

# 1 family handyman

BUILD IT. FIX IT. LIVE IT!®

OUTDOOR *living*  
ROOM!

37  
HOME  
HACKS  
INSIDE

\*  
EASY  
DIY  
DECK

\*  
SLEEK  
STORAGE  
BENCH

\*  
BUILD THIS  
FIREPLACE  
IN 1 DAY!

FIX  
TOILET  
LEAKS

PLUS: PROTECT YOUR FURNACE | SMART BULBS | RESTORE YOUR LAWN

MAY 2019



# ALL-NEW SILVERADO



## THE STRONGEST, MOST ADVANCED SILVERADO EVER.

What's new about the All-New Silverado? Everything. Eight different trim levels, six different powertrains and the most functional bed in its class, with more cargo volume than any competitor<sup>1</sup>. See for yourself what happens when legendary dependability meets modern capability. The All-New Silverado.

**FIND NEW ROADS™**

<sup>1</sup>Excludes other GM vehicles.





7.2L

TRAIL BOSS

CHEVROLET





# Contents

## MAY 2019

family  
**handyman**

EXPERT  
DIY ADVICE  
SINCE 1951



COVER AND TABLE OF CONTENTS PHOTOS: TINA SARGEANT

### FEATURES

**30**

#### Outdoor Living

A platform deck can go anywhere in your yard—it's easy and economical too.

**38**

#### Backyard Fireplace

Build it in a weekend, and enjoy it every weekend after that!

**44**

#### One-Day Patio Bench

You can kick back and relax on it—and stow a whole lotta stuff inside.

**52**

#### Prep for a Lush Lawn

Is your lawn a lost cause? Here's how to prep it for seed or sod.

**59**

#### Protect Your Furnace

Stay on top of filter changes to safeguard your family and your furnace.



# IN 1958, VARATHANE® SET OUT TO INSPIRE WOODWORKERS EVERYWHERE.

Since 1958, Varathane has been used by fine woodworkers and master DIYers like you. Every stain is formulated with a passionate respect for the wood, allowing you to create enduring pieces for generations to come.

We've earned the trust of woodworkers who want durable, time-saving, easy-to-use stains and coatings they can count on. And when it comes to innovation, we remain a category leader.

Trusted for over 60 years, Varathane stains and finishes are renowned for their stunning beauty and exceptional performance.

DON'T JUST FINISH IT. VARATHANE IT.

*Varathane*  
SINCE 1958



Available at







## DEPARTMENTS

### 9 Stuff We Love

A big-value 12-in. miter saw, a rotating hedge trimmer, and a premium chalk reel.

### 14 Handy Hints®

A PVC pipe for fertilizing plants, waste-free painting, and double-duty sandpaper.

### 20 Home Smarts

A convenient stand-up tool caddy, the ABCs of Airbnb, and the skinny on smart lights.

### 64 Work Wheels

Get a leg up with truck steps, remove a stubborn oil filter, and lock up your cargo.

### 70 Best Pro Tips

Even a small toilet leak can lead to big problems—here's how to fix it yourself and save.

### 82 Reader Info

Want to know how to subscribe, renew, send us a hint, and more? Check out this page.

### 84 Great Goofs®

A skinny-dip surprise; weak weed killer; and the deckless, disgruntled homeowner.

20



14



9



64



# GET THIS ANIMAL FILTHY

When we gave our 4-wheel drive K9 an ergonomic design capable of carving through the most rugged terrain without your body taking a beating, and then gave it an all-metal hydraulic dump bed\* so big that you can take a nap in it and an adjustable suspension with a cool foot of ground-clearance, we didn't expect you to stick it in a corner to preserve its prettiness. We did it so you could wake up, have some coffee, and make putting it through hell feel like heaven. Every. Single. Day.



WE DIG DIRT



\*Hydraulic dump bed is an optional feature. See dealer for details.  
© 2019 KIOTI Tractor a Division of Daedong-USA, Inc.



# MORE family handyman

facebook.com/thefamilyhandyman  
pinterest.com/family\_handyman  
youtube.com/thefamilyhandyman  
instagram.com/familyhandyman



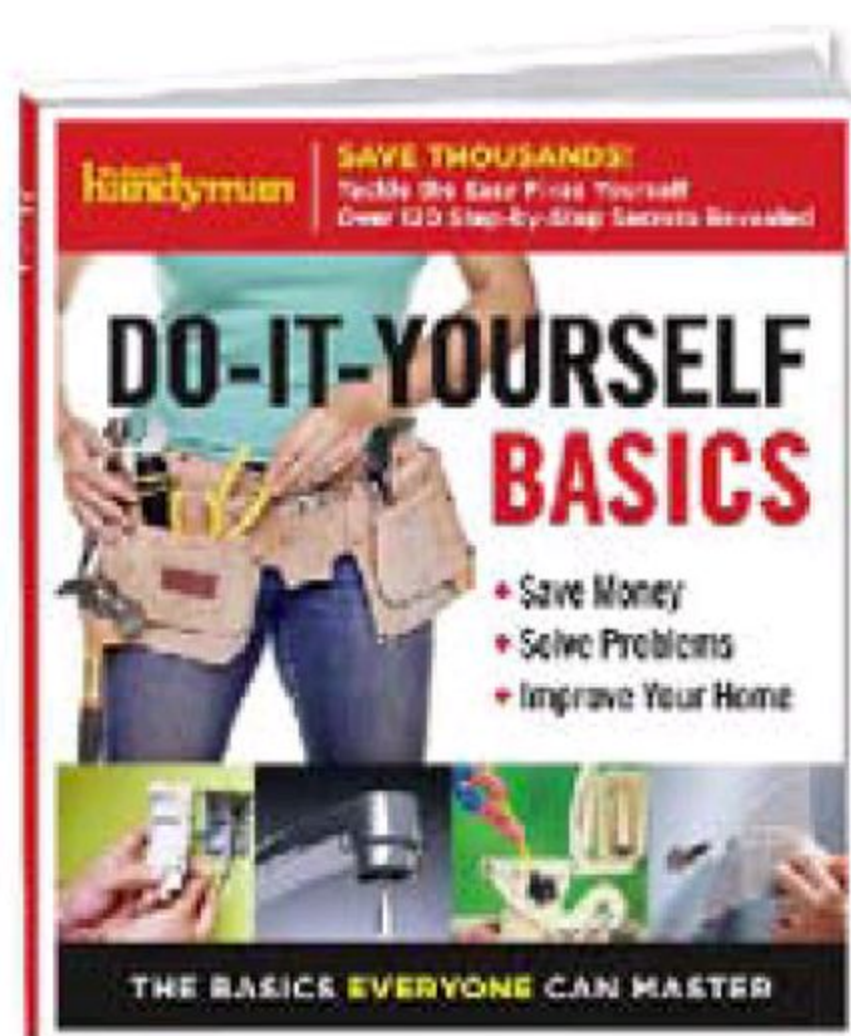
## INCREDIBLE READER PROJECTS

From jaw-dropping remodels to crazy automotive creations, check out real-life projects that are as unique and inspiring as the DIYers who built them. Go to [familyhandyman.com](http://familyhandyman.com) and search for "100 incredible projects."



## See More "Stuff We Love"

Have you signed up for the new Stuff We Love newsletter yet? Check out more of our favorite tools and gear every week! Go to [tfhmag.com/signup](http://tfhmag.com/signup).



## Don't pay a professional tons of money! Tackle home tasks yourself

In our *Do-It-Yourself Basics* book, you'll find step-by-step instructions on how to improve your home using common tools and easy-to-buy materials. Search for "do-it-yourself basics" at [rdstore.com](http://rdstore.com).

## Essential How-To Videos for Homeowners

When something in your house breaks, or if you're looking to make improvements, head over to [youtube.com/familyhandyman](http://youtube.com/familyhandyman) and check out all our helpful videos.

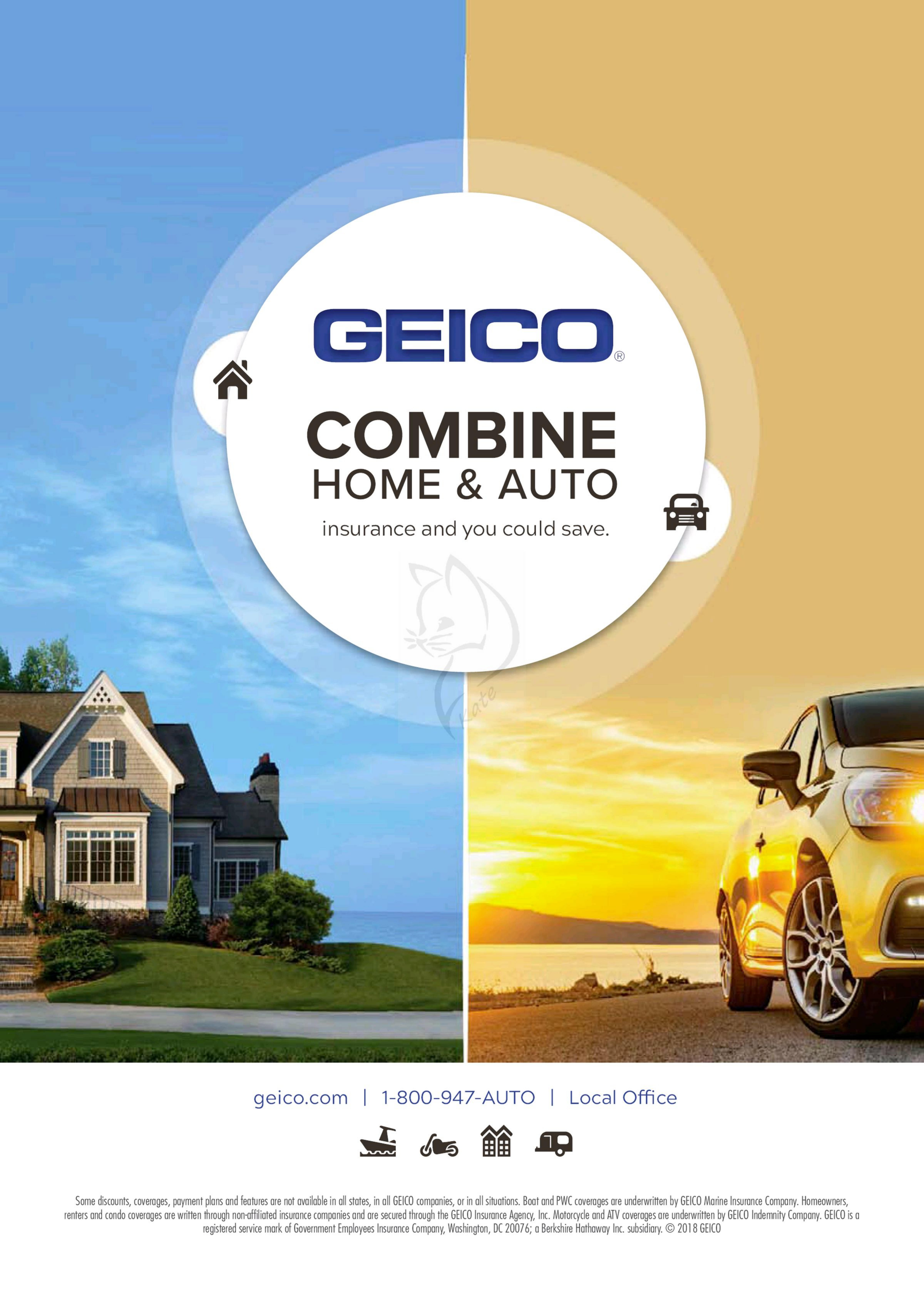


DIY QUICK CLASS  
SUBSCRIPTION

## LEARN MORE. BUILD MORE.

Calling DIYers who want to tackle it *all*! Get unlimited access to *Family Handyman's* complete library of quick DIY University online classes. This includes two exciting new projects per month—things you've been dreaming about, and projects that may not have occurred to you. Get ready to build a wall-mounted bike rack or your own workshop, add elegant kitchen storage and a tile backsplash, install a sleek USB charging station, and much more! Start your 14-day FREE Trial at [DIYUniversity.com](http://DIYUniversity.com).





**GEICO**<sup>®</sup>



# COMBINE HOME & AUTO

insurance and you could save.



[geico.com](http://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. Boat and PWC coverages are underwritten by GEICO Marine Insurance Company. Homeowners, renters and condo coverages are written through non-affiliated insurance companies and are secured through the GEICO Insurance Agency, Inc. Motorcycle and ATV coverages are underwritten by GEICO Indemnity Company. GEICO is a registered service mark of Government Employees Insurance Company, Washington, DC 20076; a Berkshire Hathaway Inc. subsidiary. © 2018 GEICO





# ***Make Money in Metal Art***



*"I designed and cut this bench from an actual butterfly photo. My machine paid for itself in 3 months making products like these."*



-Ken Garcia, PlasmaCAM® machine owner

***Call with this code **4L55J**  
for your free video & catalog  
showing lots of amazing  
projects you can cut on this  
robotic machine.***

**PO Box 19818 • Colorado City, CO 81019-0818  
(719) 676-2700 • [www.plasmacam.com](http://www.plasmacam.com)**

**Plasma  
CAM**



# Stuff We Love

Our favorite DIY tools, materials + gear. By Mike Berner

## Big value in a big saw!

Harbor Freight's Hercules 12-in. miter saw has many features in common with expensive pro-grade saws: an LED light to show the cutting line, the ability to bevel both directions, and of course, the sliding feature for wide cuts. Its bevel adjustment works smoothly and has the standard positive angle stops other saws have. The angle adjustments go from

60 degrees on the right side of the blade to 50 degrees on the left.

Dust collection is hopeless, even with a vacuum, but that's true of all miter saws. If you want a contractor-grade

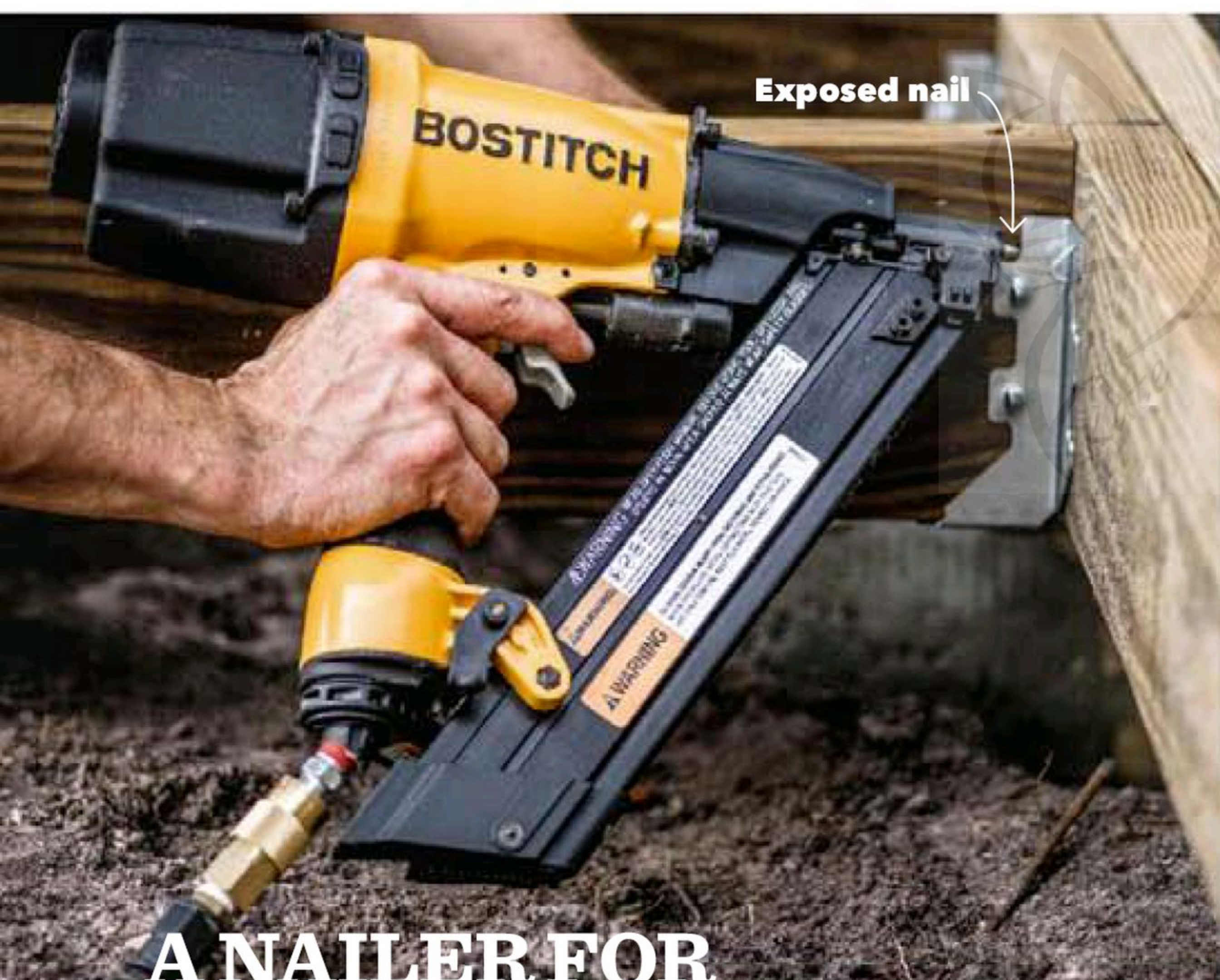
miter saw without the contractor-grade price, you'll be perfectly happy with this lower-cost alternative. It's available for \$350 at Harbor Freight stores and [harborfreight.com](http://harborfreight.com).





## ROTATING HEDGE TRIMMER

If you're still using a corded hedge trimmer, it might finally be time to leave the cord hassles behind. Many manufacturers make battery-powered hedge trimmers, but Worx has one with a unique feature: a rotating handle so you can cut vertically without contorting your torso. It takes just a few seconds to twist it the other way for horizontal trimming. This 24-in. trimmer includes two 20V batteries and a double charging station to charge both at once. Available for \$150 at [worx.com](http://worx.com).



## A NAILER FOR FRAMING CONNECTORS

If you're still nailing or screwing joist hangers, rafter hurricane clips or any other metal connectors to wood, consider investing in a metal connector nailer. One of these will save you hours of painstaking screw-driving or hand-nailing (and smashed fingers!).

The Bostitch StrapShot 250 is a great option. Its compact size lets you fire nails into spots most other connector nailers can't. With this design, you insert the actual nail tip into the connector opening and pull the trigger—a surefire system. The StrapShot 250 can fire both 1-1/2-in. and 2-1/2-in. nails, but if you only use 1-1/2-in. nails, save a few bucks and get the StrapShot 150. Find the StrapShot 250 and 150 online for \$280 and \$200, respectively.

## MOSQUITO-REPELLING INCENSE

The words "mosquito repellent" and "pleasant smell" are rarely uttered together. But Murphy's Mosquito Incense actually has a nice smell and we've found it also keeps the bugs at bay. It's plant based and free of DEET and petroleum—no worrying about breathing in harmful chemicals.

Poke a few in the ground nearby, or buy the stand to hold the sticks upright. A tube of 12 sticks is available for \$12 at Target and online.







# AMERICA'S #1

## ETHANOL TREATMENT

ENGINEERED  
FOR YEAR  
ROUND  
PROTECTION



MADE IN  
**USA**

Ready. Willing. *Sta-Bil.*

[sta-bil.com](http://sta-bil.com)





## A WET-VAC LABOR SAVER

**W**et vacuums make short work of cleaning up messes, but disposing of them can mean lugging around gallons of liquid. The Quick Connect Pump Accessory for Ridgid wet/dry vacuums lets you swap the heavy lifting for the flip of a switch.

You just attach the pump to your vacuum's drain port, hook up a garden hose to the pump, and send the contents outside or to a drain. Turn the pump on and watch it empty the vacuum. The Quick Connect Pump fits onto a standard-size drain port, but check your vacuum to make sure it will fit. If you have a wet vacuum, you need one of these! It's available for \$50 at Home Depot.



## QUICK-SETTING CA GLUE

I've made a permanent home in my toolbox and trimming apron for cyanoacrylate glue, also known as superglue. But not the thin, runny style you're probably familiar with. I prefer thick-viscosity versions, which are offered by most CA glue manufacturers. I've been using it in place of nails to create jigs for woodworking and to assemble smaller pieces of trim. The brand I keep on hand is Stick Fast. A 2.5-oz. bottle is about \$10 at Rockler.

**MIKE BERNER, ASSOCIATE EDITOR**



## A premium chalk reel

The Tajima Chalk-Rite II is the best chalk reel out there for one reason: It makes a solid line every time. Some chalk reels leave lines with gaps, which can be a problem when you're cutting along the line or using it as a reference for measurements.

The combination of Tajima's proprietary chalk and the ultra-thin line gives you consistent and accurate snapped lines every time. If you like perfect lines, put the Chalk-Rite 2 in your tool apron and your old one on the shelf. It's available for \$30 online.





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



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

THE ONE TIME, LIFETIME LAWN SOLUTION!



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

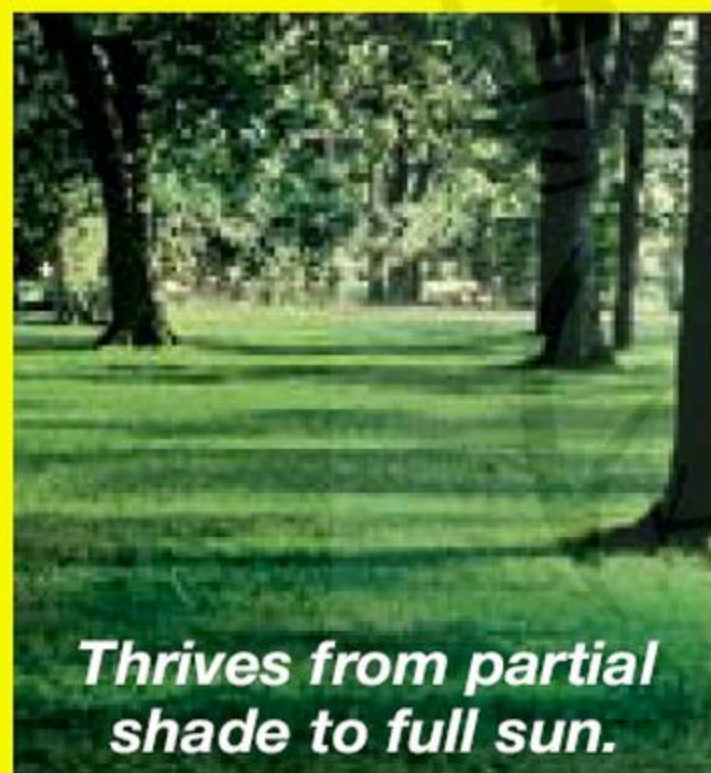
No weeding means no costly chemicals. Since Amazoy Zoysia lawns naturally resist insects, you'll save money, while helping to protect the environment. You'll never have to expose your family and pets to the risk of weed killers and pesticide poisons.

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

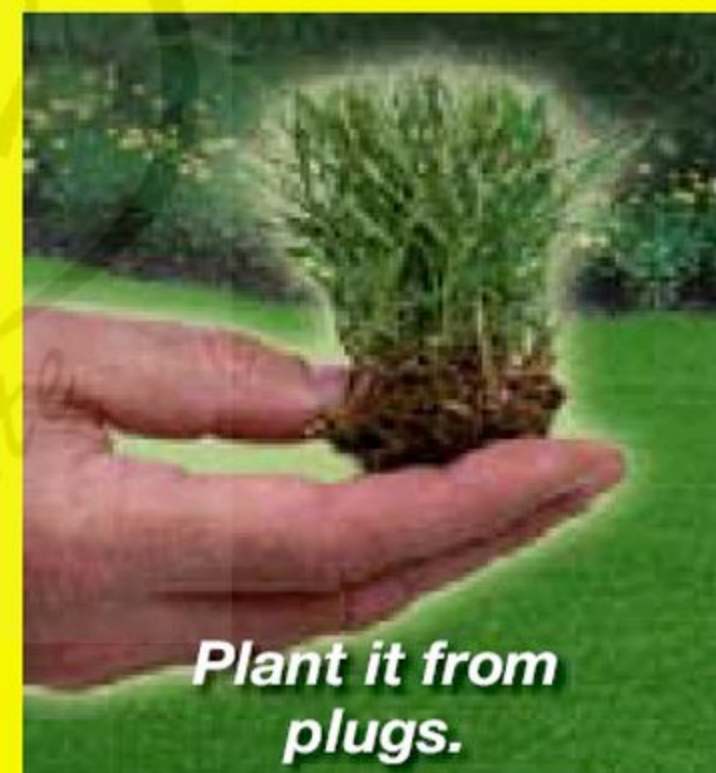
You can't beat Amazoy Zoysia as the low-cost answer for hard-to-cover spots, play-worn areas, places that have partial shade and erosion on slopes.

## 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 precut 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](http://zoysiafarms.com/mag) or by phone at 410-756-2311.

### Your Assurance of Lawn SUCCESS Each Order for Amazoy Zoysia 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. We ONLY ship you living genuine Amazoy Zoysia grass harvested direct from our farms. Easy planting and watering instructions are included with each order. Every Reorder assumes success of previous orders (plantings), voiding any previous guarantees, but initiating a **new** one-year guarantee.

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

Dept. 5350

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

©2019 Zoysia Farm Nurseries, 3617 Old Taneytown Rd, Taneytown, MD 21787

Plugs only shipped to Continental USA & not to WA or OR.

| 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    | \$14.50    | —       |
| 500                                                                                                                                       | +100       | 4             | \$50.00    | \$16.00    | 25%     |
| 750                                                                                                                                       | +150       | 6             | \$66.00    | \$19.50    | 36%     |
| 1100                                                                                                                                      | +400       | 10            | \$95.00    | \$30.00    | 43%     |
| 2000                                                                                                                                      | +1000      | 20            | \$165.00   | \$45.00    | 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 | Trays | Your PRICE | + Shipping | SAVINGS |
| 15                                                                                                                                  | —          | 1     | \$24.95    | \$8.50     | —       |
| 60                                                                                                                                  | +15        | 5     | \$90.00    | \$20.00    | 34%     |
| 95                                                                                                                                  | +25        | 8     | \$110.00   | \$30.00    | 47%     |
| 120                                                                                                                                 | +30        | 10    | \$125.00   | \$35.00    | 50%     |
| 180                                                                                                                                 | +45        | 15    | \$180.00   | \$50.00    | 54%     |

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

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](http://www.ZoysiaFarms.com/mag) or 410-756-2311

ZOYSIA FARM NURSERIES, 3617 OLD TANEYTOWN ROAD TANEYTOWN MD 21787

AMAZOY IS THE TRADEMARK REGISTERED U.S. PATENT OFFICE for our Meyer Zoysia grass.

We ship all orders the same day the plugs are packed and at the earliest planting time in your state.



# Handy Hints®

Clever solutions from our readers

SHARE  
YOUR  
HANDY HINT  
WITH US!

submissions@  
familyhandyman.com



## Fertilizing Dense Plants

To get fertilizer to the base of bushes and other dense plants, use a length of 2-in. PVC. Slide one end down to the plant base and pour the fertilizer into the pipe. Cut the top of the pipe at 45 degrees to give yourself a larger opening for pouring in the fertilizer.

**GORDON R. WATSON**



## WASTE-FREE PAINTING

I have several rental properties that are always in need of repainting. Instead of throwing out leftover paint, I put it to use. I gather all my partial cans of interior latex—any color or sheen—and dump them into a 5-gallon bucket. Next, I mix the paint with a power-driven paint mixer to get a uniform color. It usually turns out off-white with an eggshell sheen. If the color is too dark, I lighten it by adding a can of white paint. Then I pour the paint into another 5-gallon bucket through a strainer bag. I lift out the strainer bag to remove any debris and pop on a lid to keep the paint fresh.

**TOM DVORAK**



## HOLE-SAW DEPTH MARKER

The best way to avoid tear-out with a hole saw is to drill halfway through the wood and flip it over to complete the hole. But how do you know when you've cut halfway? I mark my saw with a line that's slightly more than halfway. With 3/4-in. stock, mark the saw at just past 3/8 in. Use a pencil so you can easily wipe off the line and mark a different depth as needed. This tip also makes it easier to remove the plug; more of it extends past the saw teeth so you can grab it to pull it free.

**CHRISTOPHER JAMES**



## BOBBY PIN NAIL HOLDER

When you're hammering small nails or nails in tight quarters, keep your fingers out of the line of fire with a bobby pin. It will grip even the smallest nails.

**ED BARROS**





## PLANER STAND

It's not easy to plane long boards without an assistant, so I mounted my planer to a piece of plywood and bolted the plywood to a miter saw stand. The stand is equipped with adjustable supports that help me infeed and outfeed long boards when I'm working alone.

**TERRY BLANCHARD**



## 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.



### CLEANS FASTER ▼

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



**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!

**LIMITED-TIME, FACTORY-DIRECT OFFER!**

**GET THE COMPLETE SYSTEM**

with **FREE** Cleaning Tools & **FREE** Shipping!

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



**GENERAC™**



\*Built in the USA using domestic and foreign parts

Order Today  
TOLL FREE **800-761-1854**  
**GeneracSpeedWash.com**

19DAX © 2019



## DOUBLE-DUTY SANDPAPER

For some jobs, a single sheet of sandpaper is too flimsy; the paper backing wears out before the grit. My solution is to glue two pieces back to back with spray adhesive. Sometimes I use two different grits for versatility.

**BRAD HOLDEN**





Window screen

## SHOP VACUUM PRESCREEN

I use my shop vacuum for many woodworking chores, including dust collection from every power tool that features a dust port. But the filter quickly plugs with coarse dust from the table saw and finer dust from sanding. I solved part of the problem by placing window screen over the filter. Now the coarse particles are filtered out and stay at the bottom of the tank, and the filter doesn't plug as fast.

**BILL WELLS**



## TOILET BRUSH FRESHENER

To keep your toilet brush as fresh as possible, put a splash of pine-scented cleaner in the bottom of the brush holder. This will disinfect the brush and keep your bathroom smelling clean.

**BRI AITCHISON**

EST 1928

# WOODCRAFT®

QUALITY WOODWORKING TOOLS • SUPPLIES • ADVICE®  
Over 75 Stores Nationwide – Stop In And Visit With Us!

**Build Your Garden Bench With *Woodcraft Magazine Classic*® Project Plans**

Our shop-friendly plans make building outdoor furniture easy and enjoyable!

Garden Bench project photo from *Woodcraft Magazine*, Vol. 5/No. 28, April/May

For A Free Catalog Or To Find Your Local Woodcraft Store, Visit [woodcraft.com](http://woodcraft.com) Or Call 800-225-1153. For Technical Support Call 800-535-4486. Follow Us: [f](#) [t](#) [p](#) [i](#) 19WH05R

## OH YES WE DID...

### E6000 IS NOW ODOR FREE!

ACCEPT. NO. SUBSTITUTES.

**BEST 1-2 PUNCH ON EARTH!**

**E6000 plus**  
CRYSTAL CLEAR  
NO ODOR  
MULTI-SURFACE ALL-WEATHER ADHESIVE

© Eclectic Products LLC 2019  
[eclecticproducts.com](http://eclecticproducts.com)



# Home Smarts

MAINTENANCE & REPAIR | HEALTH | MONEY | TECH | STORAGE & ORGANIZATION

## Installing Deck Footings

**Q.** I'm replacing my old deck with a new one, complete with new footings and posts. One corner of my old deck would move up several inches in the spring, then move back down as the weather warmed, but it never quite settled to the previous level. What causes this weird seasonal levitation, and can I prevent it when I build my new deck?

**PHILLIP MORGAN**  
HAYWARD, WISCONSIN

**A.** Your deck has a bad case of frost heave. In the winter, the ground freezes from the top of the soil downward. The depth of frost penetration depends on the soil type, the severity of the winter, the amount of water in the soil and the depth of an insulating blanket of snow.

Frost depth varies by region. In Minnesota, the frost depth is 42 in., whereas a warmer state like Missouri may have a frost depth of only 1 ft. When you contact the local building department to get your building permit, ask what the frost depth requirement is and the required size and shape of the footings. Then dig the footing holes so that the bottoms of the footings are at or below the frost depth.

The mechanics of frost heave are complex, but here's a quick primer. Water in the surrounding soil collects and freezes into thin

Share your  
fixes, heads-ups  
or DIY advice  
with us!

.....  
[submissions@  
familyhandyman.com](mailto:submissions@familyhandyman.com)

Cardboard  
form tube

Flared sides

**FOOTINGS  
THAT WON'T  
HEAVE**

**FROST DEPTH**





layers of frost called “ice lenses.” When water freezes, it expands about 9 percent—think of how ice cubes are domed above the original water level in an ice cube tray. Ice exerts a pressure of about 50,000 lbs. per sq. in.—enough force to lift even a large building. A puny little deck on inadequate footings doesn’t stand a chance.

The reason buildings and decks don’t always return to their original height is that surrounding dirt sometimes fills in under the footing while it’s lifted. Heavy clay soils don’t drain well, so they tend to have more frost heave problems than sandy, well-drained ones. But even if footings are deep enough, ice lenses can latch onto the rough surfaces of wood and concrete and lift footings and posts from the side. That’s why concrete piers poured in waxed cardboard tubes and smooth wooden posts work well for below-grade support.

## Here’s how to get a solid, frost-proof footing:

When you pour concrete footings, hold the cardboard concrete form tube about 12 in. up from the bottom of the footing. Do this by nailing the sides of the tube to the center of a tic-tac-toe grid of 2x4s at the top of the hole. Then dump concrete through the tube into the bottom of the hole. After the wide part at the bottom of the hole has filled, the tube will fill too.

■ Flare the sides on concrete footings so the footings will resist heave in harsh winters when frost penetrates especially deep.

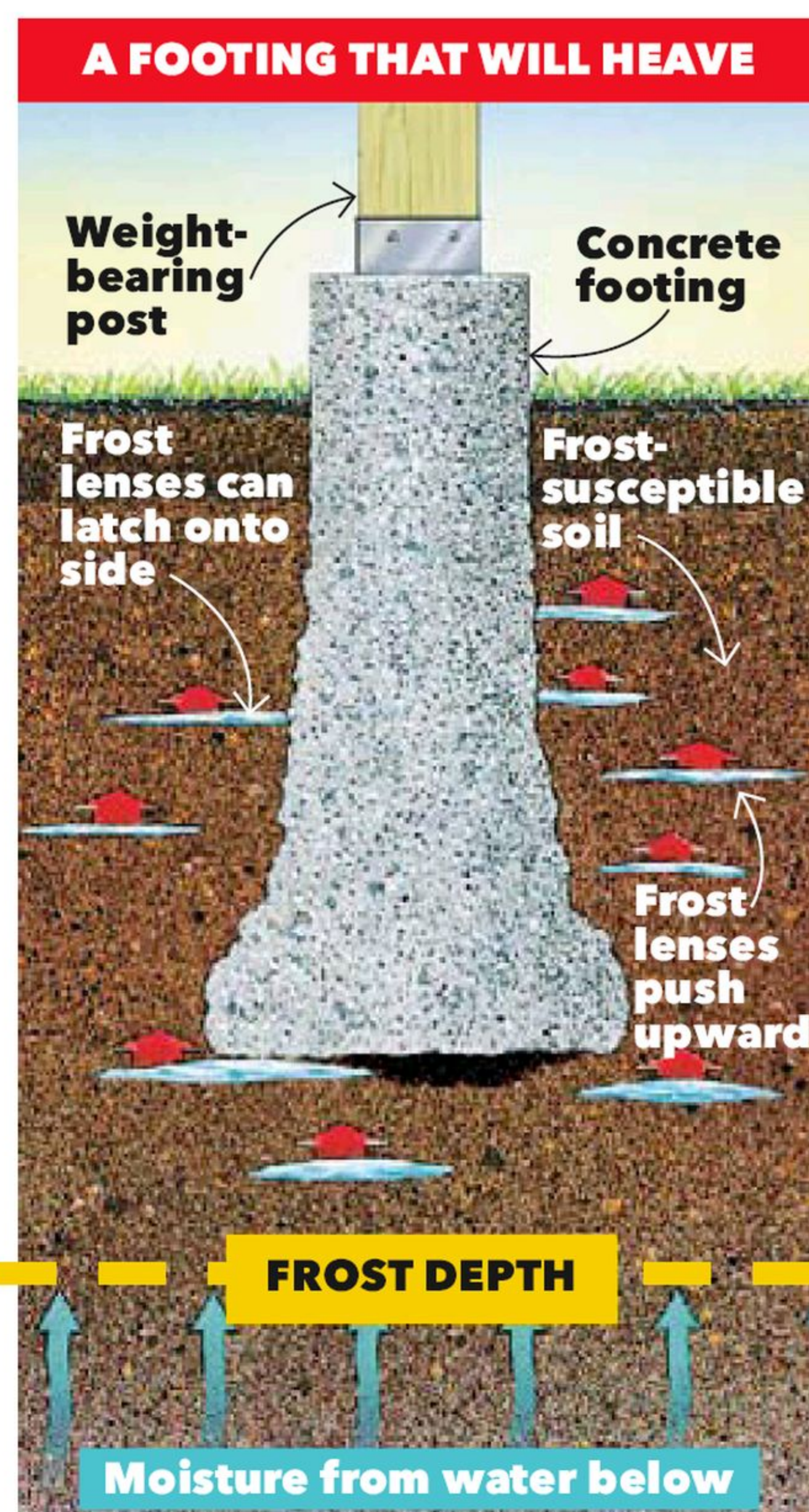
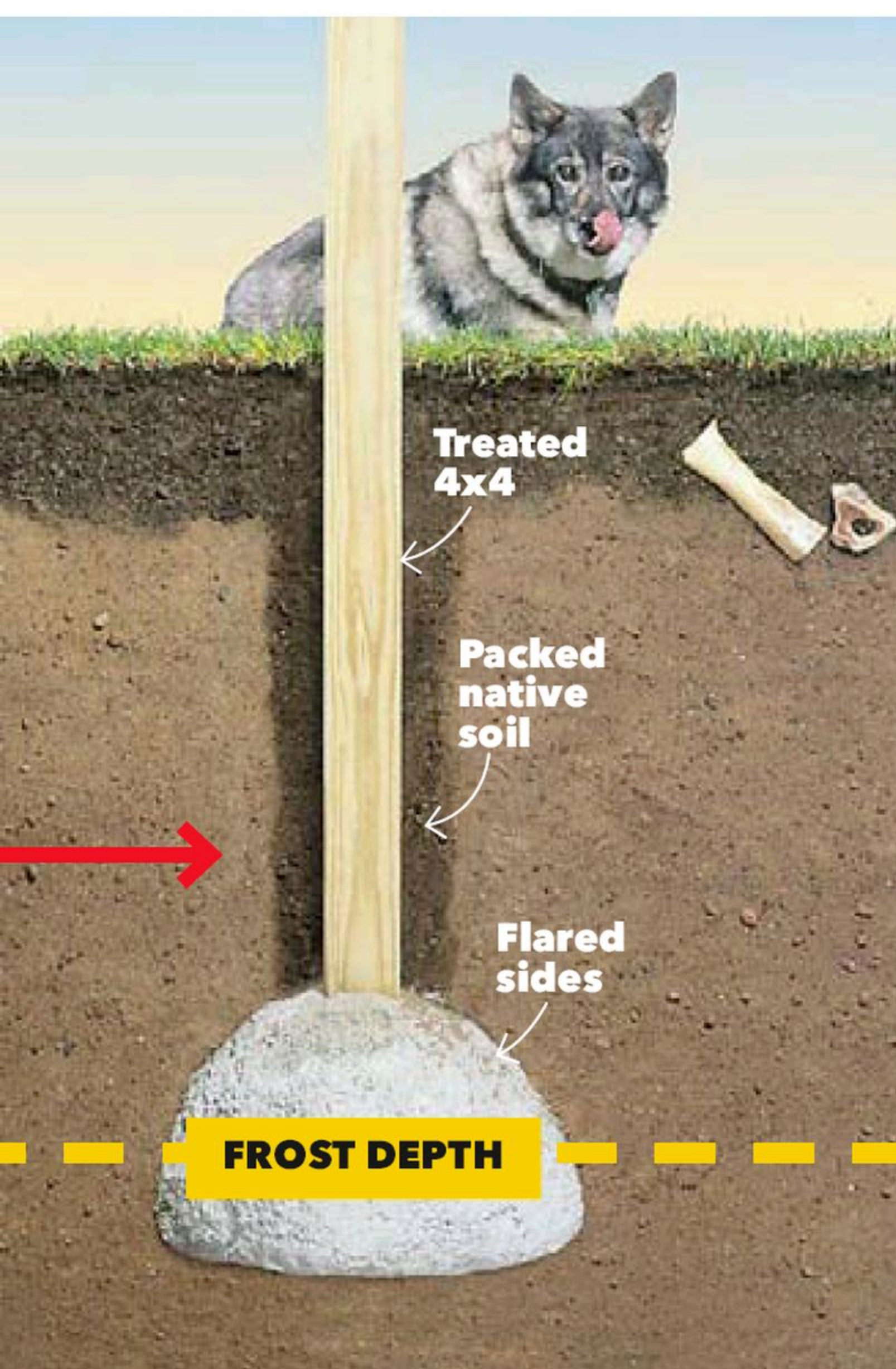
Greater width at the bottom will also distribute weight over a larger area.

■ To direct runoff water away from the posts, mound soil around the posts after the backfill settles.

### A CONCRETE POSTSCRIPT:

If you’re pouring more than a few footings, order premixed concrete from a ready-mix company. You’d be shocked at how many bags of concrete mix you’d have to mix by hand to fill a form tube. There’s typically a chart on the tube indicating how many bags you need. If you want to do the job on your own schedule, rent a portable concrete mixer, or just buy one and sell it when you’re done. You can buy a serviceable mixer for as little as \$200.

**TRAVIS LARSON**  
SENIOR EDITOR



## TIPS FOR DIGGING A HOLE



### CARVE OUT A SOIL DIVOT WITH A SPADE

Carve out a round plug to outline the posthole. That’ll get you started in exactly the right spot. Throw the dirt onto a tarp to protect your lawn.



### LOOSEN EARTH WITH A TILE SHOVEL

Unless you have very soft soil, you’ll work way too hard digging with just a clamshell digger. Loosen the soil and carve away at the sides with a tile spade. It’ll easily slice through small roots.



### USE A RECIP SAW ON LARGE ROOTS

Don’t kill yourself chiseling out roots. Just use a recip saw with a long, coarse blade and poke it right into the soil and cut off the roots.





## A VARIETY OF VOLTAGE

**T**erms like "110-volt circuit," "120-volt outlet," "220-volt motor" and "240-volt oven" can be confusing. That's partly because voltage standards have changed over time. In the early days of electricity, 110/220 was the standard voltage supplied to homes. In the 1930s, that changed to 115/230, and as of 1984, it is 120/240. Adding to the confusion, switches and outlets are commonly labeled "125" or "250." That's because actual voltage fluctuates by plus or minus 5 percent, so fixtures need to be able to handle slightly more than 120/240.

**The bottom line:** Don't worry about it—110, 115 and 120 are all the same thing. The same goes for 220, 230 and 240.

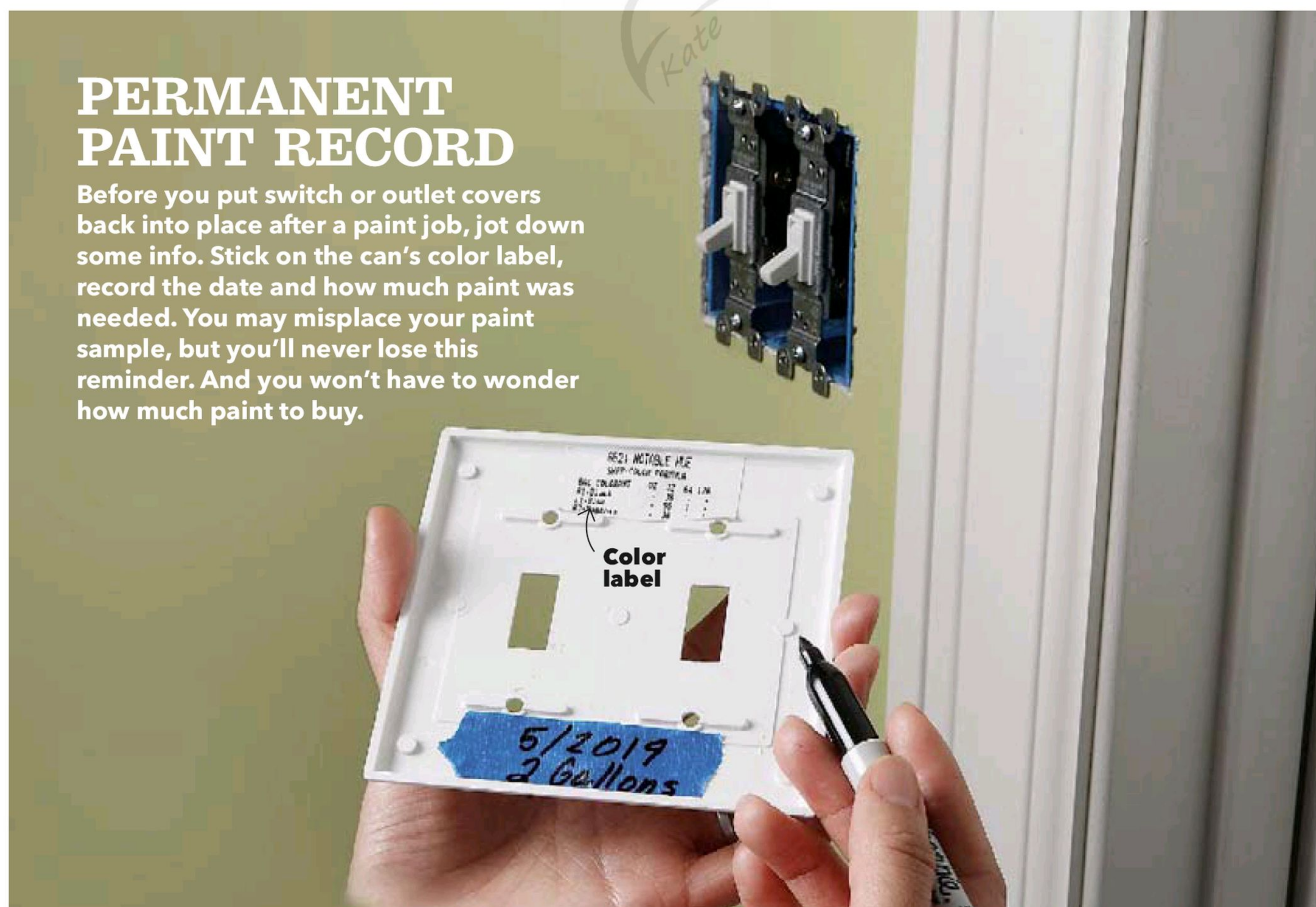


## Meet in the middle

When you have a long caulk bead to run and can't get it done in one pass, don't start again where you left off. It's hard to continue a bead without creating a glob. Instead, start at the other end and meet in the middle.

## PERMANENT PAINT RECORD

Before you put switch or outlet covers back into place after a paint job, jot down some info. Stick on the can's color label, record the date and how much paint was needed. You may misplace your paint sample, but you'll never lose this reminder. And you won't have to wonder how much paint to buy.





# Turning your home into cash with Airbnb

**J**oining the Airbnb revolution could help you generate revenue from a spare room, or from an apartment or house you don't use much. "It's been a great experience and very worthwhile," says Sandra Shillington, a California-based Airbnb host since 2013 and the author of the hosting guidebook, *Airbnb Toolbox*. But is hosting right for you?

## Pro: The money (of course!)

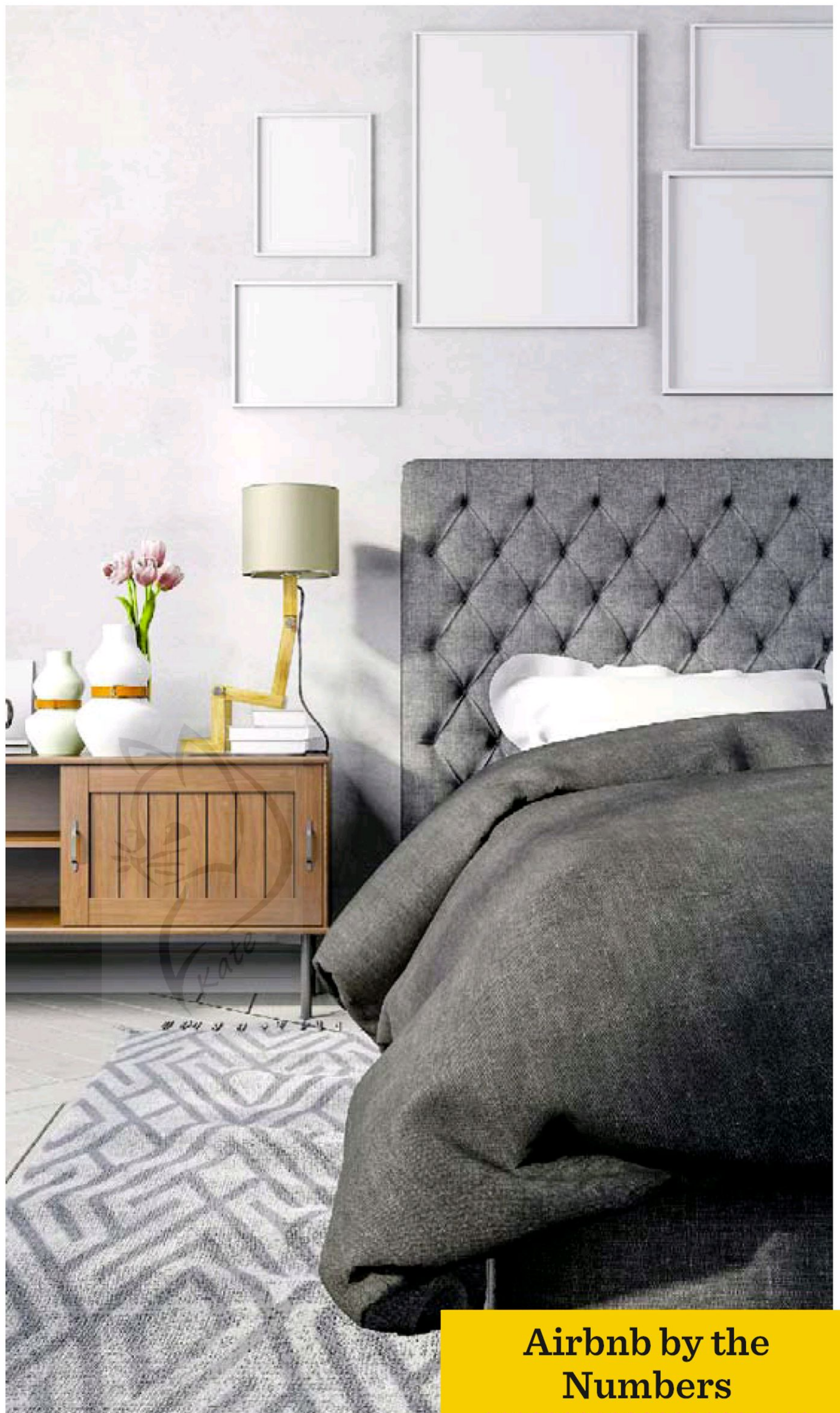
While earnings vary based on size and type of space, city and neighborhood, and frequency of rentals, hosting can yield more than you might receive from even a full-time renter, Shillington says.

But keep in mind: Paying guests expect their experience "to be relatively problem-free," she says. You need to be organized, efficient and available. When the washing machine you promised breaks down, "you have to make sure someone's there to fix it." As with any business, there's also some paperwork—though that gets easier with experience, she adds.

## Pro: The people

"You meet lots of interesting people from all over the world," Shillington says. "There's a sense of community that Airbnb has built its platform around." Expect fun conversations and the pleasure of introducing guests to your city or region.

But keep in mind: If privacy is a priority or you don't like interacting with strangers, you may want to pass. "You're in the people business," she says. Also, while the overwhelming majority of guests are respectful of your property, "inconsiderate" guests are a possibility. Airbnb, however, does insure your rental against damage by guests, and before renting to someone, you can read reviews given by other hosts.



## Tip for success

While the physical space is crucial, don't neglect your online presence. Respond quickly to queries from prospective guests and encourage reviews from those who've stayed there. Being fully engaged online may help give your property a more prominent position on the Airbnb site, Shillington says.

**CHARLIE SLACK**  
ASSOCIATE EDITOR

## Airbnb by the Numbers

**Airbnb Users**  
151 million

**Countries with Listings**  
191

**Cities with Listings**  
65,000

**Listings Worldwide**  
4 million

**Stays Per Night**  
500,000



# The Dirt on Dust Masks

**M**uch DIY work produces dust and/or fumes. It's essential to protect your lungs from both; there's no amount of dust or vapor that's good for your lungs. And the harm is cumulative. The more work you do without protection, the more damage you're doing. So if you're producing dust or using finishes or solvents, use the proper mask.

## Certified Filter Ratings

A mask's certification denotes its filtering efficiency and what it's capable of filtering. There are three letter ratings—N, R and P—pertaining to a mask's effectiveness at removing airborne oils or vapors found in solvents and finishes.

**N = Not resistant to oils**

**R = Somewhat resistant to oils**

**P = Strongly resistant to oils**

The number following the letter indicates the percentage of particles that the mask is capable of filtering out. An N95-rated mask, for example, filters out 95 percent of airborne particles, but it offers no protection against airborne oil-based particles found in solvents and finishes.

## Bargain Masks

Don't buy a mask with a rating of less than N95 or one that shows no rating at all. These cheap masks may keep you from inhaling insects or small birds, but they offer no protection against airborne particles.

## The Bottom Line

Consider the level of protection you need for the job and choose your mask accordingly. If you're just doing dusty work, such as sanding wood or drywall, a disposable N95 mask is a fine choice. If you're working with paint, finishes, adhesives, mold or lead paint removal, go for a reusable cloth or cartridge mask with activated charcoal as part of the filter. A note of caution: If you have a beard, no mask will perform as advertised.



### STANDARD DISPOSABLE MASK

If you're sanding wood, drywall or doing some demolition work, this disposable mask will serve the purpose. They're about \$2 each. Make sure the ones you buy have a rating of at least N95.



### DISPOSABLE MASK WITH EXHALATION VALVE

This one covers the same types of dust as the standard disposable mask. But if you'll be wearing your mask all day or doing physically demanding work, spring for a mask with an exhalation valve (\$3 each). The valve makes breathing a lot easier. It's well worth the extra cost.



### REUSABLE DUST MASK WITH REPLACEABLE FILTERS

If you're doing lots of work that requires a mask, consider a reusable mask. These reusable fabric masks are far more comfortable than the disposable type. This model M2 mask from RZ has an N99 rating and costs about \$35.



### REUSABLE CARTRIDGE FILTER MASK

These are the most versatile masks. The replaceable filters are available for different things: HEPA for dust, or a chemical filter for VOCs (volatile organic compounds). If you're applying finishes or working with solvents, get a mask with replaceable activated charcoal cartridge filters. A cartridge filter mask costs about \$30. This mask has a P100 rating.





## INTRODUCING OUR ALL-NEW **DIY** QUICK CLASS SUBSCRIPTION

Get access to our complete library of DIY University quick classes—including two new projects per month! Get the skills to replace or fix a broken toilet, build a workshop, add elegant kitchen storage, and so much more.



### **START FREE**

No risk. Unlock access to expert DIY and home improvement classes today.



### **CREATED BY THE EXPERTS**

Get 64 years of DIY experience from experts and instructors at Family Handyman.



### **24/7 ACCESS**

Access your classes anytime, anywhere—with a computer, tablet or smartphone.

Expert Advice, Unlimited Quick Classes, Start Your 14-Day **FREE** trial now! >>

**DIYUniversity.com**



# The Skinny on Smart Lights

**S**mart lights let you control a bulb remotely via an app on your phone, through a smart speaker or even by talking to them. You can program when the lights go on and off, change a bulb's color as well as find your own creative uses (more on this later). Here are a few things to consider when choosing which smart lights are right for you. You can add a smart light to any light fixture or lamp. It really is as easy as changing a lightbulb: Unscrew the old one; screw in the new.

## Hub vs. Hubless

Some smart lights require a hub, which is a device that plugs into your router. A hub like the one shown connects other lightbulbs, allowing you to interact with them from your mobile device and/or smart speaker.

So, how do you know which lights are compatible with hubs? When you're shopping for lights, look for the words "Zigbee" and "Z-Wave." These are names for the protocols/languages that smart devices use to communicate. Leaders in the hub market are Samsung SmartThings, Wink and Amazon Echo. Prices range from \$50 to \$200. Z-Wave and Zigbee protocols are both capable of creating mesh networks (which allow signals to hop from device to device, extending range) and can operate over a significantly longer range than Wi-Fi.

Hubless bulbs don't require any extra hardware or devices. They're cheaper than a bulb with a hub. These bulbs connect via your Wi-Fi or Bluetooth. Wi-Fi bulbs are more reliable and don't require a user to be within Bluetooth range (approximately 30 ft.) to control the light. Wi-Fi smart lights require no additional hardware; they use your existing router to connect to the internet. If you're interested in dipping your toe into the smart light



### MY FAVORITES:

#### HUBLESS

**A. Kasa Smart Wi-Fi LED Lightbulb, \$20**

#### Multicolor

**B. LIFX Multicolor Smart Wi-Fi LED Lightbulb, \$50**

#### HUB REQUIRED

#### White

**C. Sengled Smart LED Lightbulb, \$10 (hub not included)**

#### Multicolor

**D. Philips Hue Starter Kit, \$100 (includes hub and two bulbs)**



market, a couple Wi-Fi bulbs may be the best way to go.

## White vs. Color-Changing

Some people may be happy with just the ability to dim or turn lights on or off from their phone, while others may want more. Color-changing lights can be used like typical lightbulbs—to set the mood during a romantic dinner or even as a notification system (see below).

## Make Smart Lights Smarter

■ Want to know if you'll need an umbrella today? Tell the smart light located by the front door to turn

blue at a certain time if rain is in the forecast.

■ Do you sometimes miss important emails? Program a smart light at your desk to blink red if you get an email from your boss.

■ Want your lights to turn on automatically when you arrive home? Configure them to turn on when you first connect to your home Wi-Fi.

■ Want to get into the team spirit with some mood lighting? Tell your lights to change to the color of your favorite sports team when a new game starts.

■ Want to know when the price of one of your stocks rises? Make your lights turn green when you're making money.

■ Want to be the first to know of a zombie outbreak? Set up your light to flash when the CDC sends out an alert about a deadly virus.

All these and more are possible by pairing your color-changing smart lights with a free third-party service called IFTTT (ifttt.com). The sky's the limit for what you can make your smart lights do for you; all you need is a little imagination.

**CASSIDY NELEMANS**  
CONTRIBUTING EDITOR





# ATV

## ATTACHMENTS H.Q.

Your Headquarters for Every  
Tow-Behind Tool for Your ATV!

✓ FACTORY-DIRECT PRICES!

✓ FREE SHIPPING!\*

✓ 6-MONTH HOME TRIAL!

✓ EASY FINANCING!



**SAVE**  
UP TO **\$700**

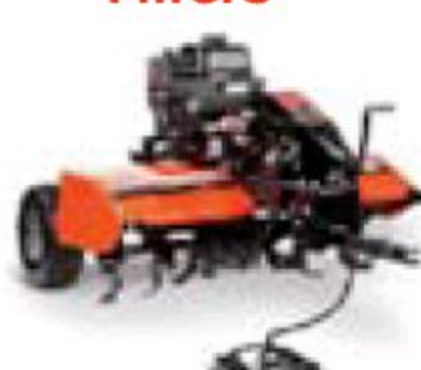
- Trailers
- Harrows
- Cultivators
- Backhoe
- Graders
- Mowers
- Tillers
- ... and More!

Check out the DR®  
Tow-Behind Field  
and Brush Mowers!

Trimmers



Tillers



Harrows



Graders



Get the MOST out of your ATV with hard-working  
attachments from DR Power Equipment!

**DRpower.com/ATV**

\*Some limitations apply.  
Go Online for details.

19DATX © 2019

## WEATHER IS UNPREDICTABLE

### DRYLOK® IS GUARANTEED

Our legendary waterproofers  
are guaranteed to stop water  
on exterior and interior surfaces.



**10**  
YEAR  
WARRANTY



RESISTS 98 MPH  
WIND-DRIVEN RAIN



**15**  
YEAR  
WARRANTY



RESISTS 140 MPH  
WIND-DRIVEN RAIN



**7**  
YEAR WARRANTY

**UGL** UNITED  
GILSONITE  
LABORATORIES

Visit [UGL.COM](http://UGL.COM) for inspirational photos,  
how-to videos and brochures

### Installs easily

Each 5-ft section comes with 3 brackets  
& 6 screws. Do entire home in 3  
or 4 hours.

### Prevents Erosion

Runoff is changed to a 3 foot wide band  
of soft rain-sized droplets.

### Self-Cleans

Unique louver design allows leaves and  
debris to blow or wash away. Self-cleaning  
system protects you from climbing ladders.

### Maintenance-Free

All-aluminum Rainhandler louvers make  
messy, leaking gutters history.

### Protects Property

Eliminates clogged, overflowing gutters &  
downspouts. No ground erosion, No more  
destructive ice dams.

### Guarantees

Money-back satisfaction guaranteed  
for one full year, 25-year warranty.

For FREE information call or fax  
Ph: 800-942-3004, Fax: 800-606-2028

SPECIAL OFFER! **30% OFF**

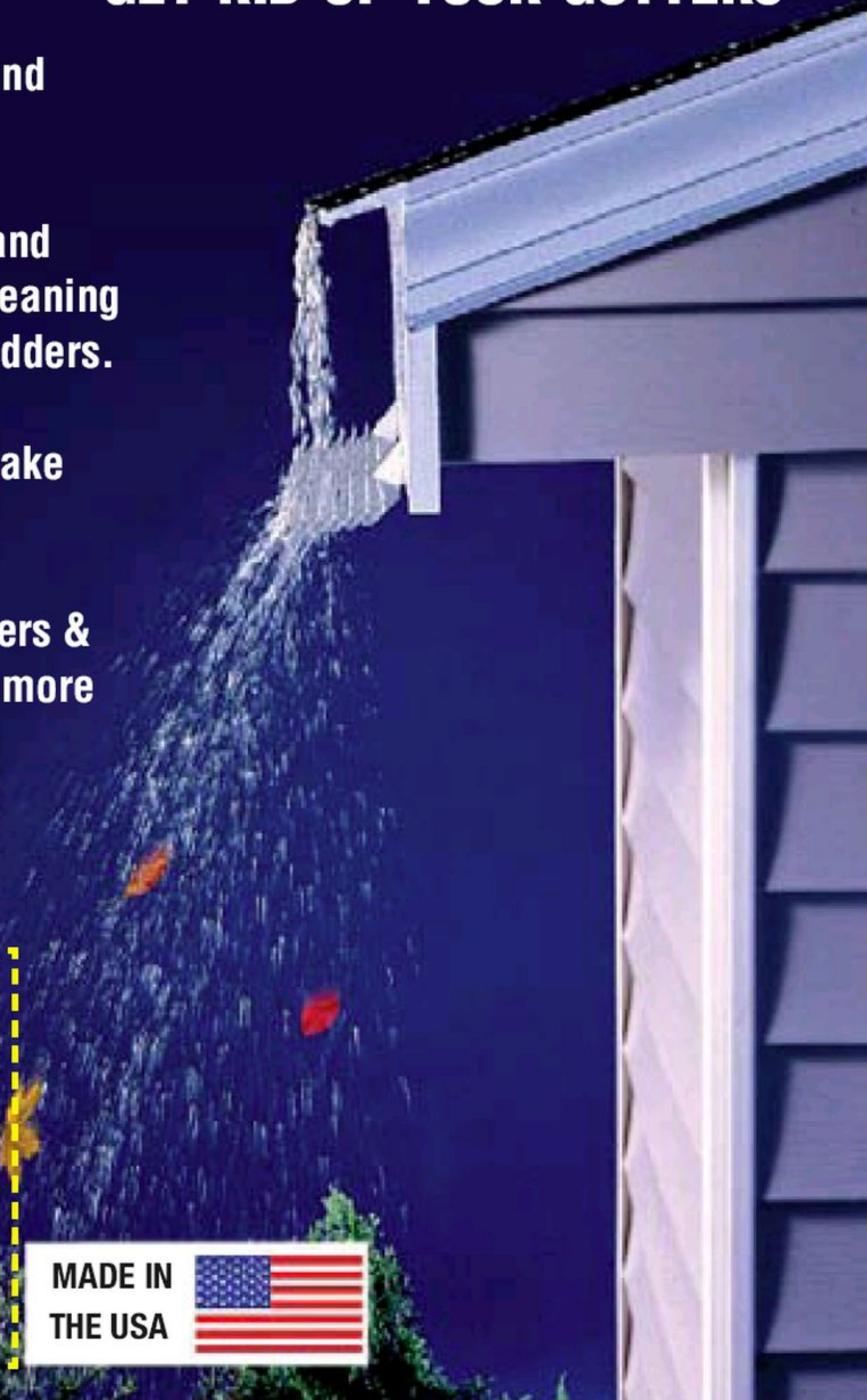
Mention Code **FH0519**

when you call or enter online at checkout

**[www.rainhandler.com](http://www.rainhandler.com)**

OFFER EXPIRES **05/31/2019**

**RAINHANDLER**  
**USE RAINHANDLER**  
**GET RID OF YOUR GUTTERS**



MADE IN  
THE USA





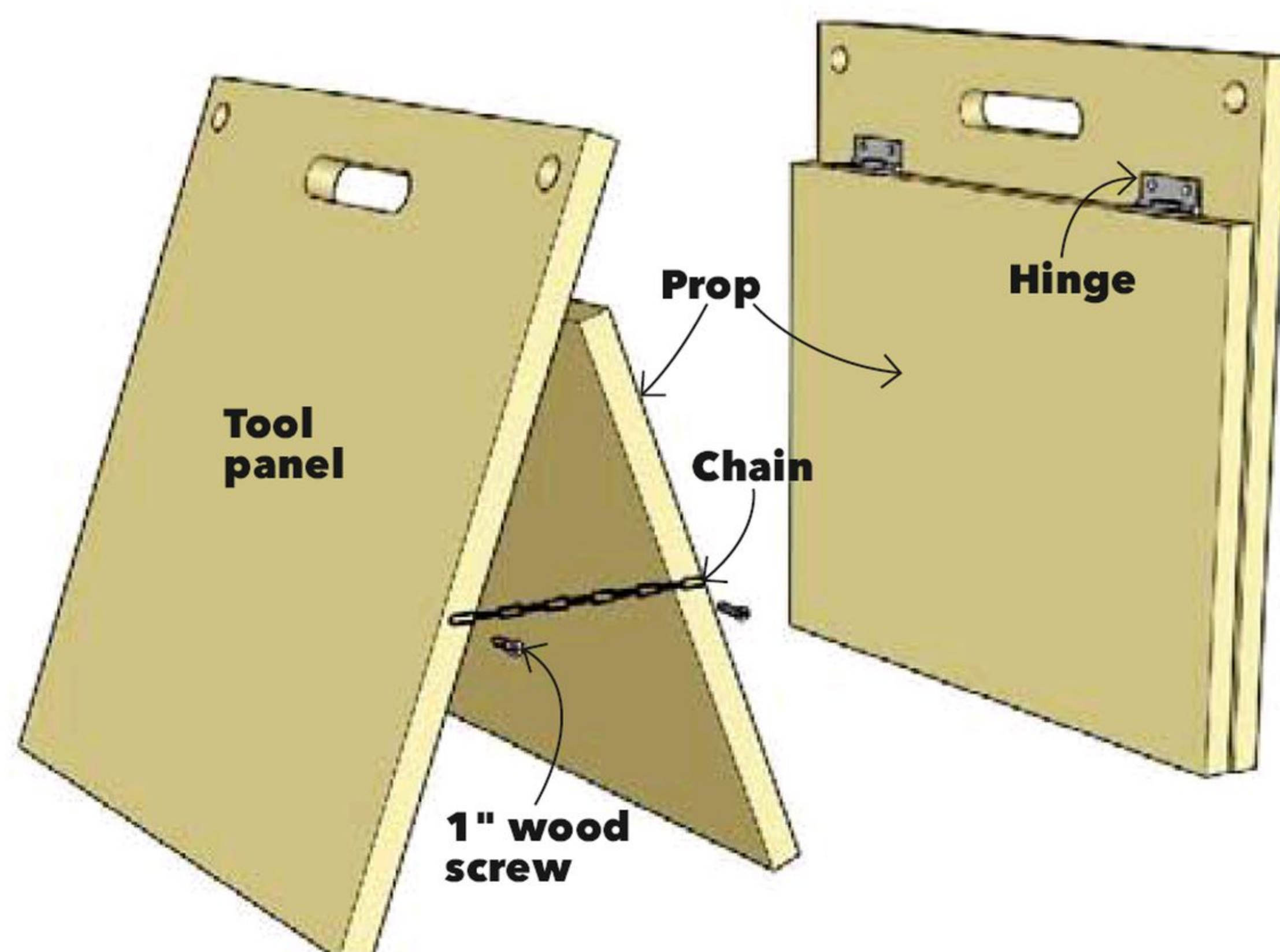
# Stand-Up Tool Caddy

**W**hen you need to carry your tools to the task at hand, you could use a toolbox. But unlike a toolbox, this slick tool caddy puts all your necessary tools in plain sight. With a little imagination, it can be configured to hold whatever tools or fasteners you like. The caddy stands up on its own when in use and hangs flat on the wall between projects.



- A generous handle makes carrying easy. Drill a starter hole and then cut out the rest with a jigsaw.
- You can make them any size you'd like, but 18 x 18 in. holds lots of stuff and is a nice carrying size.
- Hanger holes are centered 16 in. apart, so you can hang the caddies on lag screws driven into studs.
- You can install whatever tool-holding system suits your needs.
- Cut PVC at an angle so you have space to drive the mounting screws.
- Two-inch butt hinges connect the prop to the tool panel.
- The chain stabilizes the open caddy.

**BRAD HOLDEN**  
ASSOCIATE EDITOR





# NORTH AMERICA'S #1 Selling Walk-In Tub

NEW PRODUCT

Featuring our *New Exclusive Shower Package*

**Now** you can finally have all of the soothing benefits of a relaxing warm bath, or enjoy a convenient refreshing shower while seated or standing. Introducing Safe Step Walk-In Tub's exclusive **NEW Shower Package!**

- ✓ First and only walk-in tub available with a customizable shower
- ✓ Fixed rainfall shower head is adjustable for your height and pivots to offer a seated shower option
- ✓ Durable frameless tempered glass enclosure available
- ✓ High-quality tub complete with a comprehensive lifetime warranty on the entire tub
- ✓ Top-of-the-line installation and service, all included at one low, affordable price

***Now you can have the best of both worlds—there isn't a better, more affordable walk-in tub!***

Call today and receive a  
**FREE SHOWER PACKAGE!**

FOR A LIMITED TIME ONLY  
Call Toll-Free 1-800-467-6204

**SAFE STEP**  
WALK-IN TUB  
[www.BuySafeStep.com](http://www.BuySafeStep.com)

With purchase of a new Safe Step Walk-In Tub.  
Not applicable with any previous walk-in tub purchase.  
Offer available while supplies last. No cash value.  
Must present offer at time of purchase.



For your **FREE** information kit and  
our **Senior Discounts**, Call Today Toll-Free

**1-800-467-6204**

FINANCING  
AVAILABLE  
WITH APPROVED  
CREDIT











# Outdoor LIVING

BY MIKE BERNER

## A PLATFORM DECK IS THE EASIEST WAY TO ADD SPACE

If you want to expand your outdoor living space, a platform deck might be your best option. Since it's not connected to a house, it can go anywhere in your yard and doesn't require deep footings. Because it rises just inches above

ground, it doesn't need stairs or railings. All together, these factors make it a cost-cutting, labor-saving alternative to standard decks and patios. It's simple, too. If you have a little building experience, you can do it in a weekend!





**MIKE BERNER** IS AN EDITOR AT **FAMILY HANDYMAN**, A CARPENTER AND A WOODWORKER.

**JAKE AND JENNA** PROVIDED THE BACKYARD, HARD WORK AND WARM HOSPITALITY FOR THIS PROJECT.

## FROM BARREN SPACE TO FAVORITE PLACE

**F**our years ago, Jenna and Jake bought a small house and got busy turning it into a home. So far, they've built a garage and a chicken coop from the ground up and fixed up the front porch after Hurricane Irma toppled a tree onto the house.

Like a lot of homeowners, they wanted more living space, but weren't ready to build an addition. The solution was in a neglected corner of their backyard—the perfect spot for an outdoor living room based on a simple platform deck. I hopped a plane to Florida to help them build it. Three days later we were sitting on this finished deck, happily complaining about our sore muscles.

*Mike Berner*

## Start with a plan

You can follow our plan (see p. 37) or create your own. Here are some things to keep in mind:

■ A platform deck can be any shape, but basic rectangles are easiest. The fireplace notch in the corner of our deck made the whole structure a bit more complicated.

■ Your deck can be any size. But if you're using 2x6 framing material as we did, place footings no more than 5 ft. 11 in. apart, and limit joist length to no more than 6 ft. 8 in.

■ This deck is "picture framed" (see **Photo 11**). The frame hides the cut ends of the decking but also adds some labor, such as miter cuts and blocking to support the decking. A simpler approach is to raise the fascia so it covers the ends of the decking.

■ The decking makes up most of the cost. The total materials bill for this deck was about \$5,000. We chose Fiberon's Horizon decking ([fiberondecking.com](http://fiberondecking.com)) because it's super tough, beautiful and will stay beautiful with just occasional cleaning. Inexpensive options such as pressure-treated decking could cut the total cost in half, but they will require refinishing every few years.

## A simplified layout method

The standard way to position deck footings involves a maze of stakes and strings, endless measurements and lots of head-scratching. Instead, Jake and I assembled the perimeter (or "rim") of the deck, squared and braced it (**Photo 1**). Then we used it as a template to mark the footing locations (**Photo 2**). No strings, no guessing, and we had everything laid out and ready for digging in less than an hour.

Then we moved the (heavy!) rim aside and got to work digging the footing holes (**Photo 3**). I was anticipating lots of roots in the sandy Florida soil, but the digging was easy. We made sure the holes were deep enough to hide our footings and wide enough for us to be able to shift them to catch the frame when we moved it back into place.



**BACKYARD: BEFORE**



#### INNER RIM DIMENSIONS

A = 179"

B = 134"

C = 176"

D = 111-3/4"

E = 155-3/4"

F = 67"

G = 21-3/4"



**1 BUILD AND SQUARE THE RIM**  
Assemble the rim joists, which form the perimeter of the deck, and add the beam. Take diagonal measurements to square the rim, then brace it with 2x4s. We added an extra 2x4 to act as a handle for moving the rim later.

## Easy, adjustable footings

You may be able to buy precast footings, but we were unable to find any in the area. Being DIYers, we made our own by pouring concrete into 12 x 12-in. cardboard boxes (\$2 at home centers). Later, we drilled holes in the concrete to accept the adjustable post bases (**Photo 4**).

Once it's in place, the post base is adjustable with the turn of a nut. This allows you to speed through setting the footings instead of leveling them all. Before setting the rim onto the post bases, we lined up the brackets and made sure the beam and opposite rim joist were parallel (**Photo 5**). We moved the rim back into place and shifted the blocks to fit the frame into the post bases (**Photo 6**).



**2 MARK THE FOOTING LOCATIONS**  
Position the rim and then mark for the footing holes with spray paint. We placed footings about 5 ft. apart and positioned them so they wouldn't interfere with joist installation later.



**3 DIG THE FOOTING HOLES**  
Make the holes about 10 in. deep and a couple inches oversized so you can adjust the location of the footing. Add 2 in. of gravel and set the footing in the hole.





**4 INSERT THE POST BASES**  
Place the post bases in the hole in the footings. Start with bases adjusted to their lowest height. Later, you'll turn the nut to raise or lower the bracket.



**5 LINE UP THE FOOTINGS**  
Pick out straight boards to line up the brackets. Make sure the footings form straight lines and that the rows of footings are parallel to one another.



**6 SET THE RIM ONTO THE FOOTINGS**  
With a few strong helpers, move the rim back into place. Lift the frame and move the footings so the framing falls into the brackets.





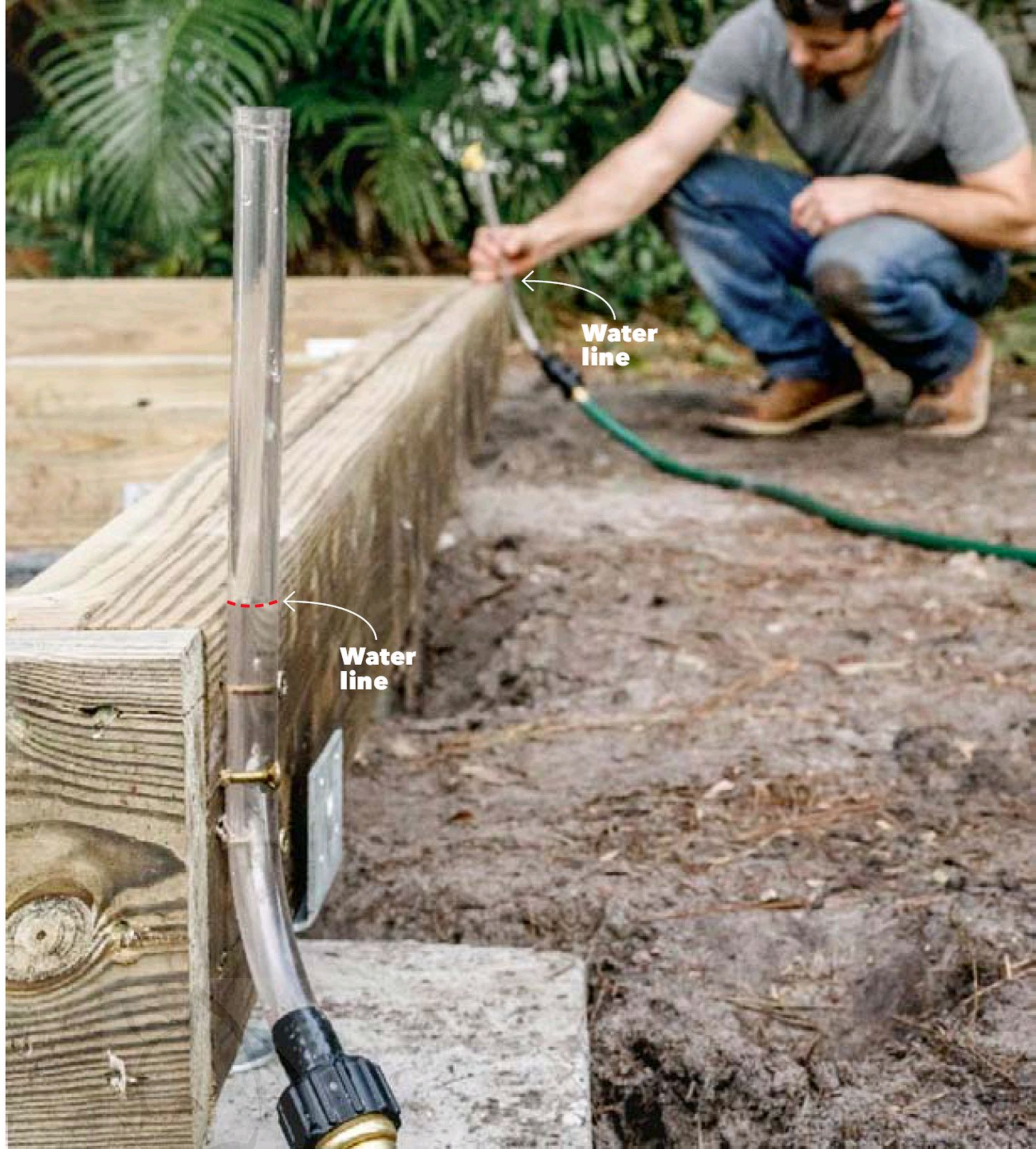
**7 DOUBLE UP THE RIM**  
Nail on the outer rim joists. Doubling up the rim will make the deck very sturdy. You may need to shift the footing slightly to fit.

## Complete the rim

With the tricky parts of the job done, Jake, Jenna and I doubled up the rim by adding an outer rim joist that overlaps the joints of the inner rim joists (**Photo 7**). A cutting list is helpful, but in this situation, I always measure and cut each piece to fit. We fastened the outer rim to the inner rim with three nails every 12 in. It was Jake's first time using a framing nailer, and the first few squeezes of the trigger sent two or three nails in at once. After I showed him how to avoid doing this, he made sure Jenna had a turn. As all my experience teaching women and girls would have predicted, Jenna outdid Jake and nailed off the rest of the outer rim in perfect rows with no misfires. They both learned that a framing nailer isn't as intimidating as it looks.

## Level the rim

You can level a deck with a standard level or a high-tech laser level. But I went low-tech with a water level, which is fast, simple and super accurate. We used a store-bought version that connects to a garden hose (\$12 online), but any type of clear tubing will work. To check for level, set the water line at one corner of the rim and tack the tube into place. Then move the other end of the tube from point to point, raising or lowering the post bases (**Photo 8**).



**8 LEVEL THE RIM**  
Be sure the framing is level before adding the joists. We used a "water level," which is clear tubing connected to the ends of a garden hose. Mount one end on a corner of the rim, then check the height of the water to level the other corners. Once it's level, nail the brackets to the rim joists.

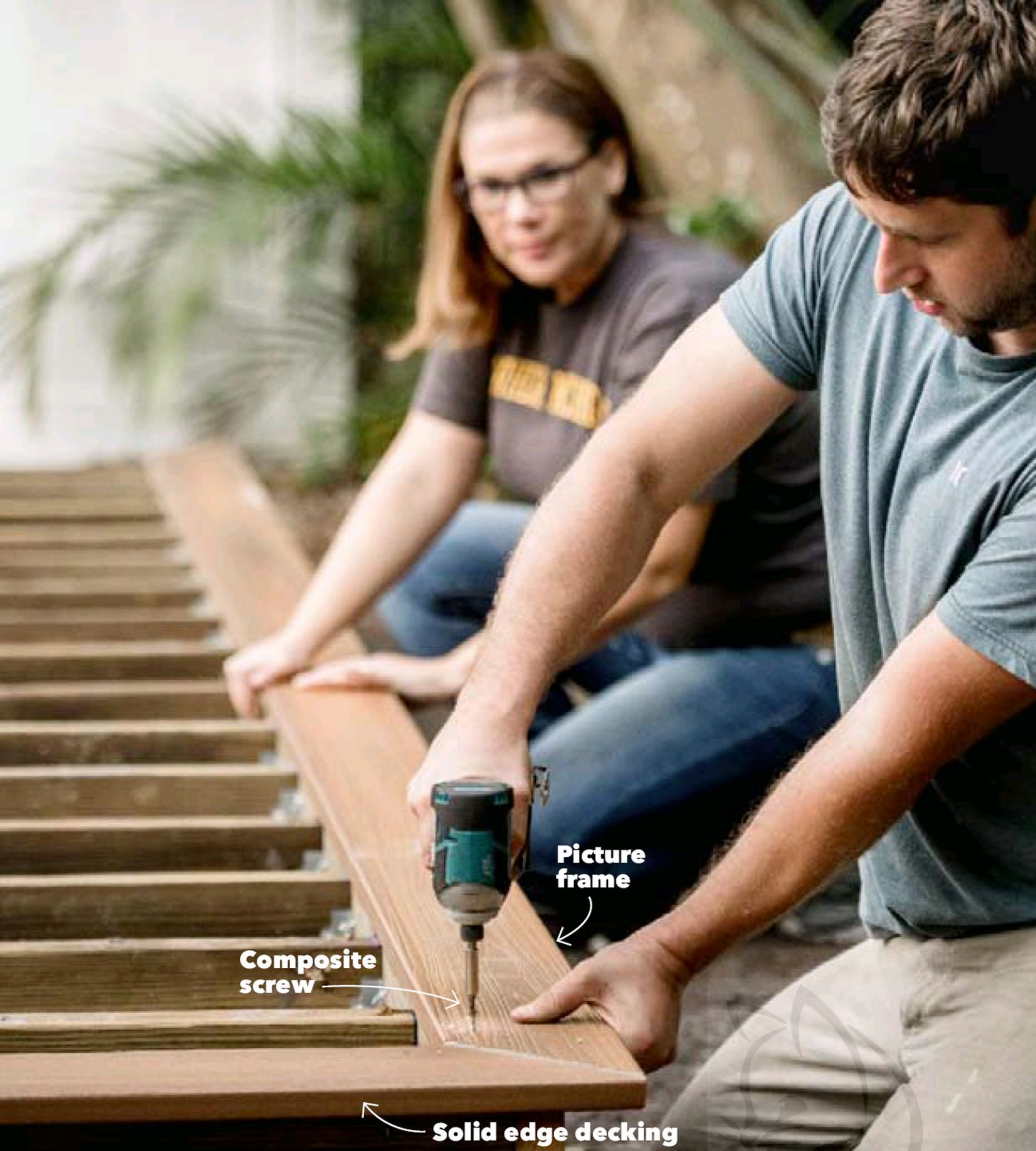


**9 TACK THE JOISTS INTO PLACE**  
Fasten each joist end with a screw driven at an angle. The screw will hold the joist in position so you can install joist hangers, which provide the real support.



**10 ADD JOIST HANGERS**  
Make sure the joist hangers hug the joists and that all nail holes are filled. A "positive placement" nail gun makes quick work of this job and saves your elbow.





## Hang the joists

Composite decking isn't as rigid as wood, so we placed joists every 12 in. instead of the standard 16 in. Jenna lined up the joists while I toe-screwed them from the top (**Photo 9**). It's easiest to start the screws into the joists before you hold the joists in place. Then I attached the joist hangers with a positive placement nailer (**Photo 10**). To support the picture-frame decking, we added an extra joist about 3 in. inside the rim joist and blocking every 16 in. in between.

## Deck it!

To mark the picture frame, we snapped chalk lines 3-1/2 in. from the outer edge of the rim. This accounts for 3/4-in.-thick fascia and allows the decking to overhang the fascia by 1-1/4 in. Taking measurements from the intersections of the chalk lines, we mitered the boards and placed them around the perimeter (**Photo 11**).

Overlapped joints

When the picture frame is in place, you can start filling in the deck boards. We used hidden fasteners (**Photo 12**). During my planning, I had carefully calculated the widths and spacing of the deck boards so they would fit perfectly inside the picture frame. But when Jake and I got to the last few boards, I realized we were going to end up about 1/2 in. past our picture frame. After I got over the shame, we fired up the table saw and cut 1/2 in. off the width of the board.

## Finish up with fascia

Before we could enjoy the deck, we needed to install the fascia board to cover the rim joists. Fascia is installed with mitered corners with a slight gap in between and fastened with the same type of composite screws we used on the picture-frame boards (**Photo 13**). With an extra hand, installing these was a snap.

When everything was put together, we relaxed and celebrated a job well done. In true DIY fashion, Jake wouldn't let me throw anything away—he plans to use some decking cutoffs to build a tabletop.

**11 PICTURE-FRAME THE DECK**  
Install a perimeter frame to hide the cut ends of the decking. Miter these deck boards and fasten them with screws. You'll have to leave gaps for expansion; check the decking manufacturer's instructions.



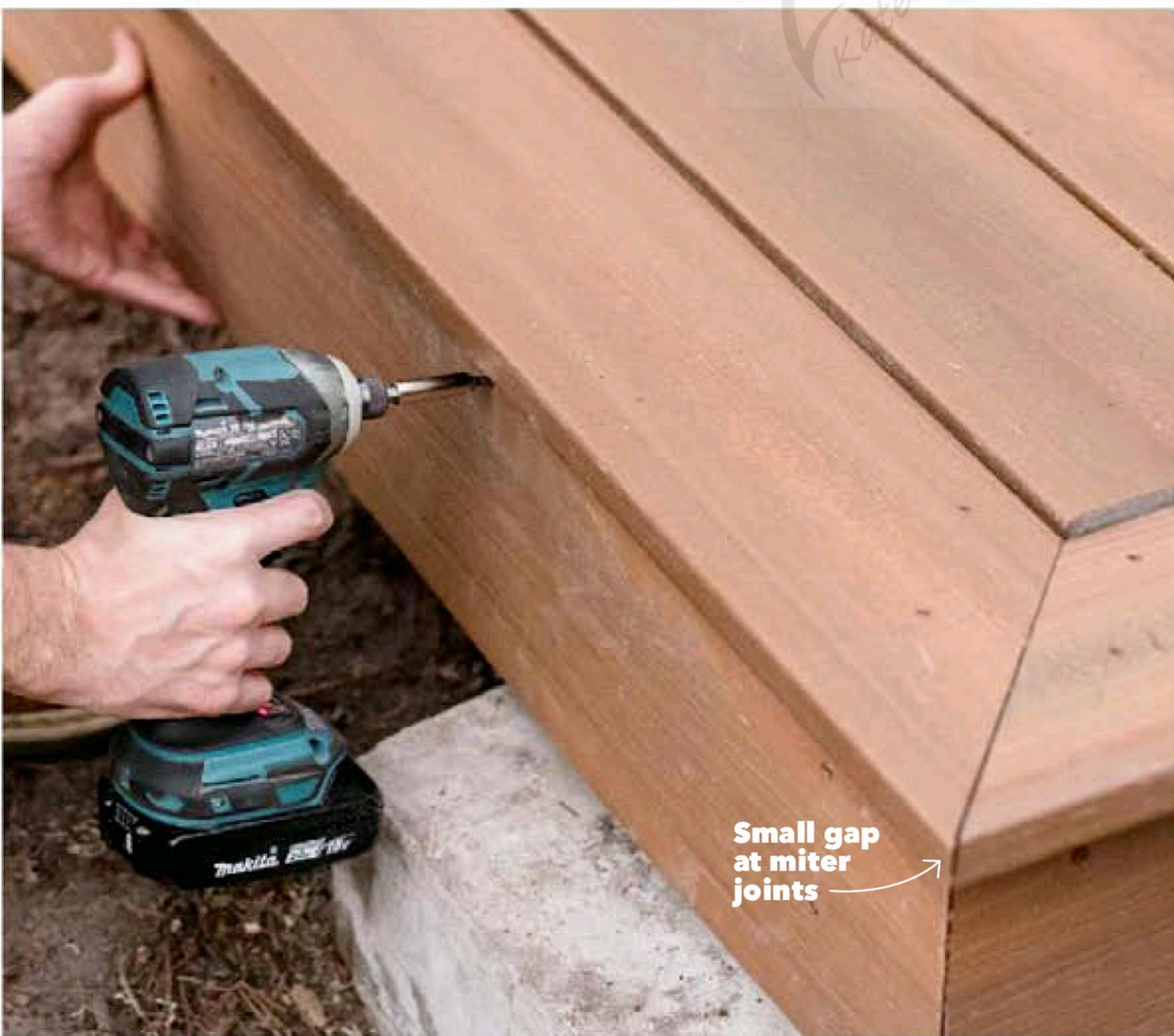
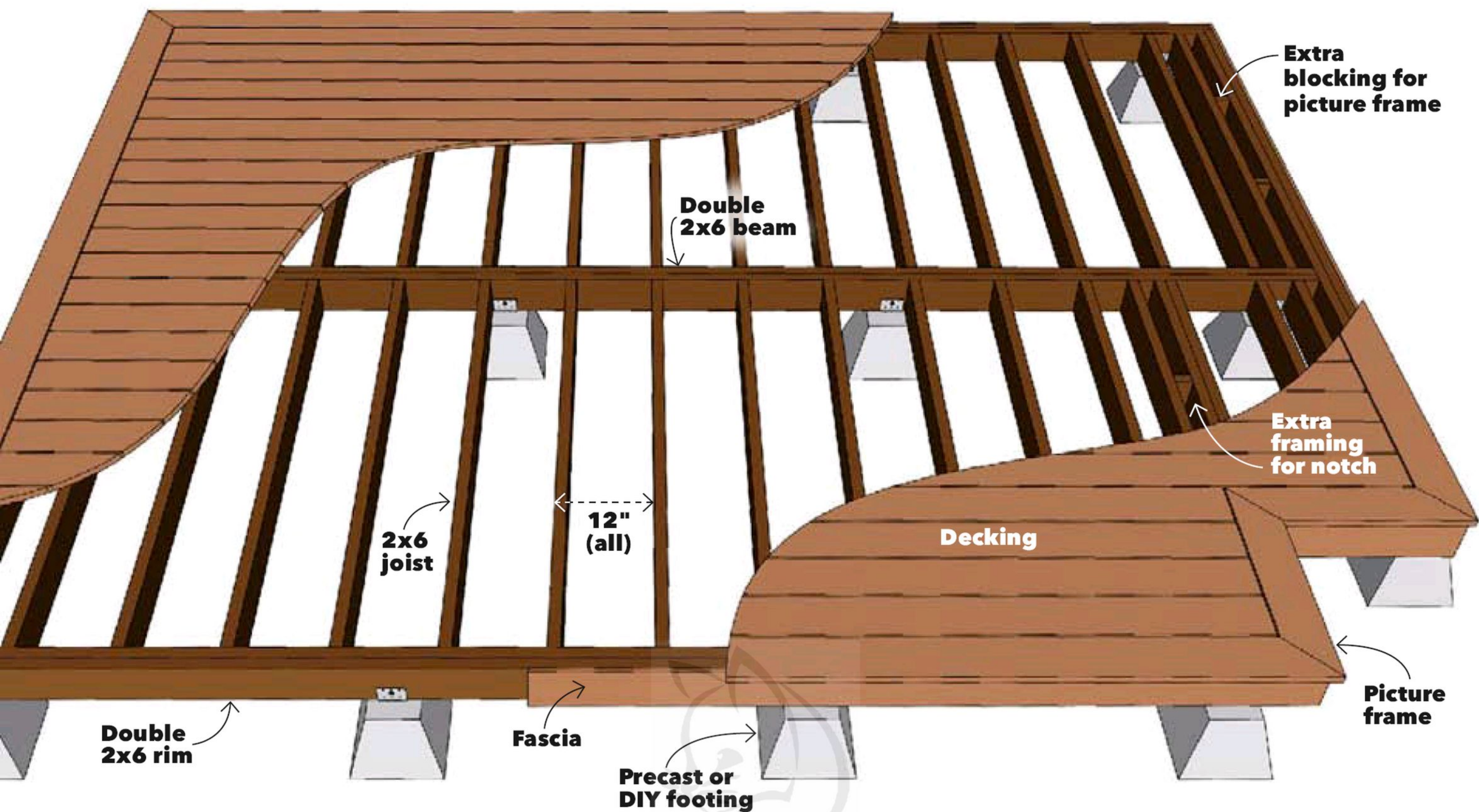
**12 ATTACH THE DECKING**  
We went with hidden fasteners for our decking. These clips fit into grooves and are screwed to the joists.



Hidden fastener



**Figure A Platform Deck**  
Overall Dimensions: 16' Long x 12' Wide



**MATERIALS LIST**

| ITEM                                         | QTY.  |
|----------------------------------------------|-------|
| <b>DIY FOOTINGS</b>                          |       |
| 60-lb. bags of concrete mix                  | 20    |
| 12" x 12" cardboard boxes                    | 20    |
| Adjustable post bases<br>(Simpson EPB44PHDG) | 13    |
| <b>FRAMING</b>                               |       |
| 2x6 x 16' pressure-treated lumber            | 6     |
| 2x6 x 12' pressure-treated lumber            | 21    |
| <b>DECKING</b>                               |       |
| 1x6 x 16' grooved deck boards                | 23    |
| 1x6 x 20' solid deck boards                  | 4     |
| 3/4" x 12" x 12' fascia boards               | 5     |
| <b>HARDWARE</b>                              |       |
| 2x6 joist hangers                            | 64    |
| 2x6 double joist hangers                     | 3     |
| 3x3 inside corner plates                     | 5     |
| 3-1/8" ACQ framing nails                     | 1 box |
| 1-1/2" positive placement nails              | 1 box |
| 3-1/8" construction screws                   | 1 box |
| Hidden fasteners system                      |       |

**13 FINISH WITH THE FASCIA**  
Cover the rim joists with a fascia that matches the decking. Ours was 12 in. wide, so we had to cut each board to fit between the decking and the ground.





Kate





# *backyard* **FIREPLACE**

**It's surprisingly easy to build—and portable too**

BY TOM DVORAK

**T**his project was inspired by an outdoor gas fireplace I saw online. The look was exactly what I wanted, but the construction wasn't—I didn't want a 500-lb. concrete cube that couldn't be moved. And I didn't want an underground gas line to fuel the fire. So instead I engineered this version. It looks just like the one online, but it can be easily moved by two people and it doesn't need a remote gas supply. Best of all, it's an easy weekend project, suitable for a beginning builder.



## **There's a secret inside**

It looks like a solid concrete cube, but this hollow box holds a standard propane tank and regulator—the same components that fuel a typical gas grill. Just remove the burner and lift out the tank when it needs to be refilled. The door provides access to the burner controls.



### **MEET THE BUILDER**

Tom Dvorak is an engineer, a carpenter, a real estate investor and a master marshmallow roaster.

For more ultimate backyard inspiration, go to [familyhandyman.com/backyard-ideas](http://familyhandyman.com/backyard-ideas)

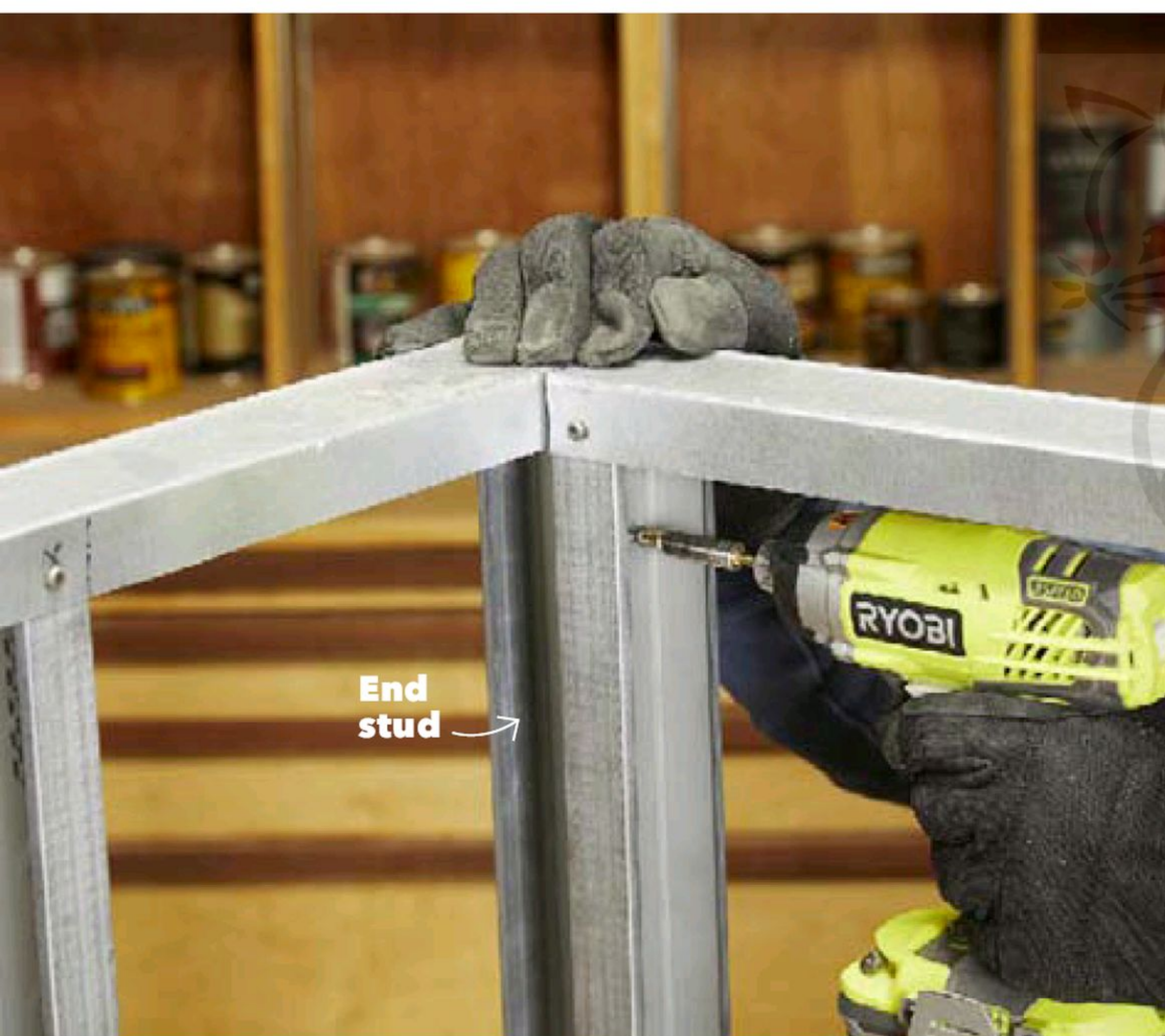
PHOTO: TINA SARGEANT





## 1 BUILD FOUR WALLS

Slip each stud into the tracks, clamping them into place with locking pliers. Drive screws on one side of the wall only. Place the end studs with the open side facing inward.



## 3 JOIN THE WALLS

Align each corner of the box carefully so the adjoining end studs form a perfectly flat surface. Then screw the walls together at the end studs.

## It's really easy, but...

This project involves mostly cutting parts and driving screws—simple stuff. But it does include some materials and methods that might be unfamiliar to you:

■ **STEEL STUDS** are the best choice for the inner structure of the box. Unlike wood, they're

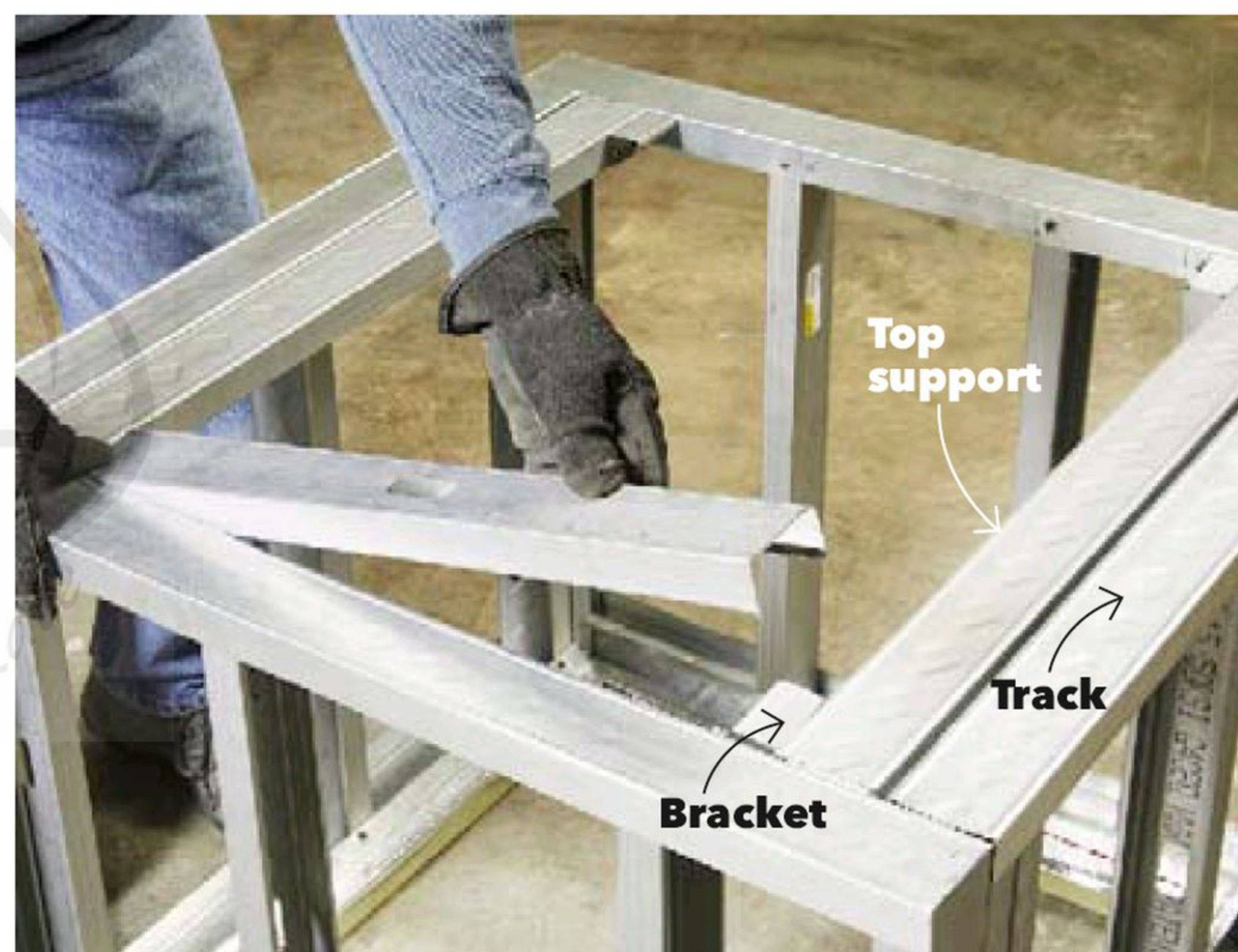
unaffected by heat and humidity. If you haven't worked with steel studs before, don't worry—you'll probably find them easier than conventional lumber. For tips on building with steel, search for "steel studs" at [familyhandyman.com](http://familyhandyman.com).

**Note:** Steel studs in contact with soil will eventually rust away, so the



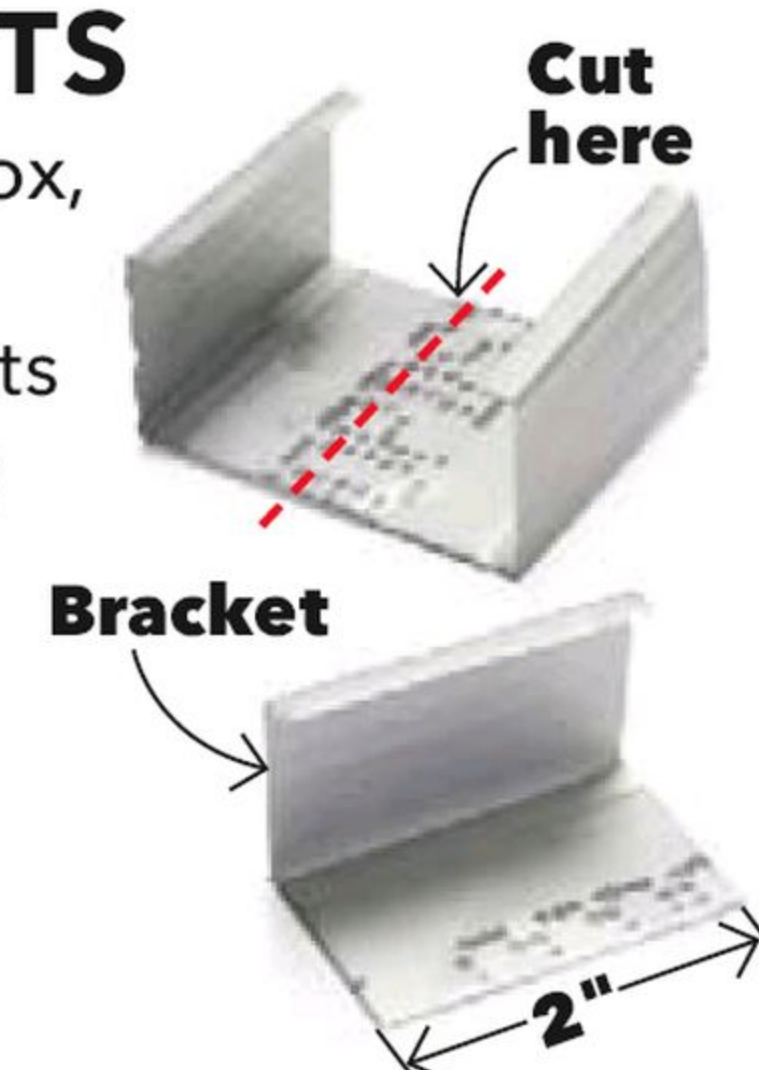
## 2 ASSEMBLE THE BOX

Build a base from pressure-treated 2x4s and screw the walls to it. Make sure the screw heads on each wall face into the box. A layer of window flashing tape protects the steel from the corrosive chemicals in treated wood.



## 4 ADD TOP SUPPORTS

To reinforce the top of the box, add steel studs inside the upper tracks. Set the supports on brackets screwed to the tracks or adjoining supports. Make the brackets from leftover studs. No need to screw the supports to the brackets; adhesive will secure them when you add the backer board top.



box base is pressure-treated wood. ■ **BACKER BOARD**, normally used under ceramic tile, forms the outer shell of the box. I used 1/4-in.-thick GreenE-Board, which is made from lightweight magnesium oxide. Any exterior-rated backer is fine, except versions that have a foam core, which may not stand up to heat.





**More sizes<sup>†</sup>, softer fabric<sup>\*</sup>, long-lasting comfort.**



© Registered Trademark of Kimberly-Clark Worldwide, Inc. © KCWW



**A better fit for your body.\*\***

**Depend® FIT-FLEX® Underwear** gives you Trusted Protection in more sizes and an improved design for all around comfort.\* Plus, it fits better than the leading bargain brand.\*\*

**GET A FREE SAMPLE AT [DEPEND.COM](https://depend.com)**

<sup>†</sup> vs. leading bargain brand

<sup>\*</sup> vs. previous FIT-FLEX® Underwear.

<sup>\*\*</sup> vs. the leading bargain brand sizes small/medium.

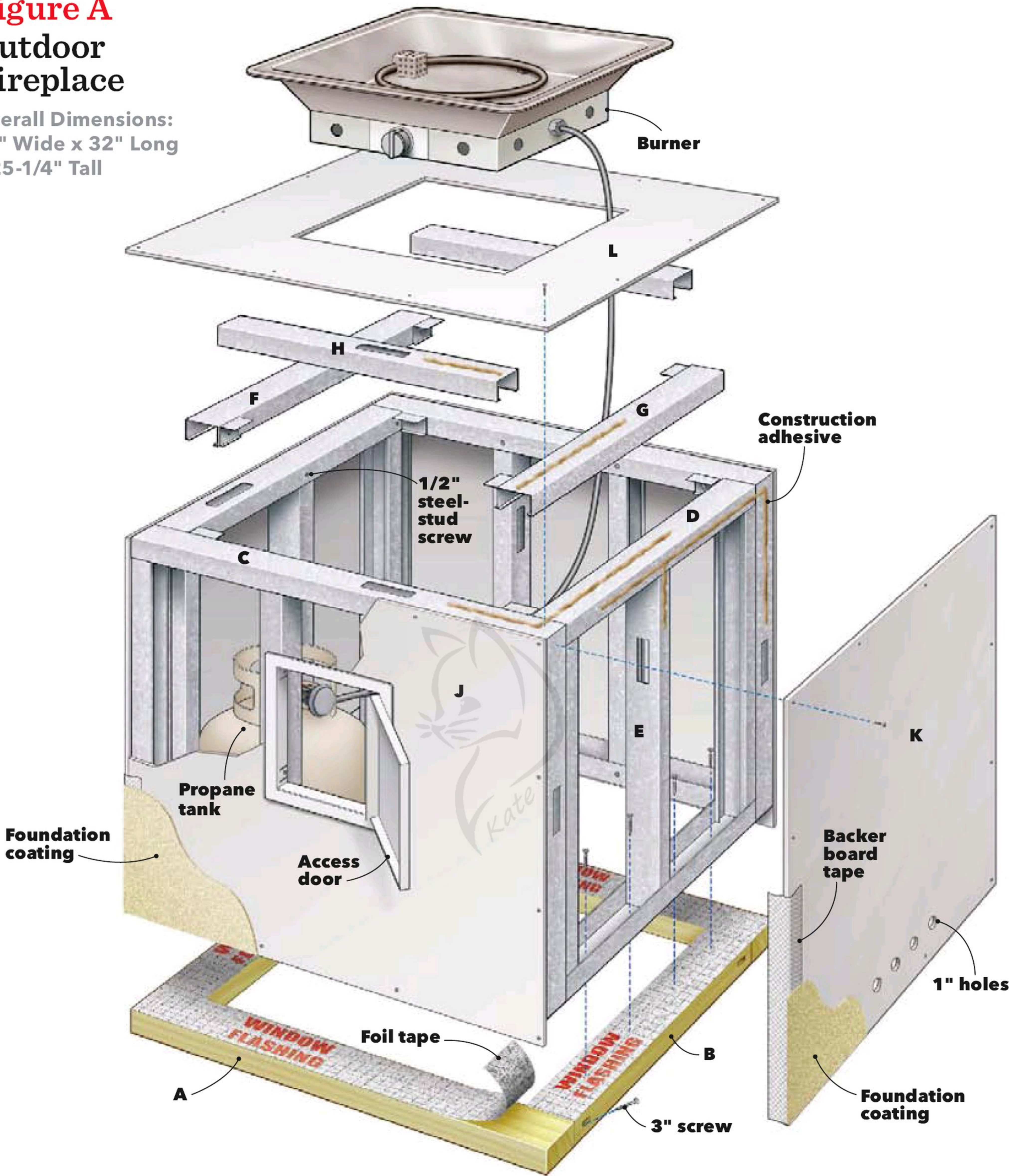
Purchase by 6/30/19. Redeem within 30 days of purchase. Restrictions apply. See [depend.com/yourbestfitguarantee](https://depend.com/yourbestfitguarantee) for details.



Figure A

# Outdoor Fireplace

Overall Dimensions:  
32" Wide x 32" Long  
x 25-1/4" Tall



## Materials List

| ITEM                                                                                                                                                                              | QTY. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 2x3 x 10' metal studs                                                                                                                                                             | 5    |
| 2x3 x 10' metal track                                                                                                                                                             | 2    |
| 3' x 5' x 1/4" backer board panels                                                                                                                                                | 3    |
| 2x4 x 10' treated                                                                                                                                                                 | 1    |
| 1/2" steel-stud screws, 1-1/4" and 3" coated deck screws, 1-1/4" backer board screws, construction adhesive (three tubes), backer board mesh tape, foundation coating, paintbrush |      |

All the building materials are available at home centers. For burner components, see p. 43.

## Cutting List

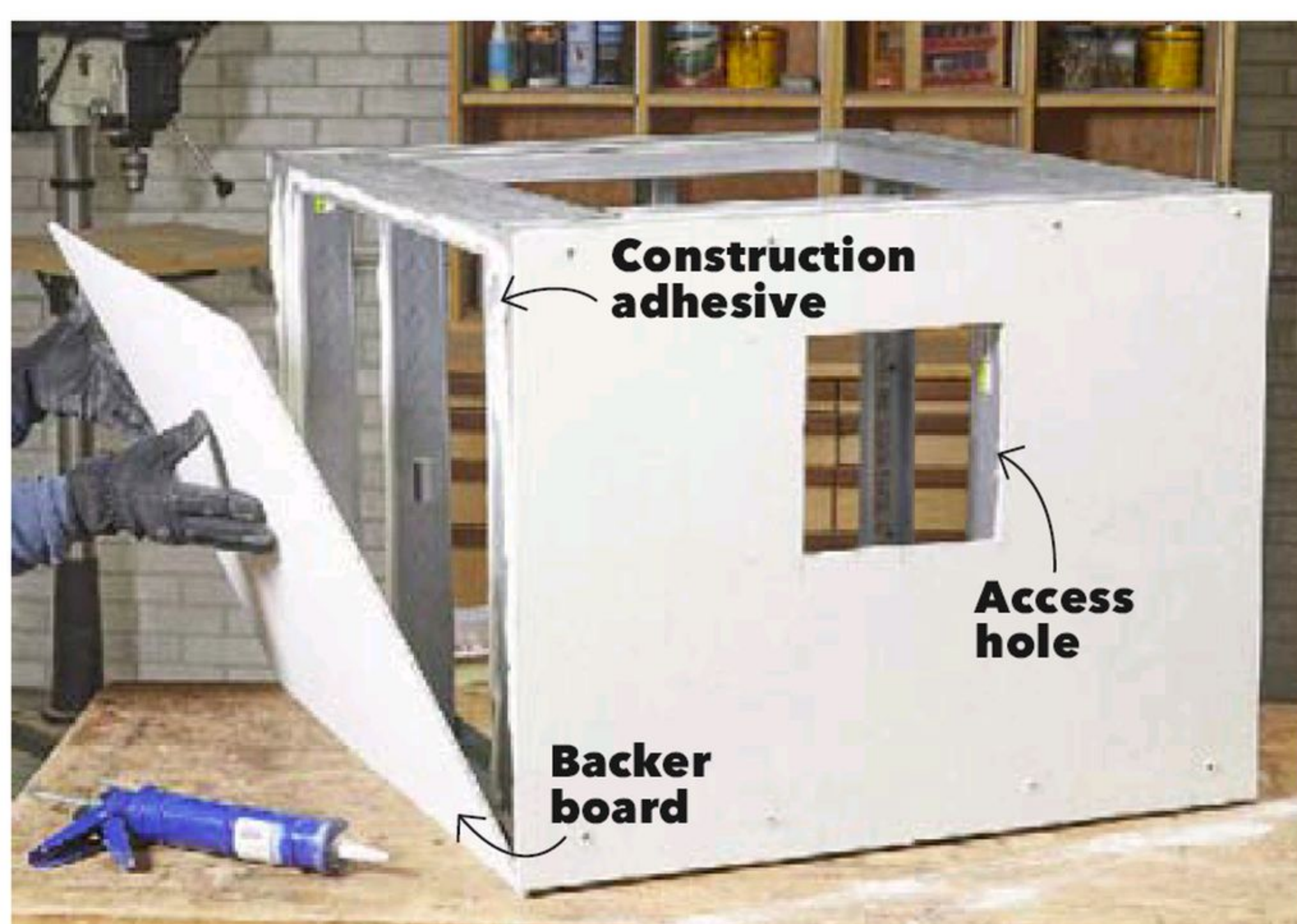
| KEY | QTY. | SIZE & DESCRIPTION                           |
|-----|------|----------------------------------------------|
| A   | 2    | 2x4 x 31-1/2" treated (base frames)          |
| B   | 4    | 2x4 x 24-1/2" treated (base frames)          |
| C   | 4    | 2x3 x 31-1/2" steel track (frame top/bottom) |
| D   | 4    | 2x3 x 26-1/2" steel track (frame top/bottom) |
| E   | 16   | 2x3 x 23-1/2" steel stud (frame sides)       |
| F   | 8    | 2" x 1-1/2" bracket (top supports)           |
| G   | 2    | 2 x 3 x 26-1/2" steel stud (top supports)    |
| H   | 2    | 2 x 3 x 21-1/2" steel stud (top supports)    |
| J   | 2    | 24-3/4" x 31-1/2" backer board (sides)       |
| K   | 2    | 24-3/4" x 32" backer board (sides)           |
| L   | 1    | 32" x 32" backer board (top)                 |

## WHAT IT TAKES

|                               |                      |                                    |
|-------------------------------|----------------------|------------------------------------|
| <b>TIME</b><br>1 to 2<br>days | <b>COST</b><br>\$350 | <b>SKILL<br/>LEVEL</b><br>Beginner |
|-------------------------------|----------------------|------------------------------------|

**TOOLS**  
Saw, drill/driver,  
metal snips, rasp,  
basic hand tools





## 5 SKIN THE BOX

Apply plenty of construction adhesive to the wall framing, then screw on the backer board. Cut the access door hole after the backer board is in place.



## 6 ROUND THE CORNERS

Round all the corners of the box with a rasp or a coarse file. Rounded corners look better than sharp edges and are less likely to chip.



Foundation coating covers the backer board. It's kind of like super-thick paint mixed with fine sand, so it gives the look of concrete without the weight and backbreaking labor. I used FlexCoat, which is available in various colors. Before brushing on the coating, wipe dust off the box and apply backer board tape to the corners. The tape may not stay in place for long, so apply the coating right away.



## 7 COAT THE BOX

Apply mesh tape to the corners and brush foundation coating over the tape. Also dab coating over the screw heads. Then give the entire box two coats of foundation coating. When the coating dries, you're ready for a fire!

For information on types of backer board and how to work with it, go to [familyhandyman.com](http://familyhandyman.com) and search for "tile backer."

## The fuel and flame system

Propane burners are available online in various sizes and shapes. I used a 19 x 19-in. stainless steel version with a built-in igniter (\$150; search online for "AZ GSF burner"). The burner connects to a standard

20-lb. propane tank (\$40), which provides about 20 hours of use.

Some burners have a control panel that can be mounted on the exterior of the fireplace. Mine didn't, so I installed an 8 x 8-in. stainless steel access door (Acudor ED-2002; \$20 online). I glued the door in place with construction adhesive.

Decorative "fire pebbles" (\$30 online) fill the burner tray. To protect the burner from rainwater and other elements when not in use, I

applied foundation coating to a leftover scrap of backer board.

**WARNING: Ventilation is mandatory: A gas leak would fill the box with propane. That's a potential explosion. To ventilate the box, I used a hole saw to bore four 1-in. holes on two sides of the box. That way they'd be hidden by the deck but still allow leaked propane to escape.**









# One-Day Storage Bench

*Elegant outside,  
enormous space inside!*

BY BRAD HOLDEN

**W**hile looking for patio bench ideas, I came across a sleek modern design with tons of storage inside. Perfect. The price tag—over \$1,000—wasn't a problem because I knew I could build my own version, and in just a day. And so can you. It's really just a plywood box dressed up with solid wood slats.



## WHAT IT TAKES

| TIME  | COST            | SKILL LEVEL |
|-------|-----------------|-------------|
| 1 day | \$100 to \$600* | Beginner    |

*\*About \$300 if you use cedar and less expensive lid supports*

**TOOLS** Circular saw or table saw, drill/driver, clamps

## THERMALLY MODIFIED WOOD

I chose thermally modified poplar for this bench. Normally, poplar would be a poor choice for an outdoor project, but thermal modification changes the rules. Thermally modified wood (TMW) has essentially been cooked, removing the organic compounds. The chemical-free process makes wood more stable and resistant to decay and insects.

This process naturally darkens the wood. Left unfinished, it will weather gray like any other wood.

The price of TMW varies. My supplier had pine for \$1.25 per linear ft., poplar for \$3.80 and ash for \$4.20. To find TMW, ask your local hardwood lumberyard or search online.

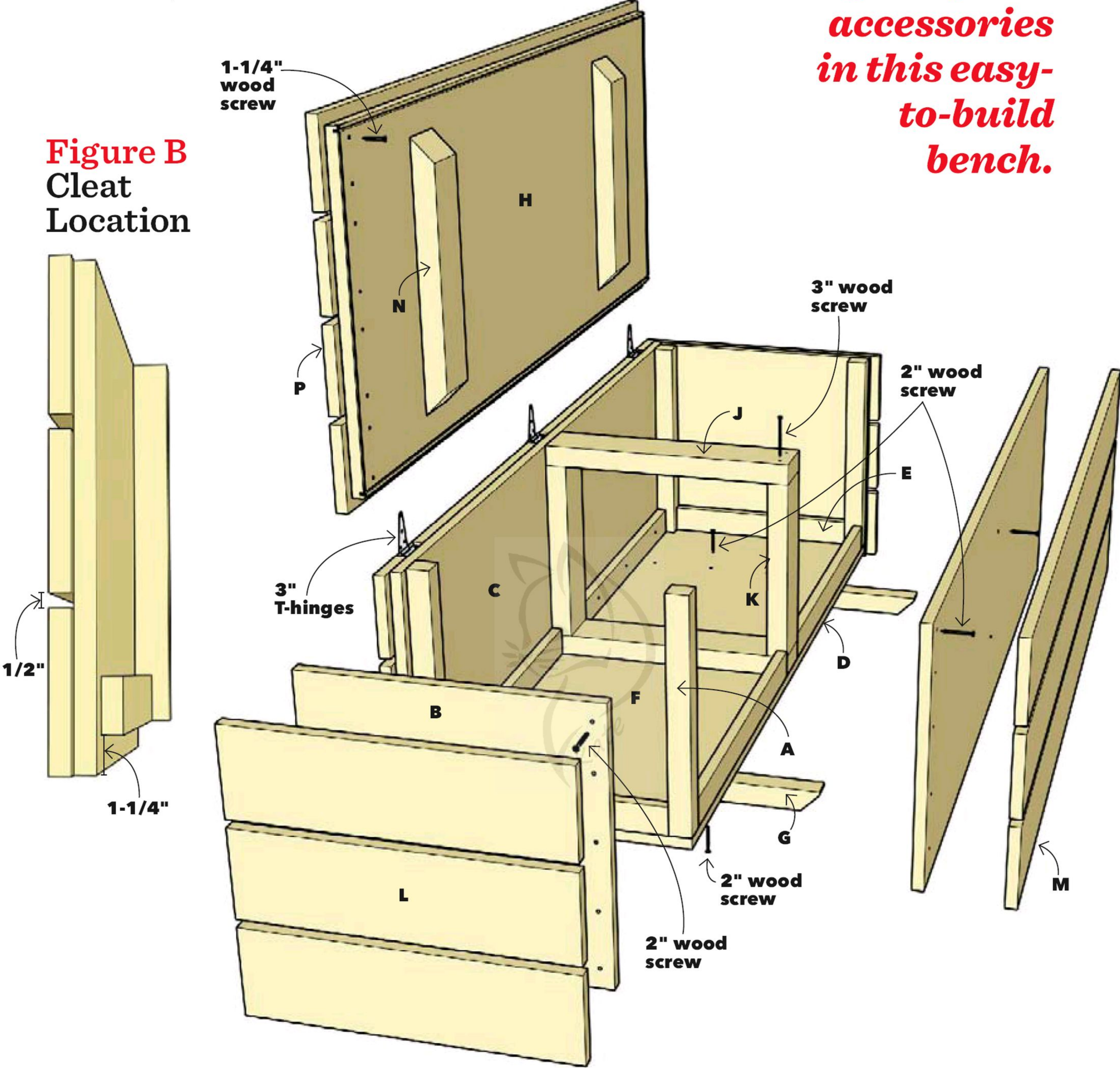


# Figure A Deck Bench

Overall Dimensions:  
19-1/2" Tall x 60" Wide  
x 23-1/2" Deep

Store all  
your patio  
accessories  
in this easy-  
to-build  
bench.

## Figure B Cleat Location



## MATERIALS LIST

| ITEM                                                                    | QTY.  |
|-------------------------------------------------------------------------|-------|
| 3/4" x 4' x 8' sheets treated plywood                                   | 2     |
| 2x2 x 8' treated pine                                                   | 2     |
| 2x4 x 10' treated pine<br>(add one 2x4 x 8' for the planter)            | 1     |
| 70 linear ft. of 1x6 lumber<br>(add 30 ft. for the planter)             |       |
| Wood glue                                                               |       |
| Construction adhesive                                                   |       |
| Exterior latex paint and primer                                         |       |
| 3" exterior wood screws                                                 |       |
| 2" exterior wood screws                                                 |       |
| 1-1/4" exterior wood screws                                             |       |
| Tee hinges                                                              | 3     |
| Douper 200N/44lb Heavy Duty<br>Gas Springs Lid Support Hinge, \$36/pair | 1 pr. |

## CUTTING LIST

| KEY | QTY. | SIZE & MATERIAL                            | PART             |
|-----|------|--------------------------------------------|------------------|
| A   | 4    | 1-1/2" x 1-1/2" x 16-1/4"                  | Box corner posts |
| B   | 2    | 3/4" x 17-1/2" x 18" treated plywood       | Box ends         |
| C   | 2    | 3/4" x 17-1/2" x 56" treated plywood       | Box sides        |
| D   | 4    | 3/4" x 2" x 24" treated plywood            | Box long cleats  |
| E   | 2    | 3/4" x 2" x 15" treated plywood            | Box short cleats |
| F   | 1    | 3/4" x 54-1/2" x 18" treated plywood       | Box bottom       |
| G   | 2    | 1-1/2" x 1-1/2" x 18"                      | Feet             |
| H   | 1    | 3/4" x 22" x 58-1/2" treated plywood       | Lid              |
| J   | 2    | 1-1/2" x 3-1/2" x 18"                      | Frame rails      |
| K   | 2    | 1-1/2" x 3-1/2" x 13"                      | Frame stiles     |
| L   | 6    | 3/4" x 5-1/2" x 19-1/2" thermally modified | End slats        |
| M   | 6    | 3/4" x 5-1/2" x 57-1/2" thermally modified | Side slats       |
| N   | 2    | 1-1/2" x 3-1/2" x 17-1/2"                  | Lid battens      |
| P   | 4    | 3/4" x 5-1/2" x 60" thermally modified     | Lid slats        |



## Money and materials

This bench is mostly treated plywood, which stands up to the elements but can be unfriendly to work with. It's often slightly damp, if not soaking wet, so let it dry in your shop for a week or two before cutting. Store it flat to minimize warping as it dries. **Caution:** Warped boards are dangerous to cut on a table saw. A circular saw with a cutting guide is a safer option.

I used TMW for the bench's exterior (see "Thermally Modified Wood," p. 45), which drove up the cost to \$600. Building the bench with cedar decking, which is rot-resistant, would cost \$300. The least expensive choice is construction-grade pine (\$100), which would give the bench a more rustic look.

### 1 ASSEMBLE THE BOX SIDES

Attach the corner posts (A) flush with the long edges and tops of the box ends (B). Glue and screw the sides (C) and ends together. Be sure to use a waterproof glue.

### 2 INSTALL THE BOTTOM

Glue and screw the bottom cleats (D and E) around the inside of the box (see **Figures A** and **B**). Apply glue to the underside of the cleats, drop the bottom (F) into place and fasten it with screws. Glue and screw the feet (G) to the bottom.

### 3 CUT A DRIP GROOVE

Cut a kerf all the way around the lid's (H) underside so that rainwater will drip off the lid instead of clinging to the lid and running into the box. Apply exterior latex to the outer faces and visible edges of the lid and box.

### 4 INSTALL THE FRAME

Fasten the center frame (J and K) inside the box using glue and screws. The frame gives the box rigidity and helps flatten out any warping in the plywood.







5



Spacer

6



Lid

Lid batten

7

## 5 ATTACH THE FIRST SLAT

Attach the bottom end slat (L) flush with the box's bottom edge using exterior construction adhesive and driving screws from inside the box. Apply a bead of exterior caulk along the top edge of the slat so water can't seep behind the slat.

## 6 ATTACH REMAINING SLATS

Fasten the remaining end slats, using spacers and caulking the top edges as you go. Attach the side slats (M) using the same method. These short (1-1/4-in.) screws don't have a lot of pulling power, so maximize it by predrilling and countersinking clearance holes through the plywood before driving the screws.

## 7 FASTEN THE LID BATTENS

Tack the lid battens (N) to the underside of the lid using glue and screws. Flip the lid right side up and secure the battens with longer screws. The battens help keep the lid flat.

## 8 ASSEMBLE THE LID

Clamp the lid slats (P) together, placing 1/2-in. spacers between each pair of slats. Apply construction adhesive to the slats, and then center the lid on the slats. Drive screws through the lid into the slats. Again, predrill the screw holes for maximum pulling power.



Spacer

Lid slat

8



# Create Your Own Outdoor Room...In Just Seconds!



**Motorized & Manual Awnings Available!**

**LOW  
Factory  
Direct  
Prices!**

## Introducing The Revolutionary SunSetter Retractable Awning!

If you're tired of having your outdoor enjoyment rained on...baked out...or just plain ruined by unpredictable weather...

**At last there is a solution!** One that lets you take control of the weather on your deck or patio, while saving on energy bills! It's the incredible SunSetter Retractable Awning! A simple...easy-to-use...& *affordable* way to outsmart the weather and start enjoying your deck or patio more...*rain or shine!*

The SunSetter® is like adding a whole extra *outdoor room* to your home...giving you instant protection from glaring sun...or light showers! Plus it's incredibly easy to use...opening & closing effortlessly in *less than 60 seconds!*

So, stop struggling with the weather...  
& start enjoying your deck or patio more!

For a **FREE** Info Kit & DVD email your  
name & address to [freedvd@sunsetter.com](mailto:freedvd@sunsetter.com)

**FREE!  
Info Kit  
& DVD**

**Opens at the Touch  
of a Button!**



*Protects you from 99% of UV rays*



*You choose full sun or total  
protection in just seconds!*

**FREE Info Kit & DVD**  
**Call Toll-Free: 1-800-876-8060** Ext. 35412

☒ **Yes!** Please send your **FREE** Info Kit & DVD...including a \$200 Savings Certificate...**TODAY!**

Name

Address

City  State  Zip

Email

(Important: Be sure to give us your email address to receive our best deals!)



**\$200 Savings Certificate Included!**

**SunSetter®**  
RETRACTABLE AWNINGS

184 Charles Street, Dept. 35412, Malden, MA 02148  
Visit us today at [www.sunsetter.com](http://www.sunsetter.com)



## 9 INSTALL THE HINGES

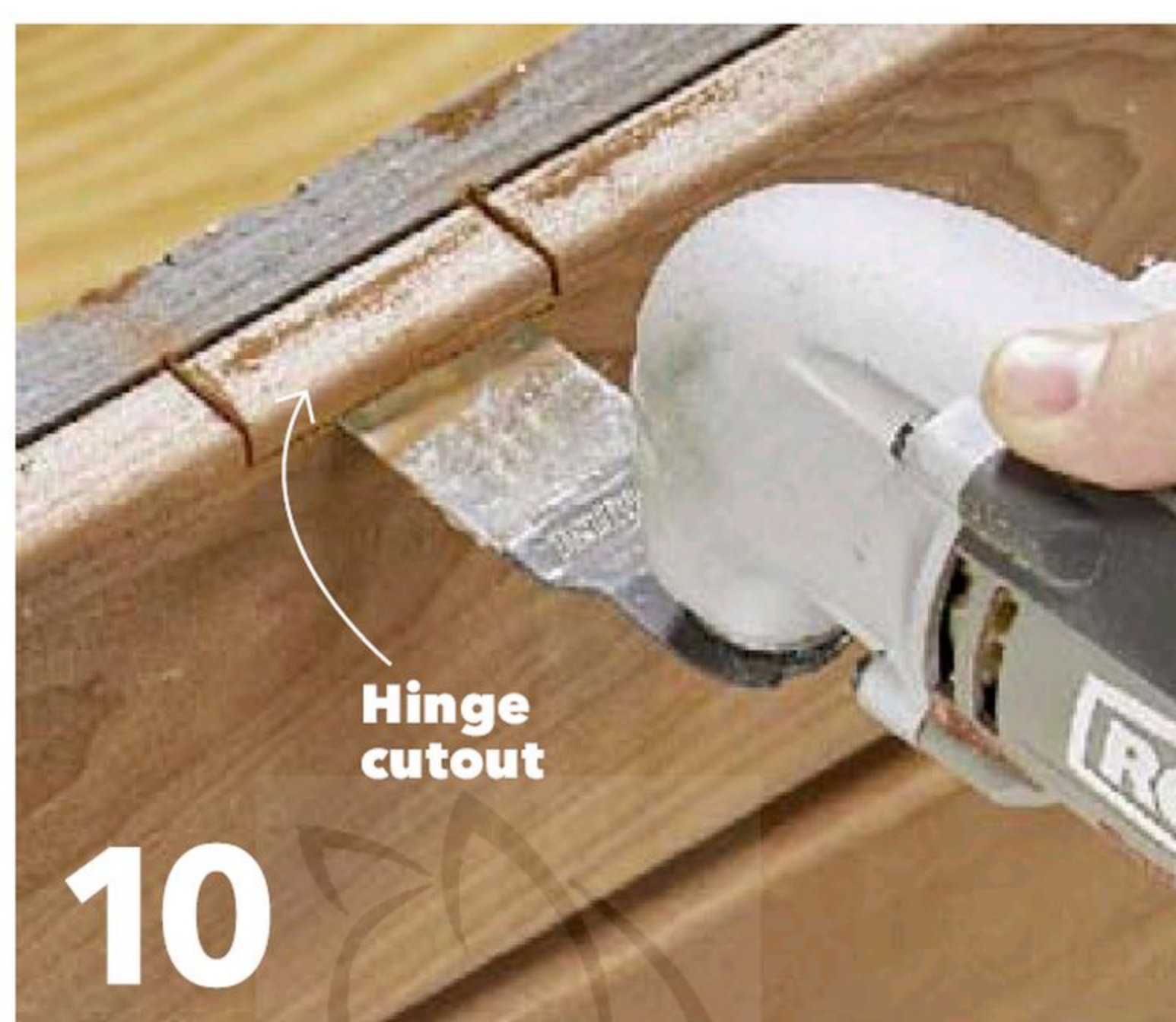
Attach the hinges to the lid, centering the hinge barrels 1/2 in. from the lid's edge. Then prop the lid in position near the box edge. Mark the hinge mortise locations on the top slat. The mortise depths are equal to the hinge barrel's diameter.

## 10 CUT HINGE MORTISES

There are many ways to cut hinge mortises. I used an oscillating multi-tool with a square, flush-cutting blade. It's well suited to the task, acting as both chisel and saw. Once all the mortises are cut, attach the lid.

## 11 INSTALL LID STAYS

I chose these pneumatic props to hold the lid open and add a little assistance in lifting the heavy lid. Substitute less expensive lid supports if you like. Apply the exterior finish of your choice. We used an exterior penetrating oil stain.

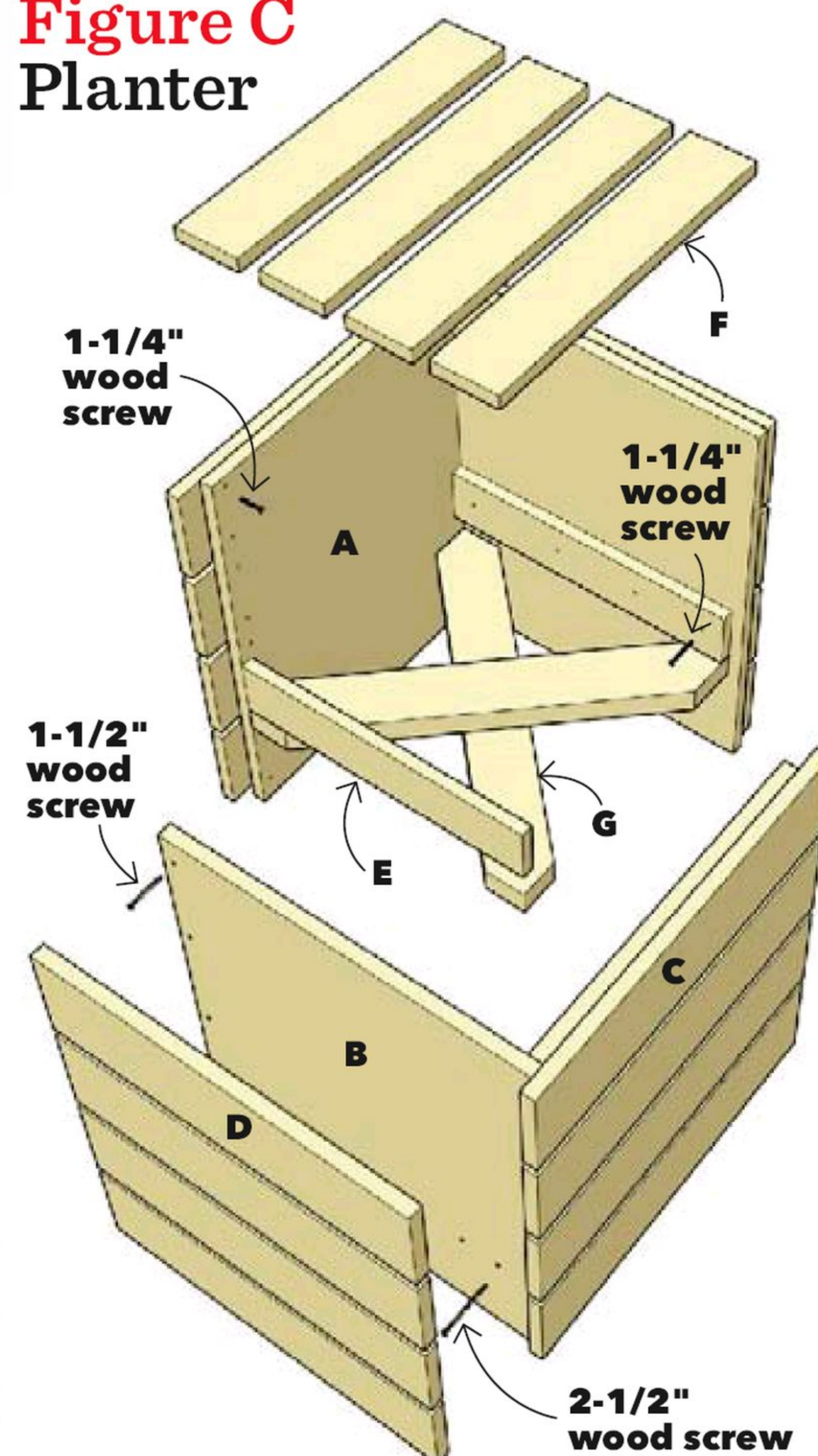


### MATCHING PLANTER

The planter is even simpler to build than the bench because the inner box has no top or bottom. Glue and screw the sides together, screw in the diagonal braces and then paint any visible surfaces. Add the slats using the same method as for the bench. Position the side cleats at a height suitable to the pot you're setting in the planter. Don't attach the platform slats. If they rot, they'll be easier to replace.



**Figure C**  
Planter



## CUTTING LIST

| KEY | QTY. | SIZE & MATERIAL                            | PART            |
|-----|------|--------------------------------------------|-----------------|
| A   | 2    | 3/4" x 24-1/2" x 18" treated plywood       | Box short sides |
| B   | 2    | 3/4" x 24-1/2" x 19-1/2" treated plywood   | Box long sides  |
| C   | 8    | 3/4" x 5-1/2" x 21" thermally modified     | Long slats      |
| D   | 8    | 3/4" x 5-1/2" x 19-1/2" thermally modified | Short slats     |
| E   | 2    | 3/4" x 2" x 18" treated plywood            | Platform cleats |
| F   | 4    | 3/4" x 3-1/2" x 18" treated plywood        | Platform slats  |
| G   | 2    | 1-1/2" x 3-1/2" x 25-1/2" (2x4 cut to fit) | Diagonal braces |

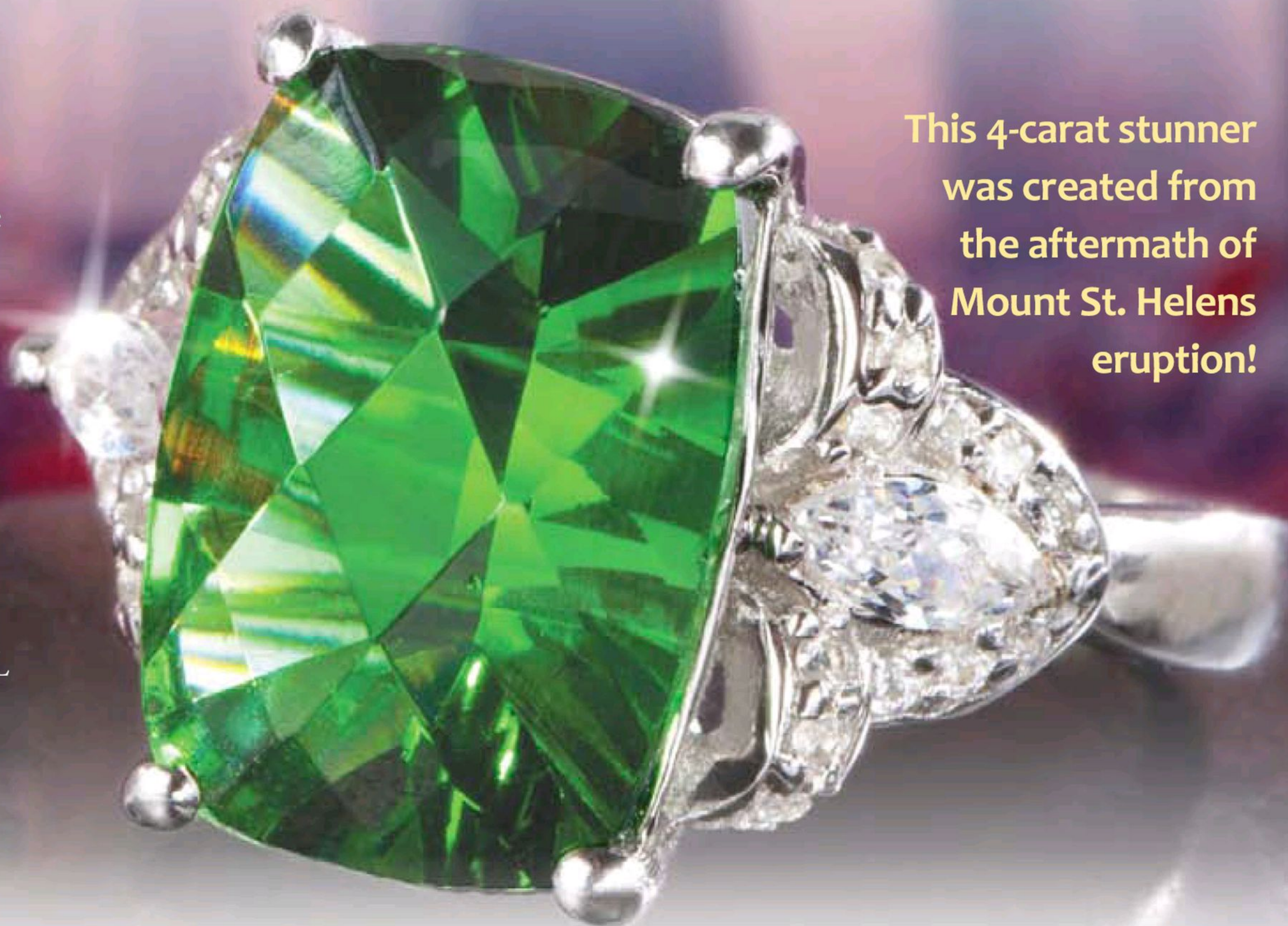


What our clients are saying about Stauer Helenite jewelry:

*"My wife received more compliments on this stone on the first day she wore it than any other piece of jewelry I've ever given her."*

— J. from Orlando, FL

This 4-carat stunner was created from the aftermath of Mount St. Helens eruption!



# FAMOUS VOLCANO HAS STRANGE EFFECT ON WOMEN

Man and nature collaborate to create a glamorous green ring guaranteed to rock her world! Own it today for **ONLY \$99 plus FREE studs with ring purchase!**

On May 18, 1980, Mount St. Helens erupted, sending a column of ash and smoke 80,000 feet into the atmosphere. From that chaos, something beautiful emerged—our spectacular **Spirit Lake Helenite Ring**.

Created from the superheated volcanic rock dust of the historic Mount St. Helens eruption, helenite has become the green stone of choice for jewelry and fashion designers worldwide. Helenite's vivid color and immaculate clarity rivals mined emeralds that can sell for as much as \$3,000 per carat. Today you can wear this 4-carat stunner for **only \$99!**

spectacular large carat weight jewelry. "It's just recently that luxury jewelers have fallen in love with helenite," says James Fent, GIA Graduate Gemologist. "Clear green color in a stone this size is rarely found in emeralds but helenite has come to the rescue."

**Your satisfaction is 100% guaranteed.** Bring home the **Spirit Lake Helenite Ring** and see for yourself. If you are not completely blown away by the exceptional beauty of this rare American stone, simply return the ring within 30 days for a full refund of the item price. It's that simple. But we're betting that once you slide this gorgeous green beauty on your finger, it will take a force of nature to get you two apart!

## Spirit Lake Helenite Ring

Total value with FREE studs ~~\$478\*~~

**Now, Offer Code Price Only \$99 + S&P Save \$379!**

**1-800-333-2045**

**Your Offer Code: SLR646-02**

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

**Stauer®**



Rating of A+

14101 Southcross Drive W., Ste 155,  
Dept. SLR646-02,  
Burnsville, Minnesota 55337 [www.stauer.com](http://www.stauer.com)

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

**EXCLUSIVE  
FREE  
Helenite Studs**  
-a \$129 value-  
with purchase of  
Spirit Lake Ring

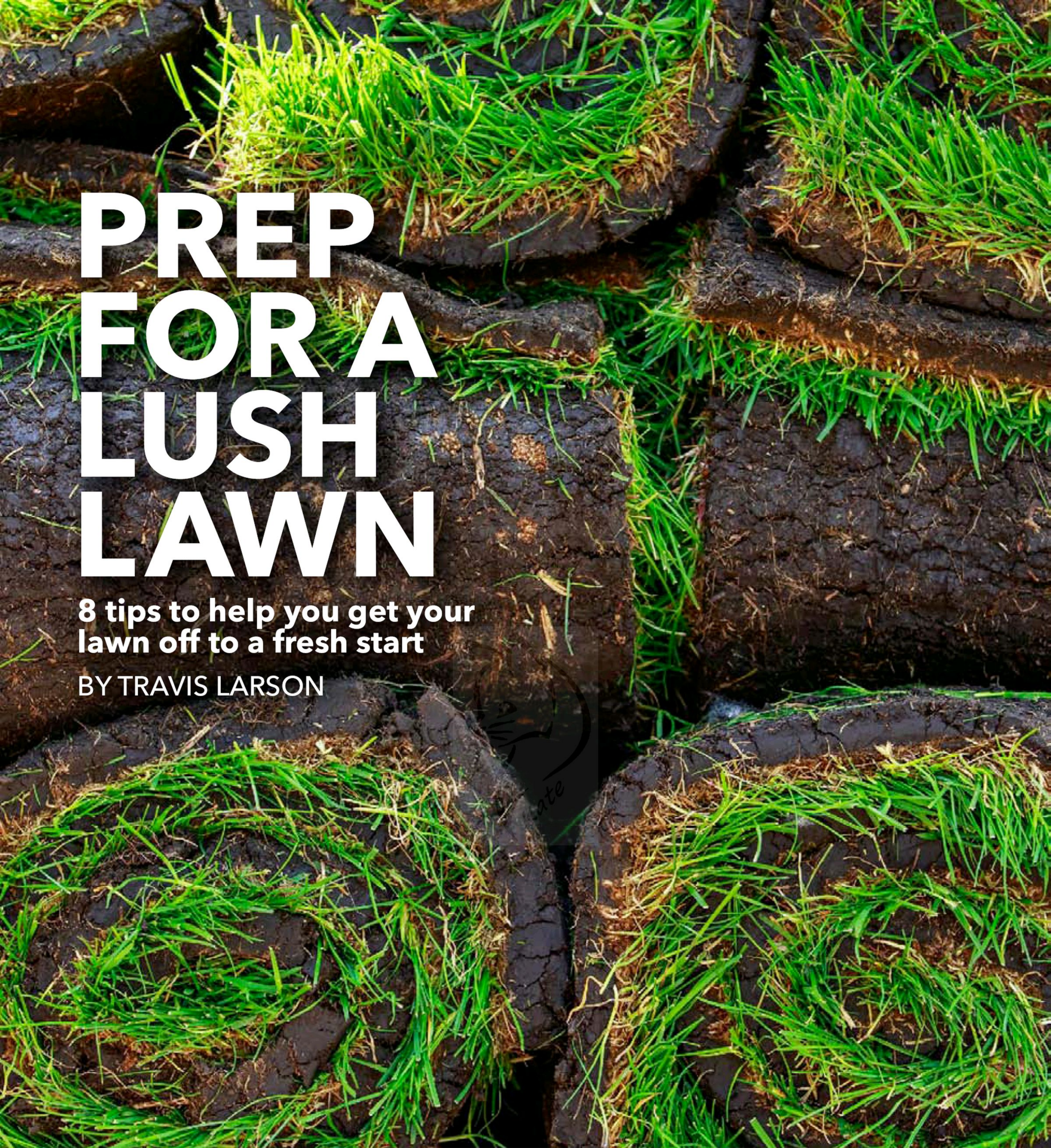
Our exclusive design highlights the visually stunning stone with a concave cut set in .925 sterling silver loaded with brilliant white, lab-created DiamondAura®. The classic pairing of colors in a vintage-inspired setting makes for a statement ring that's simply impossible to ignore!

**Beauty from the beast.** Also known as "America's Emerald," helenite is not an emerald at all, but a brighter and clearer green stone that gem cutters can facet into

4 carat Helenite center stone • Lab-created white DiamondAura® accents • .925 sterling silver setting • Whole ring sizes 5–10

Stauer... Afford the Extraordinary®





# PREP FOR A LUSH LAWN

**8 tips to help you get your lawn off to a fresh start**

BY TRAVIS LARSON

**I**s your lawn so pale, patchy and weedy that it demands an intervention? If it's at least 50 percent healthy grass, you can save that grass and fill in the rest of the lawn by planting new seed. Or you can replace your entire lawn with sod instead.

Reseeding is far easier and less costly than laying sod, but you'll wait a long time for results. If you don't mind paying more, sod will give you beautiful grass in a fraction of the time.

Here's how to prepare your yard for grass seed or sod.

PHOTO: OLGA KUZUYK/SHUTTERSTOCK





## 1. TEST THE SOIL

Contact a local extension service or search online to find a soil-testing lab. You'll get complete instructions for collecting and submitting samples. In a few weeks, you'll get a report telling you how to amend soil pH to ideal levels (6.5 to 7.0) as well as what nutrients are deficient and need to be added. Healthy soil is critical for enabling the grass to thrive.



## 2. KILL THE WEEDS AND GRASS

Use a nonselective vegetation killer (Roundup and Killzall are two brands) to kill all the vegetation on the area you intend to sod. Do this at least two weeks before tearing up the old sod. (This may take two treatments.) Be very careful and protect yourself from exposure. These products will kill all plants, so stay well away from any garden beds or shrubs.



### RESEEDING VS. SOD

Reseeding is far cheaper and far less labor intensive than laying sod. But reseeding takes a month of diligent watering once or twice a day. The germinating seed can easily dry out and die in as little as one dry, sunny, hot day. Plus, you'll run the risk of a heavy rain washing away all your fertilizer and seed, especially if you're planting on a sloped yard. You won't have a truly lush, thick lawn for several months.

But most turf experts would agree that once it's established, a seeded lawn is superior to a sodded one. The roots are better established, and you can perfectly match the seed to the conditions.

But if you're impatient and love the idea of an instant, perfect carpet of grass, there's nothing like freshly laid sod. After it's laid, moderate watering and routine lawn care are all it requires.

**To find out more about reseeding, go to [familyhandyman.com](http://familyhandyman.com) and search for "reseed a lawn."**



## 3. CUT OUT THE OLD SOD

Rent a power sod cutter to shave off the old sod. If you're just doing a small area, you can rent a "kicker" manual cutter, but beware: These things take a lot of strength and energy to operate. The best way to get rid of the old sod is to rent a trash bin and pay to get rid of it.

### MEET THE EXPERT

**Joe Churchill is a senior turf specialist for Reinders Inc. For over 30 years, he has helped lawn care companies, golf course superintendents and sports turf managers grow healthy, high-performing turf.**







## 4. ADD SOIL AMENDMENTS

Spread whatever amounts and types of soil treatments were called for in your soil testing results. Common soil amendments are lime (to increase soil pH), sulfur (to lower soil pH), gypsum (to flush salts from soil) and compost (to improve soil health and structure).



## 5. TILL AS NEEDED

If your soil requires soil amendments, it's a good idea to till the soil a couple of inches deep to work them into the soil. And if the soil is compacted, the new grass will do much better if you loosen the top couple of inches so roots can more easily penetrate. Tilling isn't necessary if your soil is sandy or loamy and no amendments were needed.

## 6. INSTALL IRRIGATION NOW

If you've always craved the convenience of an irrigation system, this is the time. You won't tear up your new grass to install it later, and this way you'll be able to water your new lawn as it's getting established.

**For more sod tips, search for "how to lay sod" at [familyhandyman.com](http://familyhandyman.com).**

## TIPS FOR SOD LAYING

■ **Consider hiring out the laying.** If you're worn out from all the prep work, rest assured you did it better than many pros would have. Take a break and hire out the sod-laying part! That's a lot of grunt work.

■ **Buy from the growers.** Don't buy sod rolls on pallets from home centers or garden centers. Sod has a very short shelf life and gets dried out and baked, especially if it's out in the sun. Buy directly from sod farms if possible. Chances are your sod will be cut the same day you pick it up or have it delivered.

■ **Use quickly.** If you have sod delivered, keep it out of the sun or use it immediately. Surprisingly, sod rolls begin heating in the center and deteriorate from the inside out.

■ **Be wary of low bids.** Should you

decide to hire out the prep work and sod laying, interview the contractor carefully. Unscrupulous installers will often do little or no prep work and just lay the sod on whatever they find in your yard. Expect to pay more for quality work and sod.

■ **Water, but don't overwater.** Water right after installation. If the sod dries out, the seams will part and cause large gaps between rows and ends. As with seeding, start with light, frequent waterings, and as the roots knit in, back off to encourage them to penetrate deeper into the soil to seek water. When water is needed later, water more deeply. Shallow watering will deter roots from penetrating the soil to seek more moisture.





## It's what your great outdoors deserves.

DeckRite is the beautiful, durable, low maintenance vinyl covering designed for applications on decks, patios, balconies, breezeways or exterior walkways. It is slip resistant, mildew resistant, waterproof and engineered for long-term performance.



**DeckRite**  
Exterior Floor Covering

3912 E. Progress  
North Little Rock, AR 72114  
888-450-DECK (3325)  
www.deckrite.com

## Refresh your faucet



## Replace your aerator



Available in  
a variety of sizes  
and flow rates.

**DR® IS PROUD TO INTRODUCE THE WORLD'S FIRST...**

## Battery-Powered Trimmer Mower!

**ALL-NEW  
PULSE-62V  
Model!**

**ALL THE POWER OF GAS** in a 62V fuel cell that lets you TRIM and MOW for up to 40 minutes on a single charge.

**ENGINEERED FOR YOUR EASE**—push-button electric start, ergonomic handlebars with vibration-dampening grips, PLUS the easiest and fastest cord changing system available!

**NO GAS, OIL, OR PULL-STARTING** thanks to its long-life Lithium-Ion battery.

See the **FULL LINE** of DR® Trimmer Mowers—  
Including Gas-Powered, Tow-Behind, and PTO models.

**62 VOLT  
LITHIUM-ION POWER!**

Uses the same battery that powers our 62V Lawn Mowers and Yard Tools.



19DA9X © 2019

**FREE SHIPPING  
6 MONTH TRIAL**

SOME LIMITATIONS APPLY  
Go online or call for details.

Go Online or Call for **FREE DVD and Catalog!**

**DRtrimmers.com**

**TOLL FREE 888-200-3210**



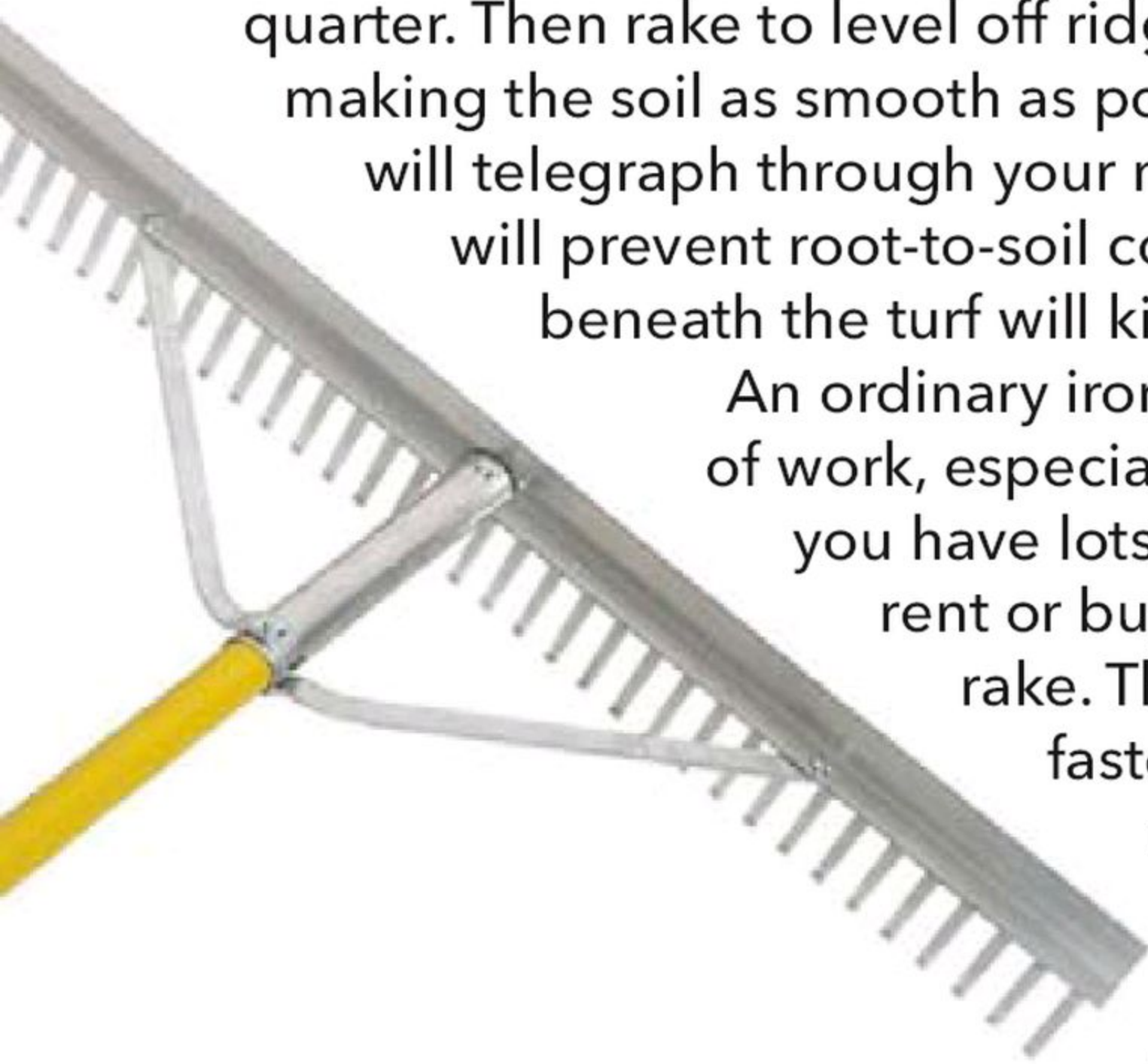
In stores and online  
www.homedepot.com



## 7. RAKE AND REMOVE DEBRIS

Pick up roots, lawn debris and stones larger than a quarter. Then rake to level off ridges and high spots, making the soil as smooth as possible. Uneven spots will telegraph through your new sod, and debris will prevent root-to-soil contact. Air spaces beneath the turf will kill the grass above it.

An ordinary iron rake will take a lot of work, especially for larger yards. If you have lots of grading to do, rent or buy a 36-in. landscaping rake. The job will go much faster and you'll have more consistent results. The rake shown is available online.



## 8. FERTILIZE

Use a starter fertilizer, not ordinary lawn fertilizer. Starter fertilizer contains phosphorus, which isn't allowed in conventional fertilizers. That mineral is crucial for the development of roots, which need to be vigorous for grass to get established.

Presented by **Cub Cadet**



## MOWING YOUR NEW TURF

**C**utting grass isn't just about making it look good; smart mowing means healthier turf.

So after all the effort you put into prepping your new lawn, don't blow it with mowing mistakes.

Here's how to mow for better grass:

■ **Use sharp blades.** Dull blades hack off rather than cut grass tops. The damaged tips will give your yard a brown tinge.

■ **Skip the grass catcher.** Mulching blades chop up the grass clippings before they fall. Once there, they'll give up their nutrients to nourish the grass and help keep moisture in the soil.

■ **Don't cut wet grass.** Wet grass will not only carpet the underside of your mower deck; the thick

clumps left all over your yard will suffocate the grass below it.

■ **Cut tall grass twice.** The rule of thumb is to never mow more than one-third of the grass height at a time. Those long shafts of grass will lie on top of your lawn like hay for weeks. If the lawn has gotten away from you, mow it twice, starting high and dropping the mower deck for the second pass.

■ **Cut at the right height.** Every variety of grass has an ideal cutting height. Cutting too short is a mistake. You're robbing the grass of its food source: the grass blades, which are the plants' food-manufacturing facility. Taller grass also shades the ground, slowing weed growth and water loss from the soil. To find the

ideal mowing height for your grass varieties, search for "mowing heights" at [pennington.com](http://pennington.com).

■ **Consider a zero-turn mower.**

When it's time to upgrade from a push mower to a rider, or replace a rider, consider a zero-turn model. Zero-turns were once used mainly by pros, but now homeowners have a huge selection available.

Unlike with a conventional rider, you steer with two levers, one in each hand. Push or pull on those levers and you control speed and the zero-turn function. Plus, zero-turn mowers fly over the lawn much faster than any garden or lawn tractor. With a zero-turn, you'll find that mowing the yard is fun rather than a boring chore. With its incredible maneuverability, you'll zip closely around trees, follow twists and turns of landscaping features, and instantly change direction.

Cub Cadet, one of the leading manufacturers of outdoor lawn equipment, launched the Ultima Series this spring. It has models ranging from \$2,700 to \$4,700. If you step up from the ZT1 to the ZT2 models, you'll get a bigger mower deck, larger tires, a more comfortable ride, and of course, more power. To learn more, visit your local retailer.

**Get more lawn and backyard advice at [familyhandyman.com/backyard-ideas](http://familyhandyman.com/backyard-ideas)**



# WALK-IN BATHTUB SALE! SAVE \$1,500

*American Standard*  
Walk-In Tubs



**Lifetime Warranty! Finance Options Available\***



*One-Touch Controls*



*Hand Held Shower*



*Low Threshold*



*Comfort & Safety*



*44 Hydrotherapy Jets*

## ✓ EXPERIENCE YOU CAN TRUST!

Only American Standard has **OVER** 140 years of experience and offers the Liberation Walk-In Bathtub.

## ✓ SUPERIOR DESIGN!

Ultra low easy entry and exit design, wide door, built-in safety bar and textured floor provides a safer bathing experience.

## ✓ PATENTED QUICK-DRAIN® TECHNOLOGY

## ✓ LIFETIME WARRANTY!

The **ONLY** Lifetime Warranty on the bath **AND** installation, **INCLUDING** labor backed by American Standard.

## ✓ 44 HYDROTHERAPY JETS!

More than any other tub we've seen.



**FREE!**

Savings Include an American Standard Right Height Toilet FREE! (\$500 Value)



**FREE!**

An In-Home Evaluation Will Be Scheduled At Your Earliest Convenience

**Limited Time Offer! Call Today!**

# 877-578-4566

Or Visit: [www.AmericanStandardBath.com](http://www.AmericanStandardBath.com)



Discount applied at time of purchase. Terms and Conditions Apply. \* Subject to 3rd party credit approval. Minimum monthly payments required. Receive a free American Standard Cadet Toilet with full installation of a Liberation Walk-In Bath, Liberation Shower, or Deluxe Shower. Offer valid only while supplies last. Limit one per household. Must be first time purchaser. All offers subject to change prior to purchase. See [www.AmericanStandardBathtubs.com](http://www.AmericanStandardBathtubs.com) for other restrictions and for licensing, warranty, and company information. \* CSLB B982796; Suffolk NY:5543IH; NYC:HIC#2022748-DCA. Safety Tubs Co. LLC does not sell in Nassau NY, Westchester NY, Putnam NY, Rockland NY.





# Equipment that works as hard as you do.

## Yard Cleanup is EASY with a **DR® CHIPPER SHREDDER!**

**CHIP** big branches up to 5" in diameter.

**SHRED** yard & garden waste up to 1.5" thick.

**POWERFUL ENGINES** spin massive flywheels and shredding hammers to reduce everything FAST.

Check out the full DR® lineup including towable models!

Yard & Garden Waste

Branches



[DRchipper.com](http://DRchipper.com)

19DABA © 2019

## World's Most Powerful Leaf Vacuum!



**Perfect for SPRING CLEAN-UP!**

DR® LEAF VACUUMS have proven in laboratory testing to achieve the most vacuum power versus competitors. And now, our PILOT model combines this same amazing yard clean-up power with an equally amazing new price!



Easy Dumping!



Doubles as a utility trailer!

- ✓ Rated #1 in Vacuum Power
- ✓ Unloads with Just One Hand
- ✓ Converts to an All-Purpose Trailer
- ✓ Stores Flat in Minutes

[DRleafvac.com](http://DRleafvac.com)

19DABB © 2019

**FREE SHIPPING** | **6 MONTH TRIAL** | **EASY FINANCING**  
SOME LIMITATIONS APPLY. GO ONLINE OR CALL FOR DETAILS.

Go Online or Call for FREE DVD & Info Kit!

Includes product specifications and factory-direct offers.

TOLL FREE **888-200-3210**





# PROTECT YOUR FURNACE

Filter failure can cost you thousands

BY TRAVIS LARSON



**If** you're negligent about replacing your furnace filter regularly or you're not using the correct one, listen up. You're not just compromising your indoor air quality. You're also spending more money than necessary on utility bills and repairs, and you may even have to replace your furnace.





## CLOGGED FILTERS WRECK FURNACES

A clogged furnace filter is more serious than it sounds. When a filter clogs, the air simply bypasses the filter and introduces debris into all the important furnace components and the air you breathe. And because the airflow is slower, the furnace electronics can overheat. To prevent damage, the furnace is designed to shut off when that happens. And if it happens often enough, over long periods, the furnace is likely to fail completely.

## BE WARY OF WASHABLE FILTERS

Washable, reusable filters require far more effort than simply swapping a dirty disposable filter for a new one. Plus, it's difficult to get washable filters completely clean. Most washable filters offer MERV ratings only in the 1 to 4 range, so they don't provide good filtration either. Since they cost \$80 to \$100, you'll have to decide if the benefit is worth the price, trouble and substandard filtration. If you choose this route, shop around to find washable filters with MERV ratings of about 9.

## FIBERGLASS IS A POOR FILTER

There's a reason that light passes through fiberglass filters so well—they're very porous. That's why they last so much longer than pleated filters. Because they don't capture the finer debris, they don't clog as fast as higher-quality filters. That fine dust stays in your indoor air and also circulates within the furnace, where it will damage mechanical and electronic parts. Use pleated paper filters instead.

## YOU SHOULD STILL GET YOUR FURNACE SERVICED

You might think frequent filter switch-outs would keep your furnace in tiptop condition, but you'd be wrong. It's still a good idea to have your furnace professionally serviced. The technician will clean internal components and the condensate line, as well as perform a combustion analysis for O<sub>2</sub>, CO and CO<sub>2</sub> to make sure your furnace is performing safely and up to par. Most important, the technician will ensure your heat exchanger is intact, and that's a big safety issue. If you live in an exceptionally clean house, you may be able to go two or more years between services. Ask the technician for advice.





# A HIGHER "MERV" RATING ISN'T ALWAYS BETTER

Furnace filters are "MERV" rated according to the size and quantity of particles they filter. MERV stands for "minimum efficiency reporting value," and the range is from 1 to 16, with 1 being the most porous and 16 the finest. One might think that the higher the MERV rating, the better. But for most homes, a filter in the 8 to 12 range is plenty good. It will filter the vast majority of

airborne particles and protect your furnace components.

MERV filters rated higher than 12 plug up much faster and need more frequent replacement. Only households with respiratory issues, serious allergies or low-immunity issues should bother with them, and you really have to stay on top of filter changes.

| MERV RATINGS   |        |             |       |            |          |                |      |                       |      |            |
|----------------|--------|-------------|-------|------------|----------|----------------|------|-----------------------|------|------------|
| Filter Quality | Pollen | Dust & Lint | Smoke | Pet Dander | Bacteria | Virus Carriers | Mold | Microscopic Allergens | Odor | Dust Mites |
| MERV 13        | ✓      | ✓           | ✓     | ✓          | ✓        | ✓              | ✓    | ✓                     | ✓    | ✓          |
| MERV 11        | ✓      | ✓           | ✓     | ✓          | ✓        | ✓              | ✓    | ✓                     |      | ✓          |
| MERV 8         | ✓      | ✓           |       | ✓          | ✓        |                | ✓    |                       |      | ✓          |
| MERV 6         | ✓      | ✓           |       | ✓          |          |                |      |                       |      | ✓          |

**HOME DEPOT RATES FILTERS DIFFERENTLY**

If you shop at Home Depot, you'll find the filter aisle dominated by filters made by 3M and Honeywell. And you'll be confused because the MERV ratings are replaced by an "FPR" (filter performance rating). That is Home Depot's own rating system—you won't find it at other stores. FPRs are not equivalent to MERV ratings. Roughly, a MERV rating of 8 matches an FPR of 5, and a MERV 11 is close to an FPR of 7. Our advice? Next time you have your furnace serviced, ask the technician to recommend a filter to suit your home air-quality needs and protect your furnace.

| MERV | FPR |
|------|-----|
| 13   | 10  |
| 11   | 7   |
| 8    | 5   |
| 6    | N/A |



✓Yes



Look New Again!  
✓Yes



xNo



✓Yes



✓Yes



✓Yes

✓ Reliably Low Prices  
✓ Easy To Use Website  
✓ Huge Selection  
✓ Fast Shipping  
[www.rockauto.com](http://www.rockauto.com)



ROCKAUTO.COM  
ALL THE PARTS YOUR CAR WILL EVER NEED



## REPLACEMENT FREQUENCY VARIES

You should change your filters when you need to—not on some arbitrary schedule. Depending on your filter and home environment, filters may need replacing anywhere from 20 days to a full year.

How do you tell? First of all, always have at least one new replacement filter on hand. Every 20 to 30 days, take a few seconds to pull the filter from your furnace and compare it with the new one. You'll be able to tell whether the filter is covered with dust and needs to be replaced. Never go more than 60 days between changes for any 1-in. filter.



## BUY IN BULK

Here's why it pays to have extra filters on hand: When you buy in bulk, you'll save money. When you're checking a filter to see if it needs replacement, you'll have a new one for comparison. And finally, you'll be able to install a new filter right away.

## REPLACE FILTERS IN SUMMER, TOO

Whenever your HVAC system is running, the filter is getting dirty. That's not only during the heating season but also through the warmer months. During the cooling season, the air flows through the furnace exactly the same way it does when you're heating the house. So it's important to check your filter all year long. However, if you live in a mild climate where the furnace is off for long stretches, you can skip the regular filter checks during those periods.



### MEET THE EXPERT

Seth Roe holds an HVAC journeyman card, is NATE certified and has been with Standard Heating & Air Conditioning for 15 years. He is one of the lead trainers for incoming techs.



100% COTTON • UP TO 52" WAIST • ALL SIZES ONE PRICE



Best of  
British style  
since 1987

- Softly peached cotton
- Flat front styling
- Side elastic for comfort
- Up to 52" waist
- Front, back and cargo pockets
- Zip fly and button fastening to waist

DUSKY BLUE

UP TO  
**52"**  
WAIST

**4**  
LENGTHS

#### CARGO COMFORT PANTS

~~\$55~~ \$26 **SAVE \$29**

Machine Washable 100% Cotton  
Classic Navy Brown Buttermilk Dusky Blue

Imported  
Sizes 32-52

27" (68.5cm) inside leg

**AC13364 OFU**

29" (74cm) inside leg

**AC13365 OFU**

31" (79cm) inside leg

**AC13366 OFU**

Sizes 32-48

33" (84cm) inside leg

**AC13367 OFU**

#### CARGO COMFORT SHORTS

~~\$48~~ \$22

**SAVE \$26**

Machine Washable  
100% Cotton

Classic Navy Brown Buttermilk

Dusky Blue

Imported

Sizes 32-52

8.5" (22cm) inside leg

**AF10409 OFU**

UP TO  
**\$29 OFF**  
FROM ONLY  
**\$22**

“Excellent product,  
well finished and  
very comfortable.  
The style and  
convenience is  
excellent.”  
Online review

BUTTERMILK



CLASSIC NAVY

BUTTERMILK

BROWN

DUSKY BLUE

**HALF PRICE** shipping only \$4.50 – LIMITED TIME  
**FREE** when you spend \$79 or more

**FREE RETURNS\*** WITH **PayPal**

See website for more information on our simple, local returns service

order today at **us.cottontraders.com**  
or call toll **FREE 1-855-246-3333**

**90 DAY MONEY  
BACK GUARANTEE  
IF NOT COMPLETELY  
SATISFIED**

**PLEASE USE THIS  
CODE TO CLAIM  
YOUR OFFER**

**BC8U**

**Terms & conditions:** Offer ends 08/14/2019. \$4.50 shipping offer available for a limited time only. We aim to deliver within 7 working days from dispatch, stock subject to availability. Full T&Cs at us.cottontraders.com.



# Work Wheels

Expert advice on repair, maintenance and gear. By Travis Larson



## GET A LEG UP!

**N**ewer pickups often feature built-in steps so you can easily access your pickup bed. Some steps are built into the bumper; others are part of the tailgate like the one on the Ford F-150 shown above. The steps are handy for pros and DIYers alike, especially if you have an elevated 4WD pickup.

If you have an older truck, there's no need to cry in your beer—you'll find many aftermarket truck steps to choose from. Some bolt onto the bumper and fold up or slide out of the way under the bed; others slip into the receiver hitch and telescope or swing out when needed. You'll find styles to help you access both the rear and the side of the bed. Just search online for "truck steps"—you'll find something to suit your needs and the size of your wallet.



**This retractable Lund BedStep is just one aftermarket option. It's rated for 300 lbs. and costs \$220 at [realtruck.com](http://realtruck.com).**

TOP: **FORD** BOTTOM: **LUND**



# Remove a stubborn oil filter

We've all done it—overtightened an oil filter so much that it's a bear to remove. You can't just remove it by jamming a long screwdriver through the can and twisting; the screwdriver will just rip the can open and you'll be drenched in oil. When you're done dealing with that mess, the filter will still be stuck.

Instead, remove a stuck filter using a band-type wrench. First, line the wrench with coarse-grit adhesive-back sandpaper (**top photo**). Or spray adhesive on the back of regular sandpaper. Better yet, buy a filter wrench with coarse grit welded to the inside of the band (**bottom photo**). Lisle Swivel-Gripper No-Slip filter wrenches are available in several sizes and cost about \$14 online. Slide the filter wrench band all the way down near the base of the filter. Then tighten it and twist.



**ADD GRIT FOR A BETTER GRIP** Slice a strip of adhesive-back sandpaper and slip it inside a band-style filter wrench. Then remove the adhesive liner and press it into place.

## GET A FILTER WRENCH WITH BUILT-IN GRIT

Slide a Swivel-Gripper filter wrench toward the base of the filter. Rotate the handle to force the grit into the metal. Then swivel the handle and twist off the filter.



## SECURE YOUR GEAR

No cable lock can protect against thieves with bolt cutters, but this truck bed cable lock can sure slow them down. The ToyLok unit shown includes an 18-ft. retractable cable and mounts in a stake pocket with a bracket (sold separately). Other mounting brackets allow you to mount the lock to your trailer hitch, RV bumper or toolbox. To see this and other models, search online for "ToyLok cargo security system."

# Fix a cracked windshield

**Q** Is it true that windshield cracks are dangerous if you get in an accident? If not, I really don't want to pay to get mine fixed.

**A** In many cars, the passenger-side air bag is designed to ricochet off the windshield and project into the passenger. So if the airbag deploys against a cracked windshield, the glass can shatter and prevent proper airbag operation. In addition, the windshield helps support the roof during a crash. The bottom line: Driving with a cracked windshield really is dangerous, and in most states, also illegal.



# Wash first—with the right suds

Even though hand dishwashing liquid is a great degreaser, don't use it on the body of your vehicle. It removes dirt, grease and old wax, but it also sucks important oils right out of the paint finish. If you use it repeatedly, you'll shorten the life of your paint job. Instead of dish soap, use a cleaner formulated for vehicles (available at auto parts stores).

Once you've mixed the suds, fill a second bucket with clean water. Rinse the mitt in it often as you're washing. That'll remove most of the road grit from the mitt to prevent scratches. When you're finished, throw the mitt in the washing machine to get it completely clean.



# HARBOR FREIGHT

QUALITY TOOLS AT RIDICULOUSLY LOW PRICES

1,000+ Stores Nationwide  
HarborFreight.com

**SCISSOR SUPER COUPON**

## FREE

WITH ANY PURCHASE  
**CANTECH**  
7 FUNCTION DIGITAL MULTIMETER

- 3.5" LCD Display
- Battery Included

COMPARE TO PROSKIT \$16.23  
MODEL: MT-1210  
ITEM 98025/30756  
63604/63758/63759/69096/90899 shown

58721349

Cannot be used with other discounts or prior purchases. Original coupon must be presented. Valid through 8/23/19 while supplies last. Limit 1 FREE GIFT per customer per day.

**Bauer** SCISSOR SUPER COUPON

10 AMP DEEP CUT VARIABLE SPEED BAND SAW KIT

NOW \$99.99

COMPARE TO DEWALT \$269.96  
MODEL: DWM120  
ITEM 63763/64194/63444 shown

SAVE \$169

Blade sold separately.

58727907

LIMIT 1 - Coupon valid through 8/23/19\*

**PITTSBURGH** SCISSOR SUPER COUPON

12" RATCHET BAR CLAMP/SPREADER

LIFETIME WARRANTY

Customer Rating ★★★★★

COMPARE TO IRWIN \$19.98  
MODEL: 1964718  
ITEM 62123/63017/69222 shown

SAVE 85% \$3.99

NOW \$2.99

58728616

LIMIT 5 - Coupon valid through 8/23/19\*

**CENTRAL PNEUMATIC** SCISSOR SUPER COUPON

18 GAUGE, 2-IN-1 NAILER/STAPLER

WE CARRY A FULL LINE OF NAILS

Customer Rating ★★★★★

COMPARE TO PORTER-CABLE \$49.97  
MODEL: BN200C  
ITEM 63156/64269/68019 shown

SAVE 68% \$22.99

NOW \$15.99

58730016

LIMIT 4 - Coupon valid through 8/23/19\*

**CENTRAL MACHINERY** SCISSOR SUPER COUPON

4" x 36" BELT/6" DISC SANDER

Customer Rating ★★★★★

COMPARE TO RYOBI \$149  
MODEL: BD46016  
ITEM 64778/97181 shown

SAVE \$84

NOW \$64.99

58732063

LIMIT 1 - Coupon valid through 8/23/19\*

**SCISSOR SUPER COUPON**

# 20% OFF

ANY SINGLE ITEM\*

58721580

Limit 1 coupon per customer per day. Save 20% on any 1 item purchased. \*Cannot be used with other discount, coupon or any of the following items or brands: Inside Track Club membership, Extended Service Plan, gift card, open box item, 3 day Parking Lot Sale item, compressors, floor jacks, safes, saw mills, storage cabinets, chests or carts, trailers, trencher/backhoe, welders, Admiral, Ames, Bauer, Cobra, CoverPro, Daytona, Diamondback, Earthquake, Fischer, Hercules, Icon, Jupiter, Lynxx, Poulan, Predator, Tailgator, Viking, Vulcan, Zurich. Not valid on prior purchases. Non-transferable. Original coupon must be presented. Valid through 8/23/19.

**Bauer** SCISSOR SUPER COUPON

20 VOLT LITHIUM CORDLESS 1/2" COMPACT DRILL/DRIVER KIT

- 450 in. lbs. of torque
- 1.5 amp hour battery
- Weighs 3.4 lbs.

Customer Rating ★★★★★

COMPARE TO RYOBI \$79  
MODEL: P1811  
ITEM 64754/63531 shown

SAVE 24%

NOW \$59.99

58728783

LIMIT 2 - Coupon valid through 8/23/19\*

**CHICAGO ELECTRIC POWER TOOLS** SCISSOR SUPER COUPON

2.5 HP, 10" INDUSTRIAL TILE/BRICK SAW

Customer Rating ★★★★★

COMPARE TO KOBALT \$499  
MODEL: KWS S10-06  
ITEM 95385/62391/69275 shown

SAVE \$279

NOW \$219.99

58730044

LIMIT 1 - Coupon valid through 8/23/19\*

**HaulMaster** SCISSOR SUPER COUPON

4 PIECE, 1" x 15 FT. RATCHETING TIE DOWNS

- 400 lb. working load

Customer Rating ★★★★★

COMPARE TO KEEPER \$22.80  
MODEL: 5505  
ITEM 63094/90984/60405/63056/63057/63150/61524 shown

SAVE 69%

NOW \$6.99

58733612

LIMIT 1 - Coupon valid through 8/23/19\*

**U.S. GENERAL SERIES 2** SCISSOR SUPER COUPON

30", 5 DRAWER MECHANIC'S CARTS

- 15,000 cu. in. of storage
- 700 lb. capacity
- Weighs 139 lbs.

Customer Rating ★★★★★

YOUR CHOICE OF COLOR

NOW IN 6 FANTASTIC COLORS

SAVE \$640

COMPARE TO Snap-on BLUE-POINT \$830  
MODEL: KRBC10TBPE5

NOW \$219.99

58727319

LIMIT 1 - Coupon valid through 8/23/19\*

**CENTRAL PNEUMATIC** SCISSOR SUPER COUPON

21 GALLON, 125 PSI OIL LUBE AIR COMPRESSOR

GOOD Great Value

SAVE \$39

COMPARE TO HUSKY \$199  
MODEL: C201H  
ITEM 61454/69091/62803/63635/67847 shown

SAVE 24%

NOW \$159.99

58729067

LIMIT 1 - Coupon valid through 8/23/19\*

**McGRAW** SCISSOR SUPER COUPON

20 GALLON, 135 PSI OIL LUBE AIR COMPRESSOR

BETTER Superior Features

2x LIFE

25% QUIETER

27% MORE RUN TIME

SAVE \$80

COMPARE TO PORTER-CABLE \$249.99  
MODEL: 118903799  
ITEM 56241/64857 shown

SAVE 36%

NOW \$169.99

58729684

LIMIT 1 - Coupon valid through 8/23/19\*

**HaulMaster** SCISSOR SUPER COUPON

18" x 12" MOVER'S DOLLY

- 1000 lb. capacity

Customer Rating ★★★★★

COMPARE TO BUFFALO TOOLS \$22.99  
MODEL: HDPDOLLY  
ITEM 63098/60497/63095/63096/63097/61899 shown

SAVE 65%

NOW \$7.99

58731040

LIMIT 5 - Coupon valid through 8/23/19\*

**Bauer** SCISSOR SUPER COUPON

15 AMP, 12-1/2" PORTABLE THICKNESS PLANNER

Customer Rating ★★★★★

COMPARE TO DEWALT \$449  
MODEL: DW734  
ITEM 63445

SAVE \$189

NOW \$259.99

58731412

LIMIT 1 - Coupon valid through 8/23/19\*

**PORTLAND** SCISSOR SUPER COUPON

1750 PSI ELECTRIC PRESSURE WASHER

- 1.3 GPM
- Adjustable spray nozzle

Customer Rating ★★★★★

COMPARE TO BRIGGS & STRATTON \$174.44  
MODEL: 20600  
ITEM 63255/63254 shown

SAVE \$94

NOW \$79.99

58735007

LIMIT 1 - Coupon valid through 8/23/19\*

**drillmaster** SCISSOR SUPER COUPON

4-1/2" ANGLE GRINDER

Customer Rating ★★★★★

COMPARE TO PERFORMAX \$17.99  
MODEL: 2411-1  
ITEM 69645/95578/60625 shown

SAVE 44%

NOW \$9.99

58735883

LIMIT 4 - Coupon valid through 8/23/19\*



**GOOD**

**CHICAGO ELECTRIC POWER TOOLS**

**SCISSOR SUPER COUPON**

**12" DUAL-BEVEL SLIDING COMPOUND MITER SAW**

Customer Rating ★★★★★

BLADE SOLD SEPARATELY

ITEM 69684 61970/61969 shown

**3-1/2" VERTICAL CROWN MOLDING CAPACITY**

**2-5/8" TALL SLIDING FENCES**

**LASER GUIDE LIGHT**

**\$139<sup>99</sup>** ~~\$189<sup>99</sup>~~

**SAVE \$89** COMPARE TO PROFESSIONAL WOODWORKER **\$229<sup>80</sup>** MODEL: 8637

58736831

LIMIT 1 - Coupon valid through 8/23/19\*

**BETTER**

**ADMIRAL**

**SCISSOR SUPER COUPON**

**12" DUAL-BEVEL SLIDING COMPOUND MITER SAW**

Customer Rating ★★★★★

**FREE BLADE INCLUDED** **\$19<sup>99</sup>** VALUE

ITEM 64686

**6-1/2" VERTICAL CROWN MOLDING CAPACITY**

**4-1/2" TALL SLIDING FENCES**

**LASER GUIDE LIGHT & LED WORK LIGHT**

**\$179** ~~\$189<sup>99</sup>~~

**SAVE \$90** COMPARE TO RYOBI **\$269** MODEL: TSS120L

58736605

LIMIT 1 - Coupon valid through 8/23/19\*

**BEST**

**HERCULES**

**SCISSOR SUPER COUPON**

**PROFESSIONAL 12" DUAL-BEVEL SLIDING COMPOUND MITER SAW**

Customer Rating ★★★★★

**FREE BLADE INCLUDED** **\$44<sup>99</sup>** VALUE

ITEM 63978

**7-1/2" VERTICAL CROWN MOLDING CAPACITY**

**4-3/4" TALL SLIDING FENCES**

**LED PRECISION SHADOW GUIDE LIGHT**

**\$299** ~~\$349<sup>99</sup>~~

**SAVE \$200** COMPARE TO DEWALT **\$499** MODEL: DWS780

58738827

LIMIT 1 - Coupon valid through 8/23/19\*

**SCISSOR SUPER COUPON**

**FREE** WITH ANY PURCHASE

**PITTSBURGH**

**4-IN-1 SCREWDRIVER**

- Soft-Grip Handle
- Stores Bits
- 2 Slotted
- 2 Phillips Head

COMPARE TO HDX **\$3<sup>97</sup>** MODEL: 12SD12D

ITEM 39631/69470/98899/61988 shown

58722677

Cannot be used with other discounts or prior purchases. Original coupon must be presented. Valid through 8/23/19 while supplies last. Limit 1 FREE GIFT per customer per day.

**FRANKLIN** **SCISSOR SUPER COUPON**

**17 FT. TYPE IA MULTI-TASK LADDER**

- Versatile - 24 configurations
- Safe + Secure + Stable
- Super Strong - Holds 300 lbs.
- Weighs 34 lbs.

Customer Rating ★★★★★

**NOW \$109<sup>99</sup>** ~~\$139<sup>99</sup>~~

COMPARE TO LITTLE GIANT **\$298<sup>99</sup>** MODEL: XE M17

**SAVE \$189**

ITEM 67646/63418/63419/63417 shown

58741182

LIMIT 1 - Coupon valid through 8/23/19\*

**PITTSBURGH** **SCISSOR SUPER COUPON**

**RAPID PUMP® 1.5 TON LIGHTWEIGHT ALUMINUM FLOOR JACK**

- 3-1/2 pumps lifts most vehicles
- Lifts from 3-1/2" to 14-1/8"
- Weighs 34 lbs.

Customer Rating ★★★★★

**NOW \$59<sup>99</sup>** ~~\$79<sup>99</sup>~~

COMPARE TO K TOOL **\$151<sup>42</sup>** MODEL: KT163094

**SAVE \$91**

ITEM 64545/64552/64832/64980 68053/62160/62496/62516/60569 shown

58743819

LIMIT 1 - Coupon valid through 8/23/19\*

**HARDY** **SCISSOR SUPER COUPON**

**PADDED MECHANIC'S GLOVES**

Customer Rating ★★★★★

- Synthetic leather palm and fingers for strength and durability

**NOW \$7<sup>99</sup>** ~~\$9<sup>99</sup>~~

COMPARE TO HUSKY **\$11<sup>97</sup>** MODEL: 006-321

**SAVE 33%**

ITEM 64539 62423/64540 62424/64541 62425 shown

58743916

LIMIT 4 - Coupon valid through 8/23/19\*

**CENTRAL MACHINERY** **SCISSOR SUPER COUPON**

**350 LB. CAPACITY FOLDABLE SAWHORSE**

Customer Rating ★★★★★

**NOW \$8<sup>99</sup>** ~~\$12<sup>99</sup>~~

COMPARE TO STANLEY **\$17<sup>99</sup>** MODEL: STST11200

**SAVE 50%**

ITEM 61979/60710/69446 shown

58739039

LIMIT 4 - Coupon valid through 8/23/19\*

**CENTRAL MACHINERY** **SCISSOR SUPER COUPON**

**14" OSCILLATING SPINDLE SANDER**

Customer Rating ★★★★★

**NOW \$109<sup>99</sup>** ~~\$144<sup>99</sup>~~

**SAVE \$60**

COMPARE TO TRITON TOOLS **\$170<sup>42</sup>** MODEL: TSPS450

ITEM 95088/62146/69257 shown

58744120

LIMIT 1 - Coupon valid through 8/23/19\*

**COVERPRO** **SCISSOR SUPER COUPON**

**10 FT. x 20 FT. PORTABLE CAR CANOPY**

Customer Rating ★★★★★

**SAVE \$99** ~~\$119<sup>99</sup>~~ **NOW \$99<sup>99</sup>**

COMPARE TO SHELTER LOGIC **\$199** MODEL: 23522

ITEM 63054/62858 shown

58744837

LIMIT 1 - Coupon valid through 8/23/19\*

**CHICAGO ELECTRIC POWER TOOLS** **SCISSOR SUPER COUPON**

**RECIPROCATING SAW WITH ROTATING HANDLE**

Customer Rating ★★★★★

Blade sold separately.

**NOW \$19<sup>99</sup>** ~~\$28<sup>99</sup>~~

COMPARE TO PORTER-CABLE **\$59<sup>98</sup>** MODEL: PCE360

**SAVE 66%**

ITEM 65570/61884/62370 shown

58744964

LIMIT 3 - Coupon valid through 8/23/19\*

**SCISSOR SUPER COUPON**

**7 FT. 4" x 9 FT. 6" ALL PURPOSE/WEATHER RESISTANT TARP**

Customer Rating ★★★★★

**NOW \$2<sup>99</sup>** ~~\$4<sup>99</sup>~~

COMPARE TO BLUE HAWK **\$8<sup>78</sup>** MODEL: BG8X10-Y

**SAVE 65%**

ITEM 69115/69121/69129/69137/69249/877 shown

58747221

LIMIT 4 - Coupon valid through 8/23/19\*

**luminar OUTDOOR** **SCISSOR SUPER COUPON**

**24 FT., 18 BULB, 12 SOCKET OUTDOOR STRING LIGHTS**

Customer Rating ★★★★★

**NOW \$19<sup>99</sup>** ~~\$26<sup>99</sup>~~

COMPARE TO PORTFOLIO **\$39<sup>98</sup>** MODEL: SLG12BK

**SAVE 50%**

ITEM 64486 63483 shown

59087254

LIMIT 3 - Coupon valid through 8/23/19\*

**WARRIOR** **SCISSOR SUPER COUPON**

**29 PIECE TITANIUM DRILL BIT SET**

Customer Rating ★★★★★

**NOW \$9<sup>99</sup>** ~~\$17<sup>99</sup>~~

COMPARE TO DEWALT **\$68<sup>14</sup>** MODEL: DW1369

**SAVE 85%**

ITEM 62281 61637 shown

58748451

LIMIT 4 - Coupon valid through 8/23/19\*

**Lifetime CARBIDE** **SCISSOR SUPER COUPON**

**ALUMINUM OXIDE SANDING SPONGES PACK OF 10**

Customer Rating ★★★★★

Item 46751 shown

**YOUR CHOICE \$3<sup>99</sup>** ~~\$4<sup>99</sup>~~

COARSE ITEM 46751/63918 MEDIUM ITEM 46752/63915 FINE ITEM 63912/46753

**SAVE 20%**

58748530

LIMIT 1 - Coupon valid through 8/23/19\*

**WINDSOR DESIGN** **SCISSOR SUPER COUPON**

**60" HARDWOOD WORKBENCH WITH 4 DRAWERS**

Customer Rating ★★★★★

**NOW \$119<sup>99</sup>** ~~\$149<sup>99</sup>~~

COMPARE TO GRIZZLY **\$425** MODEL: H7723

Tools sold separately.

**SAVE \$305**

ITEM 93454/69054/63395/62603 shown

58748562

LIMIT 1 - Coupon valid through 8/23/19\*

**KRAUSE & BECKER** **SCISSOR SUPER COUPON**

**AIRLESS PAINT SPRAYER KIT**

Customer Rating ★★★★★

**NOW \$169<sup>99</sup>** ~~\$214<sup>99</sup>~~

**SAVE \$129**

COMPARE TO GRACO **\$299** MODEL: 262800

ITEM 68001/62915/60600 shown

58748900

LIMIT 1 - Coupon valid through 8/23/19\*

\*Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 8/23/19.

At Harbor Freight Tools, the "Compare to" price means that the specified comparison, which is an item with the same or similar function, was advertised for sale at or above the "Compare to" price by another national retailer in the U.S. within the past 90 days. Prices advertised by others may vary by location. No other meaning of "Compare to" should be implied. For more information, go to HarborFreight.com or see store associate.



# HARBOR FREIGHT

QUALITY TOOLS AT RIDICULOUSLY LOW PRICES

1,000+ Stores Nationwide  
HarborFreight.com

## SUPER COUPON

# FREE

PITTSBURGH

WITH ANY PURCHASE

1" x 25 FT.  
TAPE MEASURE

- Thumb Lock
- Rubber Wrapped Case

COMPARE TO  
KOMELON  
\$698

MODEL: L4825HV

LIFETIME WARRANTY

ITEM 69030/69031 shown

58724687

Cannot be used with other discounts or prior purchases. Original coupon must be presented. Valid through 8/23/19 while supplies last. Limit 1 FREE GIFT per customer per day.

PITTSBURGH

SUPER COUPON

Customer Rating  
★★★★★

### CLICK-TYPE TORQUE WRENCHES

LIFETIME WARRANTY

- Reversible

| DRIVE | ITEM                   |
|-------|------------------------|
| 1/4"  | 61277/63881/2696/94735 |
| 3/8"  | 61276/63880/807/94892  |
| 1/2"  | 62431/63882/239/94850  |

Item 239 shown

COMPARE TO  
HUSKY  
\$8997

MODEL: H20TWA

SAVE 88%

~~\$1999~~

**NOW \$999**

58751881

LIMIT 4 - Coupon valid through 8/23/19\*

## EARTHQUAKE XT

SUPER COUPON

### 1/2" COMPOSITE PRO EXTREME TORQUE AIR IMPACT WRENCH

Customer Rating  
★★★★★

1190 TORQUE  
FT. LBS.  
BOLT BREAKAWAY

**NOW \$12999**

- Weighs 4.4 lbs.

~~\$14999~~

COMPARE TO  
SNAP-ON

MODEL: PT850

SAVE \$484

~~\$61495~~

ITEM 62891

58750160

LIMIT 1 - Coupon valid through 8/23/19\*

CHICAGO ELECTRIC

SUPER COUPON

### VARIABLE SPEED MULTIFUNCTION POWER TOOL

Customer Rating  
★★★★★



COMPARE TO  
DREMEL

MODEL: MM20-02H

SAVE 68%

~~\$3799~~

Accessories included.

ITEM 63113/67537/62867/63111 shown

58752261

LIMIT 2 - Coupon valid through 8/23/19\*

CENTECH

SUPER COUPON

### AUTOMATIC BATTERY FLOAT CHARGER

Customer Rating  
★★★★★

**NOW \$499**

SAVE 83%

COMPARE TO  
SCHUMACHER ELECTRIC

MODEL: SC1

SAVE \$999

~~\$3041~~

ITEM 69594/69955/64284/42292 shown

58750384

LIMIT 5 - Coupon valid through 8/23/19\*

PREDATOR

SUPER COUPON

Customer Rating  
★★★★★

### 6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINE

**NOW \$9999**

~~\$11999~~

SAVE \$230

ITEM 60363/69730

ITEM 69727 shown

CALIFORNIA ONLY

COMPARE TO  
HONDA

MODEL: GX200UT20X2

58750912

LIMIT 1 - Coupon valid through 8/23/19\*

PITTSBURGH

SUPER COUPON

Customer Rating  
★★★★★

### CLICK-TYPE TORQUE WRENCHES

LIFETIME WARRANTY

- Reversible

| DRIVE | ITEM                   |
|-------|------------------------|
| 1/4"  | 61277/63881/2696/94735 |
| 3/8"  | 61276/63880/807/94892  |
| 1/2"  | 62431/63882/239/94850  |

Item 239 shown

COMPARE TO  
HUSKY  
\$8997

MODEL: H20TWA

SAVE 88%

~~\$1999~~

**NOW \$999**

58751881

LIMIT 4 - Coupon valid through 8/23/19\*

CHICAGO ELECTRIC

SUPER COUPON

### VARIABLE SPEED MULTIFUNCTION POWER TOOL

Customer Rating  
★★★★★



COMPARE TO  
DREMEL

MODEL: MM20-02H

SAVE 68%

~~\$3799~~

Accessories included.

ITEM 63113/67537/62867/63111 shown

58752261

LIMIT 2 - Coupon valid through 8/23/19\*

HaulMaster

SUPER COUPON

### HEAVY DUTY HAND TRUCK

Customer Rating  
★★★★★

- 600 lb. capacity
- 10" pneumatic tires

SAVE 50%

COMPARE TO  
MILWAUKEE

MODEL: 70019

SAVE \$5999

~~\$3999~~

ITEM 62775/62776/62973/95061 shown

58755960

LIMIT 3 - Coupon valid through 8/23/19\*

Apache

SUPER COUPON

### ULTRA-LIGHT, CRUSH PROOF WEATHER-RESISTANT LOCKABLE CASE

Customer Rating  
★★★★★

- 8-1/8" L
- 5-5/8" W
- 3-3/4" H

SAVE 74%

COMPARE TO  
PELICAN

MODEL: 1150

SAVE \$3995

~~\$1499~~

ITEM 64550

63518 shown

Case contents and locks not included.

58758424

LIMIT 5 - Coupon valid through 8/23/19\*

## SUPER COUPON

### TWO TIER EASY-STORE STEP LADDER

- 225 lb. capacity

Customer Rating  
★★★★★

**NOW \$1999**

SAVE 40%

~~\$2999~~

COMPARE TO  
WERNER

MODEL: S322A-1

SAVE \$3388

~~\$3388~~

ITEM 67514

58758879

LIMIT 4 - Coupon valid through 8/23/19\*

PORTLAND

SUPER COUPON

### 7 AMP ELECTRIC POLE SAW 9.5" BAR

Customer Rating  
★★★★★

**NOW \$5999**

~~\$7999~~

COMPARE TO  
WORX

MODEL: WG309

SAVE \$9998

~~\$9998~~

ITEM 68862/63190/62896 shown

58760445

LIMIT 1 - Coupon valid through 8/23/19\*

PITTSBURGH

SUPER COUPON

### 50" CLAMP AND CUT EDGE GUIDE

Customer Rating  
★★★★★

LIFETIME WARRANTY



COMPARE TO  
BORA

MODEL: 543050

SAVE \$3998

~~\$2299~~

ITEM 66581

58760784

LIMIT 4 - Coupon valid through 8/23/19\*

HaulMaster

SUPER COUPON

### 1000 LB. CAPACITY SWING-BACK TRAILER JACK

Customer Rating  
★★★★★

- Height range: 12-1/2" to 24"

SAVE 64%

COMPARE TO  
REESE

MODEL: 74410

SAVE \$4999

~~\$2599~~

ITEM 69780/41005 shown

59089474

LIMIT 5 - Coupon valid through 8/23/19\*

## drillmaster

SUPER COUPON

### 18 VOLT, 3/8" CORDLESS DRILL/DRIVER KIT WITH KEYLESS CHUCK

Customer Rating  
★★★★★

**NOW \$1699**

~~\$1999~~

Includes one 18V NiCd battery and charger.

COMPARE TO  
BLACK + DECKER

MODEL: GC1801

SAVE \$5999

~~\$1999~~

ITEM 69651/62868/62873 shown

58762375

LIMIT 3 - Coupon valid through 8/23/19\*

THUNDERBOLT solar

SUPER COUPON

### 100 WATT SOLAR PANEL KIT

Customer Rating  
★★★★★



RENEWABLE ENERGY ANYWHERE

COMPARE TO  
SUNFORCE

MODEL: 50180

SAVE \$29244

~~\$142~~

ITEM 64335/63585 shown

58762538

LIMIT 1 - Coupon valid through 8/23/19\*

WINDSOR DESIGN

SUPER COUPON

### DOVETAIL JIG

Customer Rating  
★★★★★



SAVE 40%

COMPARE TO  
GENERAL TOOLS

MODEL: 861

SAVE \$4716

~~\$3499~~

ITEM 34102

58763595

LIMIT 2 - Coupon valid through 8/23/19\*

## SUPER COUPON

Fits most flat screen TVs from 37" to 80"

### FULL-MOTION TV WALL MOUNT

Customer Rating  
★★★★★



COMPARE TO  
ROCKETFISH

MODEL: RF-HTVM170C

SAVE \$19999

~~\$4999~~

ITEM 64037/63155 shown

58763610

LIMIT 5 - Coupon valid through 8/23/19\*

## Lynxx

SUPER COUPON

### 40 VOLT LITHIUM CORDLESS BRUSHLESS BLOWER

Customer Rating  
★★★★★

**NOW \$12999**

~~\$14999~~

COMPARE TO  
DEWALT

MODEL: DCB1790B

SAVE \$199

~~\$69~~

ITEM 64716/64481/63284 shown

58764360

LIMIT 1 - Coupon valid through 8/23/19\*

CHICAGO ELECTRIC

SUPER COUPON

### MIG/FLUX WELDING CART

Customer Rating  
★★★★★

**NOW \$2999**

~~\$3999~~

SAVE \$70

COMPARE TO  
FORNEY

MODEL: 117535099

SAVE \$9999

~~\$3999~~

Welders, tools & supplies sold separately.

ITEM 61316/90305/60790/69340 shown

59065623

LIMIT 2 - Coupon valid through 8/23/19\*

VOYAGER

SUPER COUPON

### 12" TOOL BAG WITH 21 POCKETS

Customer Rating  
★★★★★

**NOW \$499**

~~\$899~~

SAVE 75%

Tools sold separately.

COMPARE TO  
AWP

MODEL: 3L-2216

SAVE \$1998

~~\$899~~

ITEM 38168/62163/62349/61467 shown

58767414

LIMIT 5 - Coupon valid through 8/23/19\*

PREDATOR

SUPER COUPON



**SCISSOR SUPER COUPON**

# FREE

3-1/2" SUPER BRIGHT ALUMINUM FLASHLIGHT

- 9 LED
- Compact, Lightweight

COMPARE TO RAYOVAC \$297  
MODEL: BR50LED-B

ITEM 63599/62522/63875/63884  
63886/63888/69111/69052 shown

58725478

Cannot be used with other discounts or prior purchases. Original coupon must be presented. Valid through 8/23/19 while supplies last. Limit 1 FREE GIFT per customer per day.

**CENTRAL PNEUMATIC** SCISSOR SUPER COUPON

## 3 GALLON, 100 PSI OIL-FREE AIR COMPRESSORS

A. HOT DOG  
ITEM 69269/97080 shown

B. PANCAKE  
ITEM 61615/60637  
95275 shown

Customer Rating ★★★★★

Air delivery: 0.6 CFM @ 90 PSI

COMPARE TO PORTER-CABLE \$9862  
MODEL: PCFP02003

YOUR CHOICE **NOW \$399**

SAVE 59% **\$5099**

58769309

LIMIT 3 - Coupon valid through 8/23/19\*

**CENTRAL MACHINERY** SCISSOR SUPER COUPON

## 2 HP, 5 MICRON INDUSTRIAL DUST COLLECTOR

- 70 gallon capacity

Customer Rating ★★★★★

COMPARE TO SHOP FOX \$40599  
MODEL: W1685

SAVE \$226 **NOW \$17999**

~~\$20999~~

ITEM 61790/97869 shown

58770966

LIMIT 1 - Coupon valid through 8/23/19\*

**SCISSOR SUPER COUPON**

## SOLAR ROPE LIGHT

- Great outdoor accent lighting
- Super bright light

**NOW \$899**

Customer Rating ★★★★★

COMPARE TO HAMPTON BAY \$3297  
MODEL: 84130

SAVE 72% **\$1299**

ITEM 62533/63941/64625/68353 shown

59068503

LIMIT 4 - Coupon valid through 8/23/19\*

**PITTSBURGH** SCISSOR SUPER COUPON

## 16 OZ. HAMMERS WITH FIBERGLASS HANDLE

LIFETIME WARRANTY

Customer Rating ★★★★★

YOUR CHOICE **NOW \$299**

SAVE 70% **\$489**

COMPARE TO KOBALT \$998  
MODEL: 62742

| TYPE | ITEM                    |
|------|-------------------------|
| CLAW | 69006/60715/60714/47872 |
| RIP  | 69005/61262/47873       |

58772498

LIMIT 5 - Coupon valid through 8/23/19\*

**YUKON** SCISSOR SUPER COUPON

## 46" MOBILE STORAGE CABINET WITH SOLID WOOD TOP

- 15,704 cu. in. of storage
- 1200 lb. capacity

Customer Rating ★★★★★

**NOW \$23999**

~~\$25999~~

COMPARE TO FRONTIER \$299  
MODEL: XT846023

SAVE \$59 **NOW \$299**

ITEM 64023/64012 shown

58775686

LIMIT 1 - Coupon valid through 8/23/19\*

**HaulMaster** SCISSOR SUPER COUPON

## 18" WORKING PLATFORM STEP STOOL

Customer Rating ★★★★★

- 350 lb. capacity

**NOW \$1999**

~~\$2999~~

COMPARE TO GPL \$5145  
MODEL: H-21

SAVE 61% **\$2999**

ITEM 62515/66911 shown

58777173

LIMIT 3 - Coupon valid through 8/23/19\*

**TAILGATOR** SCISSOR SUPER COUPON

## 900 MAX. STARTING/700 RUNNING WATTS 2 HP (63 CC) 2 CYCLE GAS GENERATOR

- 5 hour run time @ 50% capacity

Customer Rating ★★★★★

**NOW \$8999**

~~\$10999~~

COMPARE TO POWERSMART \$12610  
MODEL: PS50

SAVE \$36 **NOW \$8999**

ITEM 63024 63025 shown

58778213

LIMIT 1 - Coupon valid through 8/23/19\*

**UNION SAFE COMPANY** SCISSOR SUPER COUPON

## 1.51 CUBIC FT. SOLID STEEL FLOOR SAFE

22-3/4"

**NOW \$8999**

~~\$10999~~

Contents not included.

COMPARE TO SENTRYSAFE \$175  
MODEL: SFW123GTC

SAVE \$85 **NOW \$8999**

ITEM 62678/62977 shown

58779511

LIMIT 2 - Coupon valid through 8/23/19\*

**PITTSBURGH** SCISSOR SUPER COUPON

## 4 PIECE WOOD CHISEL SET WITH CLEAR PVC HANDLE

LIFETIME WARRANTY

Customer Rating ★★★★★

**NOW \$499**

~~\$799~~

SAVE 83% **\$499**

COMPARE TO DEWALT \$2997  
MODEL: DWHT16063

ITEM 42429/69471 shown

58782110

LIMIT 5 - Coupon valid through 8/23/19\*

**CENTRAL MACHINERY** SCISSOR SUPER COUPON

## 10", 12 SPEED BENCHTOP DRILL PRESS

**NOW \$9999**

~~\$13499~~

SAVE \$61 **NOW \$9999**

Customer Rating ★★★★★

COMPARE TO WEN \$16197  
MODEL: 4212

ITEM 63471/60237 shown

58783180

LIMIT 1 - Coupon valid through 8/23/19\*

**PITTSBURGH AUTOMOTIVE** SCISSOR SUPER COUPON

## PNEUMATIC ADJUSTABLE ROLLER SEAT

- 300 lb. capacity

Customer Rating ★★★★★

**NOW \$1999**

~~\$2699~~

SAVE 71% **\$1999**

COMPARE TO DURALAST \$6999  
MODEL: TR6201C

ITEM 61160/61896/63456/46319 shown

58783258

LIMIT 3 - Coupon valid through 8/23/19\*

**SCISSOR SUPER COUPON**

## 10" PNEUMATIC TIRE

Customer Rating ★★★★★

**NOW \$399**

~~\$599~~

SAVE 50% **\$399**

COMPARE TO FARM & RANCH \$809  
MODEL: FR1055

ITEM 69385/62388/62409/62698/30900 shown

58783589

LIMIT 5 - Coupon valid through 8/23/19\*

**Lynxx** SCISSOR SUPER COUPON

## 40 VOLT LITHIUM CORDLESS 14" BRUSHLESS CHAIN SAW

Customer Rating ★★★★★

**NOW \$15499**

~~\$17999~~

SAVE \$25 **NOW \$15499**

ITEM 64715/64478/63287 shown

58785871

LIMIT 1 - Coupon valid through 8/23/19\*

**PITTSBURGH** SCISSOR SUPER COUPON

## 6" DIGITAL CALIPER

Includes two 1.5V SR44 button cell batteries.

Customer Rating ★★★★★

**NOW \$999**

~~\$1099~~

SAVE 66% **NOW \$999**

COMPARE TO HUSKY \$2997  
MODEL: 1467H

ITEM 63711/98563/61585/62387/47257 shown

58785946

LIMIT 4 - Coupon valid through 8/23/19\*

**CHICAGO ELECTRIC POWER TOOLS** SCISSOR SUPER COUPON

## 4" BISCUIT PLATE JOINER

Customer Rating ★★★★★

**NOW \$4499**

~~\$6299~~

SAVE \$184 **NOW \$4499**

COMPARE TO MAKITA \$179  
MODEL: PJ7000

ITEM 68987

58786903

LIMIT 2 - Coupon valid through 8/23/19\*

**BADLAND** SCISSOR SUPER COUPON

## 2500 LB. ELECTRIC WINCH WITH WIRELESS REMOTE CONTROL

- Weighs 14.3 lbs.
- 11-1/8" L
- 4-1/2" H

Customer Rating ★★★★★

**NOW \$4999**

~~\$6999~~

SAVE \$140 **NOW \$4999**

COMPARE TO SUPERWINCH \$18999  
MODEL: 1125220

ITEM 68146/61297/63476/61840 shown

59077612

LIMIT 2 - Coupon valid through 8/23/19\*

**CENTECH** SCISSOR SUPER COUPON

## 2/10/50 AMP, 12 VOLT BATTERY CHARGER AND ENGINE STARTER

Customer Rating ★★★★★

**NOW \$2999**

~~\$5299~~

SAVE 49% **NOW \$2999**

COMPARE TO SCHUMACHER ELECTRIC \$5977  
MODEL: SE-1250

ITEM 60581 66783/60653 shown

58788123

LIMIT 3 - Coupon valid through 8/23/19\*

**HYDROSTAR S-PUMP MONSTER** SCISSOR SUPER COUPON

## 50 FT. ELECTRIC DRAIN CLEANER

OSHA COMPLIANT GFCI PROTECTION

Customer Rating ★★★★★

**NOW \$19999**

~~\$24999~~

SAVE \$229 **NOW \$19999**

COMPARE TO COBRA PRO \$429  
MODEL: CP3020

ITEM 61856/68285 shown

58788204

LIMIT 1 - Coupon valid through 8/23/19\*

**CHICAGO ELECTRIC WELDING** SCISSOR SUPER COUPON

## 125 AMP FLUX-CORE WELDER

Customer Rating ★★★★★

**NOW \$9999**

~~\$11499~~

SAVE \$80 **NOW \$9999**

COMPARE TO IRONTON \$17999  
MODEL: 45433

ITEM 63583/63582 shown

58788396

LIMIT 1 - Coupon valid through 8/23/19\*

\*Original coupon only. No use on prior purchases after 30 days from original purchase or without original receipt. Valid through 8/23/19.

At Harbor Freight Tools, the "Compare to" price means that the specified comparison, which is an item with the same or similar function, was advertised for sale at or above the "Compare to" price by another national retailer in the U.S. within the past 90 days. Prices advertised by others may vary by location. No other meaning of "Compare to" should be implied. For more information, go to HarborFreight.com or see store associate.



# Best ProTips

Expert advice from the job site. By Travis Larson



## FIX A LEAKY TOILET

If your toilet is leaking around the base, there's a problem with the toilet-to-flange connection. It may be as simple as a wax ring that needs replacement. It's important to stop leaks as soon as possible; even minor ones can cause substantial damage over time. Here are the most common problems you'll find under the toilet and how to address them.



### MEET THE EXPERT

Les Zell has been a plumber for almost 30 years and an invaluable resource to *Family Handyman* for the past decade. He's the owner/operator of Zell Plumbing & Heating.



## FLANGE FIX-IT OPTIONS

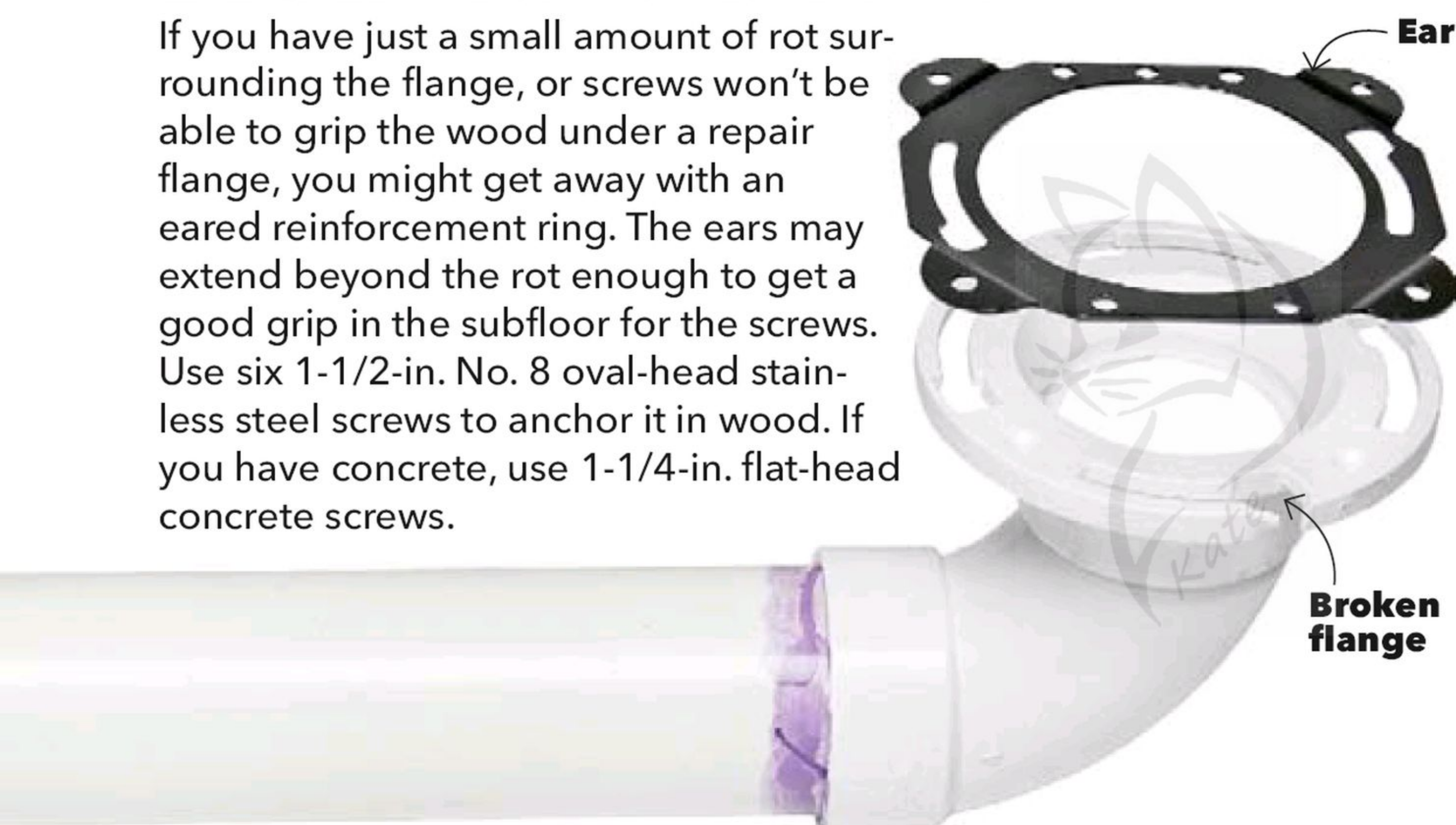


### ■ TWO-PART REPAIR RING

Steel flanges that surround plastic flanges can rust away. The easiest solution is to install a two-part (or hinged) ring (\$15) that locks under the plastic rim. Badly corroded steel rings can be pried and peeled away. If you have to get aggressive, cut it away with an angle grinder or oscillating tool fitted with a metal-cutting blade.

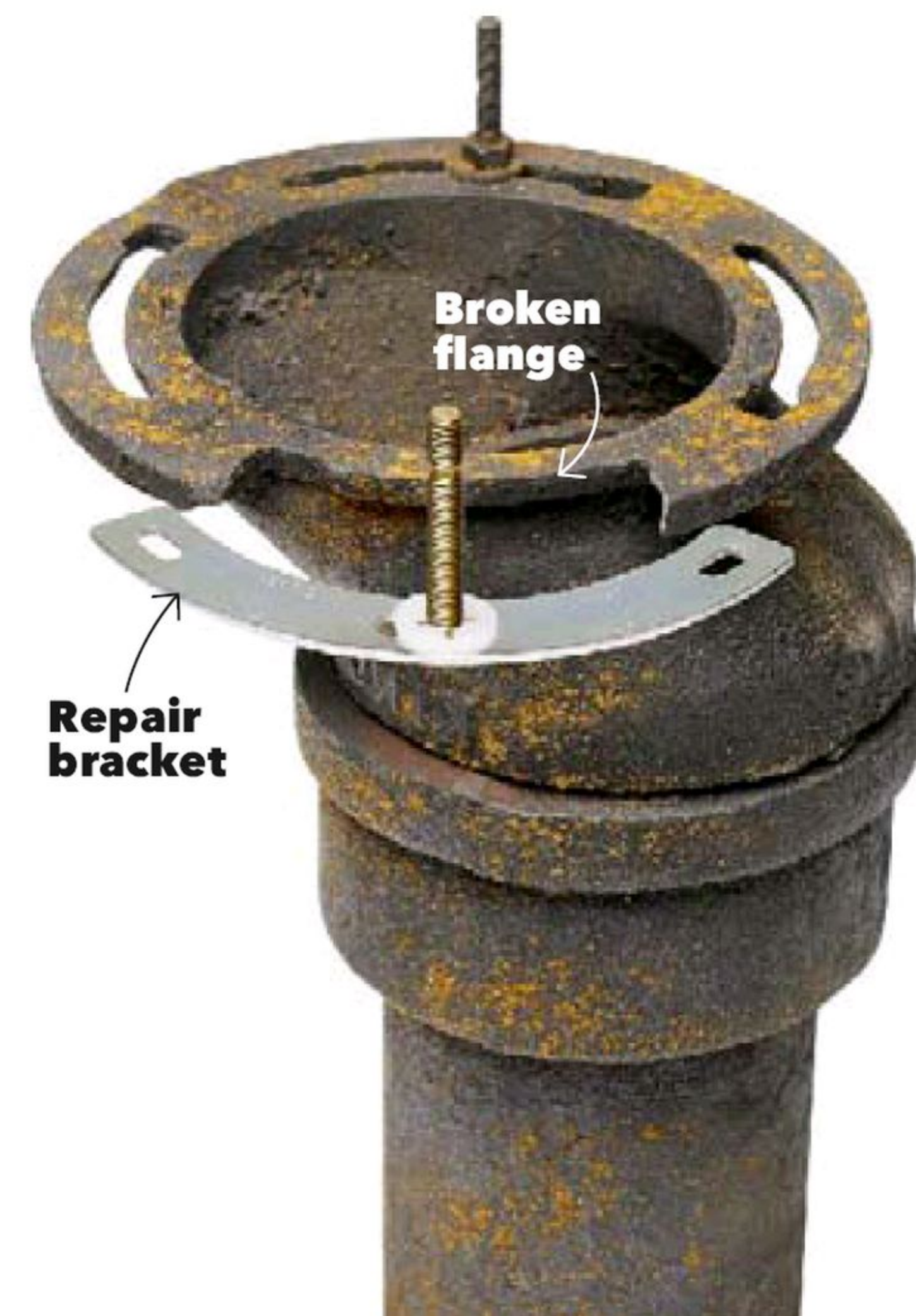
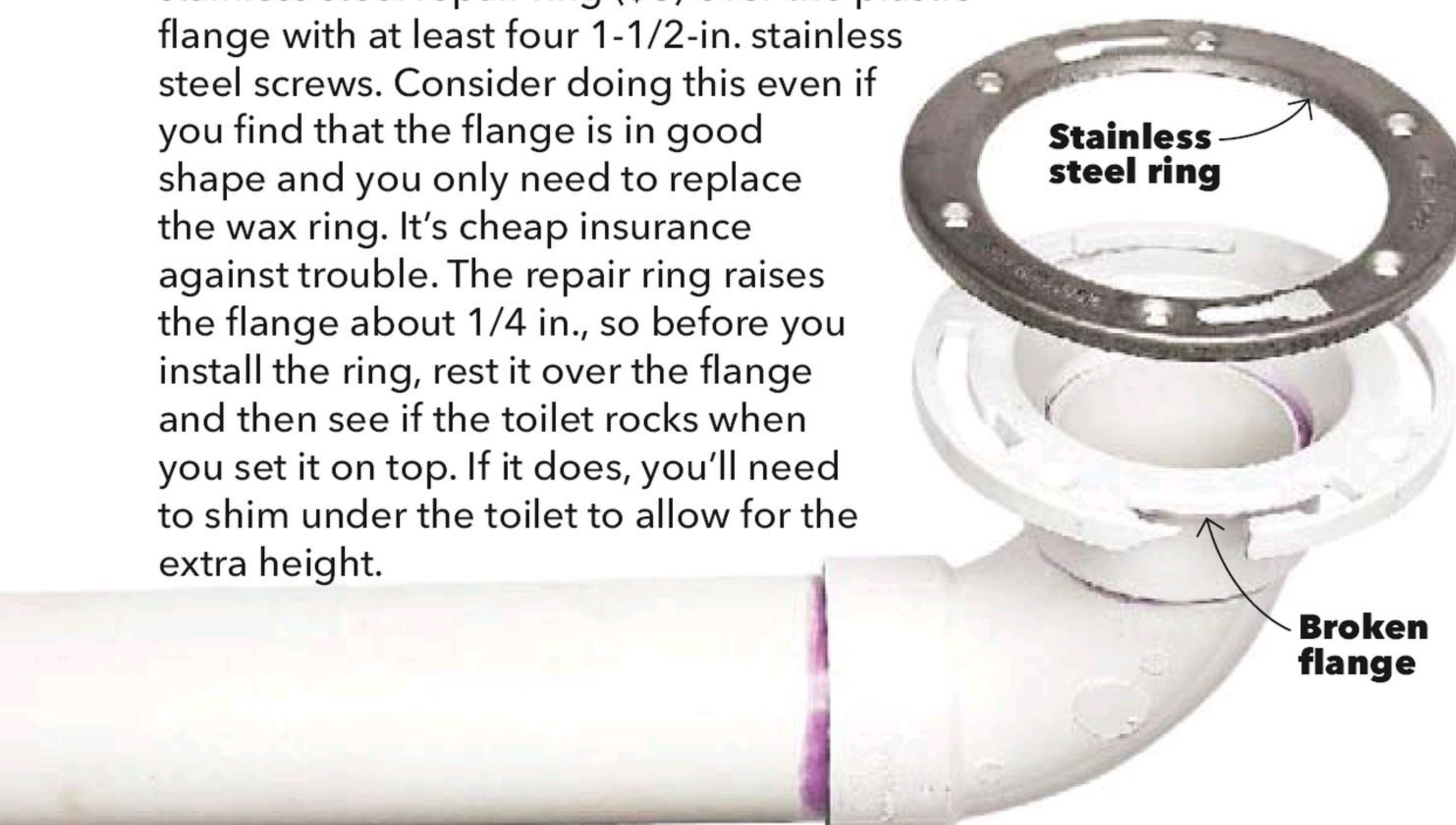
### ■ EARED REINFORCEMENT RING

If you have just a small amount of rot surrounding the flange, or screws won't be able to grip the wood under a repair flange, you might get away with an eared reinforcement ring. The ears may extend beyond the rot enough to get a good grip in the subfloor for the screws. Use six 1-1/2-in. No. 8 oval-head stainless steel screws to anchor it in wood. If you have concrete, use 1-1/4-in. flat-head concrete screws.



### ■ REPAIR RING

Plastic flanges often bend or break, but there's an easy fix. Just screw a stainless steel repair ring (\$6) over the plastic flange with at least four 1-1/2-in. stainless steel screws. Consider doing this even if you find that the flange is in good shape and you only need to replace the wax ring. It's cheap insurance against trouble. The repair ring raises the flange about 1/4 in., so before you install the ring, rest it over the flange and then see if the toilet rocks when you set it on top. If it does, you'll need to shim under the toilet to allow for the extra height.



### ■ REPAIR BRACKETS

Cast iron flanges often break on one or both sides. If only the bolt slot is damaged, slip a repair bracket (\$5) under the cast iron lip. It will be held in place by the unbroken cast iron lip and provide a new slot for the flange bolt.



### ■ REPAIR FLANGE

If the flange is in bad shape, you can install a plastic flange (\$25) that slips inside (shown above). Home centers carry one or two versions of these. Or you can add a brass ring (\$7) similar to the stainless steel ring shown at left. If necessary, break away the cast iron flange with a cold chisel.



## BEST PRO TIPS

### BUY EVERY FLANGE FIX SOLD!

You never know what you're going to find when you pull the toilet, so you have to be prepared so you can get your toilet working again fast. You can always return the items you don't use. (Don't buy the cast iron repair parts unless you have cast iron drain lines.) In addition to the flange fixes, get two wax rings, a new set of brass toilet flange bolts, plastic toilet shims and a tube of tub/tile caulk.



72 MAY 2019 FAMILYHANDYMAN.COM

## CNC SHARK II<sup>®</sup>

TOTALLY REDESIGNED.  
BUILT LIKE A TANK.



### WHY OWN A CNC SHARK II?

- Use any standard 2 1/4 hp Router (Router not included.)
- Color Pendant with USB Interface
- One-Year Warranty on Parts and Labor
- Compatible with Windows 7 or later
- Includes Vectric Desktop V9.5 Designing Software
- Prototype or Mass Produce your Own Parts
- Cut or Engrave on Wood, Soft Metals, and Acrylics
- Robust CNC Functionality for Professional or Hobbyist

### AVAILABLE ACCESSORIES

- Digital Duplicator
- 4th Axis
- Laser Engraver

Next Wave  
Automation

[www.NextWaveAutomation.com](http://www.NextWaveAutomation.com)







## DON'T IGNORE A ROCKING TOILET!

If your toilet is rocking or wobbling, don't ignore it, even if it's not leaking. Eventually the wax ring/toilet base seal will fail and you'll have a leak. Shim under the toilet with plastic toilet shims until it's steady. Trim the shims and snug up the flange nuts. Then caulk around the base of the toilet with tub/tile caulk.



## CHOOSE FLANGES WITH STAINLESS STEEL RIMS

If you have access under the toilet, replacing a bad or corroded flange is sometimes the best and easiest solution. Because all plastic flanges are prone to breakage, and plastic flanges with ordinary steel rims are prone to rotting away, the best choice is a plastic flange surrounded with stainless steel. Go downstairs and investigate. Depending on access, you may need elbows, more pipe and a coupling to tie in the new one.



MARK E INDUSTRIES

# GOOF PROOF® SHOWERS



## GOOF PROOF LINEAR DRAIN

### 6 Length Combinations from 27" - 60"

designed for use with all waterproofing methods



Roll On



Vinyl Liner



Sheet Membrane

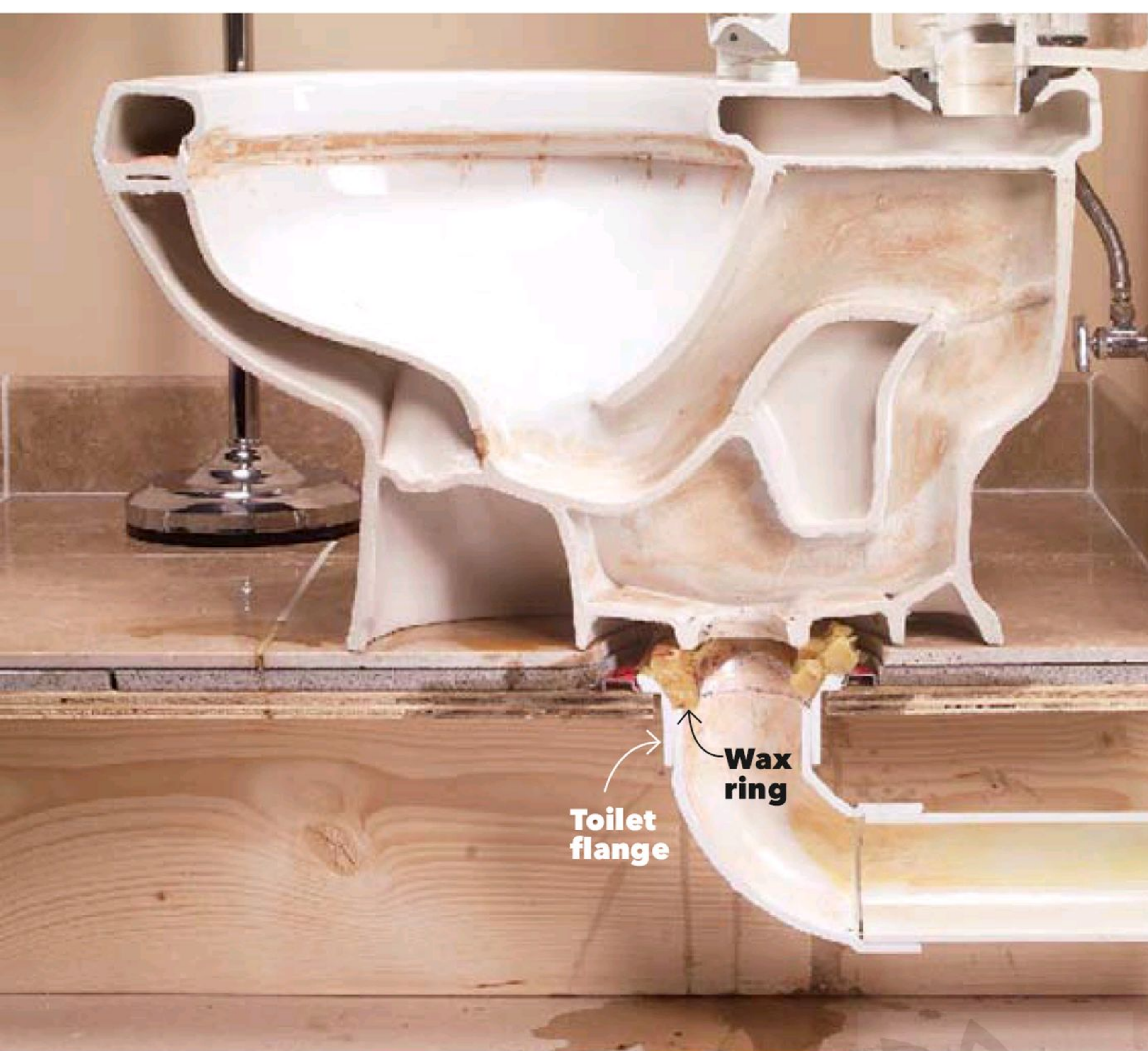
Prod. ID GPLD/26/60 Description: 6 length combinations ranging from 27" to 60" Tileable insert top (metal grates not available) with female receivers to attach Quick Pitch Float Sticks directly to the drain. Can be used with any waterproofing method including Roll on, Vinyl, and Sheet Membrane. Install with or without a curb to create a barrier free shower.

Check our website for videos and more information: [www.goofproofshowers.com](http://www.goofproofshowers.com)

Mark E Industries, Inc. Toll Free: 1-866-771-9470 • [info@markeindustries.com](mailto:info@markeindustries.com)



## BEST PRO TIPS



### HOW A WAX RING WORKS

A wax ring is the most commonly used seal between the toilet and the toilet flange. There are synthetic versions, but traditional wax rings (made from real beeswax) are the go-to choice for most plumbers—pros and amateurs alike.

When the toilet is set, the wax is compressed and reshaped to form a water-tight seal. Because the wax doesn't harden or degrade, the seal will last for a very long time if the toilet is set properly and firmly bolted down.

74 MAY 2019 FAMILYHANDYMAN.COM

# 30 YEARS | LIMITED EDITION DR® Field & Brush Mower

Introducing our 30th Anniversary PRO-26 DR® Field & Brush Mower. Legendary performance you can depend on.

- 14.5 HP Briggs & Stratton OHV engine
- Power Steering gives you fingertip control
- Gear-driven transmission (3 forward speeds and 1 reverse)
- 26" pivoting deck for uneven terrain
- Kryptek® camo pattern

**USA ENGINEERED and BUILT\***

\*Assembled in the USA using domestic and foreign parts.



Limited supply for 2019!

**FREE SHIPPING** | **6 MONTH TRIAL** | **EASY FINANCING**

SOME LIMITATIONS APPLY. GO ONLINE OR CALL FOR DETAILS.

Get a FREE DR® Brush Mower DVD & Catalog!

 **DRfieldbrush.com**

TOLL FREE **888-200-3210**

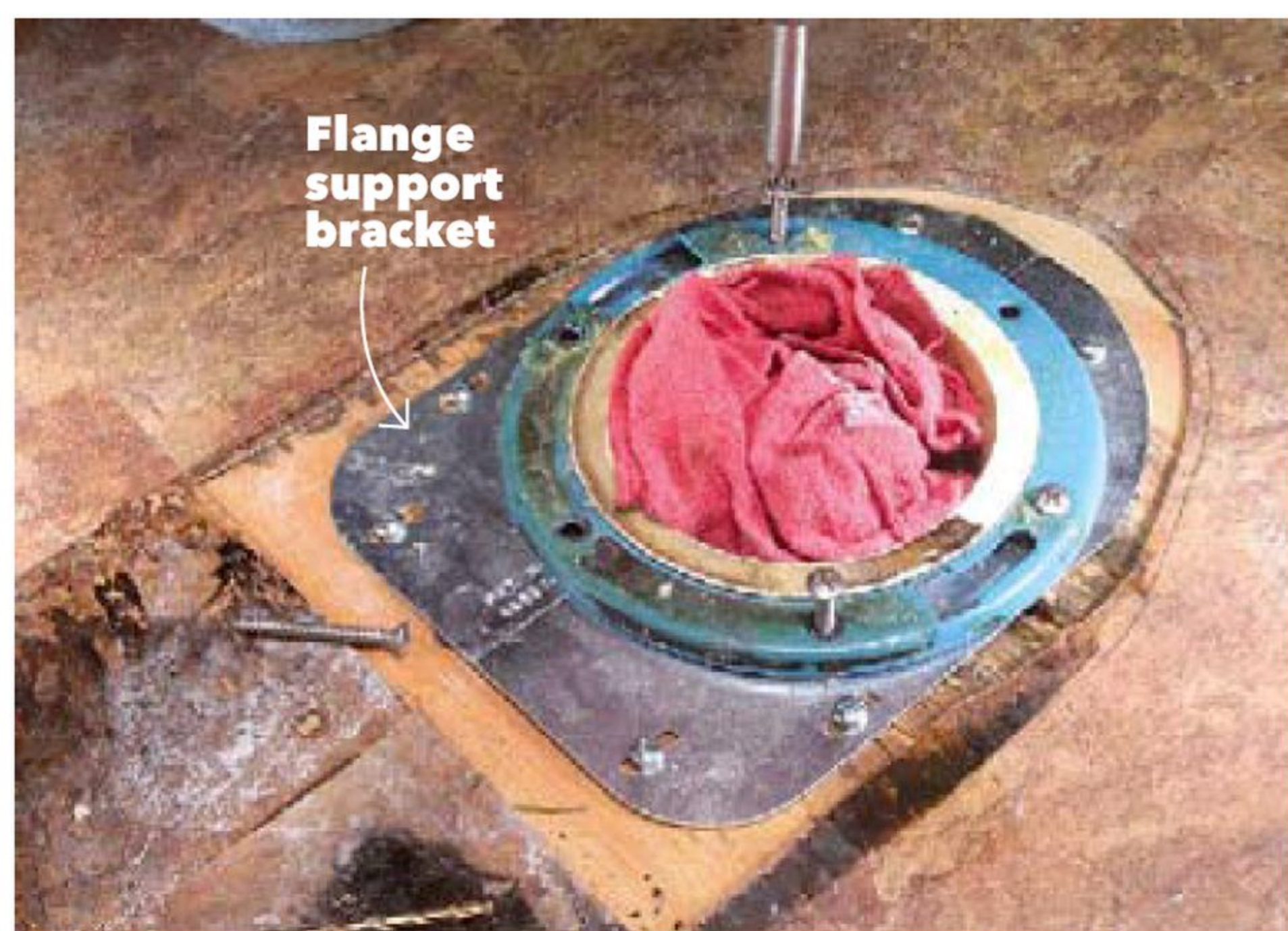


19DAAX © 2019



## DEALING WITH FLOOR ROT

If your toilet has been leaking for some time, you're likely to have rot. Finished flooring traps water, which accelerates and spreads the problem. The rot can range from a little bit around the flange to a full-blown case that requires tearing up the flooring and replacing subflooring and possibly framing.



### ■ MODERATE ROT

If the rot extends beyond the range of an eared flange but is still contained within the footprint of the toilet, step up to a flange support bracket (\$20). These transfer the load past the rotted areas of the subfloor.



### ■ EXTENSIVE ROT

Don't freak out if you have bad floor rot. It's easier than you think to cut out the bad flooring and replace it with new wood and additional framing if needed. Just make sure you go far enough to cover the entire area of rotted wood. Bad framing can usually be left in place and reinforced with new 2-by material, if you can screw it into solid wood. Don't worry about removing the rotted framing. With the leak fixed, the rot won't continue. The worst part is that you'll also need to replace the finished floor.



# Grizzly Industrial

**BUY DIRECT & SAVE!**

#### 9" BENCHTOP BANDSAW



MADE IN AN  
ISO 9001  
FACTORY

**G0803 ONLY \$199<sup>95</sup>**

#### 1/4 HP BENCHTOP OSCILLATING SANDER



ETL  
Intertek

**G0723 ONLY \$239<sup>95</sup>**

#### 1 HP DUST COLLECTOR



**G8027 ONLY \$245<sup>00</sup>**

#### 10" BENCHTOP TABLE SAW WITH RIVING KNIFE



**G0869 ONLY \$299<sup>95</sup>**

#### 12 1/2" LEAN & MEAN PLANER



**G0505 ONLY \$395<sup>00</sup>**

#### 6" COMBINATION SANDER



**G1014Z ONLY \$425<sup>00</sup>**

#### 6" BENCHTOP JOINTER WITH SPIRAL CUTTERHEAD



**G0821 ONLY \$495<sup>00</sup>**

#### THE ULTIMATE 14" BANDSAW



**G0555 ONLY \$625<sup>00</sup>**

PLEASE VISIT GRIZZLY.COM® FOR COMPLETE DETAILS & SPECIFICATIONS

PRICING CODE  
19FAMILY  
MENTION THIS CODE  
WHEN PLACING YOUR ORDER  
19985R

**1-800-523-4777**  
**grizzly.com**

VIEW VIDEOS AT  
grizzly.com

amazon  
paypal

VISA  
DISCOVER



TECHNICAL SERVICE:  
570-546-9663  
FAX: 800-438-5901

BUY NOW  
PAY LATER  
with Affirm  
Choose your  
monthly payments  
at checkout!



# WorkShop+Stop

## FREE INFORMATION

Circle the numbers for each advertiser or category on the attached card, stamp and mail or visit [WorkShop-FreeInfo.com](http://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.

Buy everything from one lug nut to a new fender at reliably low prices. Get your auto parts at **RockAuto.com**

### BUILDING & CONSTRUCTION

101

#### 3. **DRYLOK** by UGL

Waterproofing masonry made easy. See how easy it is to protect basement walls and other masonry surfaces from the damaging effects of water penetration with Fast Plug and DRYLOK Etch. United Gilsonite Laboratories. **1.800.272.3235 ugl.com**

#### 4. **Genovations** Deck Flooring & Railing

Low-maintenance PVC decking with a lifetime warranty. Contact us at **888-309-1808** or visit us at **GenovationsDeck.com**

#### 5. **pro'wood** PROFESSIONAL GRADE™

ProWood® professional grade treated lumber offers a wide selection including color-infused ProWood Dura Color®. **ProWoodLumber.com**

### KITCHEN & BATH

104

#### 6. **Johnson Hardware**

For Pocket Door Hardware, visit **johnsonhardware.com**, call **800-837-5664**, or follow on Twitter **@JohnsonHrdware**.

#### 7. **NEOPERL** NEOPERL, Inc.

Flow, stop and go®

designs and manufactures water-saving products that enhance the stream quality and control the flow rate of faucets and shower products. **Neoperl.com**

### OUTDOOR/LAWN & GARDEN

105

#### 8. **Cyclone Rake**

The Cyclone Rake: The ultimate way to a beautiful, clean lawn. Hang up your hand rake today. **Cyclonerake.com 888-531-7253**

#### 9. **LP**

Get so much more than a shed. Discover unique practical benefits, plus tools and advice to help you get started. **LPshed.com 1-844-557-7433**

#### 10. **STA-BIL** STA-BIL® 360

Protection is the ultimate fuel additive for your small engines. Designed for use at every fill up and the only additive recommended by Briggs & Stratton. **KeepFuelFresh.com**

#### 11. **Zoysia Farm** NURSERIES

Improving America's Lawns Since 1953

Want a great lawn? Start with a better grass – Amazoy Zoysia Grass! **1-410-756-2311 Zoysiafarms.com**

### TOOLS

107

#### 12. **Grizzly Industrial, Inc.**

Grizzly Industrial, Inc. Purveyors of Fine Machinery since 1983. **Grizzly.com 1-800-523-4777**



**13. 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 and on its website.

**HarborFreight.com 1-800-423-2567**

**14. WOODCRAFT®**

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

**16.**

PlasmaCAM cutting systems operate from your personal computer and use a plasma torch to quickly cut any shape out of metal. **PlasmaCAM.com 719-676-2700**

**17.**

SimpliSafe wireless home security systems are easy to self-install, easy to purchase direct online, and don't require a contract or a telephone line. 24/7 Professional Monitoring for just \$14.99 a month. That's smarter home security. Protect your home today. Go now to **SimpliSafe.com/handy** or call **888-799-1859**

**MISCELLANEOUS****108****15. ALL-PRO™ LED**

Upgrade your outdoor security lighting with LED motion activated, flood and dusk-to-dawn consumer products. Learn more at **Eaton.com/lighting**



# LEARN MORE. BUILD MORE.

Online home improvement classes made for you by the pros.

**REGISTER TODAY!**

**DIYUniversity.com**

**IT'S FREE!**

# TALK SHOP

FOR A CHANCE TO

# WIN STUFF!

Join the *Family Handyman* Inner Circle today!

- Share feedback & chat with editors
- Answer quick polls on DIY topics
- Chances to win great prizes & more!

GO TO **TMBINNERCIRCLE.COM**

**family  
handyman**

**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 2/12/19 and closes 2/12/20. 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](http://WorkShop-FreeInfo.com).



## Advanced Physical Peak Performance Booster **for Men**



Powerful Pro-Male  
Testosterone Support Formula  
in Fast-Acting liquid soft-gels

**Save \$2.00** online at:  
[www.IrwinNaturals.com](http://www.IrwinNaturals.com) by entering  
coupon code: **013830**

**TESTOSTERONE UP RED**  
**SAVE \$2**

EXPIRES: 08/31/19

MANUFACTURERS COUPON

Consumer: Redeemable at retail locations only. Not valid for online or mail-order purchases. Retailer: Irwin Naturals will reimburse you for the face value plus 8 (cents) handling provided it is redeemed by a consumer at the time of purchase on the brand specified. Coupons not properly redeemed will be void and held. Reproduction by any party by any means is expressly prohibited. Any other use constitutes fraud. Irwin Naturals reserves the right to deny reimbursement (due to misredemption activity) and/or request proof of purchase for coupon(s) submitted. Mail to: CMS Dept. 10363, Irwin Naturals, 1 Fawcett Drive, Del Rio, TX 78840. Cash value: .001 (cents). Void where taxed or restricted. ONE COUPON PER PURCHASE. Not valid for mail order/websites. Retail only.

0710363-013830



These statements have not been evaluated by the Food & Drug Administration.  
This product is not intended to diagnose, treat, cure or prevent any disease.

Follow Us On...



## ATHENA PHEROMONES™ INCREASE AFFECTION



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

### PROVEN EFFECTIVE IN 3 PUBLISHED STUDIES



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**

♥ **Sam (IA)** 6 pak order "I have been using  
this 10X product for over 10 years. **This  
stuff is amazing and really works magic!**  
The most romance I've had ever in life and  
I'm now 50 years old! **The last 10 years  
have been a golden life for  
me!"** 14 orders Rec'd 2/17/19

Not in stores 610-827-2200  
**Athenainstitute.com**



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

**Earn**  
**\$500 a day**  
making bunk beds  
from your shop!

Even if you only have basic woodworking  
skills you can easily learn this business.

**THIS MONTH'S SPECIAL**  
2 Territories for the Price of 1

■ Perfect for both  
beginning  
woodworkers  
and experts alike

■ Recover your  
investment with ease

■ Ranked A+ by the Better  
Business Bureau



**1800BunkBed**

It's Your Business!™

**ACT TODAY**  
to see if your territory is available!

**Visit 1800BunkBed.com**

**waterproof.com**

**SEALONCE**  
BASEMENT SYSTEM

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

**BEFORE**

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!*



ULTRA  
**SAFE**

SUPER  
**EFFICIENT**

TOTALLY  
**SILENT**

**HEATING**  
FOR PEACE OF MIND!





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

10% OFF 1 or more Envi Heaters Coupon Code: FH1910 / free shipping!



## Less Pees, More Zzz's...

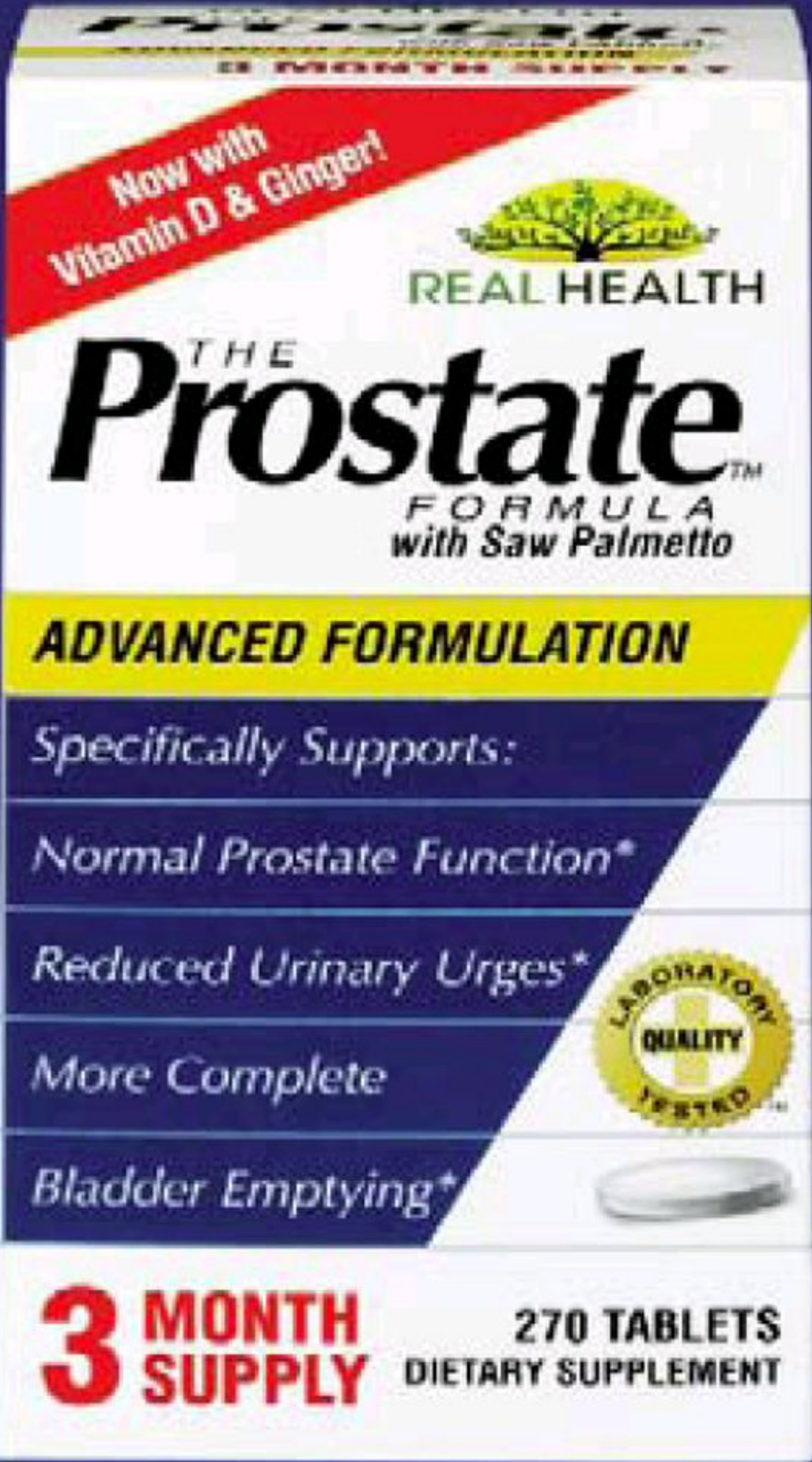
One of the signs of an aging prostate is an increased need to urinate, often in the middle of the night.

That's where The Prostate Formula can help. The Prostate Formula specifically supports:

- ✓ Normal Prostate Function
- ✓ Reduced Urinary Urges
- ✓ More Complete Bladder Emptying

In short? More time catching Zzz's, less times getting up to pee.

For coupons and more information:  
[www.ProstateFormula.com](http://www.ProstateFormula.com)



**3 MONTH SUPPLY**

**270 TABLETS**  
DIETARY SUPPLEMENT

These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.



**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](http://www.SNOJAX.com)

**Stop Dangerous Snow Slides On Metal Roofs**

SnoBlox-Snojox 671 Willow Street Lemoyne, PA 17043

**INCINOLET®**  
*electric incinerating toilets*

**PROBLEM SOLVED!**

Need a toilet conveniently located?  
Home, cabin, shop, boat or dock –  
INCINOLET is your best solution!

**SIMPLE** to  
install, maintain.  
Only electricity  
needed: 120  
or 240 volts

**ULTRA CLEAN:**  
waste reduced  
to sterile ash,  
as little as a  
cupful weekly.  
Dump in garbage.



**TOP QUALITY:** stainless steel,  
platinum odor control, quality  
construction for a lifetime of satisfaction.

[www.incinolet.com](http://www.incinolet.com)  
**Call 1-800-527-5551 for info,  
prices and personal attention.**

RESEARCH PRODUCTS/Blankenship  
2639 Andjon • Dallas, Texas 75220

**Need more space?  
Build your own  
murphy bed.**





Piston-lift  
mechanism kit  
includes  
step-by-step  
construction plans  
and instructional  
DVD

**Create-A-Bed®**  
Toll Free **1-877-966-3852**  
[www.createabed.com](http://www.createabed.com)

**NEW!**  
**Oil Vanish™**  
Oil Stain Remover Products



**Strong enough for the garage,  
safe enough for the kitchen.**

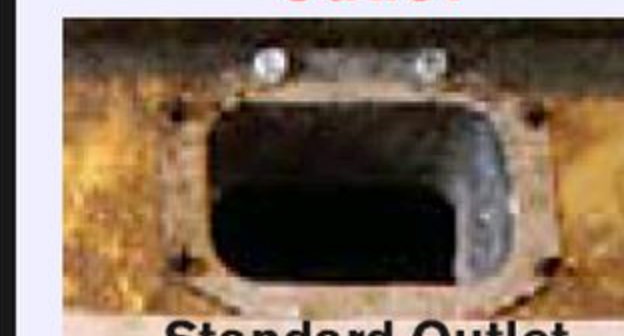
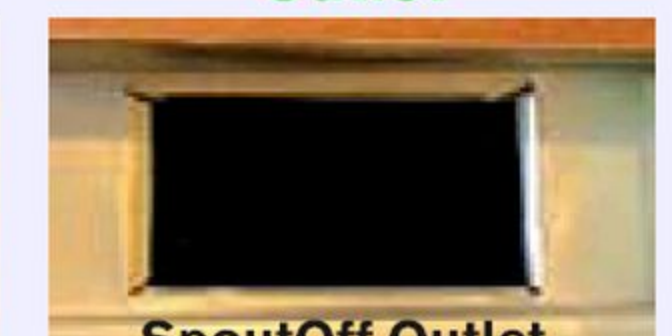
Advanced Formula Cleans and Degreases  
without Corrosive Chemicals. Safe on  
Aluminum, Painted Surfaces & Glass.

Available at these fine retailers



 **SELF-CLEANING  
Rain Gutter  
OUTLET**

**Which outlet do you want  
in YOUR rain gutters?**

|                                                                                       |                                                                                       |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Self-CLOGGING<br/>Outlet</b>                                                       | <b>Self-CLEANING<br/>Outlet</b>                                                       |
|  |  |
| Standard Outlet                                                                       | SpoutOff Outlet                                                                       |

[thespoutoff.com](http://thespoutoff.com)  
**1-866-289-1442**

Where will your customers  
look for the things they need  
to get the job done?

**The Workshop**  
**Advertise today.**

Call 203-604-1744  
for more information.





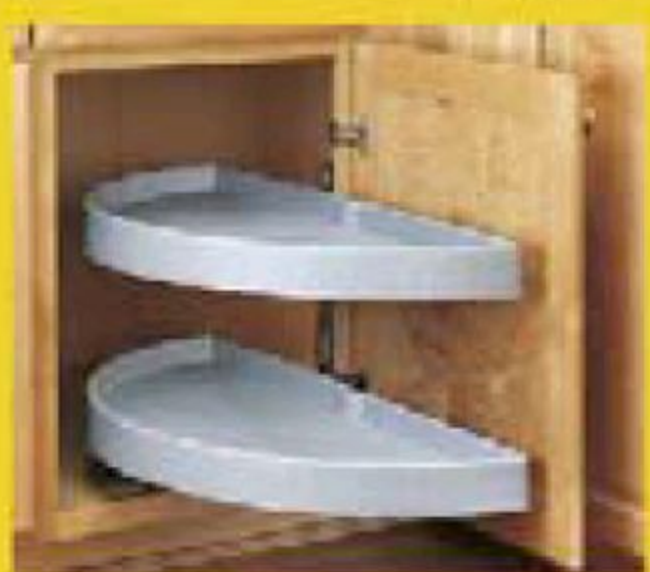
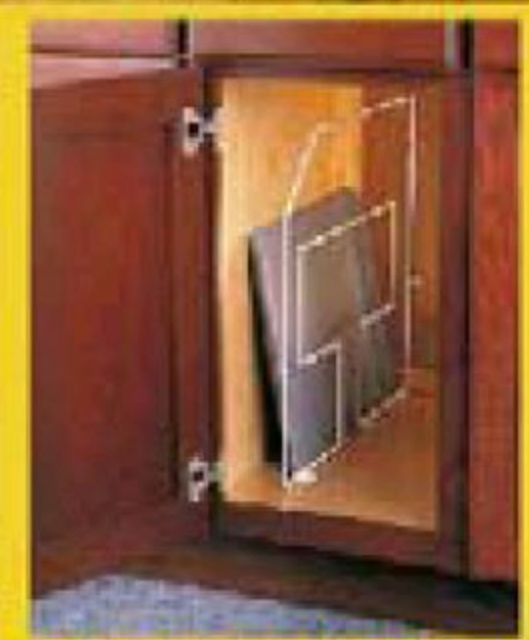
**SHELVES THAT SLIDE**

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

**1-800-598-7390**  
www.shelvesthat-slide.com  
Order On-Line

*Custom pull out shelves and Kitchen cabinet accessories*



*Call or email for a free catalog*



**DR® Lawn & Garden Edger**

**Professional Edges Made EASY!**

**4 WHEEL DESIGN** for stable and 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°).

**FREE SHIPPING 6 MONTH TRIAL**  
SOME LIMITATIONS APPLY

*Call or go Online for Special Offers!*

**DRpower.com/edger**  
TOLL FREE **877-405-7455**



19DAX © 2019

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



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

**sales@stormsnaps.com**  
Alpina Manufacturing, Chicago, IL

Visit our website for easy online ordering or call us for info:  
**1-800-915-2828 • STORMSNAPS.COM**



**Underbed Dressers**



**Put Up to 24 Drawers Under Your Beds**

**ultimatebed.com**

**5-Minute Fence Stain**

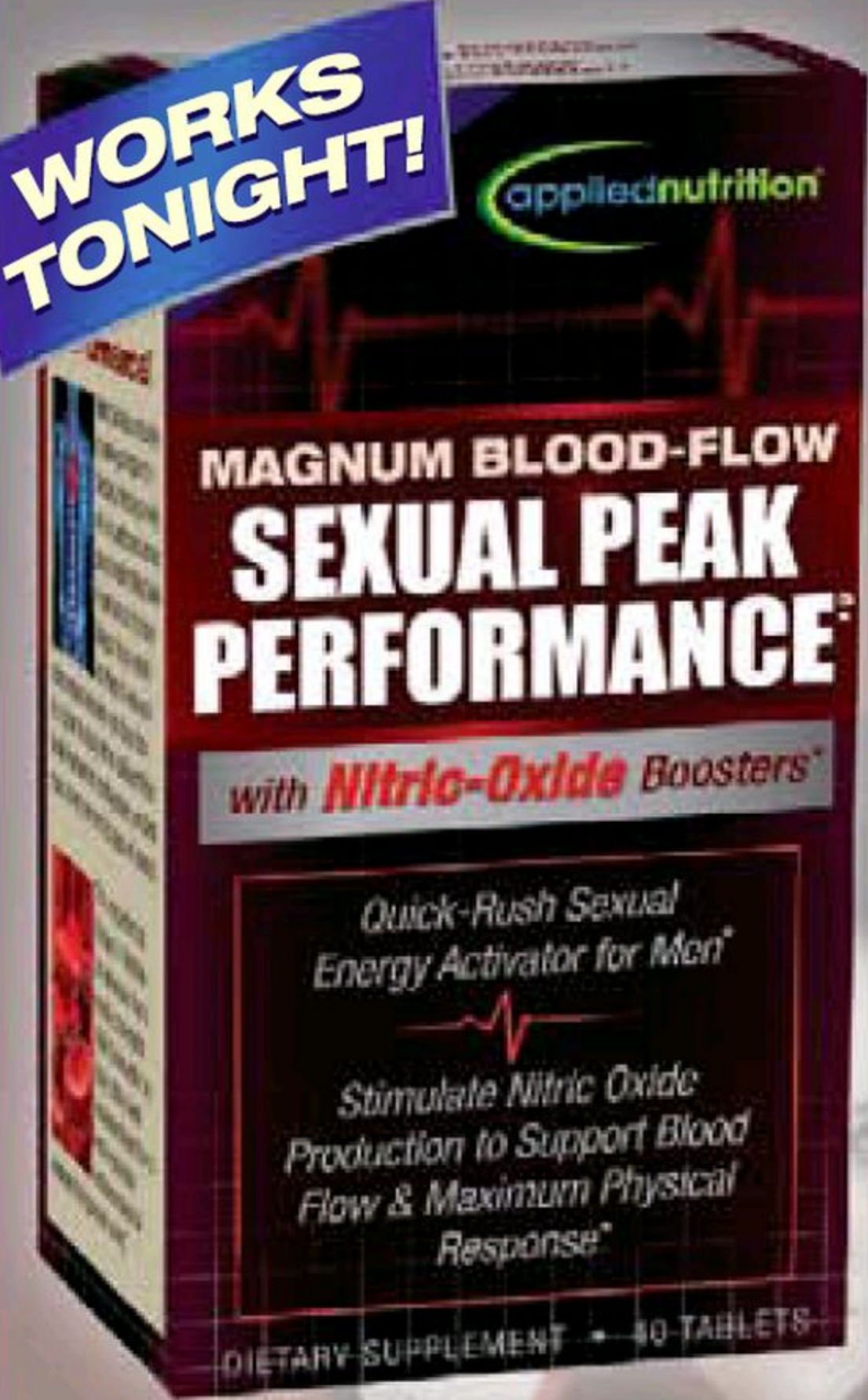



- Stain 100 ft of fence in just 5 minutes!
- Sprayer attaches directly to garden hose.
- No masking, simply hose off over-spray.
- One quart covers 600 square ft.
- Select from three natural wood tones; Natural Cedar, Dark Cedar or Redwood.

**FiveMinuteFence.com**

**MAXIMIZE YOUR POTENTIAL**

**WORKS TONIGHT!**



**MAGNUM BLOOD-FLOW SEXUAL PEAK PERFORMANCE**  
with Nitric-Oxide Boosters

Quick-Rush Sexual Energy Activator for Men

Stimulate Nitric Oxide Production to Support Blood Flow & Maximum Physical Response

DIETARY SUPPLEMENT • 40 TABLETS

Available for purchase with coupon in fine stores everywhere or online at:  
**www.appliednutrition.com**  
Enter Coupon Code: **013828**

**MAGNUM BLOOD-FLOW SEXUAL PEAK PERFORMANCE FOR MEN**  
**SAVE \$3**

**EXPIRES 08/31/19 MANUFACTURERS COUPON**

Consumer: Redeemable at retail locations only. Not valid for online or mail-order purchases. Retailer: Irwin Naturals will reimburse you for the face value plus 8 (cents) handling provided it is redeemed by a consumer at the time of purchase on the brand specified. Coupons not properly redeemed will be void and held. Reproduction by any party by any means is expressly prohibited. Any other use constitutes fraud. Irwin Naturals reserves the right to deny reimbursement (due to misredemption activity) and/or request proof of purchase for coupon(s) submitted. Mail to: CMS Dept. 10363, Irwin Naturals, 1 Fawcett Drive, Del Rio, TX 78840. Cash value: .001 (cents). Void where taxed or restricted. ONE COUPON PER PURCHASE. Not valid for mail order/websites. Retail only.

**0710363-013828**



These statements have not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

**appliednutrition®**





**Need more  
Family Handyman?  
Get our best tips  
and hints in your  
inbox. Sign up at  
[tfhmag.com/diytips](http://tfhmag.com/diytips)**

## GOT A DIY QUESTION?

Finding answers is easy at [familyhandyman.com](http://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 information with us, submit a copy of your original contribution, including photos and/or sketches, by email to:

[submissions@familyhandyman.com](mailto: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.

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: [customercare@familyhandyman.com](mailto:customercare@familyhandyman.com) or visit: [familyhandyman.com/customercare](http://familyhandyman.com/customercare)

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](http://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](mailto: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](mailto:permissions@tmbi.com)

**FAMILY HANDYMAN®** ISSN: 0014-7230, USPS: 515-930. Vol. 69, No. 3, 594th 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 [customercare@familyhandyman.com](mailto:customercare@familyhandyman.com), visit [familyhandyman.com/customercare](http://familyhandyman.com/customercare) 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 ©2019 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](http://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](http://www.tmbi.com/privacy-policy).

# family handyman

## EDITORIAL

|                              |                    |
|------------------------------|--------------------|
| Chief Content Officer        | Nick Grzechowiak   |
| Editor-in-Chief              | Gary Wentz         |
| Senior Editors               | Mary Flanagan      |
|                              | Travis Larson      |
| Associate Editors            | Mike Berner        |
|                              | Brad Holden        |
|                              | Josh Risberg       |
| Managing Editor              | Donna Bierbach     |
| Assistant Editors            | Matt Boley         |
|                              | Elizabeth Flaherty |
|                              | Harrison Kral      |
| Contributing Copy Editor     | Peggy Parker       |
| Contributing Editors         | Spike Carlsen      |
|                              | Rick Muscoplat     |
|                              | April Wilkerson    |
| Editorial Services Associate | Peggy McDermott    |

## ART

|                             |                |
|-----------------------------|----------------|
| Associate Creative Director | Vern Johnson   |
| Art Director                | Marcia Roepke  |
| Graphic Designer            | Mariah Cates   |
| Production Artist           | Mary Schwender |
| Photographer                | Tom Fenenga    |

## DIGITAL

|                                   |                    |
|-----------------------------------|--------------------|
| Digital Product Manager           | Gina Kapfhamer     |
| Senior Analyst, Digital Analytics | Ashley Knoebel     |
| Senior Digital Editor             | Jenny Stanley      |
| Associate Digital Editor          | Nick Gerhardt      |
| Social Media Manager              | Kellen Berg        |
| Online Learning Manager           | Kat Gritsenko      |
| Senior Video Producer             | Jeff Breitenstein  |
| Video Producer                    | Will Leighton      |
| Production Assistant              | Courtney McDermott |

## ADVERTISING

|                            |               |
|----------------------------|---------------|
| Advertising Sales Director | Gigi Myer     |
| VP, Integrated Sales       | John Dyckman  |
| New York, 646-518-4215     | Richie Matz   |
|                            | Ray Rienecker |
|                            | Myra Martinez |
| Midwest, 312-540-4824      | Matt Avery    |
| West Coast, 646-518-4215   | John Dyckman  |

|                              |             |
|------------------------------|-------------|
| Classified and Small Display | Eric Genova |
| Ads: 212-779-7172, ext. 221  |             |

|                             |                    |
|-----------------------------|--------------------|
| Senior Marketing Manager    | Michael Moya       |
| Associate Marketing Manager | Christine Galletta |
| Advertising Coordinator     | Selena Cohen       |
| Senior Production Manager   | Leslie Kogan       |

## TRUSTED MEDIA BRANDS, INC.

|                                                      |                      |
|------------------------------------------------------|----------------------|
| President & Chief Executive Officer                  | Bonnie Kintzer       |
| Chief Administrative Officer/Chief Financial Officer | Dean Durbin          |
| Chief Marketing Officer                              | C. Alec Casey        |
| Chief Digital Officer                                | Vince Errico         |
| SVP, Advertising Sales                               | John Boland          |
| SVP, Training and Coaching                           | Phyllis E. Gebhardt, |
|                                                      | SPHR; SHRM-SCP       |
| VP, Human Resources                                  | Jen Tyrrell          |
| VP, Human Resources and Benefits                     | Heather Schwartz     |
| General Counsel                                      | Mark Sirota          |
| VP, Operations                                       | Michael Garzone      |
| VP, Product Marketing                                | Brian Kennedy        |
| VP, Consumer Acquisition                             | Heather Plant        |
| VP, Consumer Marketing Planning                      | Jim Woods            |
| VP, Digital Product & Technology                     | Nick Contardo        |
| VP, Digital Content & Audience Development           | Kari Hodes           |
| VP, Programmatic and Data Product Operations         | Scott Mulqueen       |
| VP, Revenue Operations                               | Larry Mlawski        |
| VP, Digital Sales                                    | Randy Saperstone     |

## EDITORIAL OFFICE

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





**EXTREME SAVINGS!**  
**ALL SIZES - UP TO 5XL - UNDER \$10**

**When it comes to comfort, we mean business!**  
Softest cotton/polyester jersey knit has natural stretch for full movement. Plus, a full elastic waist with drawstring, 2 front pockets, 2 back pockets with button closure, & zipper fly. Machine washable. Imported.

**Sizes:** S, M, L, XL  
~~\$17.99~~ **\$14.99 Buy 2, \$9.99 ea.**

**Sizes:** 2XL, 3XL, 4XL, 5XL

~~\$23.99~~ **\$14.99 Buy 2, \$9.99 ea.**

**Inseams:** XS(25-26) S(27-28) M(29-30) L(31-32) [XL(33-34) in sizes S-XL only]

GREY  
HEATHER  
(6J)

**DURABLE  
DRAWSTRING  
& ZIPPER FLY!**

**FULL STRETCH  
WAIST!**

NAVY  
(03)

ROYAL  
(10)

BLACK  
(01)

WINE  
(14)

CHARCOAL  
(07)

**BUTTON-CLOSE  
BACK POCKET!**

TAUPE  
(13)

**SAVE \$16!**

**COMFORT  
PANTS**

ONLY **9<sup>99</sup>**  
EACH  
WHEN YOU  
BUY 2  
OR MORE

**Haband®** PO Box 8, Warren, PA 16366-0008

☐  ☐  ☐ Visa ☐ MC ☐ Discover® ☐ AmEx ☐ Check

55085756  
Card # \_\_\_\_\_ Exp.: \_\_\_\_/\_\_\_\_  
Mr. Mrs. Ms. \_\_\_\_\_  
Address \_\_\_\_\_ Apt. # \_\_\_\_\_  
City & State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone/Email \_\_\_\_\_

In the event of an issue with this order, you expressly consent to receiving autodialed and prerecorded message calls, from us, our agents and others calling at our request or on our behalf, at this telephone number (including any cellular telephone number).

I enclose \$\_\_\_\_\_ purchase price, & only \$5.99 shipping & handling for my entire order. Add applicable sales tax. (Sales tax is charged as required by law. We reserve the right to charge or collect applicable sales tax for your order, which may differ from the amount you provided. See our website or call customer service for sales tax information.)

Please use blue or black ink.

**Search this code at  
Haband.com to get this  
price & \$5.99 Shipping!**

☐ **Check for Protection  
Plus! (X96)**  
Expedites replacement of items  
lost in transit. Add \$2.95 to  
protect your entire order.

|    |              | WHAT<br>WAIST? | WHAT<br>INSEAM? | HOW<br>MANY? |
|----|--------------|----------------|-----------------|--------------|
| 03 | NAVY         |                |                 |              |
| 6J | GREY HEATHER |                |                 |              |
| 10 | ROYAL        |                |                 |              |
| 01 | BLACK        |                |                 |              |
| 14 | WINE         |                |                 |              |
| 07 | CHARCOAL     |                |                 |              |
| 13 | TAUPE        |                |                 |              |

When you pay by check, you authorize us to use information from your check to clear it electronically. Funds may be withdrawn from your account as soon as the same day we receive your payment, and you will not receive your check back from your financial institution.

**Satisfaction Guaranteed** or Full Refund  
of merchandise purchase price up  
to 90 days after receipt.

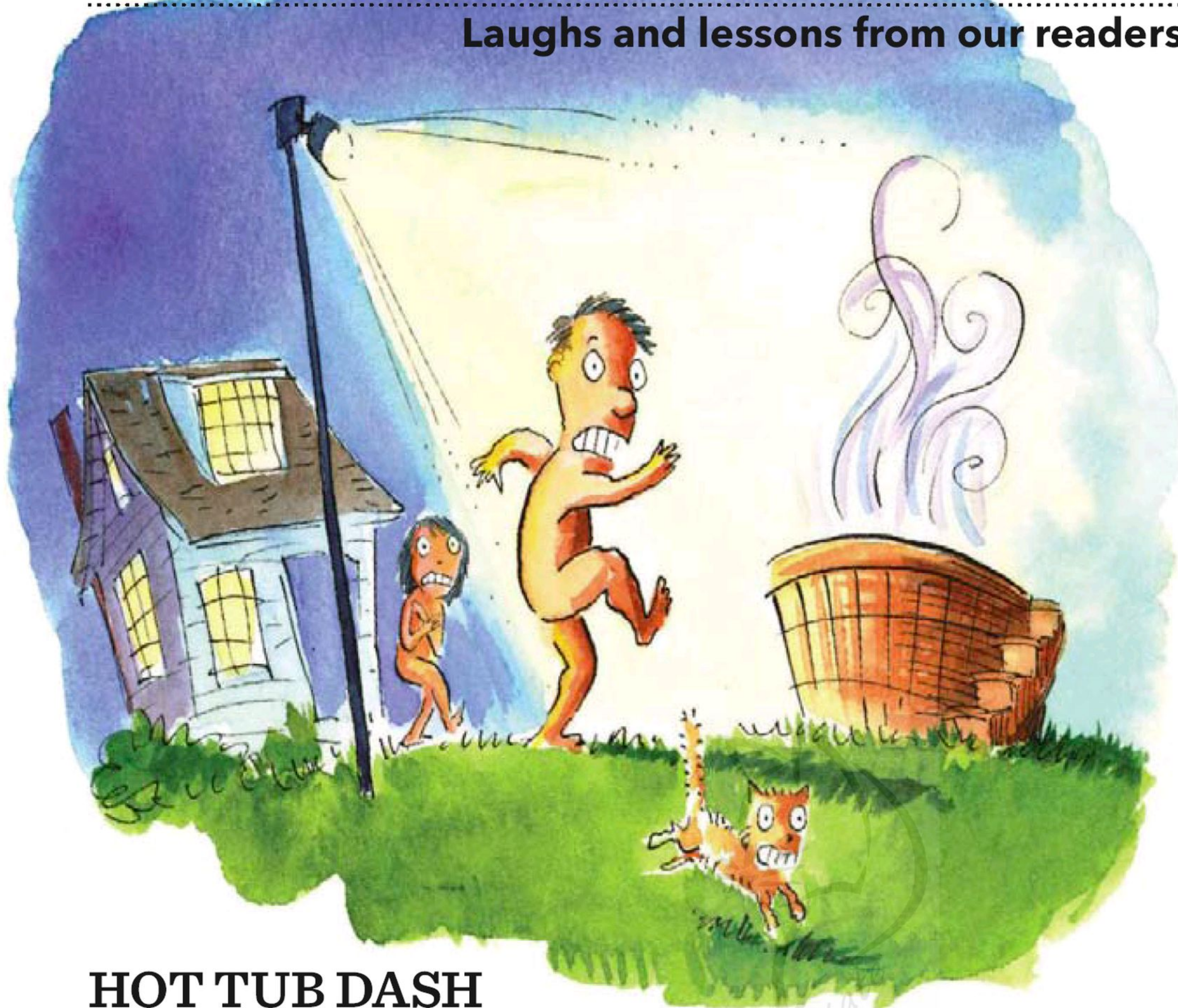
**MEN'S HABAND®**

Shop at **Haband.com** or  
Call Now! **1-800-742-2263**



# Great Goofs®

Laughs and lessons from our readers



## HOT TUB DASH

My wife and I had installed a new hot tub in our yard and were eager to use it. On a very dark night, we decided to go for an inaugural skinny dip. We got halfway to the tub when the motion sensor fixture flooded the area with bright, show-you-in-all-your-glory light. We ran back toward the house, falling in a heap on the ground in our hurry to get there. We don't forget that light anymore—or our towels!

JOHN MCCARTHY

## JUST ADD CONCENTRATE

I serve on our homeowners' association board and oversee the landscaping. Last spring, I decided to spot-spray the dandelions with weed killer. I poured 10 oz. of concentrate into a measuring cup, using up the last of the weed killer. I rinsed the bottle and put it in the recycling bin, then grabbed my 4-gallon backpack sprayer and spent the rest of the morning treating dandelions in a four-block stretch. When I got back to my garage with my empty sprayer, I saw the measuring cup with the 10 oz. of weed killer concentrate still sitting on the workbench. So I got to spend my afternoon spraying the same weeds—this time with weed killer, not just water.

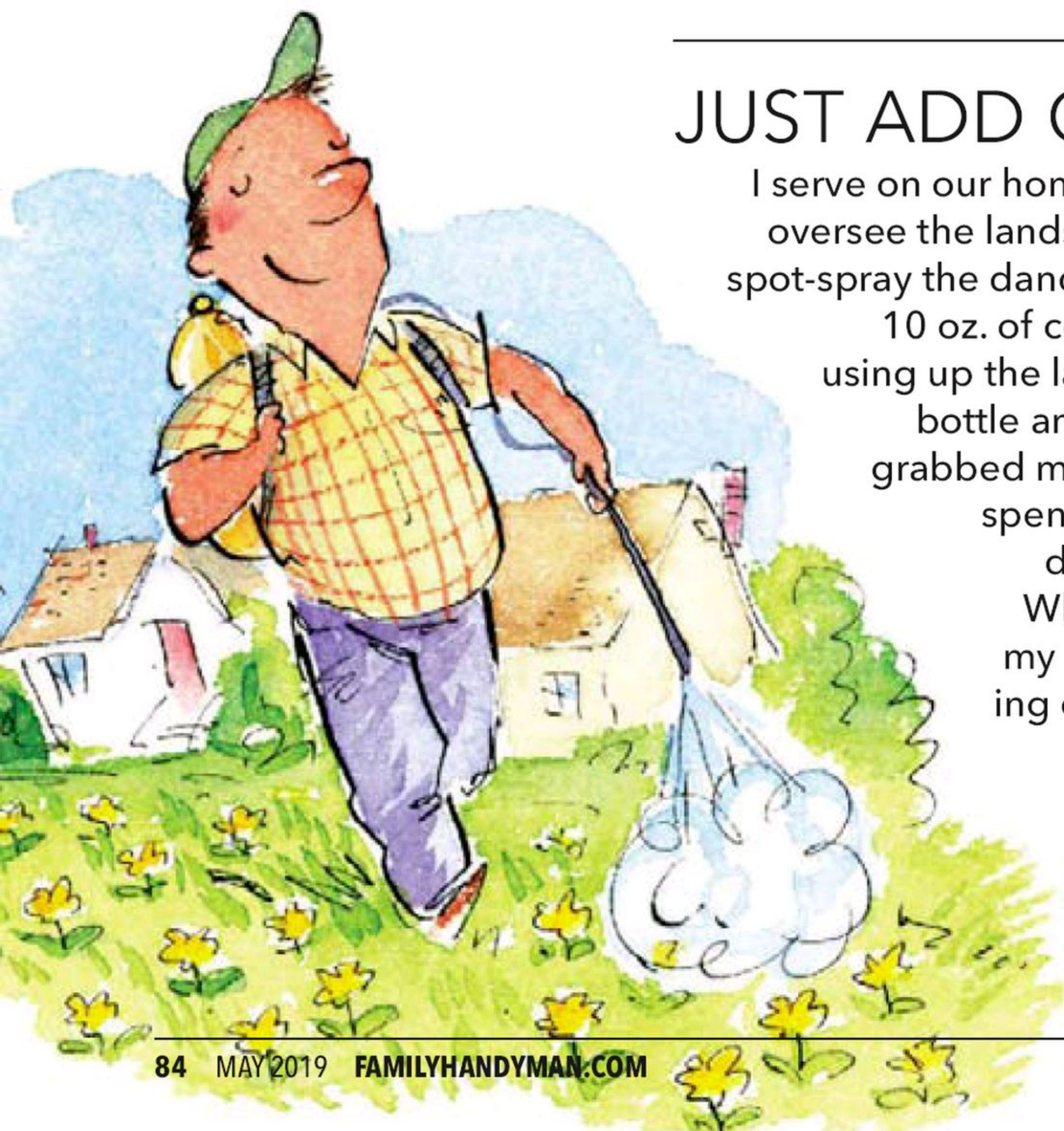
JOE ALBAUGH

## RIGHT DECK, WRONG HOUSE

I'm a longtime carpenter who specializes in building decks. When the secretary of our company gave me the address and paperwork to build a deck for a customer, I drove straight to the house and got started. Two and a half days later, the beautiful new deck was finished.

Oddly enough, our secretary told me that she'd been getting calls from an angry homeowner upset that we hadn't started her deck yet. Well, you guessed it. We built the deck at the wrong house—a vacant rental property. The owner was happy to get a free deck and even hired us to build a couple more at his other properties. But it'll take a lot more decks to make up for that costly mistake!

ANTHONY L. CARSON





# The world doesn't need another word for fear.

Unease. Heebie-jeebies. Alarm. The willies. There are dozens of words for fear in the English language. But just one for exceptional home security. SimpliSafe. It blankets your home with award-winning 24/7 protection that stands up to the unexpected, from blizzards to burglars to blackouts. As more than 3 million customers know, fear has no place in a place like home.

Right now, get free shipping  
at [SimpliSafe.com/handy](https://www.simplisafe.com/handy)

**SimpliSafe**<sup>™</sup>  
HOME SECURITY







# Even the earth needs a trusty barber.

When only a perfect cut will do, you need a zero-turn mower you can count on. One that can take on large lawns and thick grass efficiently, reliably and comfortably. Every time. The Kubota ZD and ZG Series. Built to keep your lawn looking good. Real good.



**KubotaUSA.com**

© Kubota Tractor Corporation 2019. This material is for descriptive purposes only. Kubota disclaims all representations and warranties, express or implied, or any liability from the use of this material. For complete warranty, safety and product information, consult your local Kubota dealer. For the complete disclaimer, go to [KubotaUSA.com/disclaimers](https://www.kubotausa.com/disclaimers) and see the posted disclaimer.



**Kubota®**

Shape your world.