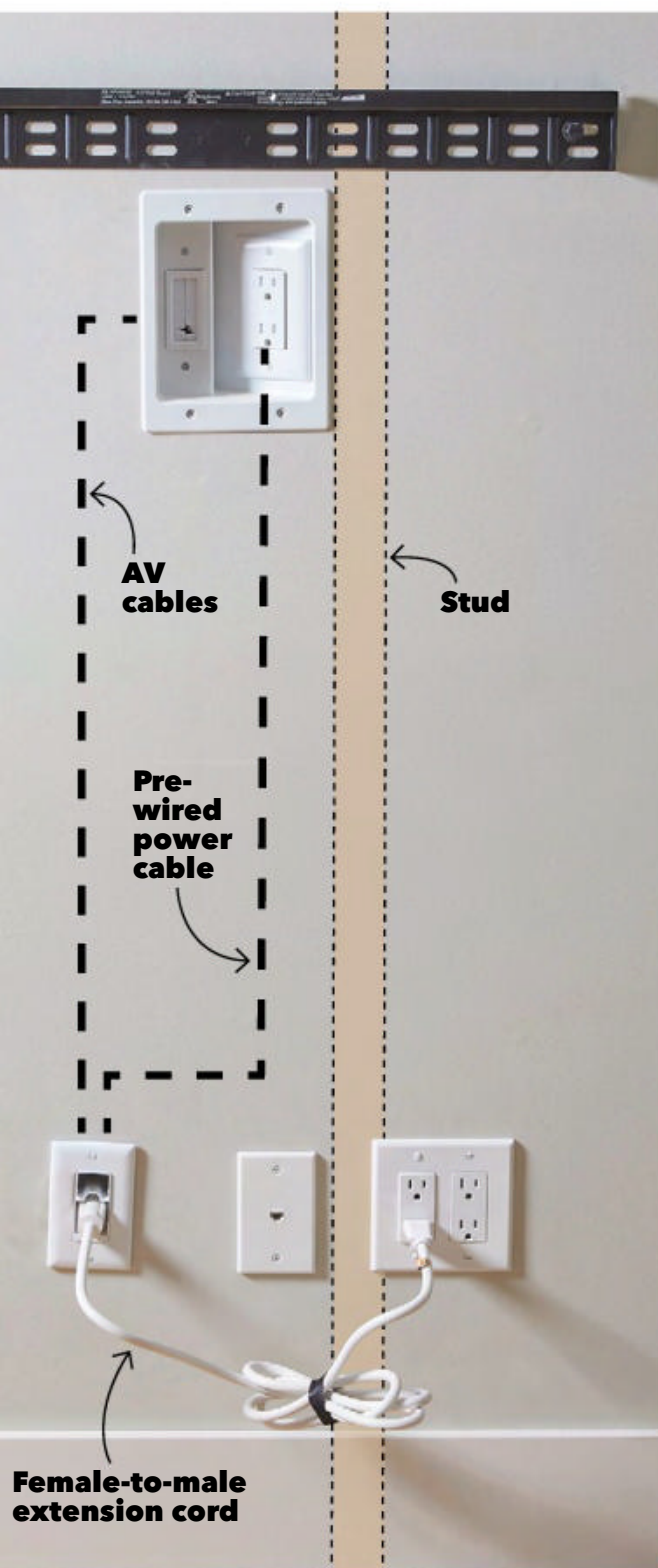


▲ DOUBLE-DUTY ACCESS HOLES

Instead of cutting new holes in your walls or ceilings, you can use holes that are already there. Remove light fixtures, switches or outlets to use existing holes, or plan ahead to use the access hole for a new fixture.

HIDE TV WIRES WITH A WIRING KIT

The easiest way to hide TV wires is with an in-wall TV wiring kit (\$60). Just cut holes for the two boxes, drop the wire down the wall and then plug in the extension cord. The kit is prewired with a male-ended plug and comes with an extension cord. This is especially helpful if a stud blocks a direct fishing route and you want to avoid a big wall-repair project.



▲ TUCK LOW-VOLTAGE WIRES

Low-voltage cable doesn't have the same installation requirements as household power cables. Speaker wire, cables that provide power to doorbells and thermostats, and communication lines like Cat 6 don't need to be run inside your walls. You can just tuck them under your baseboard, but not under carpet or rugs.

Wire-fishing gear

GLOW RODS

Glow rods are a staple for wire fishing. Just like steel tape, they can be pushed up walls and along ceilings, can usually be purchased in several lengths and can be screwed together for longer spans. Most come with a swivel eyelet tip and a hook tip. The luminescent rods glow in the dark, illuminating dark joist and stud bays. You can find them for \$40 at home centers.

FLEX BIT

If you need to run wire across a few joists or studs, reach for a flex bit. They come in long lengths, and extensions are available so you can drill holes through several joists. They have an eyelet at the tip, so once you've made your holes, you can pull the wire back through with the same bit. One thing to note: Don't drill through insulation with these bits. Expect to pay about \$50 for a 54-in. flex bit at a home center.

HOMEMADE HOOKS

Some of my favorite fishing tools are ones you can make yourself. Small hooks made from cable or coat hangers let you grab cable just out of reach. Best of all, they're economical.

90-DEGREE DRILL ATTACHMENT

This is the perfect tool for drilling holes between stud bays. About \$18 at most home centers, it's a lot cheaper than a dedicated angle drill and serves the same purpose. It can be a little tricky to use with larger bits, so hold on tight.

WIRE-PULLING MAGNETS

With a few options at different prices, magnets are cool tools for pulling wire along an insulated stud bay. This Magnepull (\$125) consists of a steel leader and a roller magnet. You can even use it to retrieve lost bits and other tools from inside walls. Wire-pulling magnets, which range from \$40 to \$125, can be found at electrical supply stores.

Roller magnet

Steel leader



90° drill attachment



Mud ring

LOW-VOLTAGE MUD RING

I use mud rings to prevent marring drywall as I pull cable. They also have markers in the corner to outline the perfect hole size and shape for single-gang boxes. When you're done fishing, leave it in the wall and cover it with a blank faceplate to avoid patching (especially useful for hard-to-patch textured walls). These mud rings are available for less than \$2 each at home centers.

STEEL FISH TAPE

This long roll of stiff steel is great for pushing wire through insulated walls, up wall cavities and down long lengths of joists. A roll starts at \$15 at home centers.



QUICK & EASY STORM DOORS

Install a
storm door kit
in just 30 minutes

BY MIKE BERNER

A storm door with a rollaway screen makes it easy to let in the breeze on a beautiful day and keep out the weather when it's not so nice. Most door companies make an easy-to-install version that has a precut frame and adjustable parts. If your door opening is mostly square, the install is a cinch. In about a half hour and without altering the opening, I had a perfect new door.



MEET THE BUILDER

Mike Berner, an associate editor at *Family Handyman*, is a big fan of anything quick and easy.

WHAT IT TAKES

TIME

1/2 to 1 hour

COST

\$250

SKILL LEVEL

Beginner

TOOLS

Drill, chisel



1 SET THE PLACEHOLDER SCREW

Hold the hinge rail tight to the door trim and drive a screw into the top hole. Leave a 1/8-in. gap between the screw head and the trim. Remove the hinge rail by sliding it over the screw.



2 ASSEMBLE THE DOOR

Set the door on a pair of sawhorses and screw the hinge rail to the door. Cover the unused mortise hole with the provided plug, then slide on the adjustable door sweep and slip on the rail extender cap.



3 HANG THE STORM DOOR

Hang the door by the hinge rail onto the placeholder screw and tighten it to hold the door in place.



4 FASTEN THE HINGE RAIL

Drive screws along the inside of the hinge rail. Slide the rail cap down to the door's sill, then fasten the outside of the hinge rail to the trim.

5 INSTALL DRIP CAP AND LATCH RAIL

Line up the drip cap with the edge of the hinge rail, hold it tight to the trim and fasten it with screws. Install the latch rail tight to the drip cap and lined up with the edge of it.





6 DRILL HOLES FOR THE LATCH

Snap the drilling guide onto the door and drill the holes from both sides with the provided spade bit.

7 INSERT THE LOCK BODY

Slide the lock body into the mortise and fasten it with a screw. If the latch isn't facing the right direction, you'll have to unscrew the front of the lock body and spin the latch.

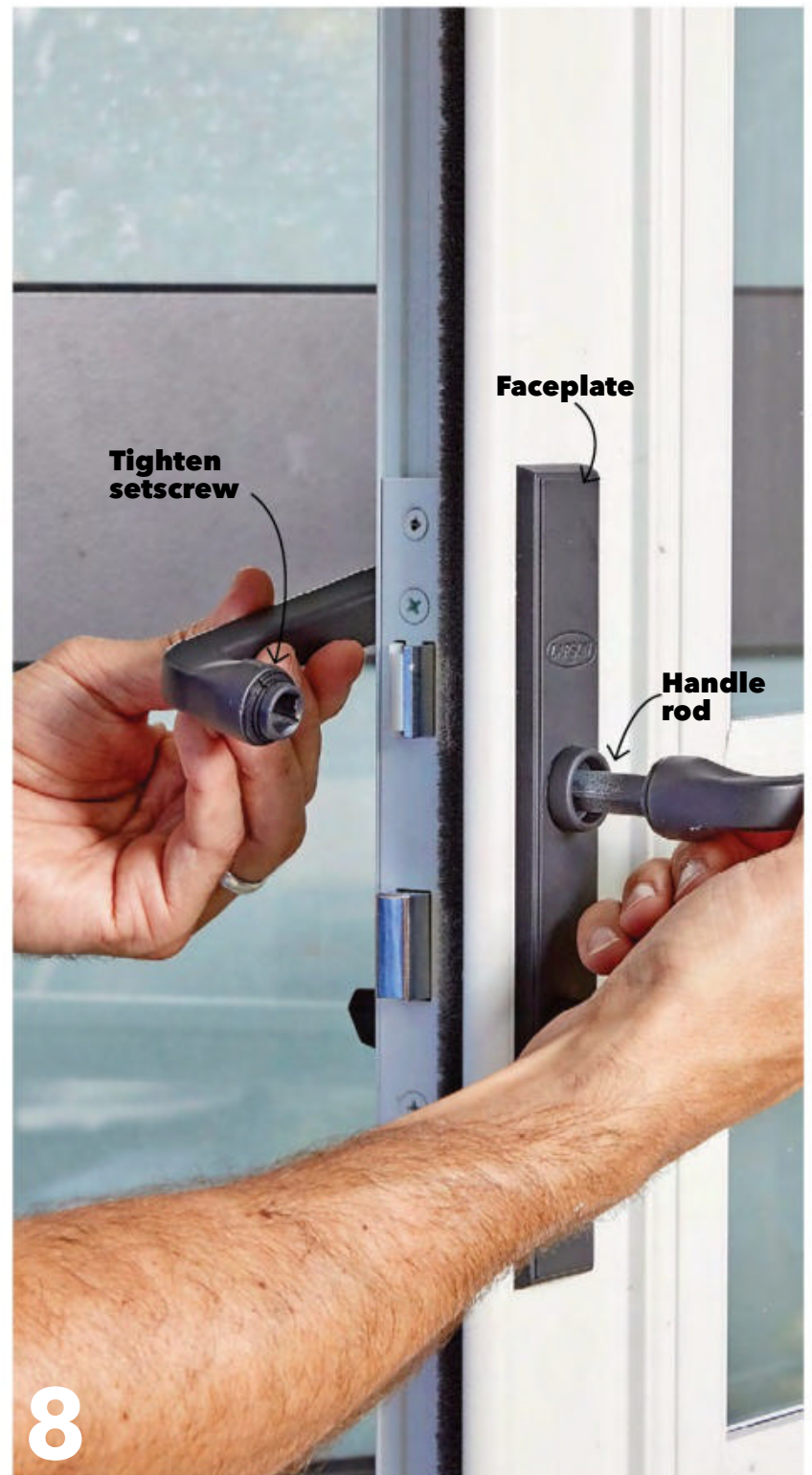
8 MOUNT THE HARDWARE

Place the faceplates on each side of the door. Push the handle rod through the faceplate and lock body and secure the other handle with a setscrew.

Drilling guide



Lock body



Tighten setscrew

Faceplate

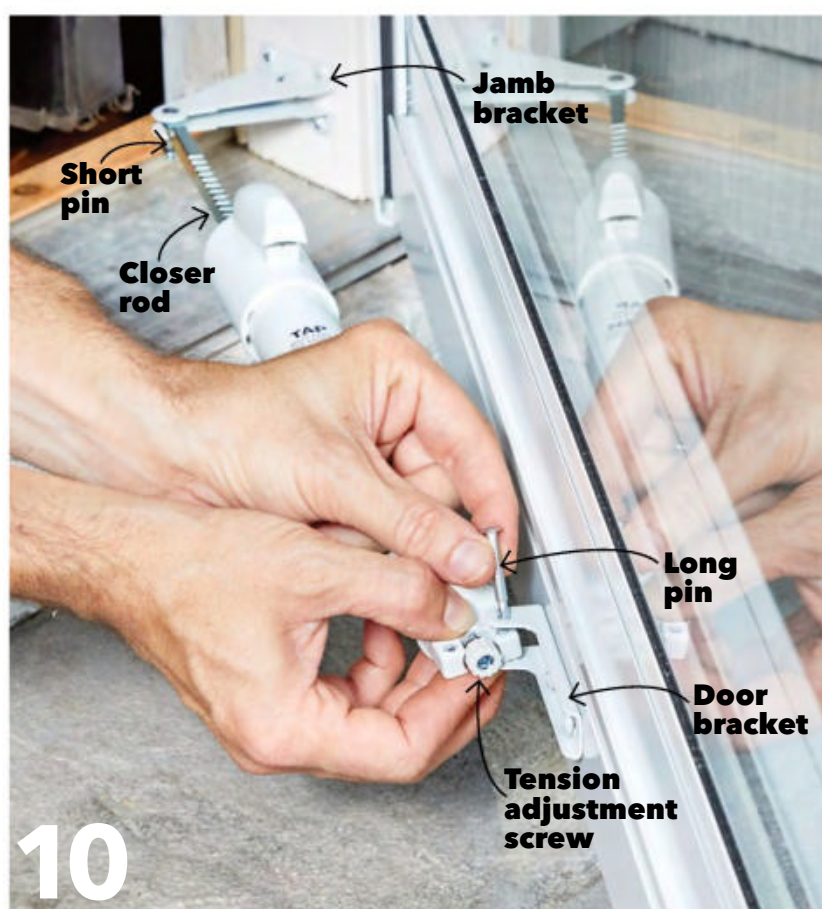
Handle rod

9 MAKE ROOM FOR THE LATCH AND DEAD BOLT

The latch and dead bolt should be able to extend all the way into the latch opening. If not, you'll have to drill and chisel out a mortise in the trim.

10 INSTALL THE CLOSER

Screw the side-jamb bracket to the hinge-side jamb, then insert the closer with the short connecting pin. Pull out the closer rod slightly, then attach the door bracket to the door. Connect the closer to the bracket with the long pin. If your door has two closers, repeat this step at the top of the door.



Businesses and Consumers Who Bought an Interior Molded Door Between March 1, 2014 and September 4, 2020, Could Receive \$25 or More From a Class Action Settlement Totaling \$19.5 Million

The lawsuit, *In re: Interior Molded Doors Indirect Purchaser Antitrust Litigation* Case No. 3:18-cv-00850-JAG, pending in the U.S. District Court for the Eastern District of Virginia, claims that JELD-WEN, Inc. and Masonite Corporation ("Settling Defendants") agreed to fix the prices of Interior Molded Doors ("IMDs") and, as a result, consumers and businesses who indirectly purchased Standalone IMDs not for resale may have paid more than they should have. Although the Settling Defendants have agreed to settle, they do not agree that they engaged in any wrongdoing or are liable or owe any money or benefits to Plaintiffs. The Court has not decided who is right.

Who is Included? You are a Settlement Class Member if you indirectly purchased not for resale a Standalone IMD between March 1, 2014 and September 4, 2020. Purchases must have been made in, or while you were residing in an Indirect Purchaser State at the time of purchase. "Indirectly" means you bought the Standalone IMD from someone other than one of the Settling Defendants (e.g., you purchased a Standalone IMD at Home Depot, Lowe's, or a lumber yard).

IMDs are a type of interior door made through a process of sandwiching a wood frame and hollow or solid core between two molded doorskins, rather than making the entire door from solid wood. A "Standalone Interior Molded Door" is an IMD that is not incorporated as part of a larger product (such as the purchase of a home) or service (such as the installation of the door in a home). For example, you are included if you are (a) a consumer who purchased an IMD for home installation OR (b) a business or commercial contractor that purchased an IMD to be included as a service provided to a customer or for its own use. Standalone IMDs contain patterns and do not include flush doors which have no patterns or relief.

The definitions of IMDs, Standalone IMDs, and the list of Indirect Purchaser States, among others, are available by visiting the Settlement Website www.InteriorMoldedDoorSettlement.com.

What Does the Settlement Provide? The Settlement provides for a total Settlement Fund of \$19,500,000 ("Settlement Fund"). After deduction of notice and administration expenses, attorneys' fees, service awards to the Class Representatives, and litigation expenses, as approved by the Court ("Net Settlement Fund"), the Net Settlement Fund will be available for distribution to Settlement Class Members who timely file valid claims. It is estimated that each member of the Settlement Class who submits a valid claim will receive at least \$25. Payments will be based on a number of factors, including at least the number of valid claims filed by all Settlement Class Members and the number of Standalone IMDs purchased by each Settlement Class Member.

What are My Rights and Options?

Submit a Claim: To receive a Settlement payment, you must submit a claim by going to www.InteriorMoldedDoorSettlement.com and submitting (or printing and mailing) a Claim Form. A valid Claim Form must be **submitted online or postmarked by June 25, 2021**.

Do Nothing: You will be included in the Settlement Class and bound by the Court's decision, but you will not receive a payment. You will give up your rights to sue the Settling Defendants about the claims in this case.

Exclude Yourself: You can exclude yourself ("opt out") of the Settlement by submitting an exclusion request to the Settlement Administrator that is **received no later than June 2, 2021**. If you do so, you will not be eligible to receive a settlement payment, but you will retain the right to sue on your own regarding any claims that are part of the Settlement.

Object: You may also object to any part of this Settlement. Objections must be mailed to the Clerk of the Court and the Settlement Administrator and **received no later than June 2, 2021**.

Details about how to opt-out, object, and mail your Claim Form are available on the Settlement Website.

Has the Court Approved the Settlement? No, the Court has set a hearing for July 13, 2021 at 9:00 a.m. to determine whether to approve the Settlement, Class Representative service awards not to exceed \$56,000 total, attorney's expenses not to exceed \$5 million, and attorneys' fees not to exceed 33% of the Settlement Fund. If there are objections or comments, the Court will consider them at that time. You or your lawyer may appear at the hearing at your expense. The hearing may be moved to a different date or time without additional notice. Check the Settlement Website or call 1-844-964-2884 for current information.

How Can I Get More Information? This Notice summarizes the Settlement Agreement. You can get a copy of the Settlement Agreement, important Court documents, and more information about the settlement on www.InteriorMoldedDoorSettlement.com.

The parties' class certification briefs and expert reports are currently under seal pending an appeal. These documents can be obtained by Settlement Class Members by contacting Settlement Class Counsel or the Settlement Administrator. The Protective Order is available on the Settlement Website. If and when these documents are unsealed, they will promptly be posted online on the Settlement Website.

You may write with questions to info@InteriorMoldedDoorSettlement.com or call the toll-free number, 1-844-964-2884. You should also register on the website to be directly notified of the terms of the Plan of Allocation of the Settlement Fund, how to file a claim form, and other information concerning this case.

1-844-964-2884

www.InteriorMoldedDoorSettlement.com

TROUBLE-FREE PEX

Advice for leak-free plumbing



BY JAY CORK

PEX plumbing is inexpensive and reliable, fast and almost goof-proof to install. Almost. Some mistakes can lead to leaks right after installation ... or years down the road. To learn how to avoid these mistakes, I talked with a 21-year veteran plumber who has seen them all.



MEET THE EXPERT
Master plumber
Bret Hepola owns
and operates
All City Plumbing.

Bret uses PEX-A

Home centers commonly carry two types of PEX piping: PEX-A and PEX-B. PEX-A has several advantages over PEX-B: It installs faster, it's more flexible and it's less likely to burst when frozen. For these reasons, PEX-A makes sense for Bret. But for most DIYers doing a small job, PEX-B might be a less expensive option, taking into account both the price per foot and the required tools.

Bret's favorite tools



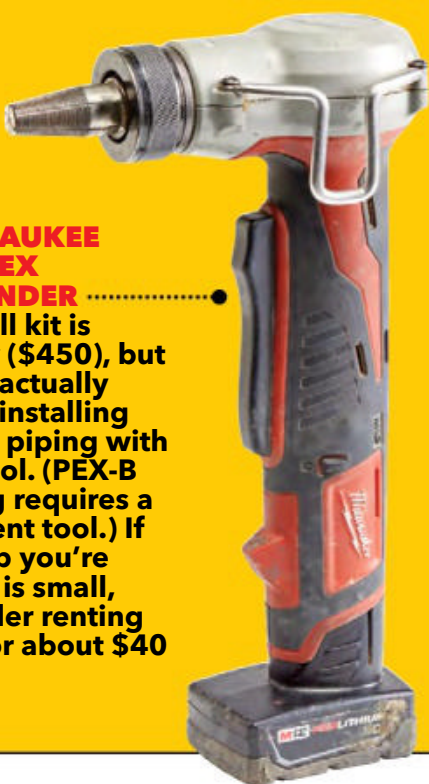
PEX CUTTER

The bottom jaw of this cutter is flat and cradles the pipe, making quick work of cutting PEX perfectly straight. Find one at your home center for about \$20.



GREASE PENCIL

Regular pencils and markers don't work well for marking PEX. Use a grease pencil to make highly visible marks that won't rub off.



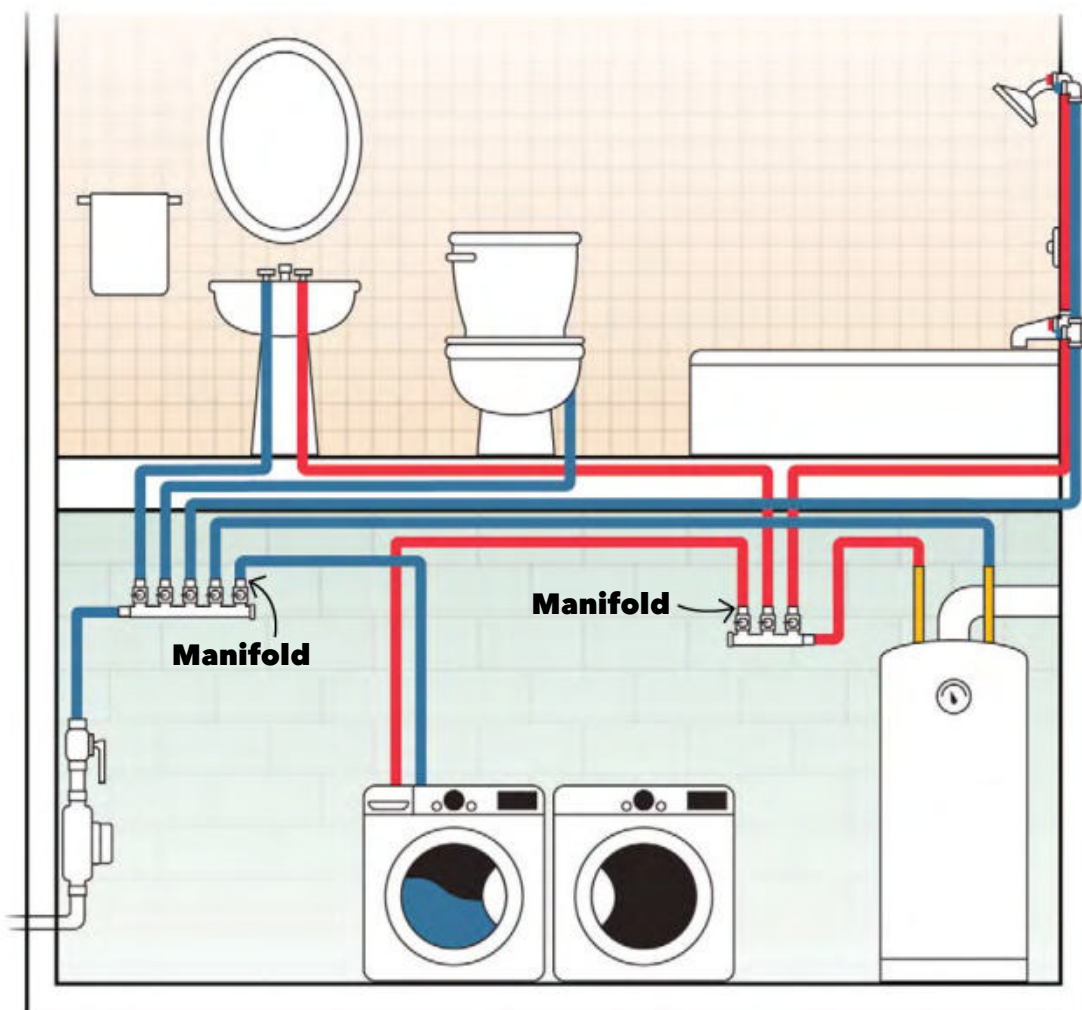
MILWAUKEE PROPEX EXPANDER

The full kit is pricey (\$450), but you'll actually enjoy installing PEX-A piping with this tool. (PEX-B tubing requires a different tool.) If the job you're doing is small, consider renting one for about \$40 a day.

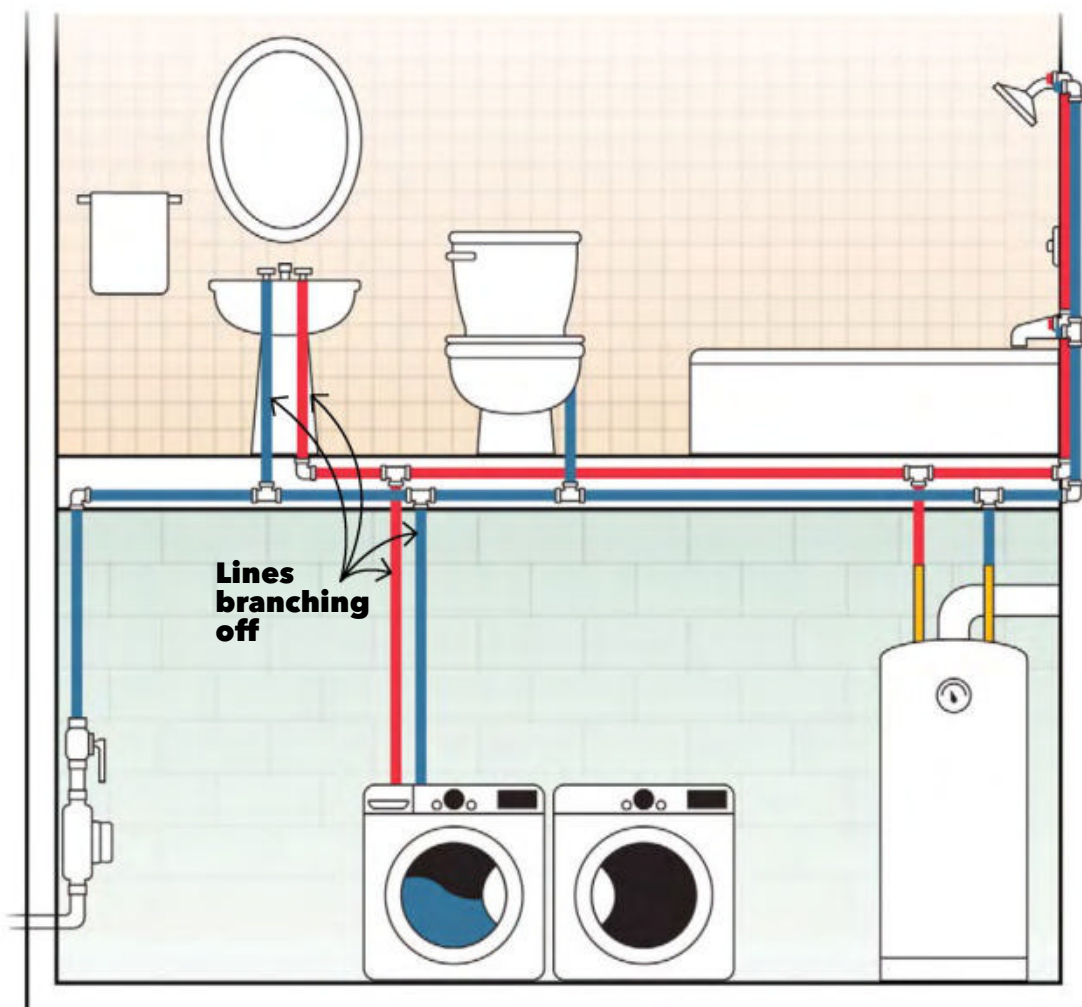
Go with the branch method

PEX lines can be run in two ways: With the manifold method, individual lines run from a manifold directly to every fixture, and with the branch method, lines branch off to the kitchen and bathrooms, then branch off again to each fixture. While manifolds allow greater control over individual fixtures, they use up to three times the material and waste a lot of hot water. That's why Bret believes the branch method is the way to go.

MANIFOLD METHOD



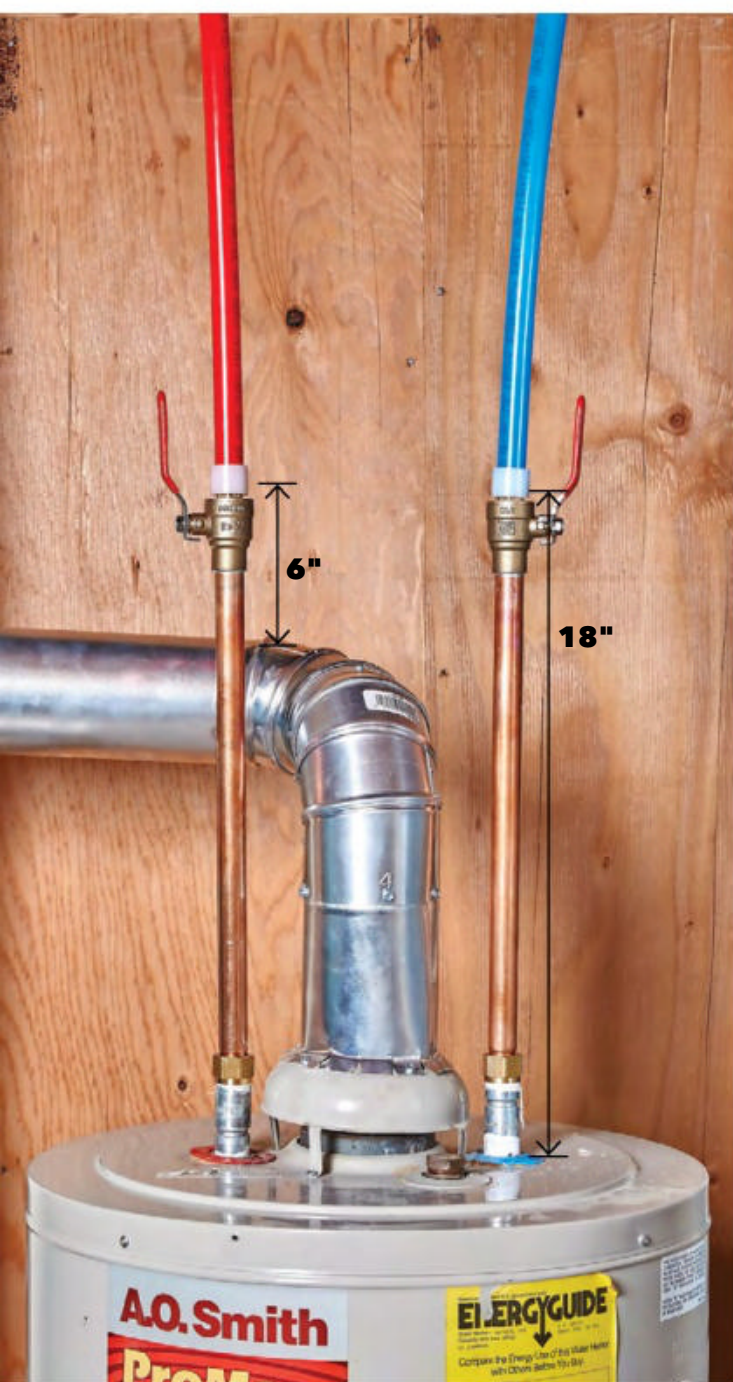
BRANCH METHOD





Give the hot lines extra support

PEX lines sag over time, especially the hot ones. PEX is supposed to be supported by straps every 32 in. However, because the hot lines have a greater tendency to sag, Bret always places their hangers closer together.



Keep PEX away from hot spots

PEX is plastic and can melt. If you're running PEX to your water heater, there must be an 18-in. extension up from the tank. Also, keep PEX at least 6 in. away from any exhaust flue.



Heat a leaky fitting

If your PEX-A fitting has a small leak, try warming it with a heat gun. This momentarily softens the plastic, which then contracts around the fitting again. This is a big time saver for Bret; instead of removing and replacing a fitting, he'll first try heating it.

Repair kinks in PEX-A with heat

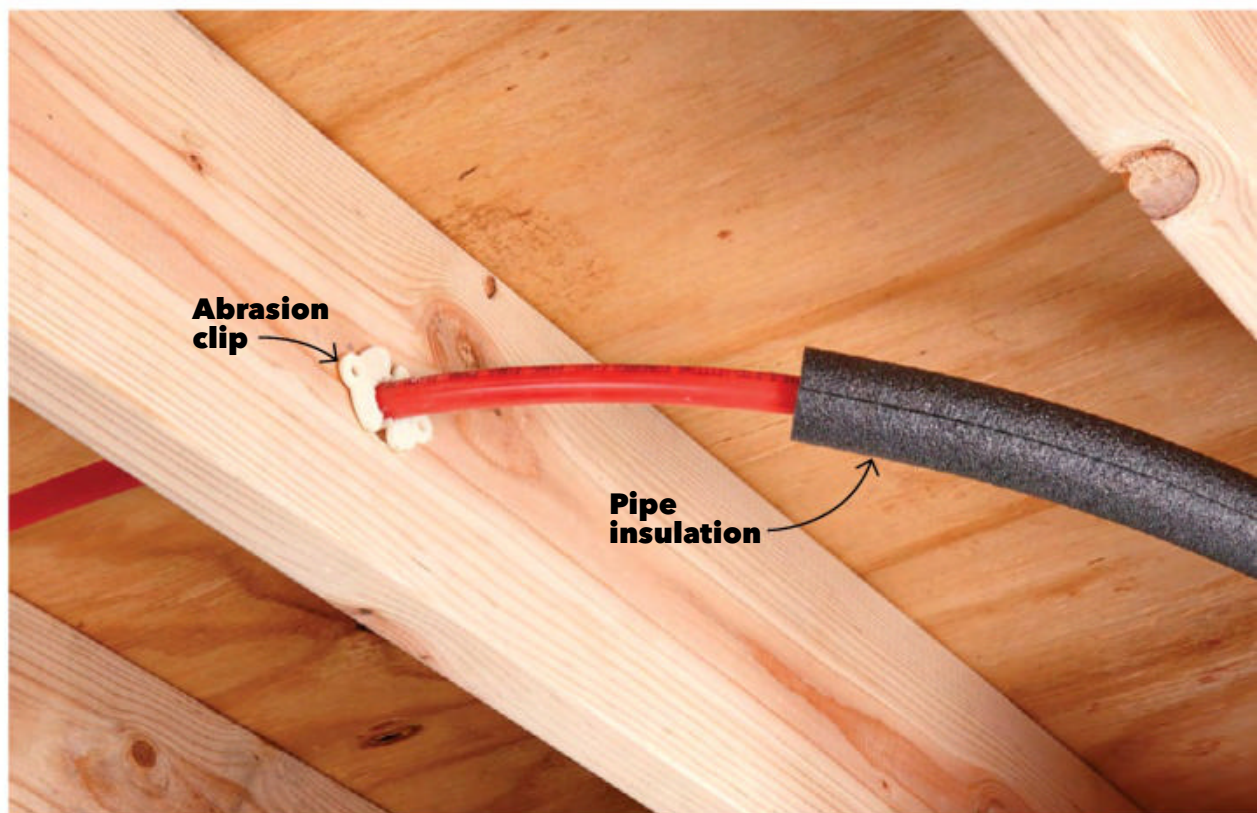
PEX-A tubing is stronger and more flexible than PEX-B, and kinks in PEX-A can be repaired by applying a little heat. If PEX-B gets kinked, the damaged section must be cut out and repaired with a coupling.

NOT ALL CITIES ALLOW PEX

In some areas, it's still against code to use PEX tubing for a plumbing job. Check your local plumbing code to make sure you're on the right side of the law.

WARM UP COLD FITTINGS AND TUBING

Installing PEX-A at temperatures of 60 degrees F or lower can result in poor connections. This may cause leaks when things warm up. Bret gives the PEX time to warm up before installing it, and on cold days he warms poly fittings by keeping them in his pockets.



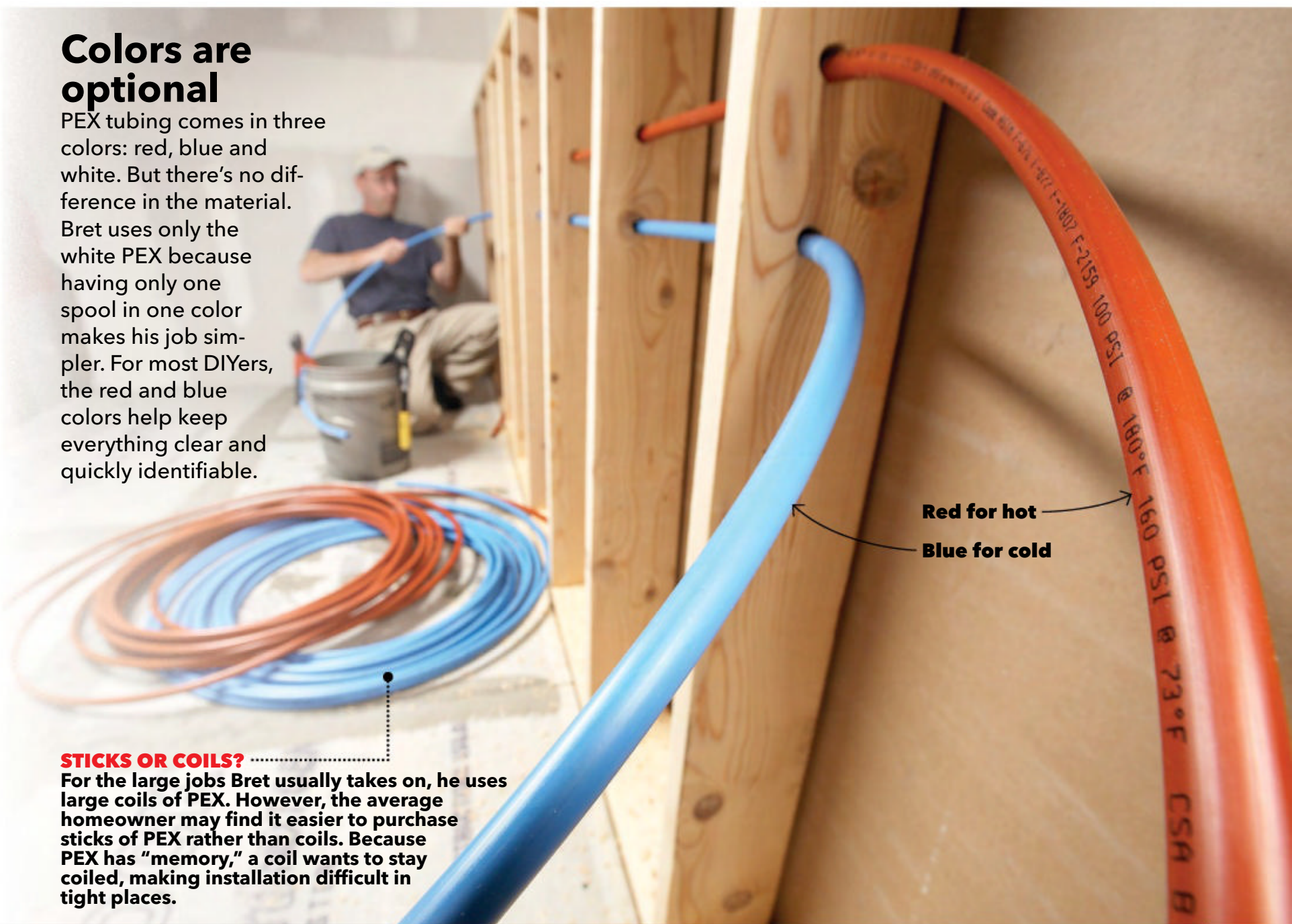
Protect your PEX

If PEX needs to be run through a joist space where it can't be fastened, Bret suggests that you first wrap it in pipe insulation. This protects it from nails or other protrusions during installation and guards against abrasion from water hammering. He'll also use an abrasion clip to protect the PEX when it passes through the joist adjacent to a bend.

Colors are optional

PEX tubing comes in three colors: red, blue and white. But there's no difference in the material.

Bret uses only the white PEX because having only one spool in one color makes his job simpler. For most DIYers, the red and blue colors help keep everything clear and quickly identifiable.



STICKS OR COILS?

For the large jobs Bret usually takes on, he uses large coils of PEX. However, the average homeowner may find it easier to purchase sticks of PEX rather than coils. Because PEX has "memory," a coil wants to stay coiled, making installation difficult in tight places.

DON'T REUSE POLY FITTINGS

Fittings for PEX-A are made from either brass or polyethylene. Poly fittings are less expensive and more readily available than brass, but Bret did give one warning about them: Don't use a poly fitting more than once. If a joint or fitting has to be modified or repaired, always use a new fitting.

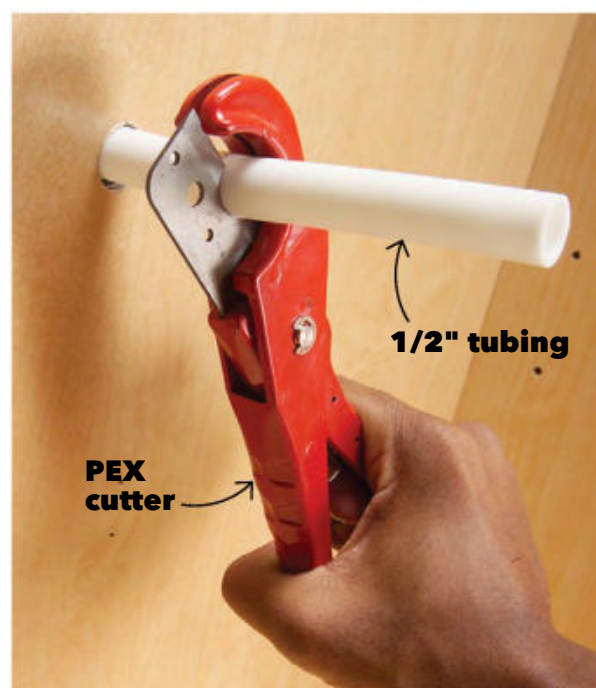
LEAVE SPACE BETWEEN FITTINGS

PEX fittings are allowed to be spaced as close as 3 in. apart, but Bret prefers wider intervals. With ample space between PEX fittings, you can more easily repair leaks or alter individual fittings. Give yourself enough room to insert new fittings; you'll thank yourself later.



Use copper stub-outs

You can connect shutoff valves directly to PEX, but Bret prefers to use copper stub-outs for sink and toilet connections because they provide a more solid connection to the shutoff valves.



Cut it straight

Angled cuts can lead to leaks. To ensure a proper marriage between PEX and the fittings, you need a cutter specifically designed for plastic tubing. A cutter costs only \$20 or so and is designed to make this job easy. With a little care, you can easily cut PEX perfectly square.



Give PEX room to move

Long runs of PEX expand and contract a lot. This stresses the fittings. For runs longer than 40 ft., create an expansion loop along the way.



SPEEDWASH™

Pressure Washing System

ULTRA-FAST. EASY to USE. BUILT to LAST.

A complete pressure washing system from Generac that provides ALL the tools you need for every application.

Up to 3200 PSI MAX for FAST, thorough cleaning!

◀ **POWERDIAL™ GUN** puts pressure control at your fingertips!

CLEANING TOOLS make washing anything FAST and EASY!

CLEANS FASTER ▼
The Power Broom cleans decks and driveways up to 4X faster!

LIMITED-TIME, FACTORY-DIRECT OFFER!

GET THE COMPLETE SYSTEM
with FREE Cleaning Tools & FREE Shipping!

SpeedWash models start at **JUST \$379!**

GENERAC®

— Order Today —
GeneracSpeedWash.com
Toll Free 877-389-1880

★ **USA**
ENGINEERED & BUILT
Assembled in the USA
using domestic and
foreign parts.

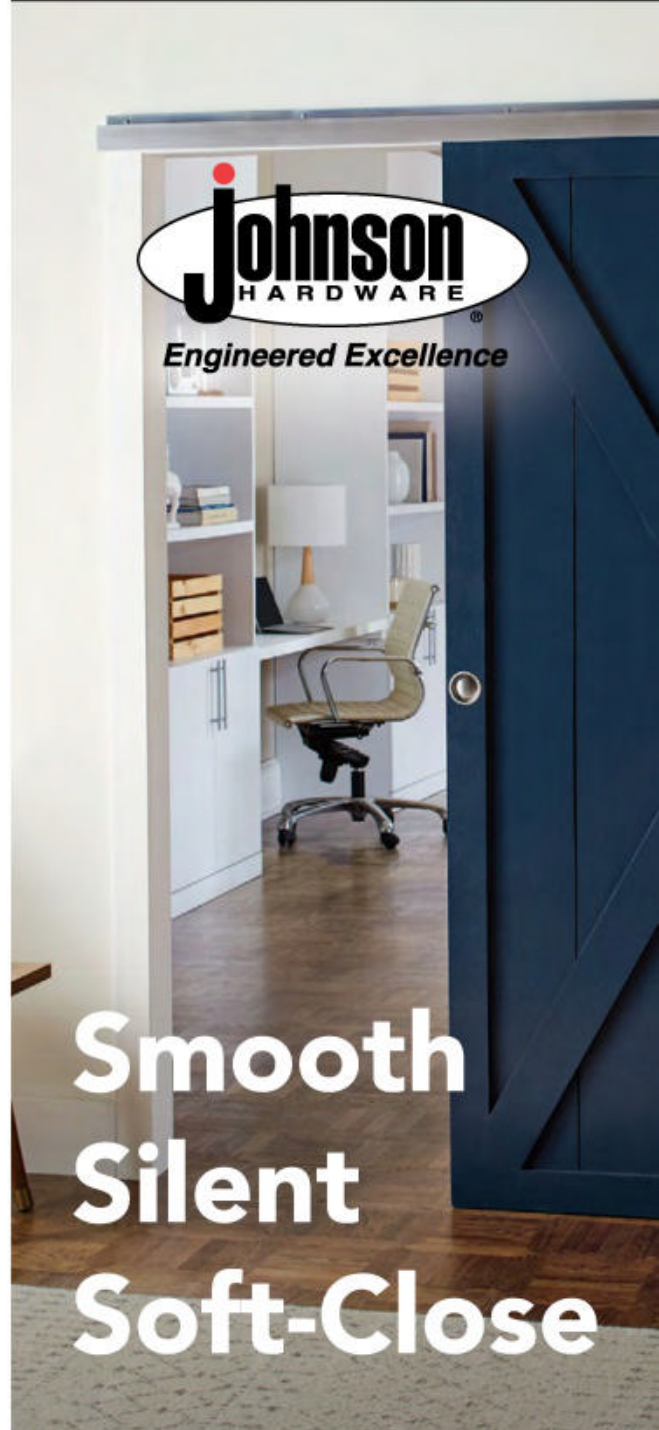
EST 1928

WOODCRAFT®

TOGETHER, WE CAN CREATE ANYTHING®



To Learn More, Visit Your Local Woodcraft Store, Woodcraft.com Or Call 800-225-1153.



Johnson
HARDWARE®

Engineered Excellence

Smooth Silent Soft-Close



Sliding door hardware

Works like a cabinet door closer. Easy to install. Prevents door slamming and pinched fingers. Ideal for use with new or existing Johnson pocket, sliding and wall mount hardware.



Follow us on
Instagram:
[Johnsonhardware](https://www.instagram.com/johnsonhardware)

www.johnsonhardware.com/soft-close

Best ProTips

Expert advice from the job site. By Jay Cork

KEEP YOUR HOUSE RUNNING SMOOTHLY

Home maintenance advice from the trenches

Curtis Petersen solves more maintenance problems in a week than most of us see in a year. A building superintendent with a crew of six, Curtis loves his job. He also loves to share his knowledge. Recently, he told me the problems he runs into the most—and the solutions he's found that can save all of us time and money.



MEET THE EXPERT

Curtis Petersen lives in St. Paul, Minnesota, and keeps two luxury apartment buildings in perfect condition. The tenants love him!



DRAIN YOUR WATER HEATER

Periodically draining your water heater will extend its life and lower your energy bills. Over time, sediment collects at the bottom of the tank. On gas-powered heaters, this creates hot spots that can damage the tank and cause leaks. On an electric water heater, sediment buildup can cause the lower heating element to fail prematurely. Curtis recommends clearing sediment from your water heater at least once a year.

A gallon or two should do the trick



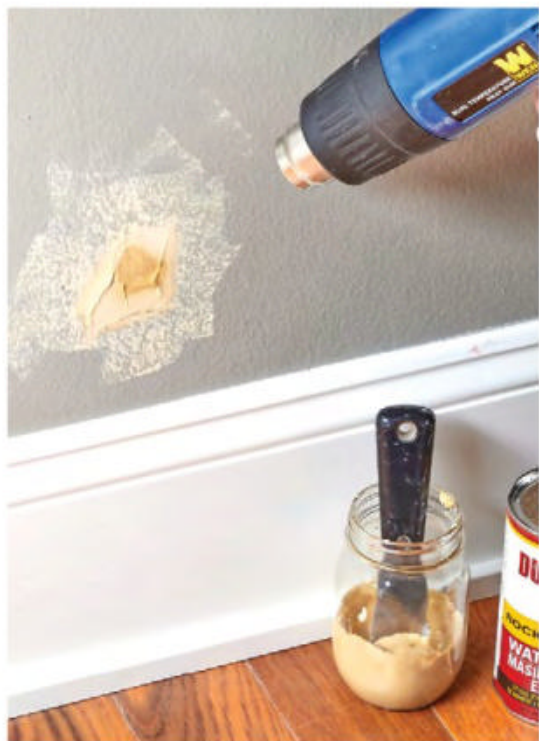
KEEP FAUCET HEADS FLOWING

Faucet spouts and showerheads can gradually clog with calcium and lime. Curtis soaks them in vinegar to loosen the buildup. He advises against using CLR (Calcium, Lime & Rust Remover), saying it might damage the finish on brass or nickel-plated fixtures.



CLEAN GLASS STOVETOPS WITH A RAZOR

Curtis shared a great tip for cleaning glass stovetops—he uses a razor! First he applies Cerama Bryte Cleaner (\$12 online) to the glass cooktop and lets it sit. Then he scrapes the cooktop clean with a razor blade. Those tough baked-on spots don't stand a chance!



PATCH DAMAGED WALLS FAST

Curtis sees a new ding or dent in the walls nearly every day, and he needs to be able to patch them fast and reliably. He uses Durham's Rock Hard Water Putty (\$11 for a 1-lb. can) because he can mix it quickly, it's durable and it doesn't shrink. Once he's applied the compound to the repair, he uses a heat gun to speed up the drying. The patch is usually ready for paint in less than an hour.



KEEP STAINLESS STEEL STAINLESS

Stainless steel appliances look great—until they get fingerprints all over them. And while no cleaner can prevent fingerprints and smudges, the way the cleaner is applied can help avoid streaks and spotting. Instead of spraying the cleaner directly onto the surface, first spray it on a microfiber cloth and then wipe it on.



AVOID REFRIGERATOR REPAIRS

When the condenser coils of a refrigerator get clogged with dust and dirt, they can't release heat efficiently. As a result, the compressor works harder and longer, using more energy and shortening the life of your fridge. Clean the coils with a coil cleaning brush and a vacuum once a year.



MAKE CARPET STAINS DISAPPEAR

Curtis sees his share of carpet stains, and he has one answer for all of them: PROXI Spray & Walk Away cleaner (\$30 online). As the name indicates, you just apply it and walk away. The spray won't make every stain disappear, but it will remove most carpet stains by the time it dries.



LUBRICATE LIGHTBULBS

If you've ever had to remove a stuck lightbulb with a needle-nose pliers, you know it's not fun. Curtis is responsible for thousands of lights, so he doesn't have time to deal with stuck bulbs. He'll drop a dab of dielectric grease on a new bulb's threads to make sure it comes back out easily, every time. Dielectric grease is available for about \$5 at any auto parts store.



LET YOUR FREEZER BREATHE

These vents on frost-free fridges allow air to circulate in the freezer. Curtis suggests keeping your freezer only about three-quarters full. This allows the fan to freely circulate the cold air. It's good for the freezer and helps the refrigerator run more efficiently, saving you money on energy bills.



SAY NO TO FLUSHABLE WIPES!

Despite the name, flushable wipes are not flushable. Curtis has seen this many times and warns against flushing them down the toilet. It's just a matter of time—they will cause a clog. Throw used wipes into the trash!



MAKE PAINT TOUCH-UPS INVISIBLE

It's often difficult to match paint when touching up, but Curtis shared a tip to make touch-ups invisible. Besides feathering side to side, he'll feather the paint high enough so it's above most people's line of sight.



LUBRICATE YOUR GARBAGE DISPOSAL

In-sink disposals get fed a lot of things, including some things they shouldn't. Curtis suggests a monthly cleaning with ice cubes to help keep the blades free of rust. He also finds that pouring in a squirt of dish soap helps keep the disposal lubricated and running smoothly.



RENEW YOUR VINYL FLOORS

Vinyl plank flooring is durable, easy to install and beautiful. However, it's not immune to scratches, and a little dirt underfoot can mar that beauty. Curtis taught me how to make these scratches disappear with sandpaper. Using a little water to lubricate the sandpaper, he starts at 120 grit, then 180, and stops at 220. He also recommends testing in an inconspicuous spot to make sure the vinyl reacts well to sanding.



7" BENCHTOP TILE SAW



⚠ WARNING! †¹

T30945 ONLY \$209⁹⁵

1" x 42" BELT / 8" DISC COMBO SANDER



⚠ WARNING! †¹

H8192 ONLY \$280

9" BENCHTOP BANDSAW



⚠ WARNING! †¹

G0803Z ONLY \$290

12" VARIABLE-SPEED BENCHTOP DRILL PRESS



⚠ WARNING! †¹

T31739 ONLY \$394⁹⁵

10" 2 HP TABLE SAWS



⚠ WARNING! †¹

Benchtop
G0869 ONLY \$410

Portable with roller stand
G0870 ONLY \$495

2 HP DUST COLLECTOR



⚠ WARNING! †¹

G1029Z2P ONLY \$415

12 1/2" 2 HP BENCHTOP PLANER



⚠ WARNING! †¹

G0505 ONLY \$415

THE CLASSIC 14" BANDSAW



⚠ WARNING! †¹

G0555 ONLY \$700

21517R



1-800-523-4777

TECHNICAL SERVICE: 570-546-9663

⚠ WARNING! †¹ : Cancer & Reproductive Harm

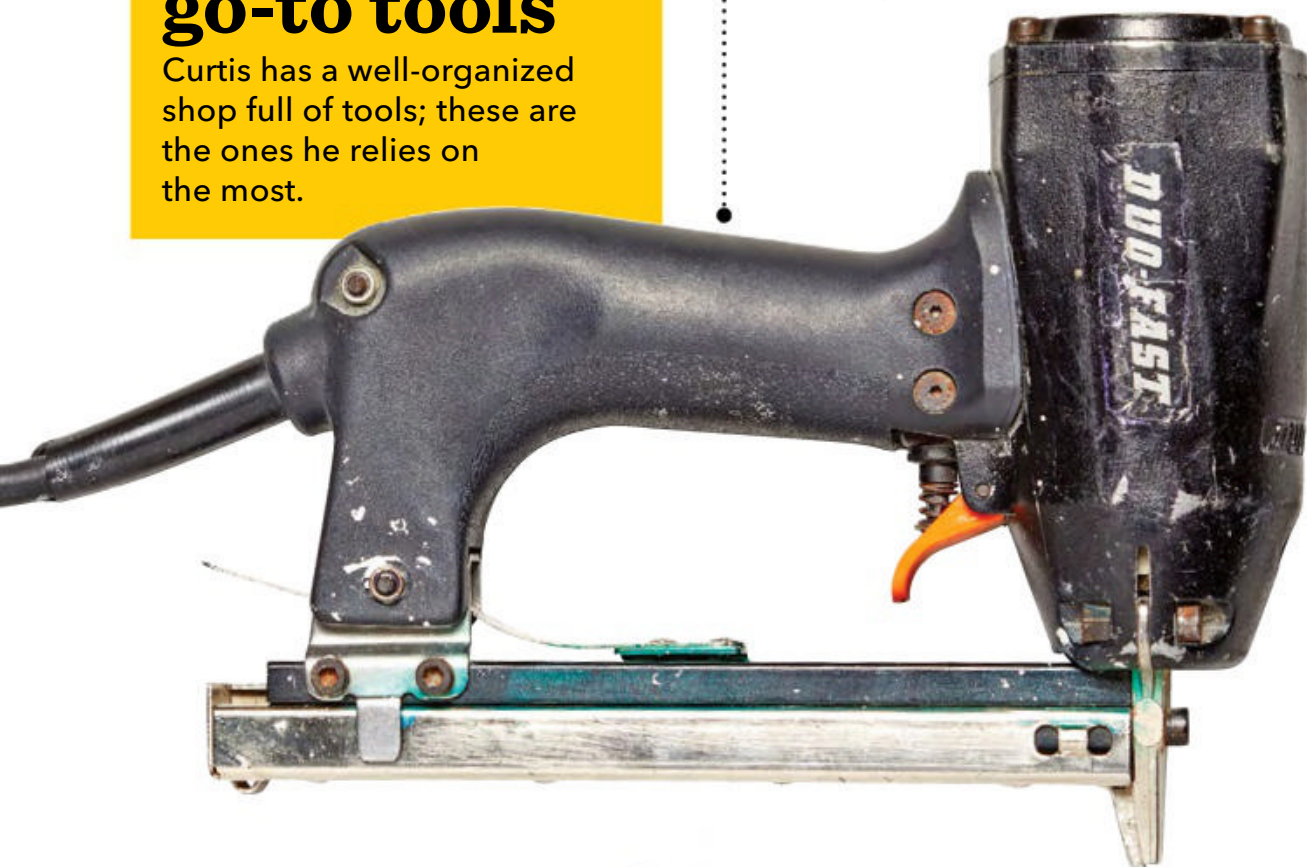
Some products we sell can expose you to chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov/product

Curtis's go-to tools

Curtis has a well-organized shop full of tools; these are the ones he relies on the most.

ELECTRIC STAPLER

Curtis has done miles of small carpet repairs with this electric stapler (\$200).



LASER LEVEL

Hang pictures faster and with more accuracy using a laser line (\$40 online) instead of a tape measure and spirit level.

3-IN-ONE OIL

To keep things running smoothly, 3-in-One oil is hard to beat. Curtis always has a bottle with him and will use it on door hinges, drawer slides and tools. It's available at hardware stores for about \$8.



SLIP JOINT PLIERS

This one tool can take the place of small or large pliers and a whole set of wrenches. It can handle plumbing fixtures, pipes and sometimes old rusty bolts.



MULTIMETER

Many of Curtis's daily tasks—like diagnosing appliance problems—require a multimeter. Expect to pay \$35 for a good one.

FLIR THERMAL CAMERA

Curtis is able to quickly find hot and cold spots with this thermal imaging camera. The TG165 is available online for \$400.





RYOBI IMPACT DRIVER

For driving long bolts, an impact driver works much better than a drill. Curtis loves his Ryobi driver, which costs about \$80 (tool only).

MAGNETIC STUD FINDERS

No batteries required. Curtis loves these magnetic stud finders (\$10) because they easily fit in his pocket.



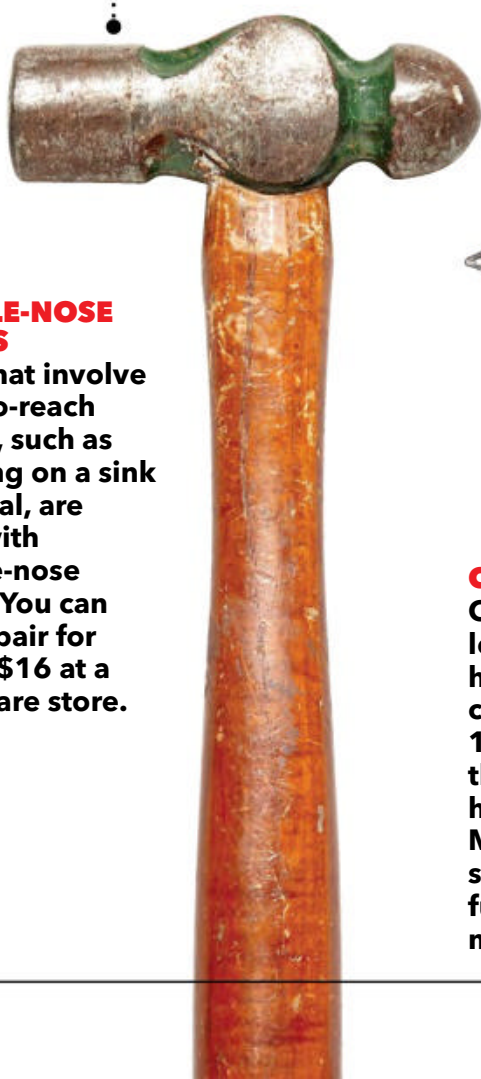
ALUMINUM TAPE

Despite its name, duct tape should never be used on heating ducts. Always use aluminum tape (\$8 per roll).



BALL-PEEN HAMMER

Curtis prefers ball-peen hammers because he can use the round side to dent in nail holes in drywall so the paper facing doesn't leave a fuzzy spot in the repair.



LEATHERMAN COMBO TOOL

It's a screwdriver, file, knife, marking tool and more. This is perhaps his favorite tool; he always has one on his belt. The price tag (about \$80) may seem high, but Curtis says it's worth twice as much.



NEEDLE-NOSE PLIERS

Jobs that involve hard-to-reach places, such as working on a sink disposal, are easy with needle-nose pliers. You can find a pair for about \$16 at a hardware store.



COMPACT DRILL

Curtis loves this cordless drill so much he has six of them. Most cordless drills are 18-volt, which means they're bigger and heavier. This 12-volt Milwaukee (\$120) is small, light and powerful enough for most maintenance jobs.



Home Care

HEALTH | MAINTENANCE & REPAIR | STORAGE & ORGANIZATION



QUICK TUNE-UP FOR HEDGE TRIMMER BLADES

A dull hedge trimmer doesn't cut cleanly, making an easy job far more work. You can have your trimmer professionally sharpened, but doing it yourself is easy. Using a rotary tool and a diamond paddle, you'll be back in business in about 30 minutes. You can file the teeth, but it takes a bit longer.

PHOTO: JOHNNYGRIEG/GETTY IMAGES

1 LOOSEN THE BLADES

Remove the nuts that secure the blades to the bar. I don't remove the blades on this trimmer because it involves disassembling the entire machine. Removing the nuts lets me separate the blades enough for sharpening.

2 CLEAN THE TEETH

Wipe off as much pitch and sap as you can using a blade cleaning liquid such as Red Armor from Echo (\$10 for a 12-oz. bottle). Your grinding stone cuts faster if the teeth are clean.

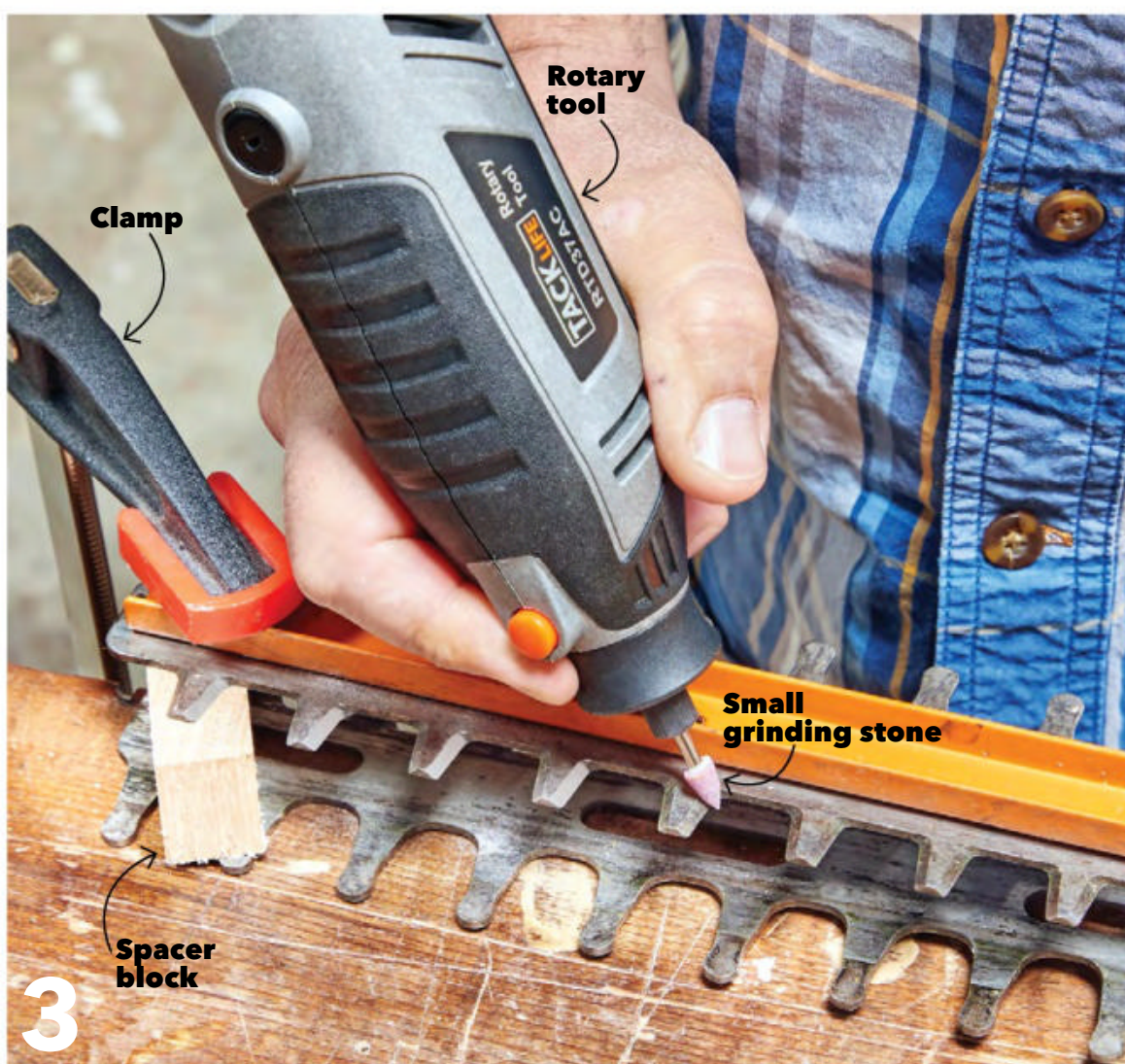
3 GRIND THE BEVELS

With the blades clamped to a work surface, carefully grind each beveled edge using a small grinding stone in a rotary tool. Use a light touch and stop when the bevel is shiny all the way down to the edge, and you can feel a slight burr under the edge. A small wood spacer block clamped between the blades maintains clearance for grinding.

4 HONE THE UNDERSIDES

Hone the underside of each tooth to remove the burr created by grinding. My favorite tool for this is an EZE-LAP diamond paddle (\$20 for a set of three). Wipe off the teeth with blade cleaner again, to remove any metal dust. Then reinstall the nuts that secure the blades to the bar.

BRAD HOLDEN
SENIOR EDITOR





Steve and his beloved, rust-free 1990 Ford pickup

KEEP YOUR CAR RUST-FREE

Modern vehicles don't seem to rust out nearly as badly as those from 30 or more years ago, but they will definitely rust, especially if you live in an area with harsh winters and salted roads. An annual spray of rustproofing oil goes a long way to prevent body and frame rust. Although I live in the Rust Belt, my 1990 Ford F-150 remains rust-free because I spray it every year. You can have a pro do it for about \$200, or you can do it yourself using any rust-proofing spray from an auto parts dealer, such as Fluid Film from Krown (\$10 for a 12-oz. can). With six vehicles to spray each year, I now own all the proper wands and spray equipment that a pro might use. And because I live close to a supplier of the Krown brand rust prevention treatment, I'm able to purchase the product in 5-gallon pails.

STEVE MAXWELL



MERV 6
Home Basic



COMPARABLE TO MPR 300 & FPR N/A

MERV 8
Home Select



COMPARABLE TO MPR 600 & FPR 5

MERV 11
Home Plus



COMPARABLE TO MPR 1000-1200 & FPR 7

MERV 13
Home Ultimate



COMPARABLE TO MPR 1500-1900 & FPR 10

FURNACE FILTER RATINGS DECODED

For optimum performance, comfort and system longevity, you need the right filter for your equipment. The industry standard for rating HVAC filter performance is MERV (minimum efficiency reporting value), but it's not the only rating system in use.

The other two are MPR (microparticle performance rating) and FPR (filter performance rating), used by 3M and Home Depot, respectively. The chart shows the standard MERV filter ratings plus their equivalents in the other rating systems.



MEET THE EXPERT
Kara Caldwell is the digital marketing manager at Air Filters Direct.

THE ONE TIME, LIFETIME LAWN SOLUTION!



Watering chores, water bills! Sweating behind a roaring mower! Spraying poison chemicals and digging weeds...



...you can end such lawn drudgery – here's how!



**SAVE
OVER
50%**

**NEW PRE-CUT
SUPER PLUGS
now available!**

Stays
lush and
green in
summer

Mow your Zoysia lawn once a month – or less! It rewards you with weed-free beauty all summer long.

7 Ways Our Amazoy™ Zoysia Lawn Saves You Time, Work and Money!

1 CUTS WATER BILLS AND MOWING BY AS MUCH AS 2/3

Would you believe a lawn could look perfect when watered just once? In Iowa, the state's biggest Men's Garden club picked a Zoysia lawn as "top lawn – nearly perfect." Yet, this lawn had been watered only once all summer to August!

In PA, Mrs. M.R. Mitter wrote, "I've never watered it, only when I put the plugs in...Last summer we had it mowed 2 times...When everybody's lawns here are brown from drought, ours stays as green as ever." *That's how Amazoy Zoysia lawns cut water bills and mowing! Now read on!*

2 NO NEED TO DIG UP OLD GRASS

Plant Amazoy *your way* in an old lawn or new ground. Set plugs into holes in the soil checkerboard style. Plugs spread to create a lush, thick lawn, driving out weeds and unwanted growth. Easy instructions included with every order.

3 ENVIRONMENTALLY FRIENDLY

No weeding means no costly chemicals. Since Amazoy Zoysia lawns naturally resist insects, you'll save money, while helping to protect the environment. You'll never have to expose your family and pets to the risk of weed killers and pesticide poisons.

4 FOR SLOPES, PLAY AREAS, BARE SPOTS AND PARTIAL SHADE

You can't beat Amazoy Zoysia as the low-cost answer for hard-to-cover spots, play-worn areas, places that have partial shade and erosion on slopes.

Meyer Zoysia Grass was perfected by the U.S. Gov't, released in cooperation with the U.S. Golf Association as a superior grass.

5 IT STAYS GREEN IN SPITE OF HEAT AND DROUGHT

"The hotter it gets, the better it grows!" Plug-in Zoysia thrives in blistering heat, yet it won't winter-kill to 30° below zero. It just goes off its green color after killing frosts, and begins regaining its green color as temperatures in the spring are consistently warm.



Thrives from partial shade to full sun.



Plant it from plugs.

6 CHOKES OUT CRABGRASS AND WEEDS ALL SUMMER

Your established Amazoy Zoysia lawn grows so thick, it simply stops crabgrass and most summer weeds from germinating!

7 NOW 3 WAYS TO START YOUR AMAZOY ZOYSIA LAWN!

1) **Freestyle plugs** come in uncut sheets containing a maximum of 150 - 1" plugs that can be planted up to 1 ft. apart. Freestyle plugs allow you to make each plug bigger and plant further apart – less cutting and planting – you decide.

2) **New Super Plugs** come pre-cut into individual 3"x3" plugs ready-to-plant (minimum 1 per 4 sq. ft.). They arrive in easy to handle trays of 15 Super Plugs. Save more time and get your new lawn even faster!

3) **Amazoy Approved Seed-As** The Zoysia Specialists for 60+ years, we finally have a Zoysia seed available that meets our standards and homeowners expectations.

Learn why at zoysiafarms.com/mag or by phone at 410-756-2311.

Your Assurance of Lawn SUCCESS Amazoy Zoysia Grass is GUARANTEED

Guaranteed to grow new green shoots within 45-60 days or we'll replace it FREE – for up to 1 year – just call us. Guarantee is valid on one order at a time, typically the most recent. We ONLY ship you hardy field grown genuine Amazoy Zoysia grass harvested direct from our farms. Easy planting and watering instructions are included with each order.

©2021 Zoysia Farm Nurseries, 3617 Old Taneytown Rd, Taneytown, MD 21787

**ORDER TODAY – GET UP TO
1000 FREESTYLE
PLUGS – FREE!**

Freestyle Plugs You decide how big to cut the plugs. Each grass sheet can produce up to 150-1 in. plugs. Plant minimum 1 plug per sq. ft.

Max Plugs	Free Plugs	Grass Sheets	Your PRICE	+ Shipping	SAVINGS
300	—	2	\$29.95	\$16.00	—
500	+100	4	\$50.00	\$18.00	25%
750	+150	6	\$66.00	\$22.00	36%
1100	+400	10	\$95.00	\$33.00	44%
2000	+1000	20	\$165.00	\$54.00	52%

Super Plugs Precut plugs 3 inches by 3 inches READY TO PLANT Packed in trays of 15 Super Plugs. Plant minimum 1 plug per 4 sq. ft.

Super Plugs	Free Plugs	Tray	Your PRICE	+ Shipping	SAVINGS
15	—	1	\$24.95	\$12.00	—
60	+15	5	\$90.00	\$24.00	35%
95	+25	8	\$110.00	\$34.00	49%
120	+30	10	\$125.00	\$40.00	53%
180	+45	15	\$180.00	\$54.00	56%

EVERYTHING YOU NEED TO START AND MAINTAIN A CAREFREE BEAUTIFUL ZOYSIA LAWN

Zoysia Farm
NURSERIES

Improving America's Lawns Since 1953
3617 Old Taneytown Rd./Taneytown, MD 21787

PLANTING TOOLS • PLANT FOOD • WEED AND PEST CONTROLS • ORGANIC PRODUCTS
SOIL TESTS • GARDEN GLOVES • EDGING AND MORE ... ALL AVAILABLE EXCLUSIVELY AT:

www.ZoysiaFarms.com/mag OR 410-756-2311

Harvested Daily from Our Farms and Shipped to You the Same Day the Plugs are Packed

Amazoy is the Trademark Registered U.S. Patent Office for our Meyer Zoysia grass.

Savings shown over aggregate base price and shipping

Promo Code
5718

Replace a cracked storm window

If your storm window frame is machine pressed at the corners, take it to a hardware store for repair. It's too much hassle to do it yourself. But storm windows with screws or friction-fit fasteners at the corners allow for easy disassembly and reassembly. You may need to order parts online; two sources are reflect-window.com and dkhardware.com. Here's how to replace a broken pane.

1 REMOVE BROKEN GLASS

If the glass is just cracked, carefully remove the storm window, frame and all. Tape the cracks so the glass stays put. If the glass is in pieces, carefully remove them, wearing leather gloves and eye protection, then vacuum the frame and window area thoroughly before removing the frame.

2 MEASURE FOR NEW GLASS

Before you disassemble the frame, measure the inside width and height. Measure the depth of the channel using a flat ruler and add that to the height and width of the frame's interior dimensions.

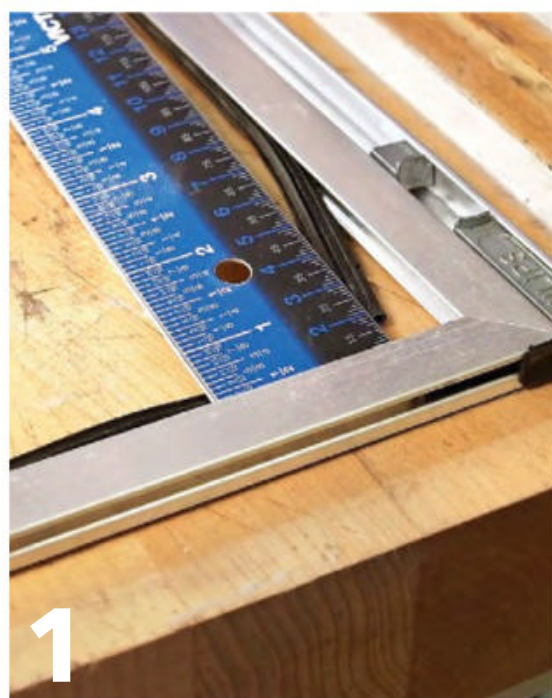
3 DISASSEMBLE THE FRAME

For friction-fit frames like this one, clamp one frame side to a work surface. Separate the frame parts using a hammer and a wood block. Remove any remaining glass and the rubber gasket, being careful not to tear it. If the gasket is in good shape, reuse it. Vacuum the work area.

4 INSTALL THE GLASS

Apply the gasket over the edge of the new glass. If it's a new gasket, make small cuts at the corners to help make the turns. Tap the side frames on first, using a rubber mallet. Align the corner keys on the frame top and bottom with the corners of the sides, and gently tap the frame pieces home.

JOE CRUZ
ASSOCIATE EDITOR



CUSTOMER FAVORITE!
LIGHTWEIGHT
JERSEY SHORTS

\$11.99
EACH
WAS ~~\$39.99~~
NOW FROM

WHEN YOU
BUY 2
USE CODE KSDJERSEY22



UP TO 9XL!

SOFT, BREATHABLE JERSEY

#1 IN COMFORT

A-B. Lightweight jersey shorts

Full elastic waistband with inside drawcord. Back button-close pocket. Cotton/polyester. Big: XL-9XL; Tall: L-6XL. Colors: as shown. Machine wash. Imported.

A. 10" Cargo. 1165-37703-394

Velcro® pockets. Big inseam approx 10"; Tall inseam

approx. 12". Also in Heather Purple.

B. 6" Basic. 1165-75362-394

Big inseam approx. 6.5"; Tall inseam approx. 8.5". Also in Heather Green.

A-B.: WAS ~~39.99~~

NOW ONLY 14.99 \$23.98 when you buy 2



*"Bought 2 pairs of these shorts for my son. Now he wants 2 more! He loves the feel, the comfort, the strong, stretchy fabric."
- Eileen B., Clovis, CA*

FREE SHIPPING

USE CODE **KSDJERSEY22** SEE DETAILS BELOW*

CALL 1.800.846.1600 OR GO TO [KINGSIZE.COM](https://www.kingsize.com) & FOLLOW THESE 2 EASY STEPS:

**1 AT THE TOP RIGHT OF THE SCREEN
CLICK THE CATALOG ICON**



2 TYPE IN ITEM NUMBERS ABOVE

(1) Item/Catalog #
1165-37703-394

KINGSIZE® THE BIG & TALL EXPERTS SIZES UP TO 9XL

*Order Online: Type in item number #1165-37703-394 or #1165-75362-394 into the search bar and add item to cart. Use code KSDJERSEY22 to receive Free Shipping. Get (1) item for \$14.99 or get (2) items for \$24.99. Additional savings will apply in increments of 2. Free standard shipping only applies to orders with item #1165-37703-394 or #1165-75362-394 in cart. Discount applies to item #1165-37703-394 or #1165-75362-394 only. By phone, 1-800-846-1600, quote offer KSDJERSEY22 with item #1165-37703-394 or #1165-75362-394. Free shipping applies to standard shipping only, not including any additional shipping surcharges. Shipping upgrades are additional. Excludes Clearance. Discount is priced as marked in checkout. Not applicable to gift cards or prior purchases. May not be redeemed for cash or combined with other offers. Returns will be credited at the discounted price. Expires 06/08/2021.



SHOULD YOU CALL A PRO TO REPLACE THIS OUTLET?

A scorched outlet can be caused by metal arcing across plug blades, overheating from a high-wattage appliance or a malfunction from a hard impact. The wiring in the wall is likely fine, but you should carefully inspect everything. Wear gloves; the charred residue can be caustic.

Before turning off the power, test the outlet in question with a three-prong tester (also test an outlet you know is good) to see if it's working. Then turn off the power and test again, to be sure there's no power at the outlet. Remove the faceplate, then the outlet, inspecting both to determine the extent of the damage. Next, inspect the connecting wires for melted insulation. Check all wiring in the box for melting or other damage as well. If the damage is limited to the outlet, just replace the outlet and the faceplate.

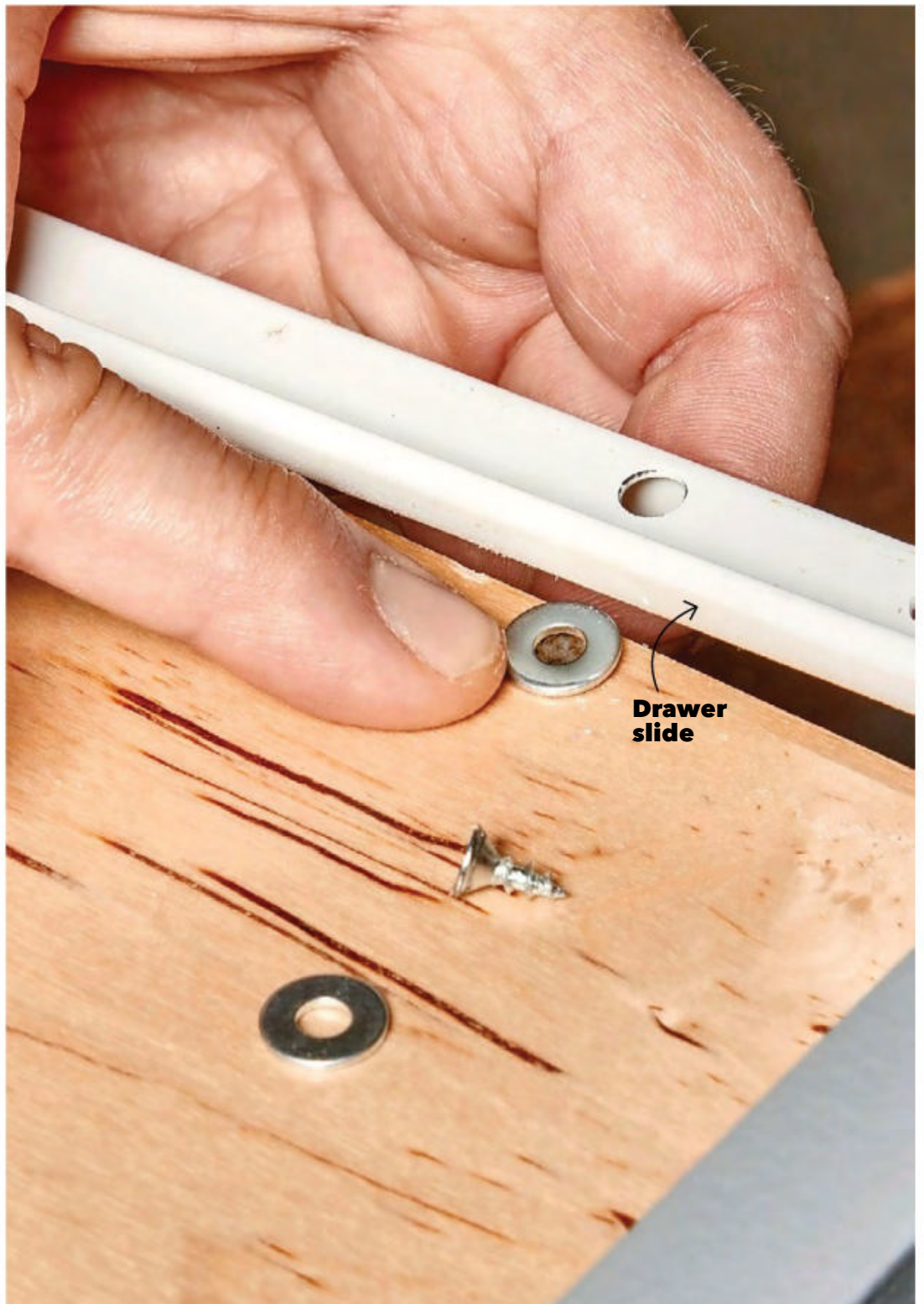
If you discover a melted tangle of wires in the box, call a pro. A good electrical contractor will ask questions about what led to the damage, to make a thorough assessment.

JOHN WILLIAMSON
STATE OF MINNESOTA
ELECTRICAL OPERATIONS SUPERVISOR

SMOOTH-GLIDING DRAWER SLIDES

Once in a while, I build a drawer that's a bit too small and the slides don't work properly. But a minor variance is easy to fix. I shim the slide with metal washers, which are hidden after installation. This works for both ball-bearing slides and roller slides.

BRAD HOLDEN, SENIOR EDITOR



CORRECTIONS

■ In our March '21 issue, p. 10, we showed a blacksmith hammering hot iron from a forge without wearing eye protection. Please don't take your eyesight for granted in your DIY endeavors. Always wear protective safety glasses or goggles when you're using striking tools, operating power tools or engaging in any activity that generates harmful airborne particles.

■ The homeLAB review of the Airthings Wave Plus air quality monitor in the March '21 issue incorrectly stated that the device detects carbon monoxide. It detects carbon dioxide, not carbon monoxide. The Airthings Wave Plus should never be relied on to monitor levels of carbon monoxide, which can be fatal when inhaled.

Introductory Price!
LOW AS
\$41.50
each



Actual size
is 40.6 mm

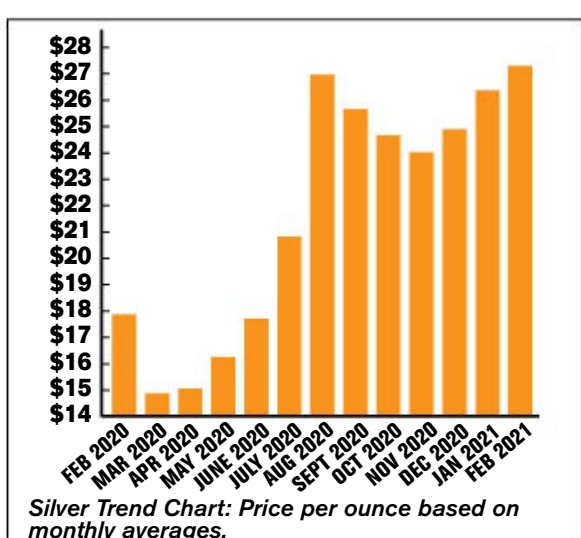
Silver Sees 8-Year High

Secure Your Freshly Struck 2021 U.S. Silver Dollars NOW!

The American Eagle Silver Dollar is the most widely secured silver bullion coin on the planet. Also known as the U.S. Silver Eagle, this legal-tender Silver Dollar contains one Troy ounce of 99.9% pure silver backed by a U.S. government guarantee. And if you've been watching the markets, you know that in the last year, silver is up, up, UP...

Silver Up 80% In Last Year

Take a look at this chart. Since the spring of 2020, silver has gone up more than 80%! And as recently as February 2021, silver has set a new eight-year high. This skyrocketing value has taken the precious metals world by storm. But what caused such a drastic increase in silver's value, and what does it mean for you?



Uncertainty Drives Demand

Since the onset of the COVID-19 pandemic in the spring of 2020, the stock market crashed, then set new records; cryptocurrencies became all the rage; and the U.S. national debt reached an all-time high.

To pay back that debt, some experts are warning that the U.S. Federal Reserve's policies may increase inflation—meaning your hard-earned dollars not go as far as they do right now. And in times of uncertainty, people often turn to precious metals to weather the storm.

Meanwhile, the U.S. Mint has also been impacted by the COVID-19 pandemic, and continues to struggle with producing enough pure, U.S. silver to satisfy demand. They've even had to strike multiple "Emergency Production" runs to keep up!

What This Means for You

Silver values are up, and silver is in high demand. In addition, many experts believe that the price of silver could continue to increase in the next 12 to 24 months. And while no one can accurately predict the future, there are two questions you should be asking yourself right now:

- 1) Do I own enough physical silver?
- 2) Which silver coins are right for me?

Government Guaranteed

Silver Eagles are guaranteed for weight and fineness by the U.S. government. They're the world's most liquid and secure one-ounce silver coins. They're also recognized around the world, making them easier to sell when the time is right. Silver Eagles are the safest way to buy silver—period.

Secure Yours NOW!

Silver has seen an eight-year high in value. Don't get left behind. Call 1-888-201-7639 and use the offer code below to secure your Brilliant Uncirculated (BU) 2021 U.S. Silver Dollars now!

2021 American Eagle Silver Dollar BU

1-4 Coins-	\$42.00 ea. + s/h
5-9 Coins-	\$41.85 ea. + FREE SHIPPING
10-19 Coins-	\$41.70 ea. + FREE SHIPPING
20+ Coins-	\$41.50 ea. + FREE SHIPPING

FREE SHIPPING on 4 or More!

Limited time only. Product total over \$149 before taxes (if any). Standard domestic shipping only. Not valid on previous purchases.

Call today toll-free for fastest service

1-888-201-7639

Offer Code LRE307-03
Please mention this code when you call.



GOVMINT.COM
THE BEST SOURCE FOR COINS WORLDWIDE

GovMint.com • 14101 Southcross Dr. W., Suite 175, Dept. LRE307-03 • Burnsville, MN 55337

GovMint.com® is a retail distributor of coin and currency issues and is not affiliated with the U.S. government. The collectible coin market is unregulated, highly speculative and involves risk. GovMint.com reserves the right to decline to consummate any sale, within its discretion, including due to pricing errors. Prices, facts, figures and populations deemed accurate as of the date of publication but may change significantly over time. All purchases are expressly conditioned upon your acceptance of GovMint.com's Terms and Conditions (www.govmint.com/terms-conditions or call 1-800-721-0320); to decline, return your purchase pursuant to GovMint.com's Return Policy. © 2021 GovMint.com. All rights reserved.

DISCOVER the GETAWAY



Join Family Handyman as we build a house from the ground up. Follow the journey and stay tuned for the big reveal in our September Issue.

Check our progress at FamilyHandyman.com/TheGetaway

Thank You to Our Sponsors:



WORK+SHOP



Free Information

Fill out + mail
the attached card
or visit

WorkShop-FreeInfo.com

Auto | 100

1. **geico.com**

You could save 15% or more.
Get a FREE rate quote today.

1.800.947.AUTO | Geico.com

2. **ROCKAUTO.COM**

Buy everything from one lug
nut to a new fender at reliably
low prices.

RockAuto.com

Kitchen + Bath | 104

3. **MirrorMate** FRAMES

Frame your bare mirror.
The DIY kit installs directly
into exsisting, wall mounted
bathroom mirror. 65 styles.

1.866.304.6283 | Mirrormate.com

4. **NEOPERL**

NEOPERL, Inc. designs and
manufactures water-saving
products that enhance the stream
quality and control the flow rate
of faucets and shower products.

Neoperl.com

5. **Johnson** Hardware Engineered Excellence

For Pocket Door Hardware
1.800.837.5664

Twitter @JohnsonHrdware.
johnsonhardware.com

Outdoors/Lawn + Garden | 105

6. **Zoysia Farm** NURSERIES

Want a great lawn? Start with a
better grass – Amazoy Zoysia Grass!

1.410.756.2311 | Zoysiafarms.com

7. **Cyclone** Rake

The Cyclone Rake leaf and lawn
vacuum will make all your DIY
lawn care dreams come true.

1.888.531.7253 | CycloneRake.com

Tools | 107

8. **HARBOR FREIGHT** QUALITY TOOLS AT RIDICULOUSLY LOW PRICES

Harbor Freight Tools is the leading
discount tool retailer in the U.S.
selling great quality tools at
“ridiculously low prices” in over
800+ stores nationwide

1.800.423.2567 | HarborFreight.com

9. **WOODCRAFT**

Shop Woodcraft Supply for quality
woodworking products — over
20,000 including brand-name
tools and hardware — at stores
nationwide, our catalog.

Woodcraft.com

10. **ZIRCON**

Finally! Real CONFIDENCE finding
wood wall studs with the Zircon®
SuperScan™ “Kx” advanced stud
finders featuring revolutionary
Target Control™ technology.

Zircon.com

11. **Grizzly** Industrial, Inc.

Grizzly Industrial, Inc. Purveyors
of Fine Machinery since 1983.

1.800.523.4777 | Grizzly.com

Miscellaneous | 108

12. **ROCKLER** WOODWORKING AND HARDWARE

Rockler Woodworking and
Hardware is the nation’s
premier supplier of specialty
hardware, tools, lumber
and other high quality DIY
and woodworking products.

Rockler.com

13. **GENERAC**

Generac Home Standby
Generators provide backup
power when you need
the most. Contact us today
to learn more.

Generac.com

**ENTER
FOR A CHANCE
TO WIN A**

\$100

**AMERICAN
EXPRESS
GIFT CARD**

**When you request any
of this free information
online or with the
card attached**

No purchase necessary to enter or win.
Sweepstakes begins 2/13/21 and closes
2/12/22. Open to residents of the U.S.,
its territories and possessions, ages 21
and over. Void where prohibited. For entry
and other details including official rules
visit WorkShop-FreeInfo.com.

Oneida Air Systems
The Industry Leader in Dust Collection

DUST DEPUTY® DELUXE

Turns any wet/dry vacuum into a cyclonic super vacuum!



- Now 20% more efficient with Neutral Vane Technology
- Pre-separates 99% of dust and debris from airstream
- Eliminates clogged filters & suction loss
- Saves time & money on expensive replacement filters & bags

Dust Deputy™
US Trademark Reg.
4599918
U.S. Pat.
6833016
RE-40048
7282074

Many styles to choose from!

DUST DEPUTY® BAGGER

Unique wall mount design for a clean and organized shop!



- All the benefits of the Dust Deputy Deluxe, plus...
- High waste capacity collection bag
- Visible fill level
- Mess-free waste disposal
- Space-saving wall mount

Vac Not Included

See a video of how it works at oneida-air.com

oneida-air.com

MADE IN THE USA SINCE 1993

waterproof.com

SEALONCE

BASEMENT SYSTEM



AFTER!
Do-it-yourself! It's Easy!
Proven Results!

SealOnce™ your basement and enjoy a permanently dry, clean basement for under \$1,000! Fast & easy installation! No digging or messy paints! Just seal the main sections to the floor along the wall. Over 50,000 homeowners have installed SealOnce Basement System!

Order Online! Fast Delivery!
Waterproof.com
651-644-2000

Over 7 million feet installed since 1965!

ATHENA PHEROMONE 10x™ INCREASES AFFECTION FROM WOMEN



Created by
Winnifred Cutler,
Ph.D. in biology from
U. of Penn, post-doc
Stanford. Co-
discovered human
pheromones in 1986

(Time 12/1/86; and
Newsweek 1/12/87)

Effective for 74% in
two 8-week studies

The Gold Standard since 1993™



Unscented
Fragrance
Additives

**ATHENA PHEROMONES™
increase your attractiveness**

Athena 10X™ For Men \$99.50

10:13™ For Women \$98.50

Cosmetics **Free U.S. Shipping**

♥ **Ken (WA)** "My wife likes me better when I wear 10X. I know the difference between men and women. I know men are simple. Switch on or off. Women, dials rheostats gauges. Much more complex. But when I wear the 10X it dials in and it is all tuned. She wants to be with me and I am a happier person."

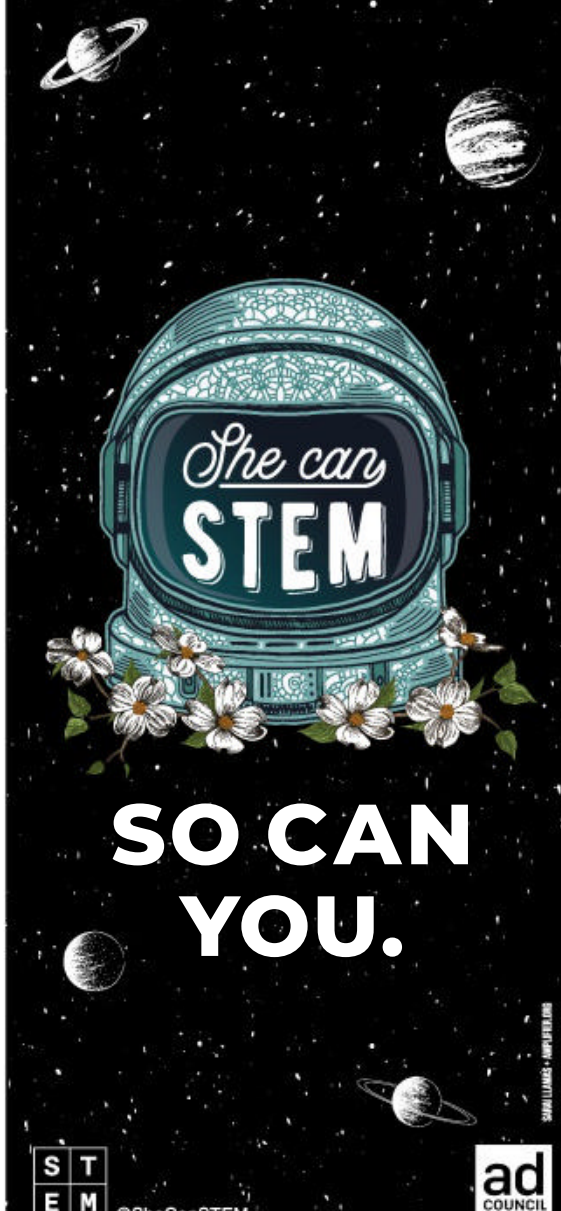
SAVE \$100: 6-Pak special

Not in stores 610-827-2200

Athenainstitute.com



Athena Institute, Braefield Rd, Chester Spgs, PA 19425 FHD



SO CAN YOU.

STEM

@SheCanSTEM

ad COUNCIL

The Ultimate Wood Heat.

26% tax credit*
on qualified models & installation

Classic Edge™
Titanium HDX Series
Outdoor Wood Furnaces

More convenience, safety and savings than any other method of wood heat.



CentralBoiler.com
or call 800-248-4681

*US Internal Revenue Code Sec. 25(D) effective Jan. 1, 2021, for heating a residence. For more details visit CentralBoiler.com. Information provided here as a convenience and may not be relied upon as substitute for professional tax advice. Consult a tax professional with any questions. ©2021 Central Boiler • ad7690

DR® Lawn & Garden Edger



Professional Edges Made EASY!

4 WHEEL DESIGN for stable & precise operation.

CURB HOP FEATURE lets you straddle a curb, with one wheel at street level, for stable, precise cuts.

PIVOTING BLADE allows for bevel cuts along garden borders (up to 15°).



GoDRpower.com

SALE! Plus **FREE SHIPPING**
Limitations apply.

FREE Catalog!
Call Toll-Free
877-560-8902



15
Snow
Guard
Models

Snow Guards For Metal Roofs

Metal
Roof
Accessory
Attachment

Attach Roof Accessories With RoofClamp

METAL
ROOF
SNOW
RETENTION



SNOBAR COLORBAR COLORRAIL

EASY
Gutter
Leaf
Protection

Available In 4, 5, 6, 7, And 8 Inch Diameters

Prevent Chimney & Vent Pipe Damage



3 Sizes Available For Most Roof Types
Standing Seam Adapter Plate Available



Toll Free: 800-766-5291
Phone: 717-737-4398

www.SNOJAX.com

Stop Dangerous Snow Slides On Metal Roofs

SnoBlox-Snojox 671 Willow Street Lemoyne, PA 17043

Custom cut Acrylic desk or table tops

Beautifully Cut Protective Acrylic Instead of Glass



Visit on web for more info:
desktoppers.com

Storm Windows – to protect your windows against weather, hurricanes, heat and cooling loss, cuts noise



We make amazing insulating and noise reduction storm window inserts that you install yourself

- Most innovative **interior** and exterior storm frames and lenses.
- Avoid expensive window replacement, easy do it yourself install.
- Direct from manufacturer, built in Chicago.

Noise & Cold Reduction



- Protect and preserve old windows from water damage and dust.
- Easy to install and remove window panels for seasonal needs.



Alpina Manufacturing
6460 W. Cortland St.
Chicago, IL 60707

stormsnaps.com
1-800-915-2828
773-202-8887



Underbed Dressers



Put Up to 24 Drawers Under Your Beds

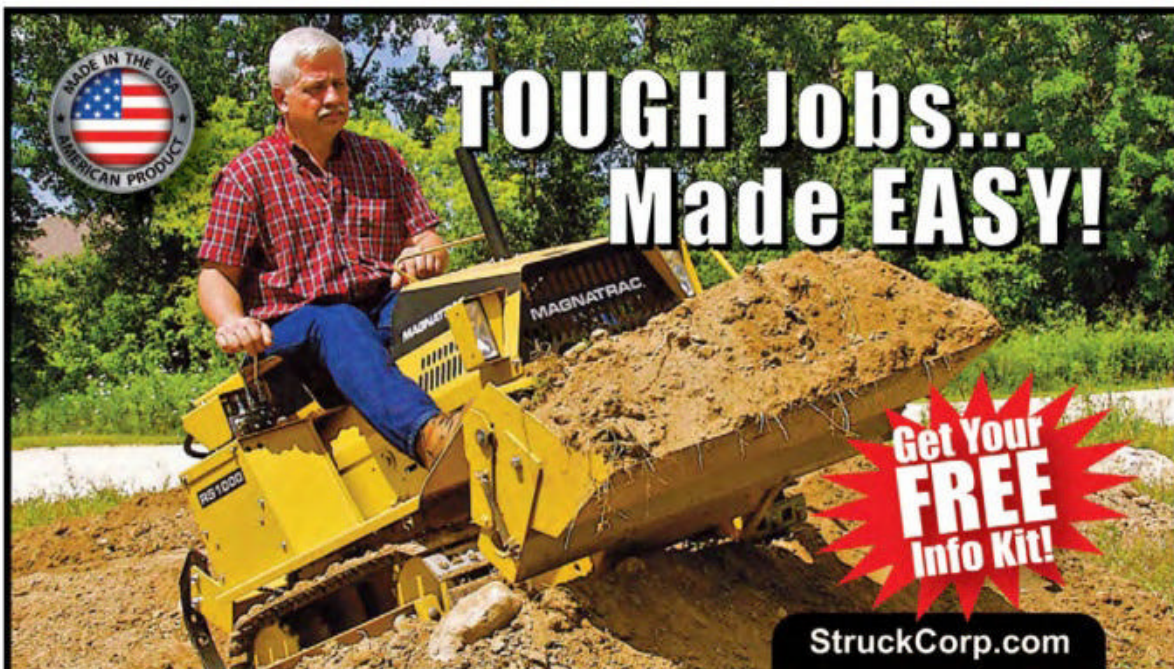
ultimatebed.com

Showcase your product or service in

Family Handyman

The #1 Trusted Source for DIY Home Improvement

Advertise today.



MADE IN THE USA
AMERICAN PRODUCT

TOUGH Jobs... Made EASY!

**Get Your
FREE
Info Kit!**

StruckCorp.com

The compact & easy to use **MAGNATRAC® RS1000**, is the perfect solution for those that need to tackle all those tough homeowner jobs! Landscape your property, plow snow, skid logs for firewood, make gardens, make food plots and trails...even dig a small pond!

- ✓ **SAVE MONEY!** Stop paying others to do jobs you could do yourself.
- ✓ **EASY TO USE!** No shifting gears, just instant power to forward and reverse.
- ✓ **MADE IN THE USA!** Quality craftsmanship, by American workers!

NEW Rubber Track Upgrade!

Gentle on
Driveways!



STRUCK
CORP.

**Get Your
FREE
Info Kit!**

1-877-828-8323
Mention Promo Code: FHM521



SHELVES THAT SLIDE

- Custom Made for Your Cabinets
- Kitchens • Pantry • Bathrooms
- Limited Lifetime Warranty
- Baltic Birch Construction
- 100 Pound Capacity

1-800-598-7390
www.shelvesthatslide.com
Order On-Line

**Custom pull out shelves
and Kitchen cabinet accessories**

Call or email for a free catalog



National Park Quarter series has **ENDED**...

COMPLETE collection – never to be minted again!

Don't miss out! The 56th and final coin has been released, so we won't be able to offer these Uncirculated Complete 56-coin sets much longer!

Plus, with this special offer, we'll pay your state's sales tax on this order!

Only \$19.95!

- **FREE** Shipping!
- **FREE** Gift: First Lincoln Cent with Union Shield

You'll also receive other fascinating selections from our Free Examination Coins-on-Approval Service, from which you may purchase any or none of the coins – return balance in 15 days – with option to cancel at any time.

Mail coupon now or for faster service, order online at
www.LittletonCoin.com/Specials

Littleton Coin Company®
Serving Collectors Since 1945

SPECIAL OFFER FOR NEW CUSTOMERS ONLY
Dept. 6CW439 ☒ **YES** Please send me the following:

QTY	DESCRIPTION	PRICE	TOTAL
1	56-Coin Quarter Set (limit 5)	\$19.95	
1	Add Custom display folders for \$2.95 each (Reg. \$3.95)	\$2.95	
1	Lincoln Cent with Union Shield		FREE!
1	Shipping		FREE!
1	Sales Tax		FREE!
	TOTAL		\$

ORDER DEADLINE: 12:00 MIDNIGHT JUNE 30, 2021

☐ Check payable to Littleton Coin Co.
Charge my: ☐ VISA ☐ MC ☐ AmEx ☐ Disc

Card #: _____ Exp. Date: ____/____/____

Name: _____

Address: _____ Apt#: _____

City: _____ State: _____ Zip: _____

E-Mail: _____

Please mail coupon to: **Dept. 6CW439**
Littleton Coin Company® 1309 Mt. Eustis Rd
Littleton NH 03561-3737

Common obverse shown actual size

ultra
SAFE
super
EFFICIENT
totally
SILENT
HEATING
for your peace of mind!



envi

WWW.EHEAT.COM
1-800-807-0107

ENERGY SAVING

heats room as little as 4 cents per hour!*

ULTRA-SAFE

leave unattended 24/7; cool to the touch

HEALTHY

fanless - doesn't blow dust or dry the air,
ideal for those who have asthma or dry eyes

SILENT

fanless design, auto dimming power light

STYLISH AND SLEEK

slim space saving design, only 2" thin!

EASY INSTALL

installs in minutes, no drill required;
hardwired & easy plug-in models available

\$25 off 2 or more Envi Heaters coupon code: FH2521 | free shipping to the USA + Canada*



WE'RE BRINGING FLEXY BACK

*The Stauer Flex gives you vintage style with a throwback price of **only \$79**.*

Just like a good wristwatch movement, fashion is cyclical. And there's a certain wristwatch trend that was huge in the 1960s and then again in the 1980s, and is ready for its third time in the spotlight. We're talking, of course, about the flexible stretch watch band.

We're rolling back the years AND the numbers by pricing the *Stauer Flex* like this, so you can put some bend in your band without making a dent in your wallet.

Stauer Flex Men's Watch ~~\$299~~

Offer Code Price **\$79** + S&P **Save \$220**

You must use the offer code to get our special price.

1-800-333-2045

Your Offer Code: FMW163-01

† Special price only for customers using the offer code versus the price on Stauer.com without your offer code.

The *Stauer Flex* combines 1960s vintage cool with 1980s boardroom style. The stainless steel flex band ensures minimal fuss and the sleek midnight blue face keeps you on track with date and day subdials.

Your satisfaction is 100% guaranteed. Experience the Stauer Flex for 30 days. If you're not convinced you got excellence for less, send it back for a refund of the item price. Flex your right to put a precision timepiece on your wrist for just \$79. Call today!

- Precision movement
- Stainless steel crown, caseback & bracelet
- Date and day windows
- Water resistant to 3 ATM
- Stretches to fit wrists up to 8 1/2"

Stauer®

14101 Southcross Drive W.,
Ste 155, Dept. FMW163-01
Burnsville, Minnesota 55337
www.stauer.com

*The Looks of a Classic Flex
Band Watch for
only \$79!*



Rating of A+

Stauer... Afford the Extraordinary.®



GOT A DIY QUESTION?

Finding answers is easy at familyhandyman.com. Just use the search box at the top of the page to get expert step-by-step help with your projects.

GOT A HANDY HINT OR TIP FOR US?

To share your idea with us, submit a copy of your original contribution, including photos and/or sketches, by email to:

submissions@familyhandyman.com

Or mail to: *Family Handyman*, 2915 Commers Drive, Suite 700, Eagan, MN 55121

Please include your name, mailing address and email address if you have one, and indicate to which department you are submitting. We reserve the right to publish your submission in any appropriate department, or elsewhere. Contributions will not be acknowledged or returned.

RIGHTS

By submitting material to us, you grant Home Service Publications, Inc., its parent company subsidiaries, affiliates, partners and licensees worldwide use of the material without time limitation, including the right to use your name and city/state/province in connection with any such use. We reserve the right to modify, reproduce and distribute your material in any medium (now or hereafter existing) and in any manner or appropriate place, including but not limited to magazines, promotional merchandise and marketing, and other related materials.

FAMILY HANDYMAN® ISSN: 0014-7230, USPS: 515-930. Vol. 71, No. 3, 610th Edition. Published 8 times per year: March, April, May, June, July/August, September, October/November, December/January/February by Home Service Publications, Inc., 1610 N. Second St., Suite 102, Milwaukee, WI 53212. We may also occasionally publish extra issues and special issues (which count as two in a subscription). Periodicals postage paid at Milwaukee, WI, and at additional mailing offices. **POSTMASTER:** Send address changes to customer@familyhandyman.com, visit familyhandyman.com/customer or write to *Family Handyman* Customer Care, PO Box 6099, Harlan, IA 51593-1599. **SUBSCRIPTIONS:** In the U.S.A., its territories and possessions, \$24 for one year (8 issues). For countries outside the U.S.A., subscriptions are \$28.97 per year in American currency. Canadian GST registration number R123771891. CPM agreement number 40065693. **Printed in the U.S.A.** Copyright ©2021 Home Service Publications, Inc. All rights reserved. Unauthorized reproduction, in any manner, is prohibited. *Family Handyman*, Handy Hints, Great Goofs and Build It. Fix It. Live It! are registered trademarks of Trusted Media Brands, Inc. Wordless Workshop, Workshop Tips and  are trademarks of Trusted Media Brands, Inc. **SUBSCRIBERS:** If the U.S. Postal Service alerts us that your magazine is undeliverable, we have no further obligation unless we receive a new address within one year. **CONSUMER INFORMATION:** *Family Handyman* may share information about you with third parties for the purpose of offering products and services that may interest you. If you would rather not receive such offers via postal mail, please write to: *Family Handyman* Customer Mailing List, PO Box 3122, Harlan, IA 51593-0188. You can also visit www.tmbi.com/preference-center to manage your preferences and opt out of receiving such offers via email. Please see our Privacy Policy at www.tmbi.com/privacy-policy

Need more *Family Handyman*? Get our best tips and hints in your inbox. Sign up at familyhandyman.com/newsletter/

By submitting material to us, you represent and warrant that you have full authority to grant the rights set forth above and that your material will not, in whole or in part, infringe the intellectual property rights, rights of privacy or publicity, or any other rights of any third party. You further represent and warrant that you have attained the legal age of majority in your state/province (18 in most states/provinces). If you're a minor under the law of your state/province, your parent or guardian must submit on your behalf.

CUSTOMER CARE

For subscriptions, renewals, gifts, payments, account info and other inquiries, email: customer@familyhandyman.com or visit: familyhandyman.com/customer

You can also write to: *Family Handyman* Customer Care, PO Box 6099, Harlan, IA 51593-1599

Single copies of past issues are available for purchase at our affiliate, Shoptasteofhome.com. The cost is the cover price (either \$3.99 or \$4.99) plus \$1 shipping and handling for each copy.

COMMENTS AND SUGGESTIONS

We welcome your ideas and opinions. Write to: The Editor, *Family Handyman*, 2915 Commers Dr., Suite 700, Eagan, MN 55121. Fax: 651-994-2250. Email: feedback@familyhandyman.com

TO REQUEST PERMISSION TO REPRINT

If you'd like permission to reprint any material that appears in *Family Handyman*, please write to us with the nature of your request. Please include as much detail as possible relating to your intended use of the material and specify the issue date and page number (or URL, as applicable) where the material originally appeared. Please send an email to permissions@tmbi.com

family handyman

EDITORIAL

- | | |
|----------------------------------|-------------------|
| Chief Content Officer | Nick Grzechowiak |
| Deputy Editor | Glenn Hansen |
| Executive Digital Editor | Amy Novak |
| Creative Director | Vern Johnson |
| Managing Editor | Donna Bierbach |
| Assigning Editor | Berit Thorkelson |
| Associate Assigning Editor | Mary Flanagan |
| Senior Editors | Brad Holden |
| | Eudie Pak |
| | Ryan Van Bibber |
| Associate Editors | Bill Bergmann |
| | Mike Berner |
| | Jay Cork |
| | Joe Cruz |
| | Alex Shoemaker |
| Assistant Editors | Mikayla Borchert |
| | Harrison Kral |
| Contributing Copy Editors | Pat Borzi |
| | Peggy Parker |
| Contributing Editors | Spike Carlsen |
| | Tom Dvorak |
| | Josh Risberg |
| Lead Carpenter | Peggy McDermott |
| Editorial Services Associate | Mariah Cates |
| Junior Art Directors | Jennifer Mahoney |
| | Andrea Sorensen |
| Graphic Designer | Tom Fenenga |
| Photographer | Jeff Breitenstein |
| Senior Video Producer | Kellen Berg |
| Video Producer | Lindsay Effertz |
| Social Media Producer | |
| Online Learning Manager | Kat Gritsenko |
| Digital Products, Senior Manager | Michelle Samlaska |

BUSINESS

- | | |
|---------------------------------|----------------------|
| EVP, Sales & Marketing | Lora Gier |
| VP, Digital Sales | Cory Rotkel |
| VP, Integrated Sales | John Dyckman |
| Eastern Advertising Director | Pete Holfelder Jr. |
| Midwest Advertising Director | Kim Krubeck Hinrichs |
| West Coast Advertising Director | Isabella Carrado |
| Business Director | Gisele Myer |
| New York, 646-518-4215 | Deirdre Curry |
| | Kari Nestor |
| | Abbe Simmons |
| | Liz Spitaleri |
| Midwest, 312-540-4824 | Monica Weiss |
| | Megan Roberts |
| | Kathy West |
| | Jennifer Izzo |
| | Nancy Forman |
| Classified & Small Display | Arisara Srisethnil |
| Ads: 203-604-1744 | Michael Moya |
| | Christine Galletta |
| | Selena Cohen |
| | Aracely Lopez |
| | Babette Lazarus |
| | Sebastian Rodriguez |
| Marketing Director | |
| Associate Marketing Director | |
| Senior Marketing Manager | |
| Advertising Coordinator | |
| Production Manager | |
| VP, Insights Lab | |
| Associate Director, Research | |

TRUSTED MEDIA BRANDS, INC.

- | | |
|--|---------------------------|
| President & Chief Executive Officer | Bonnie Kintzer |
| Chief Content Officer | Beth Tomkiw |
| Chief Administrative Officer | Dean Durbin |
| Chief Marketing Officer | Michelle Korchinski-Ogden |
| President, Digital | Vince Errico |
| Chief Technology Officer | Nick Contardo |
| Chief People Officer | Jennifer Tyrrell |
| SVP, Marketing | Ronak Patel |
| SVP, General Counsel | Mark Sirota |
| VP, Associate General Counsel/Chief Privacy Officer | Paul Gillow |
| VP, Benefits & Compensation | Heather Schwartz |
| VP, Consumer Marketing | Heather Plant |
| VP, Operations | Michael Garzone |
| VP, Consumer Marketing Planning | Jim Woods |
| Deputy Editor, Content Strategy & Editorial Management | Nicole Doster |

EDITORIAL OFFICE

2915 Commers Drive, Suite 700, Eagan, MN 55121; 651-454-9200



ADVANCED DIGITAL HEARING AID TECHNOLOGY

Now Rechargeable!

BUY 1
GET 1

FREE

Reg: ~~\$599.98~~
Only \$299⁹⁹

Each When You Buy a Pair – **LIMITED TIME ONLY!**

How can a rechargeable hearing aid that costs only \$299⁹⁹

be every bit as good as one that sells for \$2,400 or more?

The answer: Although tremendous strides have been made in Advanced Digital Hearing Aid Technology, those cost reductions have not been passed on to you. Until now...

The MDHearingAid® VOLT+ uses the same kind of Advanced Digital **RECHARGEABLE** Hearing Aid Technology incorporated into hearing aids that cost thousands more at a small fraction of the price.

Over 600,000 satisfied MDHearingAid customers agree: High-quality, digital, FDA-registered **rechargeable** hearing aids don't have to cost a fortune. The fact is, you don't need to spend thousands for a hearing aid. MDHearingAid is a medical-grade, digital, rechargeable hearing aid offering sophistication and high performance, and works right out of the box with no time-consuming "adjustment" appointments. You can contact a licensed hearing specialist conveniently online or by phone — even after your purchase at no cost. No other company provides such extensive support. Now that you know...why pay more?

MDHearingAid®

DOCTOR DESIGNED | AUDIOLOGIST TESTED | FDA REGISTERED



"I was amazed! Sounds I hadn't heard in years came back to me!"

— Don W., Sherman, TX

CHARGE AT NIGHT AND GO ALL DAY

NOW WATER RESISTANT



Charging Case

30-Hour Battery Life



Water Resistant to 3 Feet

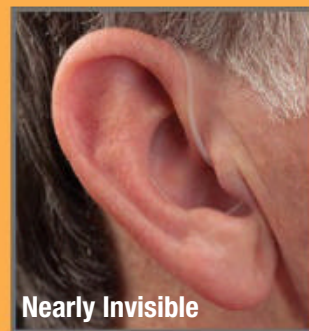
45-DAY RISK-FREE TRIAL!

If you are not completely satisfied with your MDHearingAids, return them within 45 days for a FULL REFUND!

For the Lowest Price Call

1-800-601-0957

www.MDVolt.com



Nearly Invisible

Use Code **KP16**
and get **FREE** Shipping

SHOP AT HOME!
Skip the Clinic with Remote Care

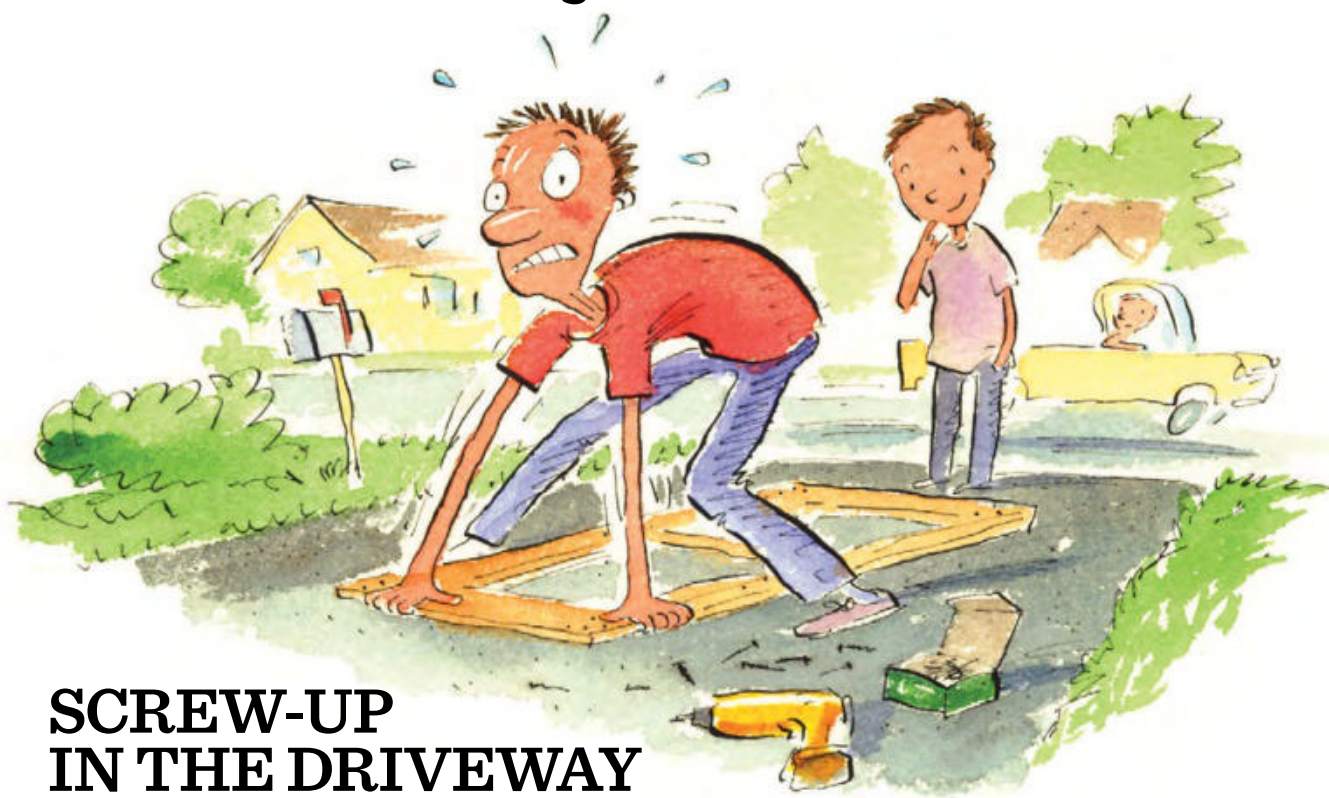


Proudly assembled in America!



Great Goofs®

Laughs and lessons from our readers



SCREW-UP IN THE DRIVEWAY

I decided my driveway was the ideal spot to lay out the pieces for the collapsible miter saw table I was building. This was such an easy project that my 10-year-old could have done it! It just required 2x4s, hinges and two lengths of screws: 1-in. screws to attach the hinges to the single 2x4, and 2-1/2-in. screws to attach two 2x4s. The assembly zipped along, and after finishing the main section of the table, I stood back to admire my work. It looked perfect. But when I bent down to lift the table off the driveway, it wouldn't budge. No matter how hard I pulled, it was stuck fast! Turns out I'd used the longer screws for the hinges, and they had bored straight down through the 2x4 and into the asphalt. I should have let my 10-year-old build it after all.

GARY LEGER

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 extract myself.

JOEY BRAMLAGE

CLOSET HANGOVER

My brother and I spent an entire weekend building a closet in the corner of my new bedroom. We measured the width of a standard coat hanger and carefully snapped a chalk line on the floor so we could get the framing just right. We paneled the closet inside and out and fit a set of beautiful new doors, with all the trim done perfectly.

Then we ceremoniously carried the first item of clothing [to hang on the meticulously placed clothes rod in our work of art. To our horror, the hanger extended into the door opening and the door wouldn't close! Our chalk line measurements were right, but we had built the door wall on the wrong side of the line!

LOUIS CARTNICK





You love one-stop shopping because it simplifies your life, and usually saves you money, right? When it comes to insurance, GEICO's your one-stop shop to help you save when you box up coverage for all your needs — like homeowners, motorcycle, boat, RV insurance, and more. Go to [geico.com](https://www.geico.com) to see how easy it is to get great savings all in one spot with GEICO.

GEICO® [geico.com](https://www.geico.com) | 1-800-947-AUTO | Local Office

Some discounts, coverages, payment plans and features are not available in all states, in all GEICO companies, or in all situations. GEICO is a registered service mark of Government Employees Insurance Company, Washington, DC 20076; a Berkshire Hathaway Inc. subsidiary. © 2021 GEICO. 21_619612318

PAINT THAT'S TOO TOUGH TO SCUFF™

WHEN IT COMES
TO SCUFFS,
YOU'RE COVERED.
INTRODUCING
BEHR ULTRA®
SCUFF DEFENSE.™



BEHR 
TODAY LET'S PAINT™

Wall color: Jojoba N390-3

Exclusively at
THE HOME DEPOT