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SEE HOW, PAGE 24

10
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**EXPERT
DIY ADVICE
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Contents **APRIL 2017**

Best! **PATIO & DECK IMPROVEMENTS** *ISSUE*

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Pull up a chair or two,
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toast the weekend!
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Tom Fenenga

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HOW TO GROW GRASS



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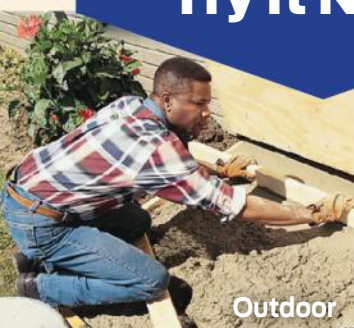
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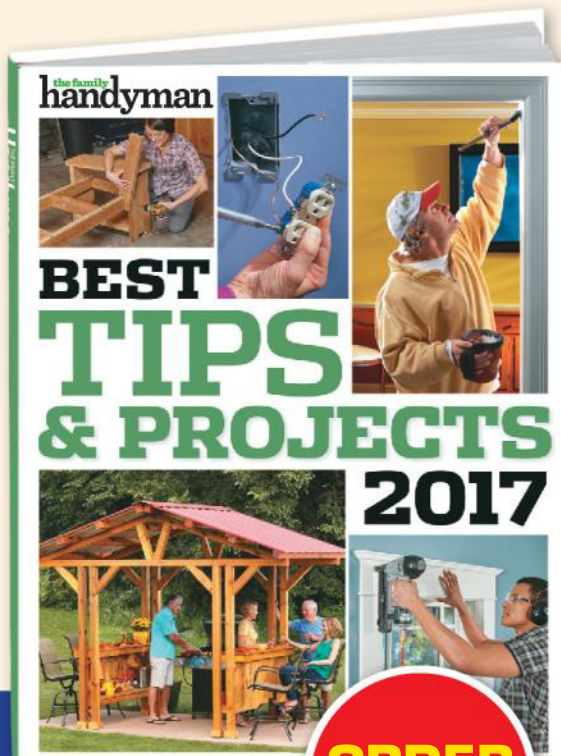
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Stuff We Love

Our favorite DIY tools, materials + gear. By Mark Petersen

BACK SAVER

Set posts without concrete

Concrete is a solid choice for anchoring posts and poles, but nobody likes lugging around the 80-lb. bags, and mixing it is the definition of tedious. Next time you need to backfill a posthole, consider using expanding foam that's formulated for anchoring posts of all shapes and sizes.

Fast 2K Fence Post Backfill is super lightweight and forms a waterproof barrier that extends the life of wooden posts. This foam is also strong enough to resist lateral force of more than 500 lbs. and has a compression strength three to four times that of tamped soil. And it doesn't need to be mixed with water. You just pull the clip that separates the two components, mix the bag for 30 seconds and pour the liquid down the hole. The post/poles will be ready for use in just 15 minutes!

What's the downside? You have to be very careful that the post/pole stays perfectly still while the foam is curing. And it's more expensive: \$12 for 26 fl. oz. instead of \$5 for an 80-lb. bag of concrete (about what you'd need for one post). But when you're figuring the overall price of your project, don't forget to include a week's worth of chiropractic visits on the "concrete" side of the ledger. Fast 2K is available at menards.com.

Expanding Foam





MUST-HAVE

Grow healthier plants in these handy fabric pots

These Smart Pot fabric containers have a lot going for them: Plants don't get root-bound, and the roots prune themselves when they get near the air outside the pot (called "air pruning"—who knew?). Fabric pots allow soil to drain so it never becomes oversaturated.

You can grow anything you want in fabric pots—flowers, herbs and veggies—and the permeable weave makes them a perfect compost container. They won't crack in the winter, they last for years and they're made in the U.S.A. I bought a 5-gallon five-pack for \$28 online. Buy pots with handles if you plan to move them around. Learn more at smartpots.com.

MARCIA ROEPKE, ART DIRECTOR



TIME SAVER

Simple drain install

One of the most challenging steps in replacing a faucet is installing the drain, especially if you're genetically inclined to ignore instruction manuals. A standard drain has about 14 parts. American Standard's Speed Connect drain has four! And the pop-up has no fussy adjustments to mess with.

An easy faucet installation is good news, but not paying an arm and a leg is even better: Some faucets equipped with the Speed Connect drain cost as little as \$40! Speed Connect drains are available wherever American Standard faucets are sold.

HANDY HELPER

FANTASTIC ELASTIC

Idrive a pickup and sometimes need to transport things too heavy for bungee cords and too fragile for ratcheting tie-downs. That's when I break out my Cordzilla Stretch Ropes. These ropes work like bungee cords but have spring-loaded safety clips to keep hooks securely connected to anchors.

Cordzilla ropes come in different lengths and have rubber pads to protect corners on delicate items. I've been using mine for about six years for everything from light-weight furniture to heavy buckets full of tools. Find them for \$10 to \$20 online.

JASON WHITE, ASSOCIATE EDITOR





LEARN FROM THE PROS

A string trimmer with two-way rotation

A couple of us here at *TFH* got to attend the 2016 Green Industry & Equipment Expo. Most of the products at this trade show were geared to landscapers, hardscapers and property management pros. We always love seeing all the cool, new features on pro equipment because many of them end up on the tools in our garage. We hope that's the case with Husqvarna's new string trimmer.

The head on the 536LiLX spins in both directions. That means grass clippings can be directed off driveways and sidewalks, or even more important, away from the operator. Also, grass tends to lie down when it's repeatedly cut in the same direction. But now, with a push of a button, you can reverse directions and stand those blades back up at attention for a haircut. The 536LiLX is available at Husqvarna dealers and costs about \$300 for the tool only (\$36V battery not included).

MARK PETERSEN, ASSOCIATE EDITOR

WORTH THE SPLURGE

RETRACTABLE SCREEN DOOR

Like traditional storm/screen doors, the Brisa Retractable Screen Door lets fresh air in and keeps bugs out. But Brisa doors open with the push of a button, which is handy when you have an armful of groceries. They won't be violently ripped off the house in high winds or cover up that gorgeous front door that cost you a fortune.

A beginning DIYer can install a Brisa door in about 30 minutes with a few simple tools. You can choose from white, sandstone or bronze, and order them to fit most widths and styles of doors, including French and sliding patio doors. A standard-size Brisa Retractable Screen Door costs about \$200 at The Home Depot.



SMART CHOICE

Spray-can extension pole

Some spray cans of wasp/hornet killer can reach a nest more than 20 ft. away. That's helpful, unless the nest is in your eaves and half the spray ends up running down the side of your house. And spraying on a windy day might just result in a face full of pesticide.

Here's a better solution: Strap a spray can of wasp/hornet killer onto the 12-ft. Gotcha Sprayer and take the battle right up close to those winged stingers. The extension pole also gives you an extra 12-ft. running head start when you're spraying an aggressive hornet's nest. Note: It's best to spray at dawn. Wasps and hornets are less active in the early morning (just like teenagers).

The Gotcha Sprayer has a string to activate the trigger, and works with all sorts of cans. Strap in a can of lube and quiet a squeaky weathervane or spinning roof vent. Accessories sold separately include flashlights, scrapers and a puffer bellows for applying powder chemicals. The Gotcha Sprayer is available online for about \$35. Check it out at PestControlBuzz.com.

Handy Hints®

Clever solutions from our readers. By Jason White

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PLYWOOD CUTTING GRID

I wanted an easier way to cut sheets of plywood into smaller pieces with my circular saw, so I built this cutting grid from 2x4s. I just set my grid on a couple of sawhorses and let the sawdust fly. When I'm done, I lean the grid against the wall for next time. I don't worry about cutting into a wooden grid, and the screws are located low enough that the blade won't hit them.

— HAROLD NIEKAMP

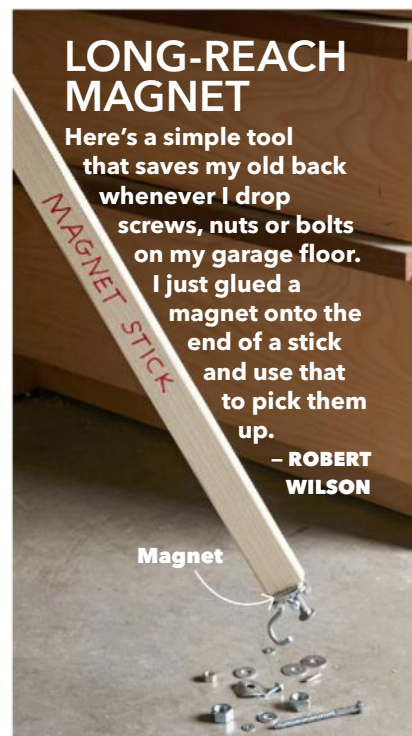


LONG-REACH MAGNET

Here's a simple tool that saves my old back whenever I drop screws, nuts or bolts on my garage floor. I just glued a magnet onto the end of a stick and use that to pick them up.

— ROBERT WILSON

Magnet



LADDER TOPPER

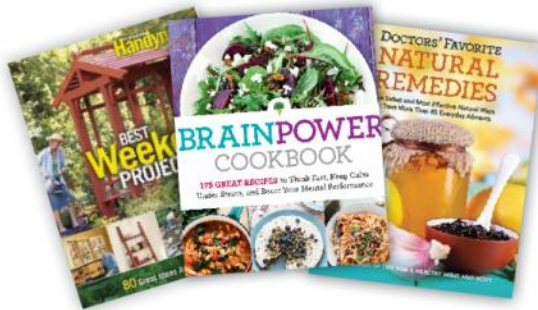
I often work overhead on a ladder, and my heavy tool belt takes a toll on my back and legs. Now instead of wearing it, I cinch it around the top of my ladder, which keeps all my tools right where I need them.

— TOM BOWARD



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KITCHEN-WHISK PAINT STIRRER

Paint mixers that you can chuck in a drill are nothing new, but I didn't have one on hand for a recent touchup and needed to improvise. So I found a whisk in one of my kitchen drawers, cut off the loop on the end of the handle, and chucked it in my cordless drill. It happened to be the right size for a 1-gallon paint can and did a great job of mixing the old paint.

— ROSIE WALLENT



EYEGGLASS-CASE HARDWARE STORAGE

My wife has a drawer full of old eyeglass cases that she doesn't use anymore, so I repurposed them to store small things like drill bits and screws. I stick a case in my shirt pocket when I'm working and toss it into a toolbox when I'm done. It's much easier than digging around for small stuff in the bottom of my tool apron. — **NORM SMITH**



CHARGER HELPER

When I plug in my cell phone charger, there's a 50 percent chance I'll stick the USB cable in upside down and have to flip it over. To save time, I put two triangles cut from electrical tape on the cable and the charger. If the triangles match, I'm plugging the cable in the right way.

— **MARK PETERSON**

VACUUM COMB

A paintbrush comb is perfect for removing thread that gets wrapped around a vacuum's beater bar and for cleaning stuff like lint and hair from the bristles.

— **TOM PARRENT**



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DRILL BIT SAVERS

Sometimes I carry Forstner drill bits in my toolbox. To protect the cutting edges, I customize plastic pill bottles by drilling holes in the lids for the shank to poke through. Works great for router bits too! – **EARL HAGEN**



VINYL SIDING HELPER

Long lengths of vinyl siding can be tough to install by yourself, so I came up with this trick. I hung a bungee cord on the wall above the siding and used it to hold the siding in place while I nailed it off. The elasticity of the bungee cord made it easy to pull the siding down to snap it into place before nailing.

– **MICHAEL WINTER**

**Need More
Handy Hints?**

Head to tfhmag.com/tool tips



HOMEMADE DETAIL SANDER

It can be hard to sand louvered doors and shutters and other items that have a lot of tight spaces. Oscillating tools with sanding pads work great, but the sanding pads don't always come with the tools and are expensive to buy. That's why I make my own using a dull blade and custom-cut sandpaper glued on with spray adhesive. When the sandpaper gets dull, I just peel it off and stick on a new piece. — **MITCH BRODKIN**



Magnetic
Curtain Rod

TOWEL BAR FOR APPLIANCES

Some dishwashers don't have a handle that you can use as a towel bar, so I used a magnetic curtain rod designed for steel entry doors. Many stainless steel appliances won't hold magnets, but some newer ones will. — **LUCIE MAGGIO**



NEVER CLEAN A ROLLER TRAY

Instead of buying liners for my plastic paint roller tray, I just let the paint dry and pour new paint right over it for the next job. When the paint starts getting thick, I peel it out and throw it in the trash. I've had this tray forever and probably won't ever need to buy another one. — **TRAVIS LARSON**

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With a sturdy steel mattress frame, arched wood slats and fold-out legs, this Murphy Bed hardware sets a new standard for ease of construction and sleeping comfort. The smooth piston lift mechanism makes the bed easy to open and close, and the included instructions show you how to build a basic enclosure. It's easier than ever to *create with confidence*.

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Best Pro Tips

Expert advice from the job site. By Mark Petersen

Build a Long-Lasting Retaining Wall

Anyone with a strong back can stack a bunch of blocks and build a pretty retaining wall. But it takes skill and planning to construct an attractive wall that can also handle immense pressure, shrug off the forces of gravity, stand for decades and laugh in the face of Mother Nature.

That's the kind of wall we wanted to learn how to build, so we went to work with some hardworking hardscaping pros. They showed us that it's all about a solid base, proper drainage and the right materials for the job. They also shared a few handy tips they've picked up over the years.



MEET THE EXPERTS

Joe Blakeborough (right) owns and operates Blakeborough Hardscapes in Prior Lake, MN, with the assistance of his younger brother, Jake (left). They run multiple crews that specialize in block and boulder retaining walls, paver projects, outdoor living spaces and other services.

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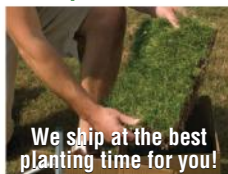
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Story Pole for Laser Level

Make the trench wide, deep and level

Size the trench so there's enough room for the block and at least 8 in. of space behind it. Excavate deep enough to completely bury at least one full course, including space for 6 to 8 in. of base material.

Establish a level trench to ensure an even layer of base material. That will help prevent the wall from tipping after freeze/thaw cycles. Our experts use a laser level and a story pole to determine the depth of the trench.



Plate Compactor

Compact the trench

Compact the soil in the trench bottom with a hand tamper or vibrating plate compactor. This step is often neglected. The excavator, and even hand shovels, can disturb and loosen the top inch or two of soil, and that's enough to make your wall settle—settling is bad!



Lay a crushed stone base

Our experts prefer crushed stone for the base rather than naturally occurring gravel dug from a pit. Crushed stone is a little more expensive. However, it provides better drainage, and because of the sharper angles on the stone, it requires less compacting, and once it's compacted, it stays that way.

Joe and Jake have found that crushed stone sized between 1/2 in. and 3/4 in. is best suited to handle the heaving forces created by the harsh freeze/thaw cycles here in Minnesota. Avoid rounded stones like pea gravel or river rock; they don't form strong interlocking bonds like angular stone.

Leave the stone no more than 1/2 in. higher than you want the final height to be, and then make a couple passes with a hand tamper or plate compactor. You'll notice the stone is almost 100 percent compacted as soon as it's laid in the trench. The same type of stone will be used for backfilling, which also eliminates the need for hauling in multiple materials.



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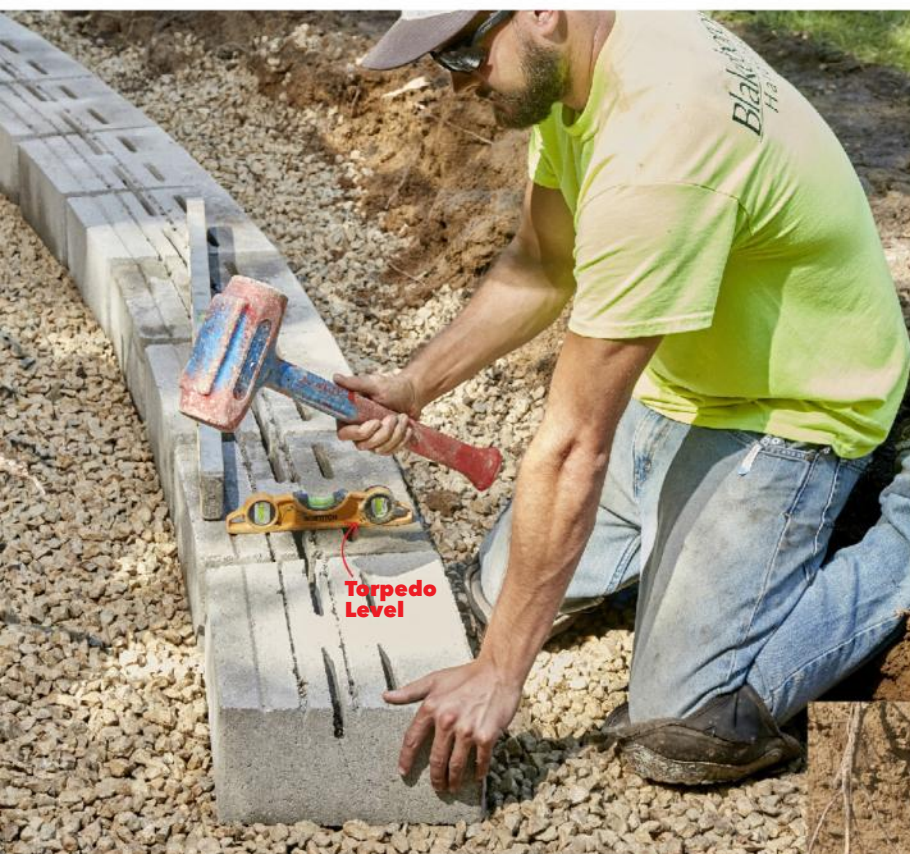
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BEST PRO TIPS



Sweep before stacking

Even a pebble on the surface of a block will throw the one above it out of alignment. And that crooked block will affect the one above it, and so on. That little stone will eventually create an unattractive hump in the top course.

Get the first course right

Use a torpedo level to level each block front to back and a 4- or 6-ft. level to keep each course level and even. Set the blocks with a heavy rubber or plastic mallet. Getting the first course flat and level is extremely important, so take your time. Try to lay the course as close to the center of the trench as possible.



Provide plenty of drainage

Once a few rows have been stacked, backfill the wall with rock so it matches the grade height in front of the wall, and then lay down perforated drain tile on top of the rock. Install drain tee fittings and a drain grate every 25 ft. to 50 ft., depending on how much rainwater is expected to run down to the wall. Cut one block down to accommodate the drain grate. Screw the drain tile parts together so they won't come apart when they get covered with more rock. Also, drain the tile to daylight at the ends of the walls whenever possible.



Step up after two full courses are below grade

If the wall runs up a hill, continue each base course into the hill until the top of the second course is level with the grade, and then start your second base course at that point. If you have the option, it can be easier to excavate and lay the lowest course before excavating the trench for the next step, especially if you have to step up several times. Save yourself some money and install the cheapest style/color that matches the wall style (usually the gray ones) on the bottom course since it won't be seen.

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BEST PRO TIPS

WHICH BLOCKS ARE BEST?

These solid blocks are heavy. Lighter, hollow blocks are available, but they can't be split because cutting will expose the voids. Also, some hollow blocks require individual backfilling, which is time consuming. Many pros prefer blocks that are held together with pins rather than a lip on the bottom because pinned blocks work better on tighter curves, and the flat bottom makes them easier to stack. Also, the small lip on some lipped blocks can be prone to cracking, which will weaken the wall.



Mark cuts with a soapstone pencil

These pros like soapstone because the lines created by grease pencils and markers can stay visible for a long time, whereas soapstone washes off in the rain. The downside is that soapstone doesn't work as well on wet blocks. You can find these pencils at online retailers for as little as 25¢ each.

KEEP SPACE BETWEEN TIERS

If you're building tiered retaining walls, set each tier back far enough to prevent the weight and pressure of the wall above from destroying the one below it. The rule of thumb is to separate wall tiers by a distance that's no less than twice the height of the wall below. So if the bottom wall is 4 ft. tall, the wall above it should be built at least 8 ft. behind it.



Split blocks for a rough finish

If the end of a block will be visible, and you'd like it to match the other rough surfaces, use a block splitter. You can rent a splitter like this for about \$85 per day.



Make smooth cuts with a saw

Use a gas-powered cutoff saw like this one for a smooth cut. This saw can cut with or without water. Water eliminates the dust but creates a messy slurry that can permanently stain surfaces like driveways and sidewalks. You can rent a saw like this for about \$80 per day.

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BEST PRO TIPS



Locking Pin

Keep the joints tight

Stagger the overlaps (at least 4 in. for this Versa-Lok product) and try to keep the butt joint between the blocks as tight as possible. Large gaps can create a pathway for water and sediment. Whichever type of block you use, make sure you follow the manufacturer's instructions.



Adhesive

2x4 Guide

Keep the capstones even

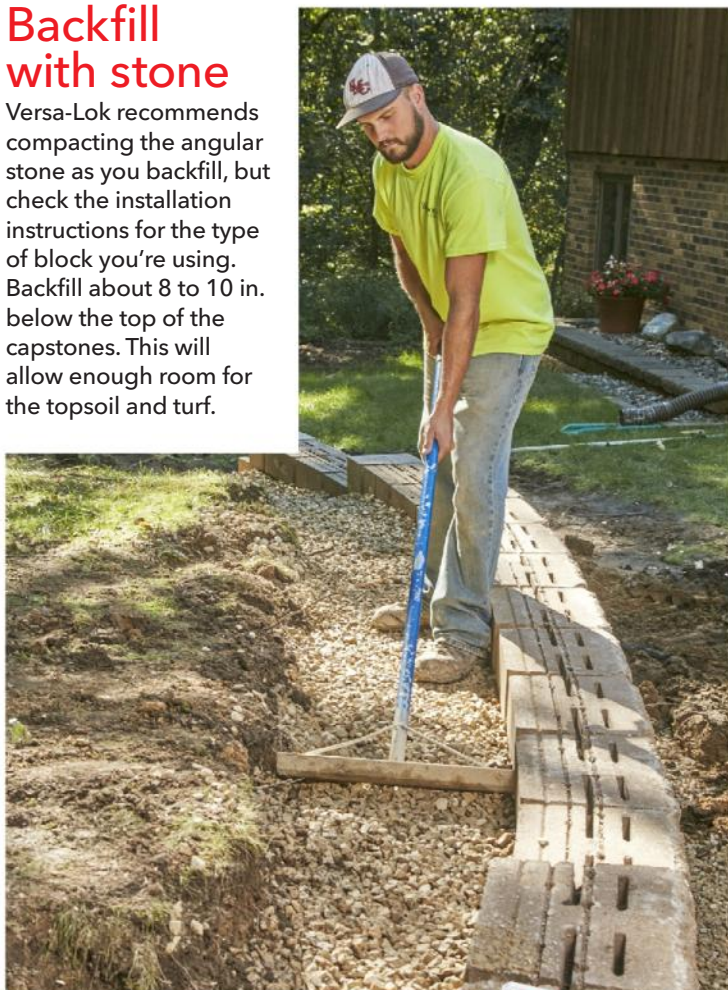
Secure the capstones with a specialty landscape block adhesive, which stays flexible over time. Make sure the blocks are dry before applying the adhesive. Overhang the capstones about 1 to 1-1/2 in. Joe and Jake use a scrap 2x4 as a guide.

TALL WALLS NEED ENGINEERING

Walls more than 4 ft. tall will likely require a building permit and a plan made by a licensed engineer. The engineer will specify the base's width and depth, how far down the base course should be buried, and whether or not a geogrid (soil reinforcement system) should be used.

Backfill with stone

Versa-Lok recommends compacting the angular stone as you backfill, but check the installation instructions for the type of block you're using. Backfill about 8 to 10 in. below the top of the capstones. This will allow enough room for the topsoil and turf.



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Fabulous Fire Table

Create an outdoor gathering space for family &



friends. By Mark Petersen

A fire table is a beautiful addition to your outdoor living space—and an invitation to gather around, enjoy a drink and shoot the breeze. It's also a stylish centerpiece that gives you a great opportunity to showcase your DIY prowess. And this is a fun build because it entails a variety of skills: woodworking, masonry, metal work and a little mechanical. It does require a few more-advanced tools, and at \$825 it's not the cheapest DIY project, but if you shop for one, you could easily spend a couple thousand dollars.

Tools and materials

This table is made from cedar, but you can use pressure-treated wood, which would save you about \$30, or whatever exterior-grade lumber is available in your area. The concrete tabletop is formed from Quikrete Countertop Mix. I dyed the top charcoal gray, but many other colors are available. All the materials (besides the burner kit) are available at home centers. The biggest cost by far is the burner kit (see p. 34). You could save about \$100 by buying a kit that doesn't have a control panel or a piezo starter.

I built this project with basic hand tools and a miter saw, table saw and trim gun. You could make all the cuts with a circular saw and fasten all the panels with a hammer and trim nails, but it would take a lot longer and the end product probably wouldn't turn out as polished.

How it works

The burner runs on propane and will last six to 12 hours on a 20-lb. tank (that's about \$2 to \$3 per hour). The fire it produces will warm your hands and take the chill off, but it doesn't throw off enough heat to keep you warm on a cold night the way a bonfire would. The propane tank is stored under the table, but you can bury a line and hook it up to your home's natural gas if you wish.

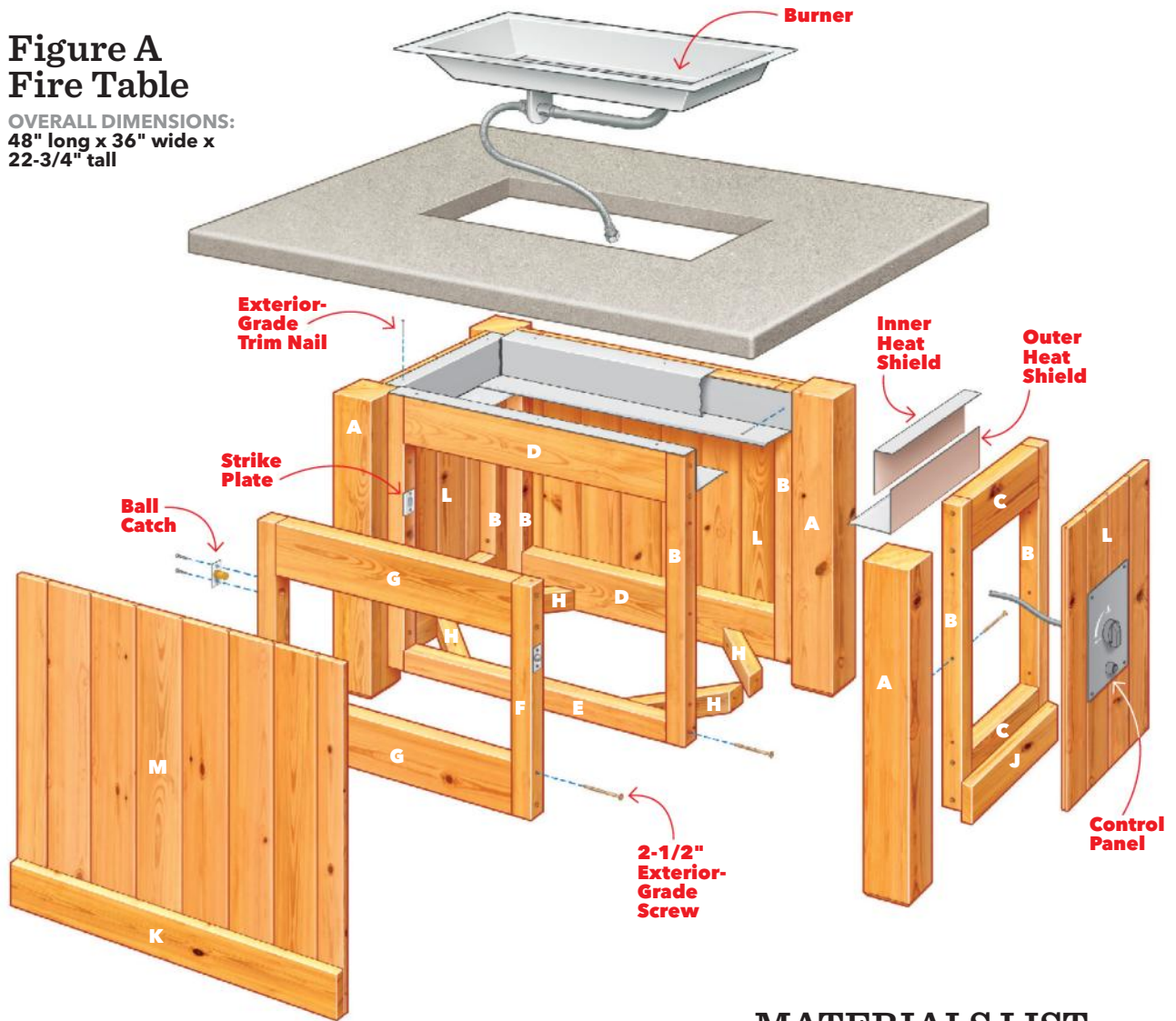
WHAT IT TAKES

TIME	COST	SKILL LEVEL
2 days	\$700 to \$825	Intermediate

TOOLS Basic hand tools, drill, table saw, miter saw, trim nailer/compressor, concrete trowel, large wire cutters or small bolt cutters, and wheelbarrow or mixing tub

Figure A Fire Table

OVERALL DIMENSIONS:
48" long x 36" wide x
22-3/4" tall



CUTTING LIST

KEY	QTY.	DIMENSIONS	PART
TABLE BOX			
A	4	3-1/2" x 3-1/2" x 22"	Corner posts
B	8	1-1/2" x 1-1/2" x 20-1/2"	Frame sides
C	4	1-1/2" x 3-1/2" x 11"	Side frames, top/bottom
D	3	1-1/2" x 3-1/2" x 23"	Front and back frames top and back frame bottom
E	1	1-1/2" x 1-1/2" x 23"	Front frame bottom
F	2	1-1/2" x 1-1/2" x 15"	Door frame sides
G	2	1-1/2" x 3-1/2" x 19-5/8"	Door frame top and bottom
H	4	1-1/2" x 1-1/2" x 9"	Angle braces (45-degree ends)
J	2	3/4" x 2-1/2"	Side trim boards (bevel top, cut to fit)
K	1	3/4" x 2-1/2"	Back and front trim boards (5-degree bevel top, cut to fit)
L	16	1/4" x 3-1/2" x 18-1/4"	Back and side planks
M	8	1/4" x 3-1/2" x 20-3/4"	Door planks
TABLETOP FORM (CUT FROM A 3/4"-THICK 4' x 8' MELAMINE SHEET)			
N	1	3/4" x 49" x 56"	Form base
P	2	3/4" x 1-3/4" x 49"	Perimeter side walls
Q	2	3/4" x 1-3/4" x 44"	Perimeter end walls
R	2	3/4" x 1-3/4" x 12"	Interior side walls
S	2	3/4" x 1-3/4" x 22-1/2"	Interior end walls

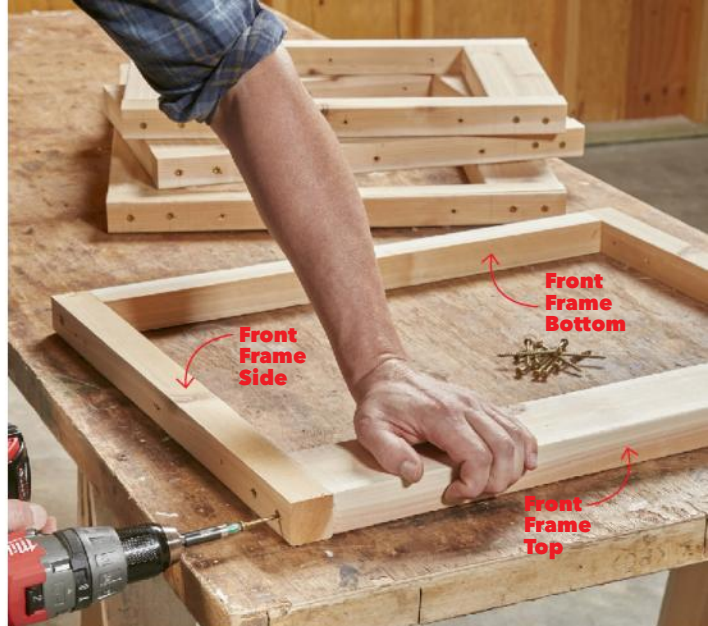
MATERIALS LIST

ITEM	QTY.
4x4 x 8' cedar post	1
2x4 x 8' cedar	4
1/4" x 3-1/2" x 96" planks, package of six	1
42" x 84" wire remesh	1
4' x 8' x 3/4" melamine	1
3/4" x 48" wood dowel	1
3-1/2" x 5" x 10' galv. steel dormer flashing	1
3" x 1-1/2" x 8' galv. steel deck ledger flashing	1
Quikrete Countertop Mix, 80-lb. bags	3
2-1/2" exterior-grade screws, 100-pack	1
2" 18-gauge brads, sm. pack	1
1-1/4" ext. trim nails, sm. pack	1
1" 18-gauge brads, sm. pack	1
Construction adhesive	1 tube
Black silicone caulk	1 tube
High-temp RTV silicone	1 tube
Ball catches	2
Exterior-grade wood sealant	1 qt.
Concrete sealer	1 gal.
Burner kit	1



1. Taper the feet

Cut the posts (A) to length on a miter saw (see Cutting List on p. 26). Taper the bottom edges about 1/2 in. up with a miter saw. The tapered edges won't tear out when the table is slid around, and they'll look better when it's sitting on uneven ground.



2. Cut and assemble the frames

Cut three 8-ft. 2x4s in half to create six 4-footers. Rip down five of the six into 1-1/2-in. x 1-1/2-in. boards. From these, cut the frame sides (B) and the front frame bottom (E). The other frame parts (C and D) are cut from full 2x4s.

Secure the frame sides to the tops and bottoms with two 2-1/2-in. screws. Connect the smaller front frame bottom with one screw in each side. Drill 1/8-in. holes through the frame sides before you install the screws.



3. Attach the side frames to the posts

Drill three holes through the sides of the side frames. Lay the frames flat on your work surface. Align the frames and posts flush at the top, and secure the frames to the posts with three 2-1/2-in. screws. Take note of the wood grain on the posts and place the most attractive sides facing out.



4. Attach the front and back frames

Set the side frames and posts upside down. Line up the inside corner of the front and back frames with the inside corner of the posts and secure them with three 2-1/2-in. screws driven through predrilled holes.



5. Install the angle braces

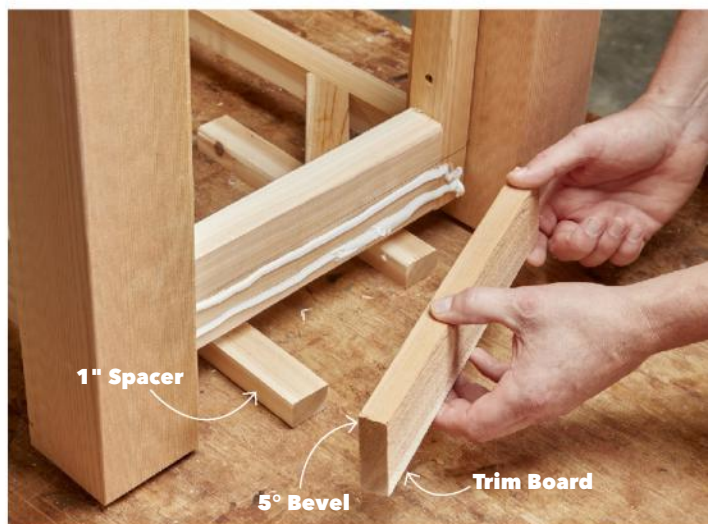
Cut the angle braces (H) from 1-1/2-in. x 1-1/2-in. stock. The total length (9 in.) is from the long point of the 45-degree angles. Use a framing square to check that all the posts are at right angles from the work surface. Then check that the box itself is square by measuring the diagonal distance from the outside of one corner post to another—the two measurements should be the same.

Once everything is square, install the brackets with a 2-1/2-in. screw on each side through a predrilled hole.



7. Fasten the planks

Cut the back and side tongue-and-groove planks (L) to length. On the back, rip 1 in. off the first plank; that way you'll end up cutting about 1 in. off the last one as well. I started the first one by removing the groove side. Apply adhesive, and fasten the planks with 1-in. brads, two at the very top of each plank and two near the bottom. Dry-fit the last two planks on the sides before applying adhesive.



6. Fasten the trim boards

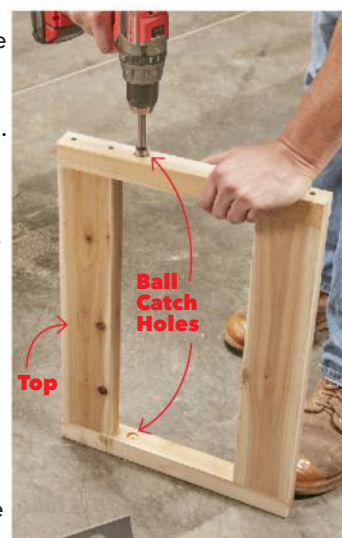
Set your table saw to a 5-degree angle and rip the 1x4 down to 2-1/2 in. That will create a beveled edge to help shed water. Cut the side trim boards (J) and the back trim board (K) to length, but hold off cutting the front. Apply construction adhesive to the frame and set the trim board on two 1-in. spacers. Drive 2-1/2-in. screws through the frame and into the back side of the trim board. Angle the screws a bit to prevent them from poking through the face of the trim board.

8. Build the door frame and install the ball catches

Cut the door frame sides (F) and door frame top and bottom (G). Assemble the door frame with two 2-1/2-in. screws driven through predrilled holes in the sides into the top and bottom. Dry-fit the door frame in the opening; there should be about a 3/16-in. gap on each side and a 3/8-in. gap above the top.

Predrill a 1/8-in. hole through the sides of the frame 1 in. below the bottom of the top frame board. Using that hole as a guide, drill a 3/4-in. hole (confirm this size with the installation instructions). Either a Forstner or a spade bit will work, but drill in from both sides to avoid a nasty tear-out.

Slide the ball catch into the hole and hold it in place with the retaining plate. The plate can sit on the surface of the wood; no need to cut in a mortise.





9. Attach the strike plates

Set the door frame into place with the bottom of it resting on the bottom frame of the table. Mark the top and bottom locations of the strike plate using the ball catch retainer plate on the door frame as a guide. Bore out space with your 3/4-in. bit to make room for the recess in the strike plate.

Install the strike plates backward so the curved part of the plate faces in. If the plate protrudes toward the front, it will bump up against the door planks. Hold the strike plate in place, and mark the screw holes with a pencil.



10. Fasten the door planks and trim board

Adjust the ball catches so there's an even gap on both sides. Cut the door planks (M) to length and rip 1-1/8 in. off the first panel. Apply adhesive to the frame and set down 1-in. spacers for the planks to rest on. Start the first plank 1/8 in. short of the corner post, and leave the last plank short 1/8 in. Fasten the planks with two 1-in. brads as low and as high as you can (into the door frame, not the table!). Fasten the trim board with adhesive and 1-in. brads through the back of the door panel.



11. Caulk and apply finish

Apply caulk (that matches the finish) on the sides and the back where the tongue-and-groove planks meet the corner posts. Apply caulk to the top side of the trim board on the door. Don't caulk the tops of the other three trim boards. That way, if water does get behind the planks it can escape at the bottom.

A couple coats of an exterior-grade stain/sealer will add some color to your project and protect it from damaging UV rays.



12. Install the outer heat shield

Cut the 3-1/2-in. x 5-in. x 10-ft. galvanized steel dormer flashing (available at home centers) to length with tin snips. Install the flashing, keeping the top flush with the top of the box. Secure the pieces with 1-1/4-in. exterior-grade trim nails or small screws. Seal the corners with RTV high-temperature silicone (sometimes called "gasket maker"). **Caution:** The bottom of the pan gets hotter without stones in it, so don't ever run the burner without stones in the pan!

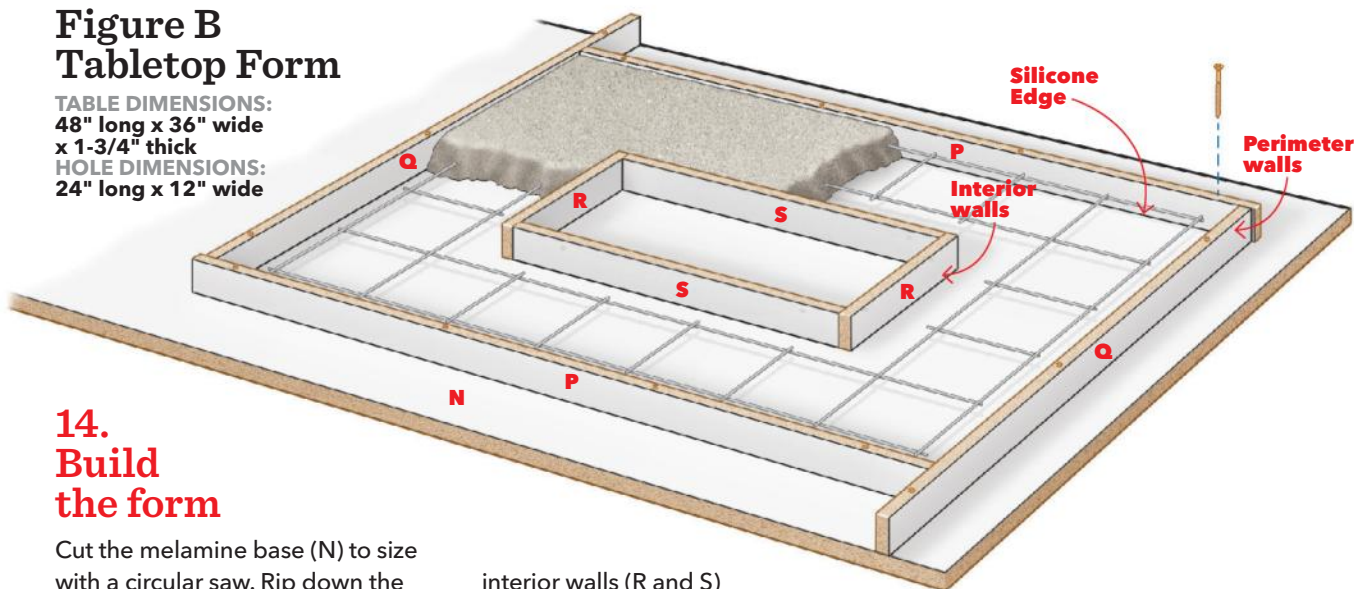


13. Install the inner heat shield

Cut the galvanized steel deck ledger flashing (sometimes called "drip edge") to length with tin snips. Pound the bottom lip of the flashing flat with a hammer. Install each side so the bottom of the flashing is facing up, and the lip (that was bent flat) is even with the outside of the box frame but short of the planks. This will create a small air gap between the two pieces of flashing.

Figure B Tabletop Form

TABLE DIMENSIONS:
48" long x 36" wide
x 1-3/4" thick
HOLE DIMENSIONS:
24" long x 12" wide



14. Build the form

Cut the melamine base (N) to size with a circular saw. Rip down the form walls on a table saw. Use a straightedge to mark the outline of the form. The **inside dimensions** of the perimeter walls (P and Q) should be 36 in. x 48 in. Let the perimeter walls run long; that way you'll have a surface to whack with a hammer when it's time to dismantle the form. The **outside dimensions** of the

interior walls (R and S) are 12 in. x 24 in. Measure the actual burner ahead of time and check that it will fit before you cut and assemble the inner form walls.

Fasten the form walls with 2-1/2-in. screws placed about 10 in. apart. Melamine splits easily; be sure to predrill holes for the screws. The screw heads need to sit flush, so

create a hole for them with a countersink bit. Because the walls can split even if you pre-drill the holes, drive in the screws slowly so you can stop before they split and create a noticeable bump in the side of the tabletop. Secure the corners with 2-in. brads.



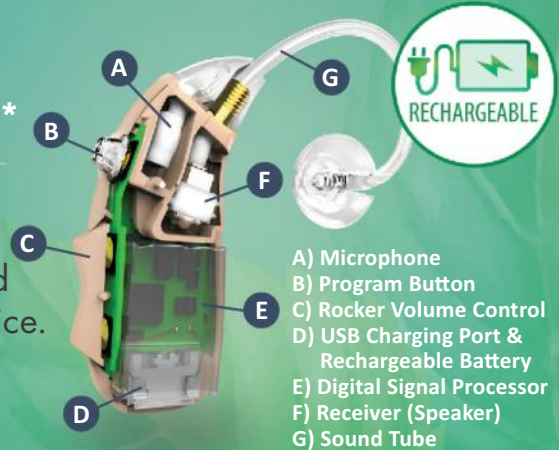
15. Create a rounded edge with silicone

Run a healthy bead of silicone around the perimeter. Tool it into shape using a 3/4-in. dowel with the end cut at 90 degrees. While you're tooling, let the excess spill over onto each side of the bead. After the silicone dries, those two lines can easily be pulled and scraped off. Black silicone works best because you can clearly see any excess that needs to be removed. Don't use silicone on the inside edges. The silicone would make the form walls harder to remove, and those edges will be covered by the burner anyway.

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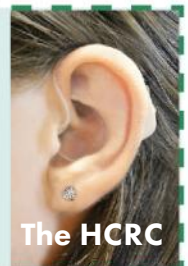
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16. Mix the concrete

Mix the concrete in a wheelbarrow or mixing tub (\$15 at home centers), using a rake or garden hoe. I decided to darken my top by mixing in two bottles of Quikrete Liquid Cement Color dye. It's important to get exactly the same amount of dye into every bag of mix. If you mix each bag individually, stir the dye into some water first, and separate it into three equal amounts, one for each bag.

I used Quikrete Countertop Mix. Some home centers stock it, but most can order it for you. Countertop mix works great because it can be poured a little wetter (like thick pancake batter) but still retain its strength. That helps prevent voids caused by air bubbles. Follow the directions for whatever product you use.



17. Fill the form

Set the form on a few 2x4s resting on sawhorses so you can beat the underside of it with a hammer to remove air bubbles. The form should sit fairly level. Spread out the concrete with a concrete trowel or taping knife. Pour in one of the mixed bags and beat the bottom and sides of the form to remove voids and air bubbles. Repeat the process with the second mixed bag before adding the wire mesh.



18. Set in the wire mesh

Wire mesh will strengthen the top. I cut down a 42-in. x 84-in. sheet (not roll) of remesh. The grid size worked out perfectly. Whatever size mesh you buy, keep it at least 2 in. away from the edges. I cut mine with a pair of small bolt cutters, but you could also use large wire cutters.

Once the mesh is laid in place, spread the last mixed bag of concrete over the top of it. Tap only the sides with a hammer to remove any voids; do not vibrate the rest of the form. This is very important: Vibrating the form will cause the remesh to sink. You'll get shadow lines if the remesh comes within 1/2 in. of the table's surface.



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- 3. Go to www.sunsetter.com**
- 4. By Mail:** SunSetter Products, Dept. 32805
184 Charles Street, Malden, MA 02148. Be sure to include your complete mailing address and email address.





19. Screed off the excess concrete

Slide a 2x4 across the surface to scrape off the excess concrete. Wiggle it back and forth as you go, but try not to shake the whole form too much. That could also cause the remesh wire to sink and create shadow lines. Let the concrete harden a bit before you smooth it out with a trowel or taping knife. It doesn't have to be perfectly smooth because nobody will ever see it.



20. The burner kit

I bought my 12-in. x 24-in. burner kit (No. CF-1224-DIY) at The Outdoor GreatRoom Company (outdoorrooms.com). It cost about \$500 and included the gas lines, the control panel, the fire gems and the burner with electronic piezo starter. Hooked to a propane tank, it cranks out about 55,000 Btu set on high. A natural gas orifice is included as well. The burner pan has drain holes, so a little rain won't hurt it, but it should be covered when not in use. And fire is inherently dangerous, so always follow the manufacturer's directions!



MEET THE BUILDER

Mark Petersen is an associate editor at *The Family Handyman*. He spent 20 years in the construction industry, 10 years as a siding contractor and 10 as a general contractor.



21. Finish up

Take out the form screws, and remove the form walls with a hammer and a pry bar or sturdy scraper. Have a strong buddy (or two) help you flip the top upside down. Seal the tabletop with an exterior-grade concrete sealer.

Install the control panel (if your kit has one), and set your table base exactly where you want it before setting the top into place. Apply the left-over black and high-temp silicone to the top edge of the table. The top is heavy enough that it shouldn't budge with normal use, but the silicone will create a stronger bond in case your burly, intoxicated brother-in-law falls down on it.

Insert the burner and make the gas line connections according to the manufacturer's directions. Fill the burner with the recommended amount of rocks. Too few rocks and the pan will overheat; too many rocks and the flame will sit too high and be blown out by the wind.

All that's left is to invite your friends and family (sans your brother-in-law) for a relaxing conversation around the fire.



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5 SOLUTIONS FOR A SHABBY DECK

Pick the one that's best for you.

By Jason White

Nothing beats the natural appeal of a real wood deck. But after just a few years of weather and foot traffic, wood can become an eyesore. To revive it, there are five main directions you can go, and we'll guide you through them all. This article will also help you decide whether to refinish your old decking or step up to a lower-maintenance option so you can spend more time enjoying your deck and less time taking care of it.

Is Your Deck Dangerous?

Before you take steps to make your deck look better, make sure it's structurally sound. You don't want it falling down after all that hard work! To identify and fix the most common deck problems, do the seven-point inspection at tfhmag.com/deckrepair

SOLUTION 1: CLEAN & REFINISH

The basics of refinishing a deck are pretty straightforward: Strip, clean, stain ... repeat! It's a tough chore that might take you several days to complete, one you'll have to do every few years to keep your deck looking great. But all that hard work has a huge payoff! When you're finished, your all-wood deck will look almost as good as it did the day it was built. Here are some things to think about before tackling the job yourself.

Pressure washers make refinishing easier

A pressure washer does a great job of cleaning your deck and stripping old finishes. They're available as gas or electric models and vary widely in price—anywhere from \$70 to \$1,000 at home centers. You can also rent one for about \$80 per day. You can get the job done without a pressure washer, but it's a real time and labor saver. For more information about choosing and using pressure washers, visit tfhmag.com/pressurewasher



PHOTO CREDIT/OPPOSITE PAGE: KZWWW/SHUTTERSTOCK

COST: About \$300 total for tools, materials and pressure washer rental.

LIFE SPAN: Lasts 1 to 6 years.

PROS:

- Makes old deck look almost like new.
- Much less expensive than most other options.
- Far less work than tearing off your old deck boards and replacing them.
- Maintains the natural beauty of real wood.

CONS:

- You'll have to refinish your deck every few years.
- You'll have to scrape or blast off any old flaking finish, and you might be left with a little sanding to do.
- You'll need to replace any rotted wood before refinishing.
- You'll still have to deal with bigger problems like rot or worn, damaged wood.

OTHER CONSIDERATIONS:

- You'll need to do the job on a cool, dry day.
- Be prepared to spend a couple of weekends refinishing your deck.

More Info:

To find step-by-step instructions for refinishing your deck, visit tfhmag.com/deckrefinish



SOLUTION 2: DECK RESTORATION COATINGS

Deck restoration coatings are acrylic based and go on like really thick paint. You'll need to apply two coats. Once dry, they form a coating similar in appearance to composite decking.

A word of caution about these products: We found many online complaints and even some reports of lawsuits related to peeling of deck coating products not long after application. It's very important to follow preparation instructions from the manufacturer, which might include power washing and application of a prime coat. Bottom line: Read the manufacturer's instructions before use and contact the company directly if you have questions or concerns about whether it'll work for your particular situation.

COST: About \$35 per gallon, which covers up to 75 sq. ft. in two coats.

LIFE SPAN: Some manufacturers claim 12 years or more, but it's hard to gauge since these products have been around for only a few years.

PROS:

- Fills in small holes and cracks.
- Textured for slip resistance.
- Excellent UV protection.
- Lots of color options (tintable).
- Goes on easily with a roller and paintbrush.
- Much cheaper than replacing all your old decking.
- Can be recoated if you follow manufacturer's prep instructions carefully.

CONS:

- Wood can look like plastic after coating.
- Lots of careful prep involved.
- Two coats required.
- Susceptible to scratches from pets, furniture, etc.
- Prone to peeling if you don't carefully follow prep instructions.
- If it ever starts peeling, you'll have lots of scraping to do.



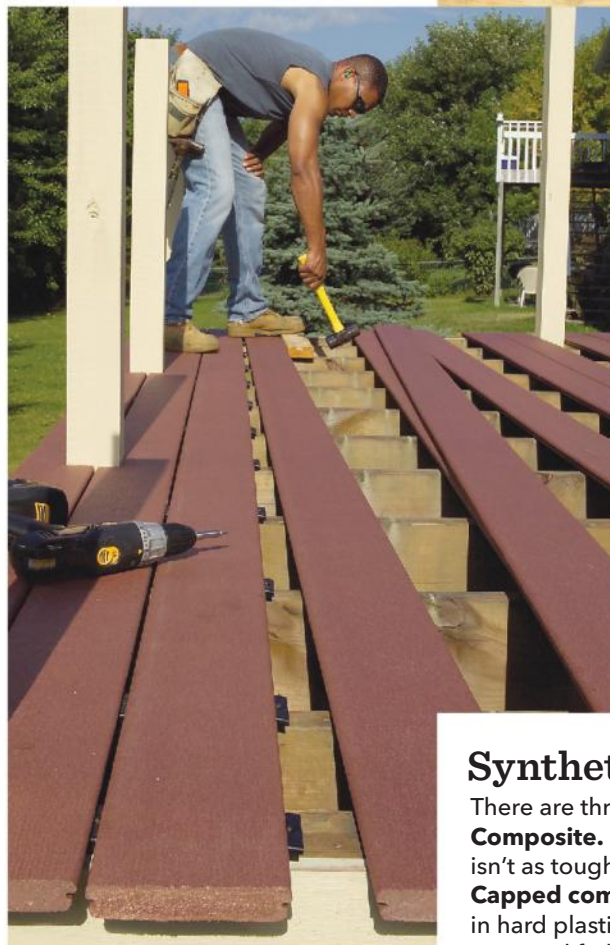
More Info:

To see how we applied one of these products to an old, worn deck, visit tftmag.com/deckrestore

SOLUTION 3: REPLACE THE DECK BOARDS

It's not the easiest option, but replacing your wooden deck boards with synthetic decking (composite or PVC) might be your best investment, in both time and money. In just a few weekends and with basic carpentry tools, you can have a stunning deck that looks brand new and will look great for many years.

Costs vary widely for synthetic decking, but expect to pay anywhere from \$5 to \$10 per square foot. Be warned, however, that synthetic decking requires closer spacing of joists and stair stringers (maximum 16 in. apart), so you might have lots of framing to do.



COST: Varies widely, but generally \$5 to \$10 per sq. ft.

LIFE SPAN: Can easily last 20 years or more.

PROS:

- Low maintenance—just needs occasional cleaning.
- Stands up well to heavy traffic.
- Lasts for decades.
- Can use screws or hidden fasteners.
- Wood grain patterns available with many brands.
- Lots of color choices.

CONS:

- You'll have to tear off the old decking first—a huge job.
- Expensive.
- Gets very hot when the sun hits it (especially dark colors and dense boards).
- Doesn't look like real wood (but some brands come close).
- Can be slippery when wet.

OTHER CONSIDERATIONS:

- You'll need a building permit and inspection.
- It's a lot of work to install.
- You'll need a dumpster for all the old material.

Synthetic decking options

There are three types:

Composite. Lowest cost but the surface isn't as tough or stain resistant.

Capped composite. Composite capped in hard plastic for extra durability and stain and fade resistance.

Solid PVC. Lighter weight than composite, making it easier to handle. Good for wet areas like docks because there's no organic content that could promote mold. Most expensive option.



More Info:

For tips on replacing your old wood decking with synthetic materials, visit tfhmag.com/deckrebuild

Continued on p. 43

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SOLUTION 4: DECK TILES

Think of this option as a slipcover for your deck. Instead of ripping out or recoating your old deck boards, you place new wood or synthetic decking right over your old deck. Several companies make tiles out of composite or exotic woods like ipe that you just lay down and snap together. Plastic grids underneath the tiles allow for airflow, which helps prevent wood rot.

COST: Varies depending on manufacturer and material, but generally \$4 to \$12 per 12 x 12-in. tile.

LIFE SPAN: Decades, depending on material selected.

PROS:

- Super easy to install.
- No fasteners required.
- Tiles snap together in any direction, allowing you to be creative with patterns and layout.

CONS:

- It will create height changes with steps and at door thresholds.
- You might see old decking in the gaps of the new deck tiles.



SOLUTION 5: EXTERIOR FLOOR COVERING

DeckRite is a sheet material that comes on a roll, much like sheet vinyl flooring. It basically turns your old deck into an outdoor floor with no gaps in it and creates a watertight roof for the area beneath your deck. As long as your old deck boards are at least 5/4 thick and structurally sound, you can screw 1/2-in. pressure-treated plywood right over it and stick the flooring membrane on top. If the deck is really big, it might require multiple sheets, and you'll need to rent a hot air welder from DeckRite to deal with the overlapped seams. Cost is about \$6 per sq. ft. for all the materials you'll need. Visit deckrite.com for more information.

PATIO PLANTER

A mini garden with fresh veggies—steps from your kitchen. By Spike Carlsen

A raised planter “beats” traditional gardening in a bunch of ways. And our planter is tops for easy construction, sturdiness and convenience. Plus, the curves and trim make it a pretty addition to your deck or patio. You’ll get about 8 sq. ft. of planting area. If you need more, you could make a larger planter, but consider building two instead: A bigger planter filled with soil is tough to move.



A BETTER DESIGN

- 1** The optional trellis supports climbing plants like tomatoes and peas.
- 2** Side tables are convenient work surfaces and handles when you need to move the planter.
- 3** Boards protrude at ends or corners. Those “reveals” hide mistakes. If your measurements or cuts are a little off, no one will notice.
- 4** Notched joinery is super sturdy and easy enough for a beginner.
- 5** Lower shelf provides about 8 sq. ft. of storage space.

WHAT IT TAKES

TIME	COST	SKILL LEVEL
1 day	\$175	Beginner

TOOLS Standard wood-working tools, framing square, drill, jigsaw, circular saw





9 Advantages of a Raised Garden Bed

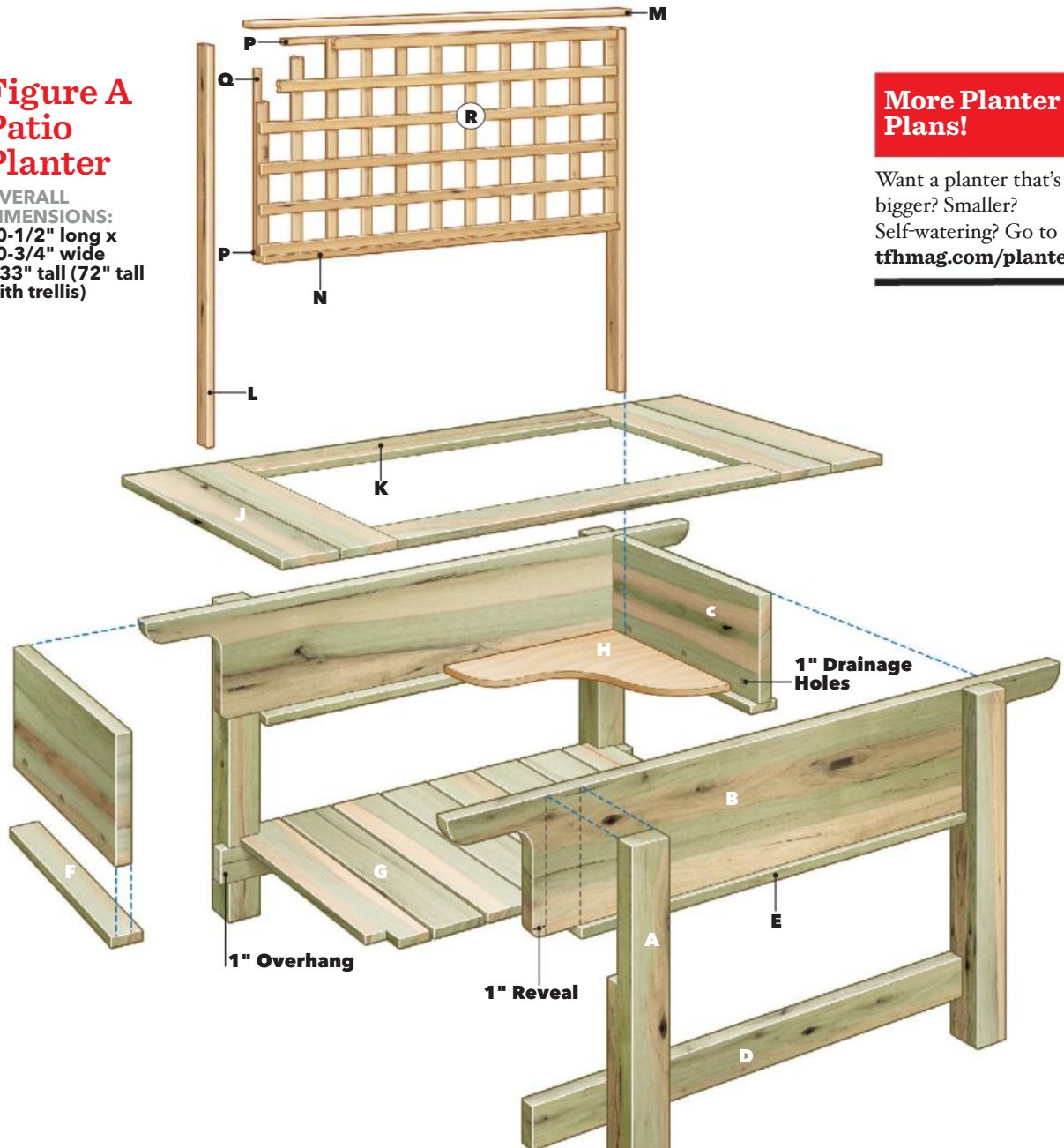
- Tend your crop without straining your knees or back.
- Pick fresh herbs or veggies a few steps from your kitchen.
- Soil quality is easy to control; just fill your planter with a quality potting mix.
- Creeping weeds can't sneak into your plot.
- Fewer weed seeds blow in.
- Its height foils rabbits and other non-climbing critters.
- Placed near your house, it discourages shy wildlife.
- Plant diseases are less likely.
- When frost threatens, covering tender plants is easy.

Figure A Patio Planter

**OVERALL
DIMENSIONS:**
70-1/2" long x
30-3/4" wide
x 33" tall (72" tall
with trellis)

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CUTTING LIST

Treated lumber can vary greatly in width; adjust measurements accordingly.

KEY	QTY.	MATERIAL	DIMENSIONS	PART
A	4	4x4 treated pine	3-1/2" x 3-1/2" x 32"	Leg
B	2	2x12 treated pine	1-1/2" x 11-1/4" x 70"	Long box side
C	2	2x12 treated pine	1-1/2" x 11-1/4" x 24"	Short box side
D	2	1x4 treated pine	1-1/2" x 3-1/2" x 53"	Rungs
E	2	5/4 treated pine decking	1" x 3-1/2" x 44"	Long bottom supports
F	2	5/4 treated pine decking*	1" x 3-1/2" x 23"	Short bottom supports
G	8	5/4 treated pine decking	1" x 5-1/2" x 27-1/2"	Bottom shelf slats
H	1	Treated plywood	3/4" x 24" x 48"	Box bottom
J	4	5/4 treated pine decking	1" x 5-1/2" x 30-3/4"	Top shelf slats
K	2	5/4 treated pine decking*	1" x 3-1/2" x 48"	Long shelf slats
L	2	5/4 treated pine decking**	1" x 2-3/4" x 48"	Lattice panel sides
M	1	5/4 treated pine decking**	1" x 2-3/4" x 50"	Lattice panel top
N	1	5/4 treated pine decking**	1" x 2-3/4" x 46"	Lattice panel bottom
P	2	5/4 treated pine	1" x 1" x 46"	Long lattice stops
Q	2	5/4 treated pine***	1" x 1" x 22"	Short lattice stops
R	1	Treated pine lattice	1" x 24" x 46"	Lattice panel

* If 4"-wide material is unavailable, rip it from 6" material

** 5/4x6 material ripped in half

*** 5/4 material ripped into strips

Figure B Side and Leg Details

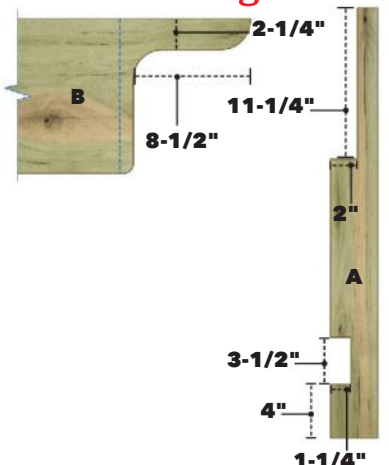


ILLUSTRATION: FRANK ROHRBACH III



1. Cut the lower leg notches

Set your saw depth to 1-1/4 in., then make a series of cuts no more than 1/2 in. apart. Drive a chisel into the cuts and pry; the little fingers will shear off. Flatten the remaining nubs with a chisel. Grab a 2x4 scrap and make sure it fits into the notch.



2. Cut the upper leg notches

Set your saw depth to 2 in. and make a series of cuts near the end of the notch. Break out the fingers as shown in Photo 1. To complete the notch, make the long cut. Your saw won't cut completely through the leg, so you'll have to flip the leg over and cut from the other side.



3. Mark the shelf supports

Cut the long box sides (B) to length, then use a square, a paint can and a washer to mark the shelf supports. Make the straight cuts with a circular saw and the curves with a jigsaw. Soften the cut edges with sandpaper or a router and round-over bit.



4. Assemble the box

Join the sides to the ends with 3-in. exterior screws. Drill pilot holes and drive the screws until the heads are slightly sunk into the wood. You can cover the heads with exterior wood filler or leave them exposed.

Skills and materials

All of the materials are available at any home center. The legs and planter box are made from treated dimensional lumber. The extension tables, bottom shelf and trim boards are made from what's commonly known as "5/4 decking material" or just "deck boards."

Take note: Treated lumber is more variable in width and thickness than standard dimensional lumber. We found 2x12s ranging from 11-1/8 in. to 11-3/4 in. wide at our home center. And we found two types and thicknesses of treated decking material: The "premium"

Is treated lumber safe for veggies?

Lots of articles online claim that it isn't safe to grow edible plants in containers made of treated lumber. But read closer, and you'll see that they're talking about wood treated with arsenic (CCA), which was banned for residential use back in 2003. The treated lumber you can buy today contains no arsenic and is considered safe for food contact and growing food. Some common types of treated lumber are ACQ, CA and MCQ.



5. Add the legs

Mark the leg locations 1 in. from the ends of the sides using a framing square. Position the legs and fasten them to the box side with 3-in. screws.



6. Install the rungs and supports

Place the rungs in the leg notches and secure them with 3-in. screws. Position the bottom supports (E, F) so they extend about 5/8 in. inside the box and screw them in place.



7. Install the shelf slats and bottom

Space the shelf slats (G) evenly and screw them into place. Notch the end slats to fit around the legs. Then install the planter bottom.



8. Build the lattice panel trellis

Build the panel support frame as shown, then install the stops and lattice panel. Secure the frame to the planter by driving screws through the panel legs into the planter box.

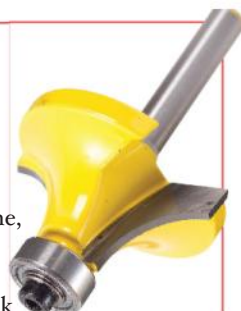
stuff was almost 1-1/4 in. thick while the standard was barely 1 in. Keep this in mind as you build—and adjust your measurements accordingly.

Let's build this thing

Cut the four legs (A) to length, then mark the positions of the upper and lower notches. Create the lower notches by making a series of 1-1/4-in.-deep cuts as shown in **Photo 1**, prying the fingers away with a chisel, then smoothing the bottoms with a chisel. Create the upper notches by making a series of 2-in.-deep kerf cuts (to create a square bottom) and long circular saw rips (to remove the bulk of the material) as

Round-over bits: The key to a pro look

A lot of the projects I build are of the quick and simple variety. But I've discovered one step that makes almost any project, including this one, look more polished: I eliminate all the sharp edges with a router and round-over bit. The softer edges look nicer, prevent splinters and hold finishes better. I used a 1/4-in. round-over bit on this project. A 1/2-in. bit is shown here.





MEET THE BUILDER
Spike Carlsen is a former editor at *The Family Handyman* and the author of several books, including *Woodworking FAQ: The Workshop Companion*.

9. Cap off the planter

Screw shelf boards to the shelf supports; the inner ones should extend just a little past the inside edge of the box. Install the side trim, letting those edges extend slightly inward, too.

shown in **Photo 2**. Note: Your notches should be as long as your 2x4s and 2x12s are wide.

Cut the box sides to length, then use a quart paint can and washer to create the curved corners (**Photo 3**). I used a 1-1/4-in. washer, but any large washer will do. Cut these out using a circular saw and jigsaw. Assemble the box as shown in **Photo 4**, then lay the box on its side to install the legs (**Photo 5**). Install the 2x4 rungs in the lower notches, letting the ends extend an inch past the legs.

Flip the planter upside down and install the bottom support boards as shown in **Photo 6**. These support the plywood bottom and provide a decorative touch. The overhang should be the same on both sides.

Position the planter upright and install the slats for the bottom shelves (**Photo 7**). Space them about 1/4 in. apart and notch the corners of the outer slats as needed. Drill three or four 1-in.

drainage holes about 1/2 in. up from the bottom of each end board. Plop the 3/4-in. plywood bottom into place and secure it with a few 1-1/4-in. screws.

Install the top shelf slats, letting the inner slats slightly extend over the lip of the planter box (**Photo 9**). Then install the long trim boards on each side.

The trellis and finishing touches

The lattice panel trellis is an optional but great feature for those wishing to grow plants requiring support.

Begin by ripping a 5/4x6 x 10-ft. board in two. Construct the panel frame (L, M, N) as shown in **Photo 8**, then rip 5/4 x 5/4 stops (P, Q) out of scrap material and secure them to the frame. Cut the lattice to size, set it into the frame and nail it to the stops using 3d nails. Secure the lattice panel to the back of the planter with screws.

I applied a coat of exterior stain to the planter. You can also leave the wood natural and let it mellow to a soft gray. To prevent soil from seeping out the drainage holes, line the bottom of the planter box with landscape fabric, letting it extend a few inches up each side. Fill the planter with soil or other growing medium and get digging.

MATERIALS LIST

ITEM	QTY.
4x4 x 6' treated lumber	2
2x12 x 8' treated lumber	2
2x4 x 10' treated lumber	1
5/4x4 x 8' treated decking	3
5/4x6 x 10' treated decking	5
3/4" x 2' x 4' treated plywood	1
1" x 2' x 4' treated lattice	1
3" deck screws	5 lbs.
1-1/4" screws	1 lb.
2-1/2" screws	1 lb.
3d galvanized nails	1 lb.
Exterior finish	1 gallon

THE SIMPLEST CURE FOR WET BASEMENTS

The basic solution is often the best solution.

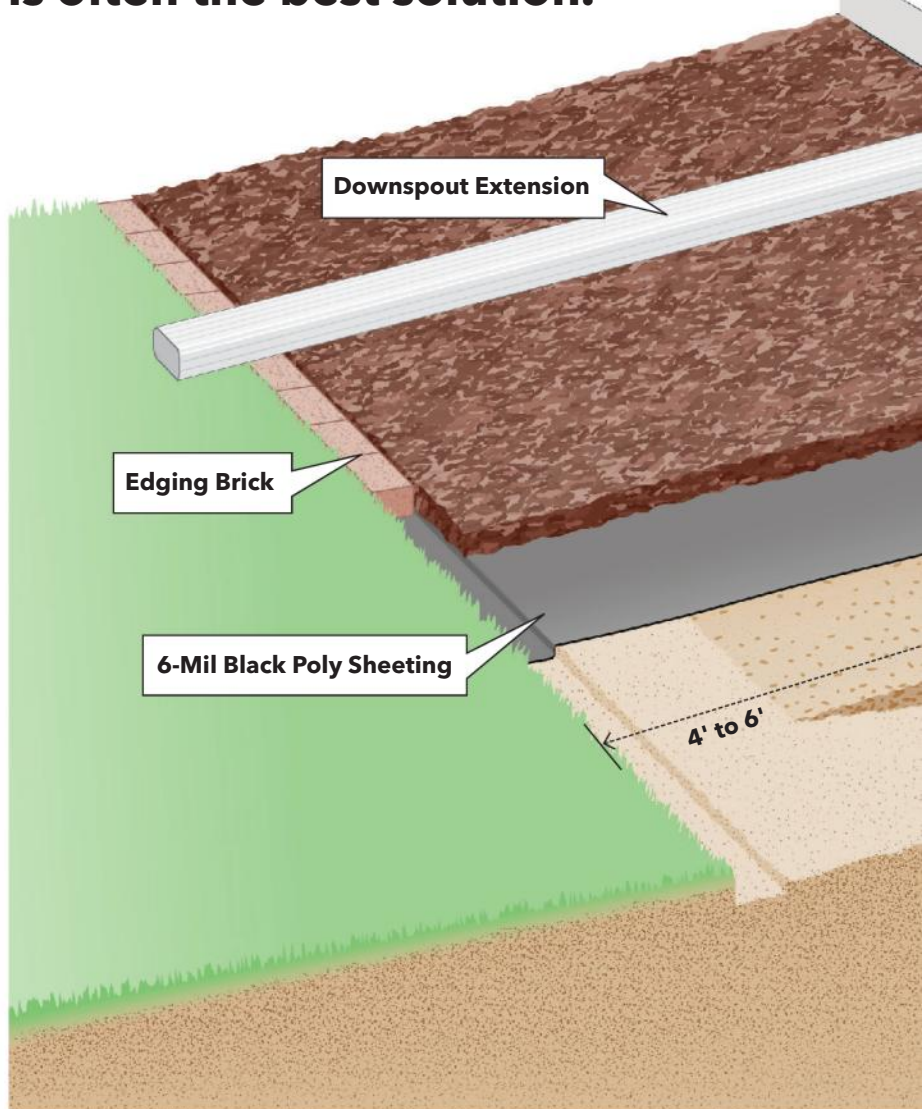
By Jeff Gorton

Water in your basement? Don't call the basement waterproofing company yet.

According to our expert, many basement leaks can be cured with a weekend's work and a few hundred dollars' worth of dirt and plastic.

We talked to Robert Vassallo, owner of Complete Building Solutions, an engineering firm that specializes in solving water-related building problems. His firm takes on many complicated wet basement jobs, but he was quick to point out that a huge percentage of wet basements can be remedied by simply regrading the landscape, and adding or upgrading gutters and downspouts. The graphic at right shows the key elements for an effective solution.

Of course, this fix will work only if the water entering your basement is coming from rain or melting snow. But it's pretty easy to tell. If you get water in your basement shortly after a storm, or when the snow is melting, or if a wet inverted-V pattern appears on the wall, the cause is most likely improper grading or a downspout that's emptying water near your foundation. And even if there are other factors contributing to your wet basement, the solutions we show here will help keep your basement dry and should be done before you take more extreme measures.



WHAT YOU'LL NEED:

- Compactable fill
- 6-mil poly
- Edging
- Mulch or gravel



4 Steps to Fixing a Leaky Basement

1. Check the landscape around your house

You'll need to do a thorough check of the ground around your foundation. For this you'll need a 4-ft. level, a tape measure and a notepad. First draw a simple sketch of your house and yard on your notepad. Then use the level to check the slope of the ground around your foundation. Look for areas of sunken soil, garden beds with edging that protrudes to form a dam, and ground that slopes toward the house. Make notes on your sketch with arrows to show which way the ground slopes. This step will help you develop a plan for redirecting the water away from the foundation.

2. Make a plan and order material

With the sketch in hand, you can figure out where the problem areas are and what you need to do to fix them. The goal is to create a 6-ft.-wide perimeter that slopes away from the house. Aim for a slope of about 1 in. per foot, but if this isn't practical, get as close to it as you can. There are two ways to change the slope of the ground near your foundation. You can add soil or some other compactable fill near the house, or you can move soil from the high area to the foundation. In either case, keep in mind that you should maintain 6 in. between the soil surface and the siding to prevent rot and discourage insects.

If you need a lot of fill, it may be cheaper to have a dump truck deliver a load. Otherwise you can buy bags of soil at most landscape supply stores or home centers. You'll also need enough 6-mil black poly sheeting to cover the area between the foundation and 6 ft.

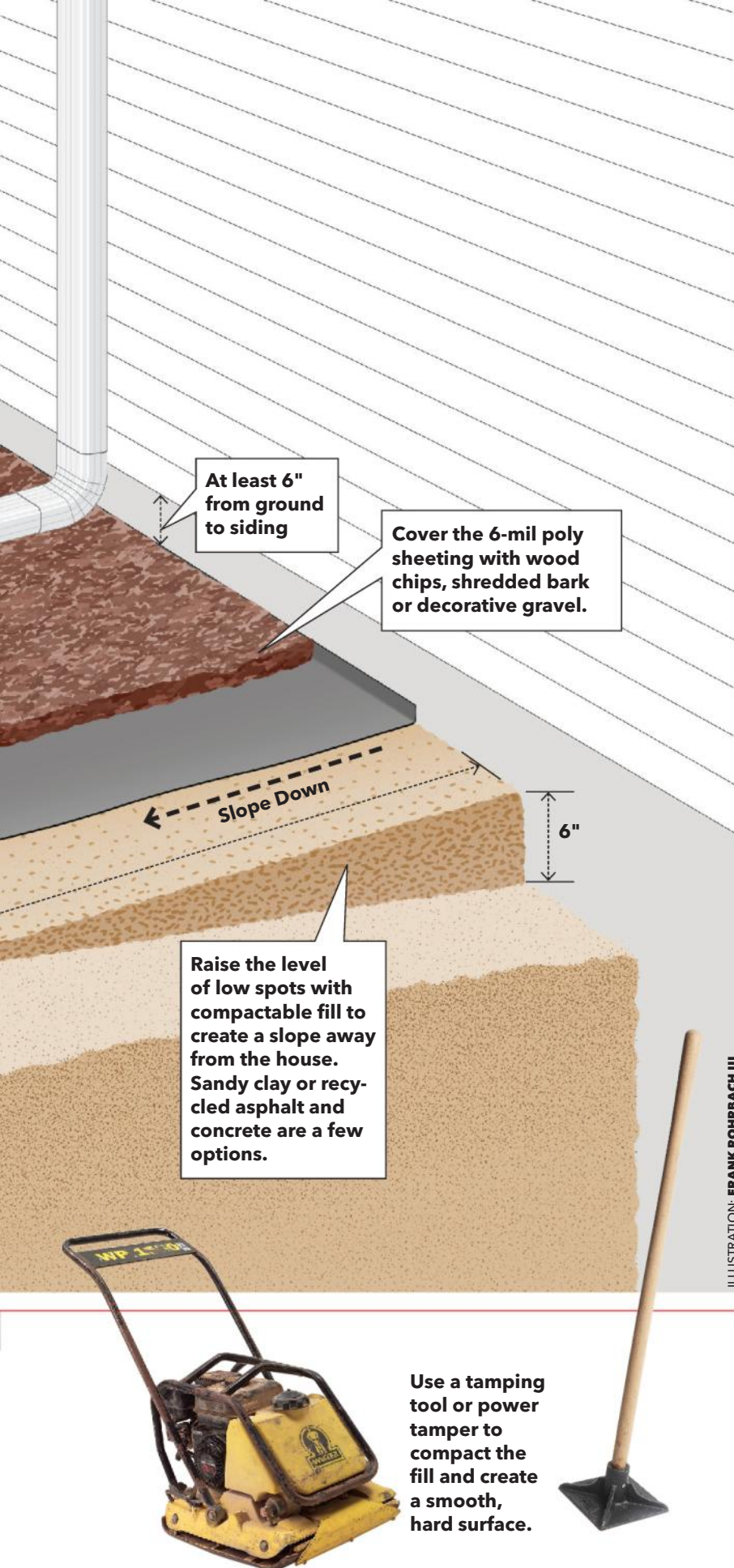


ILLUSTRATION: FRANK ROHRBACH III

Use a tamping tool or power tamper to compact the fill and create a smooth, hard surface.

out. And if you like our idea of using bricks for the edging as shown in the illustration, you'll need to order these too. Finally, you'll need some mulch or other decorative material to cover the poly.

3. Create the slope

If you have shrubs or trees near the foundation, they may be part of the problem. In some cases, their roots form a channel for water to reach the foundation, or they penetrate cracks in the foundation and create new paths for water to enter. Remove shrubs and trees that you don't need. You'll have to work around any that are a valued part of your landscape.

Next, spread the new fill, using a level to check the slope. Or simply regrade the soil near your foundation to create the slope. Use a garden rake to smooth and level the ground. When you're happy with the slope, tamp the soil to compact it. If you're doing the entire perimeter, it may be worth renting a gas-powered tamper for this. Otherwise a hand tamper will work.

If your plan includes adding bricks along the edge, dig a trench deep enough so that the top edge of the brick is level with the ground. Then lay 6-mil poly over the ground and into the trench. Finish up by placing the bricks and covering the poly with mulch, wood chips or some type of decorative stone or gravel.



4. Check your gutters and downspouts

If you don't have gutters and downspouts, consider adding them. Otherwise most of the water from the roof ends up right near the foundation where you don't want it. If you do have gutters, or if you're adding them, make sure to attach extensions to the downspouts so that the water discharges at least 6 ft. away from the house.

LEARN FROM A PRO!



Tips from Robert Vassallo

- For a premium job, substitute EPDM for the 6-mil poly. Contact local roofers to see if they're tearing off an old EPDM roof. You may be able to get the material for free.
- Use ground-up recycled concrete and asphalt for fill. It's cheap and compacts easily to form a hard, dense surface.
- If you can't regrade the entire perimeter, do as much of it as you can.
- For extra insurance against any water getting in near the foundation, seal the 6-mil plastic or EPDM to the foundation wall with acoustical sealant caulk and install a flashing over the top.
- Consider building a rain garden if you can't easily drain water from your yard.

Robert Vassallo is the owner of Complete Building Solutions in Golden Valley, MN. The company specializes in finding solutions to tough water problems in residential and commercial buildings.

IF AT FIRST YOU DON'T SUCCEED...

These four simple steps will solve most basement leaks caused by surface water like rain and snow melt. But if your basement still leaks after you've made these corrections, consider hiring an engineering firm experienced in solving water leakage problems to propose other remedies.

Be cautious about hiring companies that offer only their own solution, because it may not be the best one for your situation. And if you're looking for more information on solutions to wet basements, how to deal with wet carpet, how to fix plumbing leaks, or how to add an interior drain and sump pump, search for the key words at familyhandyman.com.

How to Be Cut Off From Civilization

When it's you against nature, there's only one tool you need:
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This knife boasts a full tang blade, meaning the blade doesn't stop at the handle, it runs the full length of the knife. According to *Gear Patrol*, a full tang blade is key, saying "A full tang lends structural strength to the knife, allowing for better leverage ...think one long steel beam versus two."

With our limited edition **River Canyon Bowie Knife** you're getting the best in 21st-century construction with a classic look inspired by legendary American pioneers. What you won't get is the trumped up price tag. We know a thing or two about the hunt—like how to seek out and capture an outstanding, collector's-quality knife that won't cut into your bank account.

This quintessential American knife can be yours to use out in the field or to display as the art piece it truly is. But don't wait. A knife of this caliber typically cost hundreds. Priced at an amazing **\$49**, we can't guarantee this knife will stick around for long. So call today!

Your satisfaction is 100% guaranteed. Feel the knife in your hands, wear it on your hip, inspect the craftsmanship. If you don't feel like we cut you a fair deal, send it back within 60 days for a complete refund of the sale price. But we believe that once you wrap your fingers around the **River Canyon's** handle, you'll be ready to carve your own niche into the wild frontier.



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

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— D., Houston, Texas

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actual size.

HomeCare+Repair

Fix it, maintain it, improve it. By Jason White



FIXING DOG SPOTS IN YOUR LAWN

1. Flood the dog spot with lots of water to dilute the urine. Let the hose run for a good three minutes.

Burn spots caused by dogs relieving themselves on the lawn are usually about 4 to 8 in. wide with dead grass in the middle and a ring of dark green grass around them. Dog urine contains high concentrations of acids, salts and nitrogen, which kill the grass. The only way to fix the burn spots is to plant new grass. Here are the steps.



2. Scrape up the dead grass with a hand rake and loosen the soil about 1/2 in. deep. Seeds germinate and take root better in loose soil.



3. Add a 1/2-in. layer of new topsoil over the spot and sprinkle on grass seed. Cover with a thin layer of soil and keep the area moist (don't over-water) until the grass grows about 3 in. tall.

[KNOWLEDGE IS POWER]

How to reset a circuit breaker

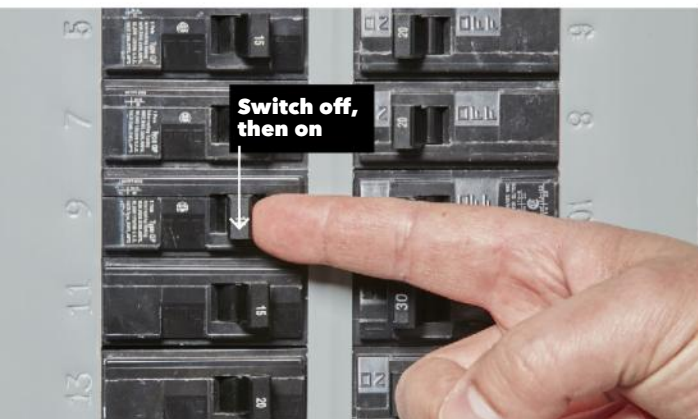
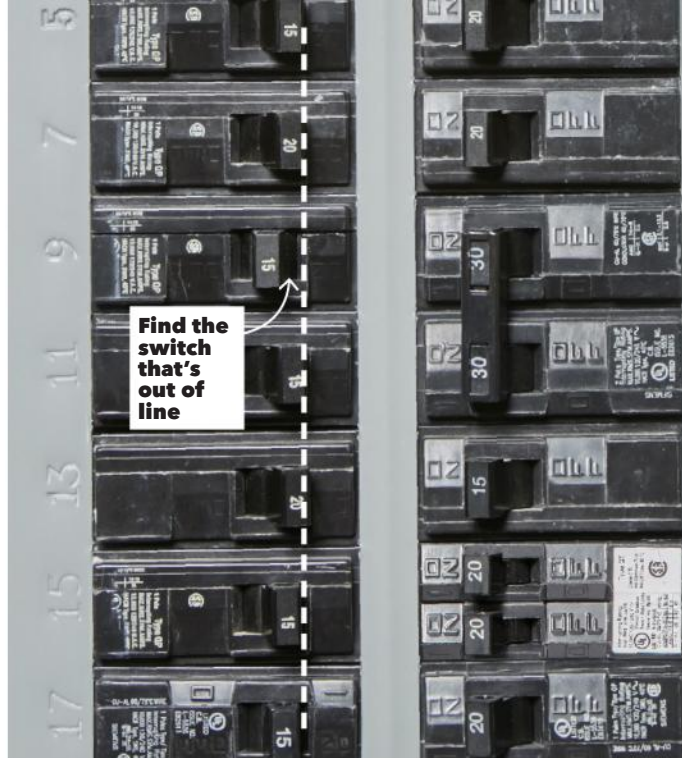
You probably know how to reset a circuit breaker, but what about your kids or the baby-sitter? Use this tutorial to show them how.

The electrical panel

You'll usually find the main circuit breaker panel—a gray, metal box—in a utility room, garage or basement. Don't worry about opening the panel's door. All the dangerous stuff is behind another steel cover. Behind the door is the main breaker for the entire house (usually at the top of the panel) and two rows of other breakers below it, each controlling individual circuits.

Download a quick guide!

Print it out. Tape it to your panel door.
Get it here: tfhmag.com/resetbreaker



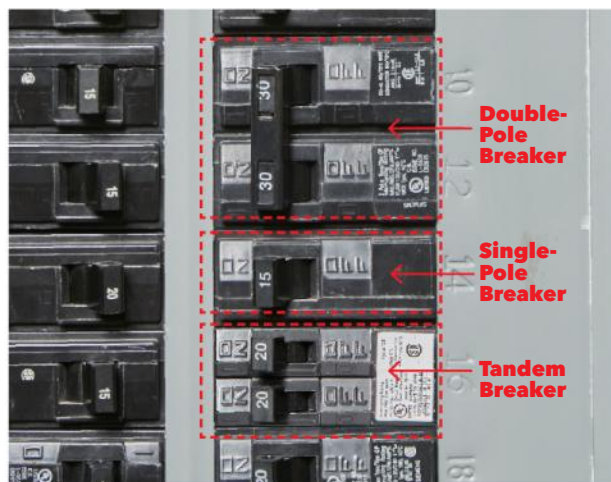
2 Reset the breaker

To reset a breaker, move the switch all the way to its "off" position, then back to "on" (see photos). You might hear a few beeps from smoke detectors and appliances when you turn the power back on, but that's normal. You're good to go!

1 Find the tripped breaker

When a breaker trips (shuts off), it's usually because too many things were running on one circuit at the same time and it got overloaded. So if you're running one or more high-amperage appliances like hair dryers, toasters or space heaters, and the breaker trips, just shut off the devices and reset the breaker.

But if the breaker trips for no apparent reason, there may be a short circuit—a much bigger problem, usually best left to an electrician to figure out. A tripped breaker isn't always easy to spot. If you're lucky, there will be a list of circuits on the back of the panel's door and you'll be able to find the tripped one quickly (sometimes those lists are labeled wrong, however). If not, you'll have to find it by eye. Look for a partially tripped breaker that's about halfway between the "off" and "on" positions (see photo above). Avoid the temptation to switch off and on all the breakers, or you'll find yourself resetting electronic devices like clocks around the house or losing work underway on computers. You could even damage delicate electronics.



3 TYPES OF BREAKERS

You're likely to see switches for three different types of circuit breakers in a panel—single pole, double pole and "tandem." Single-pole breakers feed 120-volt circuits for ceiling lights and most wall outlets, while double-pole breakers feed 240-volt circuits for appliances like electric ranges and central air conditioning systems. "Tandem" breakers also have two switches. They take a single slot inside the circuit breaker panel and turn it into two 120-volt circuits to save space.

HOME CARE

QUICK FIX

Replace your thermostat batteries, or else...

Some thermostats run only on batteries, and this note from one of our readers is a great reminder to replace them before they die (you'll usually see a warning on the thermostat's screen letting you know when it's time).

"Not realizing my programmable thermostat required batteries, I left on a five-month trip to Florida. A few days after I left, my neighbor went to check on the house and found that it was more than 120 degrees inside. The furnace repairman said if the furnace is running when the batteries go dead, it won't shut off. He changed the batteries in the thermostat and all was well ... or so I thought. Once home,



I found that the toilet was leaking. The wax ring had melted and didn't reseat under the toilet after cooling down. The bathroom sink also got clogged because a candle

sitting on the counter melted and the wax flowed down the drain. The price of two batteries would have saved me two service calls. Lessons learned!" – **IRENE BADINI**



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FLOORING SYSTEMS

[LEARN FROM A PRO]

“Flushable” wipes

You can't beat premoistened “flushable” wipes for convenience, especially if you have children in diapers. But the convenience of these wipes comes with a cost to sewage treatment plants. While many municipalities haven't banned them (yet), they definitely don't like them. Some wipes don't break down quickly, and there have been media reports about them clogging sewer systems and wastewater treatment plants. And they can foul up septic systems, too.

Manufacturers of these wipes claim they break down as intended, but Les Zell, a plumbing contractor in the Minneapolis area, recommends against flushing these wipes down the toilet. “Our plumbing systems are engineered for biodegradable organics only,” says Les. “Use common sense. Never flush a synthetic fabric, tampons, dental floss, paper towels or anything else.”



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✓Yes



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Home Smarts

The knowledge you need to be a better homeowner. By Gary Wentz

Lightning: Don't get hit indoors

Your home is probably the safest place to be in an electrical storm. But lightning can still get to you through the conductive paths in your house: your wiring, your plumbing and water. Talking on a corded phone, taking a shower or bath, working on your desktop computer and handling power tools during an electrical storm aren't much safer than standing outside. Stay away from all water and appliances until the storm passes.



Don't live with a broken dead bolt

A dead bolt is the key component of door security. The doorknob latch is no substitute. So if your dead bolt no longer works, replace it now. It's a surprisingly easy job. Just remove two screws in the thumb latch, then remove two screws to remove the plate and bolt. Install the new dead bolt the same way. Try to find a new dead bolt with a bolt plate of the same size. Otherwise, you'll have to either enlarge the recess in the door or live with an ugly gap around the plate.

Amazing price breakthrough!

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Incredible...

"I was surprised to hear sounds I had forgotten existed – the crispness of the bells we use in Church, the splash of water running, the rich overtones in music. Thank you."

– Rev. John C.

Life-Changing...

"Thank you for making an affordable hearing aid so that people like me can again be part of conversations..."

– Cathy C.

Value-Packed...

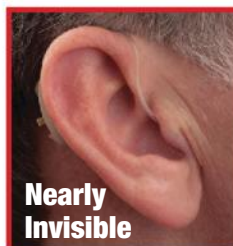
"I'm a physician and I know how much people spend on their health care. MDHearingAids are just as effective (if not more) than traditionally high-priced hearing aids."

– Dr. Chang

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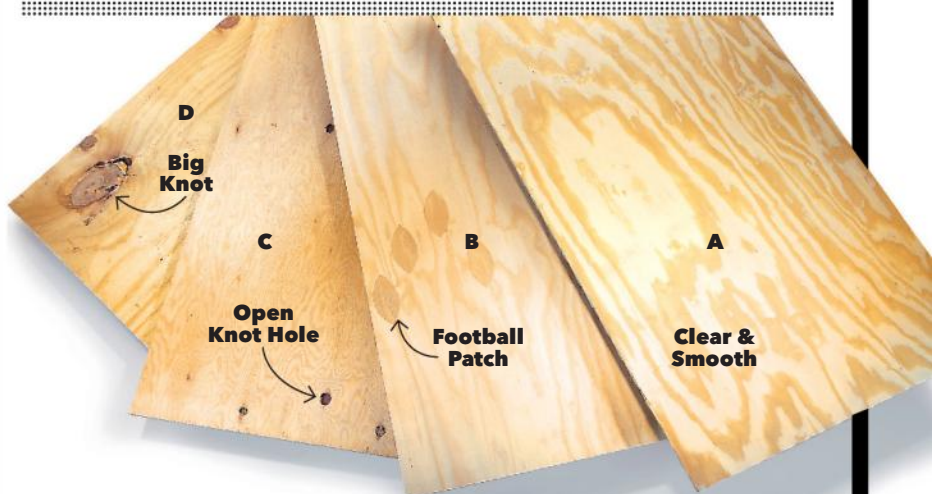


HOME SMARTS



Clean the refrigerator coils

Dust buildup on the coils underneath or on the back of your fridge reduces airflow and wastes energy. Worse, it may lead to repairs that can cost almost as much as a new fridge. That's quite an incentive to vacuum the coils every six months.



Plywood savvy

In the United States, there are four common grades of construction plywood: A, B, C and D. Each sheet will have two grades, such as AC. The first letter is the face veneer grade, and the second is for the back veneer. Some plywoods have a third letter, X, that designates them for exterior use. From highest quality to lowest, here's what to look for:

"A" Grade. Sanded smooth, paintable. Though some neatly made manufacturer repairs are acceptable, you should have little trouble finding A-grade sheets that are free of repairs and knots.

"B" Grade. Solid surface with some repairs, usually football-shaped patches and/or wood filler. May have tight knots (no chunks of wood missing) up to 1 in. Some minor splits.

"C" Grade. Tight knots to 1-1/2 in. and knotholes to 1 in., some splits and discoloration.

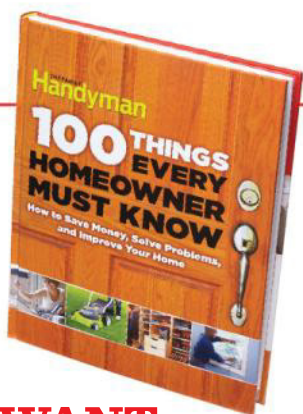
"D" Grade. Knots and knotholes up to 2-1/2 in. Some splits. Generally no repairs.

Hardwood plywoods used for furniture and cabinets have a different rating system.



Don't plant too close to a building

Plant a tree with its mature size in mind. Many arborists suggest planting a tree no closer to a structure than one half of its expected mature canopy spread. Also, watch out for overhead power lines—most shade trees will grow at least to the height of residential power lines. Choose shorter, ornamental trees for these areas.



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PROTECT AGAINST ELECTRICAL SURGES

Extend the life of your electronics and appliances

Your home's electronic devices experience electrical surges all the time, both from outside and within the home.

And every time there's a surge, it causes incremental damage to surge protection components built into your TVs, appliances, computers and every other device plugged into an outlet.

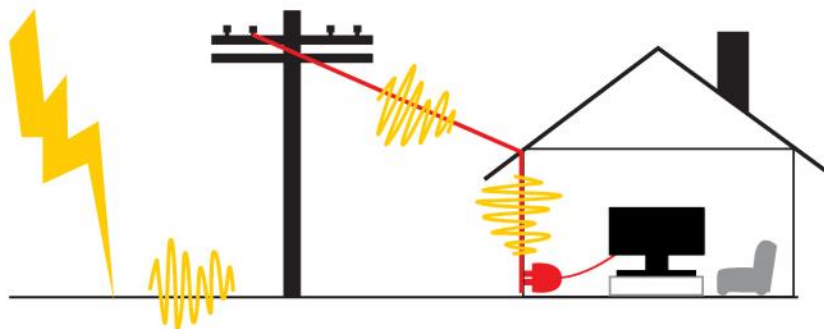
We contacted surge protection expert Karenann Brow, director of product marketing for Tripp Lite, a large manufacturer of surge protection equipment. She gave us some great tips on how to buy and implement whole-house and "point-of-use" surge protection.

No single surge protection device (SPD) can protect everything in your home. That's why Karenann recommends a two-layered approach that knocks down big surges from outside your home and absorbs surges generated inside your home.

WHERE DO SURGES COME FROM?

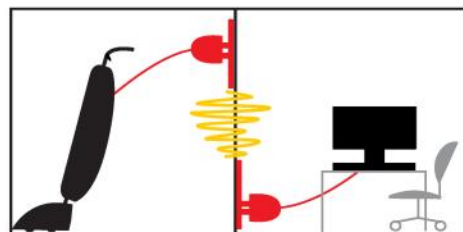
External surges

Lightning strikes create huge surges on nearby power lines, and those surges travel into all homes connected to those wires. External surges are also generated as power demands fluctuate and your electric utility operates switching gear to meet those demands.



Internal surges

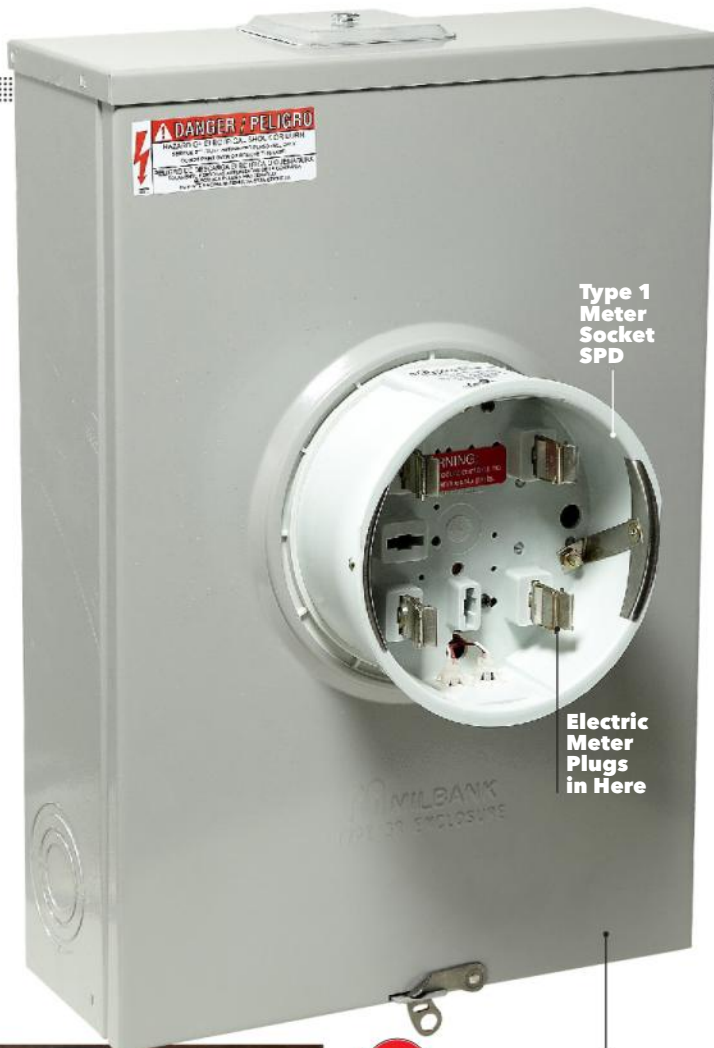
All motor-driven appliances—air conditioners and refrigerators, even vacuum cleaners—generate surges and electrical interference when the motor shuts down.



TWO WAYS TO STOP EXTERNAL POWER SURGES

Surge protectors that mount on your electrical panel are referred to as whole-house or Type 2 SPDs. They knock down the biggest surges before they can spread through your home's wiring and wipe out your electronics. Type 2 units cost about \$150 and are available at home centers and electrical supply houses.

If you're comfortable working inside the electrical panel and have a vacant spot for another 20-amp 240-volt breaker, you can install a Type 2 SPD yourself. Otherwise hire an electrician. Most Type 2 SPDs can be professionally installed in less than an hour, costing about \$400 for parts and labor. If you don't have enough room for an additional breaker in your panel, the electrician can move a few existing breakers to a subpanel to make room or install a Type 1 SPD (where allowed by the utility) that fits between the meter and the meter box. The cost to install the subpanel and a Type 2 SPD or Type 1 SPD is about \$1,000 for parts and labor.



1 Install an SPD at your meter box

Hire an electrician to install a Type 1 meter socket SPD instead of a Type 2 SPD if you don't have enough room in your electrical panel for another 240-volt breaker. Some utilities won't allow meter socket SPDs, so check with your utility before hiring an electrician.

2 Stop surges at the panel

Install a Type 2 SPD at your main electrical panel to stop externally generated surges before they spread to the individual circuits in your house. Adding a Type 2 SPD requires the installation of a 20-amp 240-volt circuit breaker. Professional installation costs about \$400.



TWO WAYS TO STOP INTERNAL POWER SURGES

Power strips and surge protection strips look alike but they're completely different animals. Power strips cost less than \$10 and just allow you to plug in more devices—they don't provide any protection. Surge protection power strips and receptacles are available in many configurations and surge protection ratings, so it's important to buy based on specs, not price.

Install SPD receptacles behind your refrigerator, washer and dryer, wall-mounted TVs, built-in microwave and gas range—wherever you don't have enough room to accommodate a strip. Buy an SPD receptacle with an audible alarm for applications where you can't visually inspect the outlet's status.

Cheap SPD strips (\$15 or less) have short (3-ft.) cords, low surge ratings and weak warranties. A 3-ft. cord is rarely long enough, and daisy-chaining several surge protection strips or adding an extension cord are violations of the electrical code and reduce the effectiveness of the SPD. That's why Karenann recommends spending more to get an SPD strip with a cord that's long enough to reach between the outlet and your gear. If you have a newer home, chances are you'll need only a 6-ft. or 8-ft. cord. However, if you're buying an SPD for an older home or a dorm room, you'll most likely need a 12-ft. or 25-ft. cord.

Next, consider what you're protecting. For an entertainment center or office, you'll want a strip with eight or ten outlets, noise filtering to remove electromagnetic and radio interference (listed as EMI/RFI in the description) and surge protection for coaxial cable, Ethernet and telephone lines. Then choose a strip with the highest joule rating (the amount of energy the device can absorb before it fails). Karenann recommends at least 1,000 joules. Plan to spend at

1 Stop surges with an SPD strip

Connect your entertainment and office gear to an SPD strip with a surge protection rating of at least 1,000 joules. Buy an SPD strip with a long enough cord to reach between the outlet and your gear and with enough outlets to handle all your devices.

2 Install an SPD receptacle in tight spaces

Replace unprotected receptacles behind your refrigerator, microwave, wall-mounted TV, range, etc. with SPD receptacles equipped with an audible alarm. The alarm alerts you when the surge protection is worn out and requires replacement.

least \$25 to get all those features.

However, spending more than \$25 gets you more protection and better interior circuit design. Generally speaking, the higher the joule rating, the better the surge protection, and three-mode protection (listed as L-N, L-G and N-G in the specs) is better than two-mode. Higher-priced units also include more convenience features like rotatable outlets and outlets spaced for plugging in multiple AC adapters. Some higher-priced units even include internal USB charging ports to free up outlet space. Next, shop for an SPD that shuts down when it wears out instead of just

turning on a red light. It's easy to miss the light and think you're protected when you're not.

Finally, examine the company's warranty terms. The best ones offer lifetime protection against failure, while the weak ones expire in about a year.



KARENANN BROW is the director of product marketing at Tripp Lite, responsible for surge protection, power strips and additional product categories. She brings over 20 years of surge protection experience to the table.



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— J. Fitzgerald, VA



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Easy-to-use remote for
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Car + Garage

Expert advice on repair, maintenance and gear. By Rick Muscoplat



10 Tips to Save Gas

Putting off routine maintenance can lower your mpg and cost you more in gas than you'd pay for the maintenance. Why not do it now and pocket the money you'd otherwise waste on gas? We'll help you get started.

1. Keep your tires at the right pressure.

Surveys show that 50 percent of all drivers are driving on underinflated tires. You can't eyeball tire pressure, and you shouldn't rely on the low tire pressure warning light—it doesn't light up until your tires are at least 25 percent underinflated. At that point, you've already been wasting gas. Instead, check them monthly with a tire pressure gauge (less than \$5).

Underinflated tires have higher rolling resistance, causing your engine to work harder and waste almost \$450 a year in gas. (The savings given for each tip assume you drive 20,000 miles a year and gas is \$2.50 a gallon.) Low air pressure also wears out your tires twice as fast, costing you \$150 a year. The recommended air pressure for your vehicle's tires is on the driver's door or pillar.

2. Change your spark plugs ahead of time.

Most drivers think their spark plugs will last well over 100,000 miles. That's not true for all engines. Refer to your car's maintenance guide for the recommended interval for your engine. Regardless, it's never a good idea to squeeze the last drop of life out of your spark plugs.

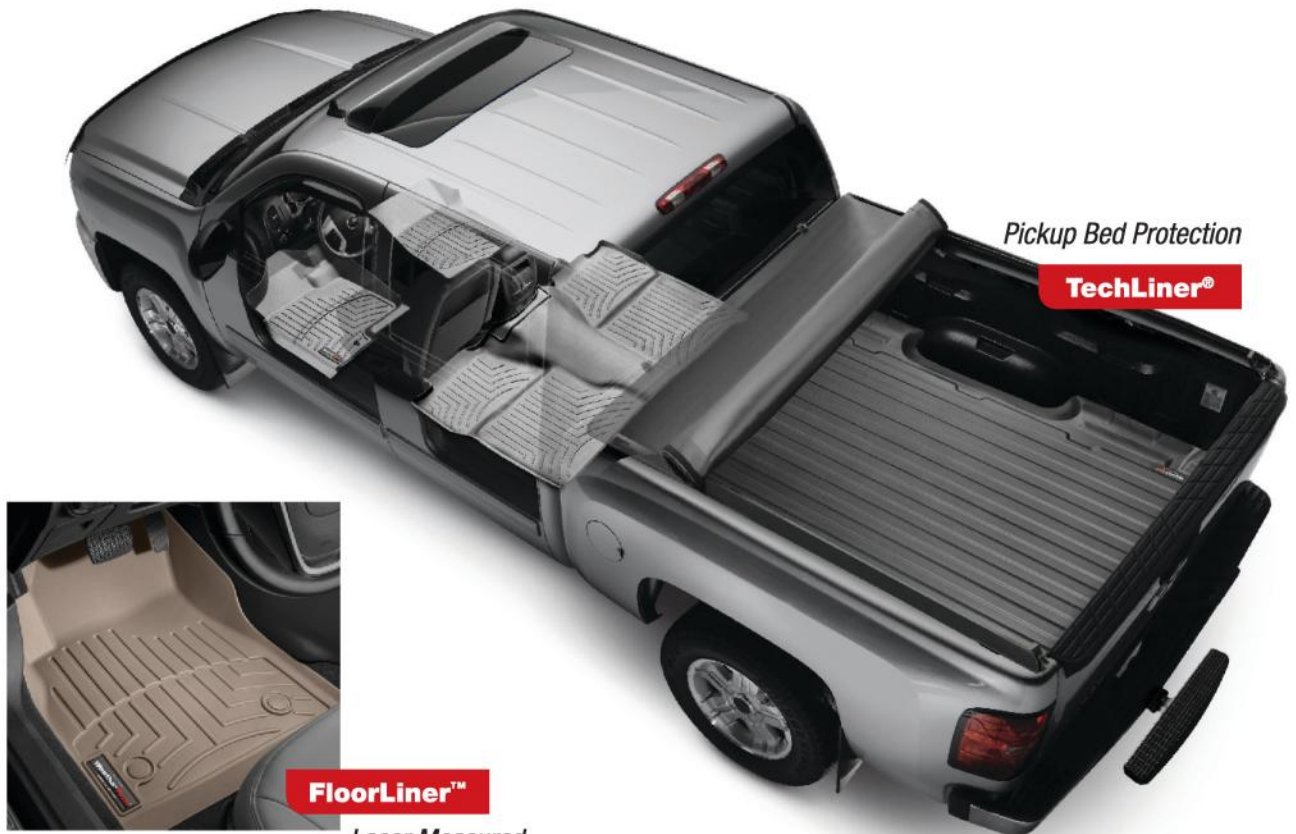
Here's why. If your 100,000-mile spark plugs have 80,000 miles on them, they're 80 percent worn. Misfires and incomplete combustion will occur more often, costing you almost \$350 in wasted fuel. You have to replace them anyway, so do it early and pocket the savings. Even if you have to replace the plugs one extra time over the life of your car, you'll come out way ahead.

3. Keep your wheels aligned.

If your tires are bowed out of alignment by just .017 in., it's the equivalent of dragging your tire sideways for 102 miles for every 20,000 you

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drive. That'll cost you \$100 a year in wasted gas. It will also wear your tires faster, costing you \$70 more a year.

Here's an easy way to check your alignment without taking your car to the shop. Buy a tread depth gauge (\$2) and measure the tread depth on both edges of a tire (rear tires too). If one side of the tire is worn more than the other, your car needs to be aligned. An alignment costs about \$80, so you'll save \$140 the first year alone.

4. Replace a failing thermostat.

A thermostat that opens too quickly or stays open can dramatically lower the coolant temperature and put a damper on your gas mileage. If you have an infrared thermometer (see No. 6), simply aim it at the thermostat housing. If your engine is warmed up and the thermometer reads less than 160 degrees F, you're wasting gas and it's time to replace the thermostat. (To reduce reflection errors, spray the thermostat housing with black paint before testing.) A new thermostat costs about \$10.

5. Take it easy: A lead foot = a light wallet.

Hard acceleration in stop-and-go driving costs you 20 percent in gas mileage. If you live your life in rush hour traffic and like to put the pedal to the metal, you may want to spend your extra time at the next stoplight figuring out how you could have used the \$450 a year you're wasting.

6. Check for brake drag.

Brake calipers have a habit of rusting and binding and really depressing your gas mileage. But how can you tell if you have "brake drag" without getting your brakes checked at a shop? Easy! Buy a noncontact infrared laser thermometer (about \$20 at any home center), remove the wheel cover (if equipped) and aim the laser at the wheel hub after a drive. Compare the readings from the right and left sides. If they vary by more than 20 percent, you've probably got a dragging brake or a wheel-bearing problem, so take your vehicle in for repair.



7. Replace that missing spoiler.

The plastic air dam (aka "spoiler") that's broken or missing wasn't just for looks. It actually serves a purpose: It forces air up and over the hood to help your car cut through the air with less drag. Similarly, under-engine splashguards help reduce aerodynamic drag by keeping the air flowing smoothly under your car instead of producing turbulence that causes drag. Contact a junkyard to find a replacement air dam and engine splashguards.

8. Speed kills your gas mileage.

Aerodynamic drag is a minor concern in city driving, but it really kills mileage at speeds over 55 mph. In fact, increasing your speed from 55 to 65 increases drag by 36 percent! If you do a lot of highway driving, getting to your destination a few minutes early could cost you an extra \$375 a year. Keep it closer to 55 mph and use cruise control.

9. Pay attention to your warning lights.

A glowing check engine light means you have an emissions problem, which is almost always caused by an incomplete burn. That means you're wasting gas, and worse, that gas goes into your catalytic converter, causing it to fail early. Replacing the converter can cost over \$1,000, and then you *still* have to fix the problem that activated the engine light. It's likely a bum sensor or a vacuum leak. Replacing a sensor or fixing a vacuum leak can significantly cut your fuel costs.

10. Change your cabin air filter.

A clogged cabin air filter dramatically lowers cooling efficiency. Your A/C compressor will run longer and harder, which drags down your mpg. It also causes your blower motor to run longer and hotter and fail early. A filter costs about \$12. Replace it before summer, and save more in gas than the cost of the filter.

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DIY Quiz

Test what you know—learn what you don't. By Travis Larson

Put on your thinking cap and take this month's quiz to see just how smart you are when it comes to DIY. Here's how it works:

- There are easy, intermediate and really tough questions all mixed together.
- There may be more than one correct answer!
- Get the answers and your DIY rating on pp. 72-73.

1. What is synthetic motor oil derived from?

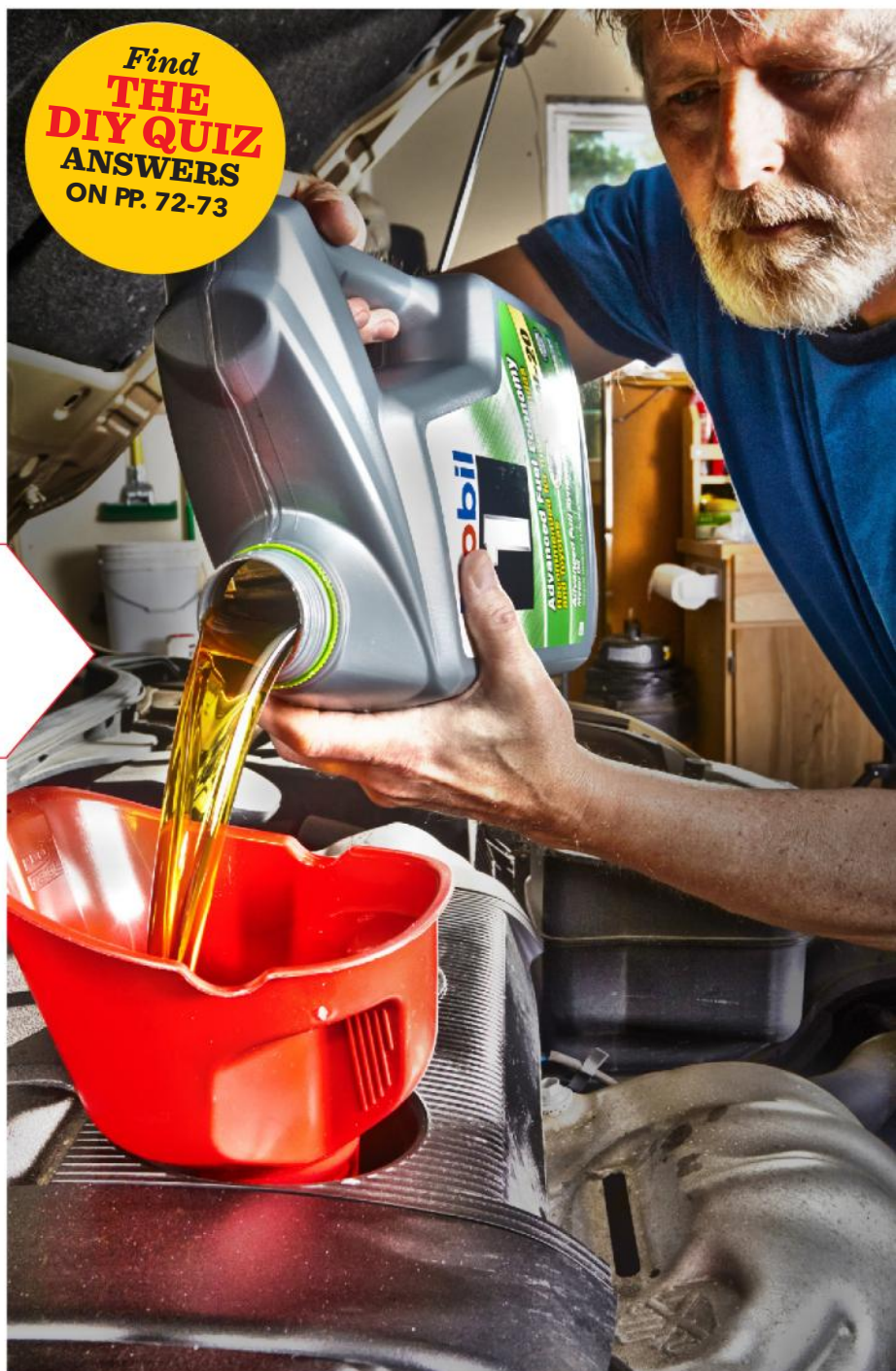
- A. Natural gas
- B. Various types of vegetable oils
- C. Petroleum
- D. Coal oil

2. True or False? Torque wrenches come in two calibrations: foot-pounds and inch-pounds.

3. A light fixture or receptacle outlet that can be controlled from two switches uses a "three-way" rather than an ordinary "single-pole" switch. So what is a "four-way" switch used for?

- A. There's no such thing. There are only single-pole and three-way switches.
- B. Four-way switches are used in nonresidential settings to control devices from three locations.
- C. Four-way switches are used for electrical devices that require 240-volt service.
- D. Four-way switches work with three-way switches to control devices from three or more locations.

Find
**THE
DIY QUIZ
ANSWERS**
ON PP. 72-73



4. When it comes to electrical devices, what does "AFCI" stand for?

- A. Advanced fault circuit integration
- B. Arc-fault circuit interrupter
- C. Arc-fault current interrupter
- D. Alternating fault circuitry

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5. True or False?
The only sure way
to test a ground fault
circuit interrupter (GFCI)
is to use a GFCI circuit
tester.



GFCI Tester

**6. What is the bulge below
this water valve?**

- A. It's a copper "aneurysm" that
could burst anytime.
- B. Made up of layers of lead, it
connects a lead pipe to a
threaded fitting.
- C. It's a lead patch applied years
ago to fix a leak.
- D. None of the above.



**7. Why is nylon the best
choice for carpeting
in high-traffic areas?**

- A. It's the most durable carpet
fiber available.
- B. It won't show footprints and is
less likely to get matted.
- C. It's very soft and luxurious
underfoot.
- D. It's actually better suited for
low-traffic areas.

8. True or False? You can
cut steel studs with just
a utility knife.

9. True or False?
It's very important to caulk
butt seams when you install fiber
cement siding.



**10. Why is house wrap
required by code?**

- A. It keeps drafts out of the house.
- B. It keeps warm air in the house.
- C. It provides a second water barrier behind siding to keep wall sheathing dry.
- D. It prevents moisture from leaving the house.

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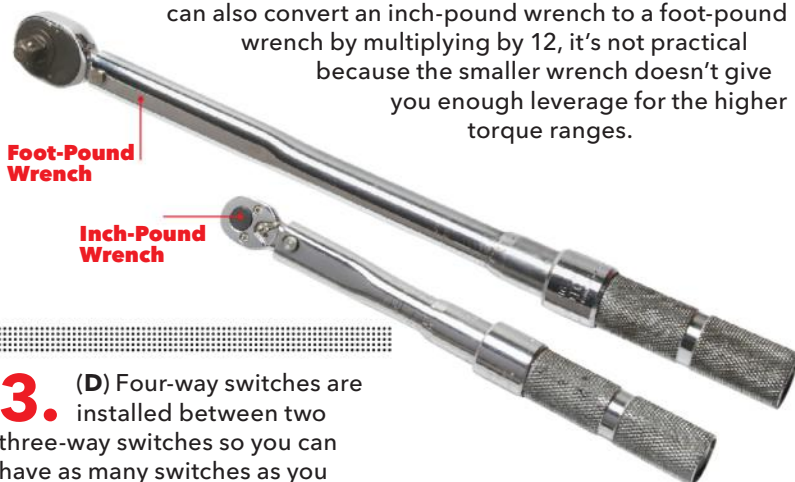
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DIY QUIZ ANSWERS

1. (A & C) Synthetic oil is unique in that the raw materials, either natural gas or petroleum, have been specially processed so that the molecules are all pretty much the same size. That makes the synthetic oil much more slippery than conventional oil, giving it superior lubricating properties. It also has very high-quality additives. Although synthetic oil costs two or more times as much as conventional oil, in many cases it enables you to go twice as long between oil changes. Since it reduces engine wear, it's a wise upgrade.



2. **True.** A foot-pound is a pound's worth of force applied 1 ft. away from the socket. You can figure out what an inch-pound is, right? By dividing the specified torque by 12, you can use a foot-pound torque wrench in place of an inch-pound wrench. Although you can also convert an inch-pound wrench to a foot-pound wrench by multiplying by 12, it's not practical because the smaller wrench doesn't give you enough leverage for the higher torque ranges.



3. (D) Four-way switches are installed between two three-way switches so you can have as many switches as you want to control the receptacle or light fixture.

4. (B) Arc-fault circuit interrupter. It's a safety device that detects electrical arcing, generally from poor connections or damaged wiring. If wire-to-wire or wire-to-terminal screw connections aren't tight, or wiring becomes damaged or broken, electricity can "arc" (like a spark plug) and create a fire hazard.



5. **False.** The best way is to press the "test" button on the GFCI outlet to see if the outlet goes dead. If you test older GFCIs with a tester, you may get an OK, but wrong, reading. That's because it was possible to reverse the "Load" and "Line" wiring on older GFCIs, resulting in no shock protection.



6. (B) This is a lead water pipe leading into the house from the street. It was joined to the fitting by building up layers of molten lead. Generally, lead water pipe isn't a health concern because the inside of the pipe becomes lined with a protective layer of minerals. But if your older home has lead water pipes, you should test your water with a lead test kit (about \$15 online) to be sure it's safe.



7. (A & B) Nylon outperforms other fibers in durability, resilience and easy maintenance. Polyester is soft and luxurious underfoot. Because it's not as durable as nylon, it's best used in low-traffic areas like bedrooms.

WHAT'S YOUR LEVEL OF EXPERTISE?

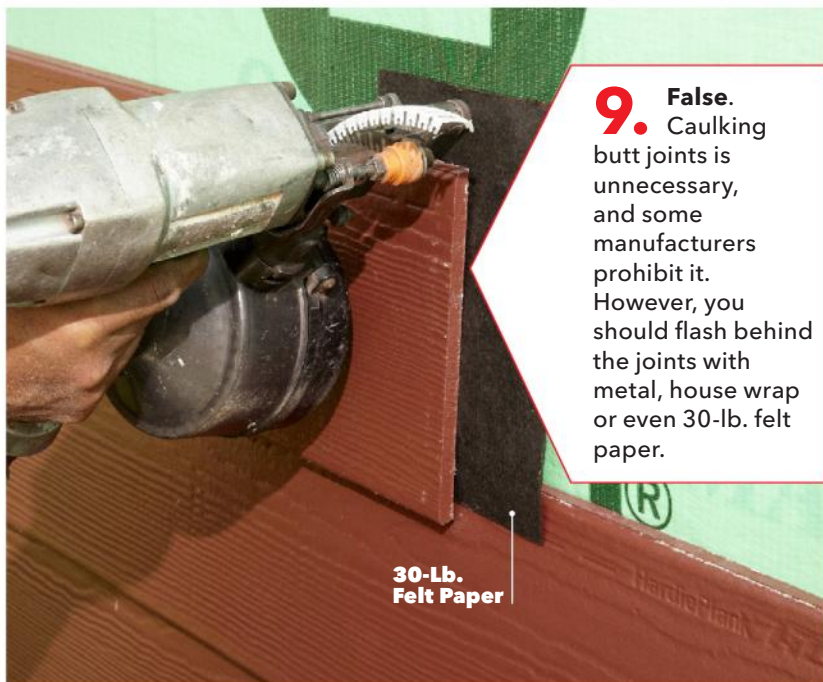
BEGINNER
0-3 Correct

INTERMEDIATE
4-7 Correct

DIY GURU
8-10 Correct



8. **False.** The flanges need to be cut first with a tin snips, but after that, you can just score the steel face with a utility knife and the stud will snap right off.



9. **False.** Caulking butt joints is unnecessary, and some manufacturers prohibit it. However, you should flash behind the joints with metal, house wrap or even 30-lb. felt paper.

10. (A, B & C) Unlike plastic sheeting, house wrap is a vapor permeable membrane. Air won't pass through it in either direction, but water vapor will. That prevents walls and sheathing from being damaged by condensation.

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MECHANIC'S GLOVES

SIZE	ITEM
MED	62434/62426
LG	62433/62428
X-LG	62432/62429

SAVE 60%

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Customer Rating **★★★★★**

75088315

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HaulMaster SUPER COUPON

72" x 80" MOVING BLANKET

ITEM 69505/62418
66537 shown

SAVE 86%

comp at \$17.97

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75091820

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CENTRAL MACHINERY SUPER COUPON

350 LB. CAPACITY FOLDING SAW HORSE

ITEM 69446 shown
61979/60710

SAVE 44%

comp at \$17.97

Customer Rating **★★★★★**

75085094

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drillmaster SUPER COUPON

1/4" TRIM ROUTER

ITEM 61626/62659
44914 shown

SAVE \$79

comp at \$99

Customer Rating **★★★★★**

75079827

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CENTRAL MACHINERY SUPER COUPON

2.5 HP, 12" THICKNESS PLANNER

ITEM 95082

SAVE \$129

comp at \$369

Customer Rating **★★★★★**

75081017

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75080045

CENTRAL MACHINERY SUPER COUPON

16" VARIABLE SPEED SCROLL SAW

ITEM 62519/63283/93012 shown

SAVE \$79

comp at \$149

Customer Rating **★★★★★**

75090389

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PREDATOR ENGINES SUPER COUPON

6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINES

ITEM 60363/69730
ITEM 68121/69727 shown
CALIFORNIA ONLY

SAVE \$280

comp at \$389.99

Customer Rating **★★★★★**

75086863

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drillmaster SUPER COUPON

1500 WATT DUAL TEMPERATURE HEAT GUN (572°/1112°)

ITEM 62340
63104/62546
96289 shown

SAVE 68%

comp at \$28.83

Customer Rating **★★★★★**

75084718

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CHICAGO ELECTRIC POWER TOOLS SUPER COUPON

12" SLIDING COMPOUND DOUBLE-BEVEL MITER SAW WITH LASER GUIDE

ITEM 69684 shown
61969/61970

SAVE \$204

comp at \$339

Customer Rating **★★★★★**

75090564

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CENTRAL PNEUMATIC SUPER COUPON

2-IN-1 FLOORING NAILER/STAPLER

ITEM 69703
61689 shown

SAVE \$279

comp at \$379

Customer Rating **★★★★★**

75076794

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SUPER COUPON

LED WORKLIGHTS

A. 27 LED
ITEM 69567/60566
62532/67227 shown

B. 39 LED
ITEM 62417/62574
62158 shown

SAVE 71%

comp at \$10.64

Customer Rating **★★★★★**

75088078

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BADLAND SUPER COUPON

12,000 LB. ELECTRIC WINCH WITH REMOTE CONTROL AND AUTOMATIC BRAKE

ITEM 61256/61889/60813 shown

SAVE \$453

comp at \$752.99

Customer Rating **★★★★★**

75080415

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US GENERAL SUPER COUPON

44" 13 DRAWER INDUSTRIAL QUALITY ROLLER CABINET

ITEM 69387
62744/63271
68784 shown

SAVE \$330

comp at \$679.99

Customer Rating **★★★★★**

75078418

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CENTRAL MACHINERY SUPER COUPON

2 HP INDUSTRIAL 5 MICRON DUST COLLECTOR

ITEM 61790/97869 shown

SAVE \$205

comp at \$384.99

Customer Rating **★★★★★**

75085719

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WARRIOR SUPER COUPON

29 PIECE TITANIUM NITRIDE COATED HIGH SPEED STEEL DRILL BIT SET

ITEM 62281/61637 shown

SAVE 83%

comp at \$59.98

Customer Rating **★★★★★**

75083144

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CENTRALPNEUMATIC SUPER COUPON

2.5 HP, 21 GALLON, 125 PSI VERTICAL AIR COMPRESSOR

ITEM 69091/61454
61693/62803
67847 shown

Customer Rating
★★★★★

SAVE
\$296

SUPER COUPON
\$149.99

~~\$179.99~~
comp at **\$446.61**



75106061

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SUPER COUPON

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PITTSBURGH 1" x 25 FT. TAPE MEASURE

\$6.99
VALUE



ITEM 69031/69030 shown

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75105729

US GENERAL PRO SUPER COUPON

30", 5 DRAWER TOOL CART

ITEM 69397/61427
63308/95272 shown

Customer Rating
★★★★★

SUPER COUPON
\$159.99

~~\$179.99~~
comp at **\$399.99**



75130044

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PITTSBURGH SUPER COUPON

12" RATCHET BAR CLAMP/SPREADER

ITEM 46807/68975/69221
62123/63017
69222 shown

Customer Rating
★★★★★

SUPER COUPON
\$29.99

~~\$39.99~~
comp at **\$20.76**



75101467

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CHICAGO ELECTRIC POWER TOOLS SUPER COUPON

MULTIFUNCTION POWER TOOL

ITEM 62279/62302/62866
68861 shown

Customer Rating
★★★★★

SUPER COUPON
\$149.99

~~\$179.99~~
comp at **\$44.99**



75102169

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PITTSBURGH AUTOMOTIVE #1 SELLING JACKS IN AMERICA

RAPID PUMP® 1.5 TON ALUMINUM RACING JACK

ITEM 69252/68053
62160/62486/62516
68569 shown

Customer Rating
★★★★★

3-1/2 Pumps Lifts Most Vehicles Weighs 34 lbs.

SUPER COUPON
\$59.99

~~\$79.99~~
comp at **\$129.99**



75099511

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CENTRAL MACHINERY SUPER COUPON

10", 12 SPEED BENCHTOP DRILL PRESS

ITEM 60237/62408/63471

Customer Rating
★★★★★

SAVE \$122

SUPER COUPON
\$109.99

~~\$139.99~~
comp at **\$232.25**



75105553

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CENTRAL MACHINERY SUPER COUPON

12" x 33-3/8" WOOD LATHE WITH REVERSIBLE HEAD

ITEM 34706

Customer Rating
★★★★★

SAVE \$68

SUPER COUPON
\$219.99

~~\$319.99~~
comp at **\$347.99**



75100649

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PITTSBURGH SUPER COUPON

32 PIECE SCREWDRIVER SET

ITEM 61259/90764 shown

Customer Rating
★★★★★

SUPER COUPON
\$5.99

~~\$8.99~~
comp at **\$13.67**



75103868

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CENTECH SUPER COUPON

3-IN-1 PORTABLE POWER PACK WITH JUMP STARTER

ITEM 38391/62376/62306 shown

Customer Rating
★★★★★

SAVE 38%

SUPER COUPON
\$39.99

~~\$59.99~~
comp at **\$64.99**



750999118

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HaulMaster SUPER COUPON

4 PIECE 1" x 15 FT. RATCHETING TIE DOWNS

ITEM 63056/63057/60405/63094
63150/61524/62322/90984 shown

Customer Rating
★★★★★

SUPER COUPON
\$6.99

~~\$11.99~~
comp at **\$34.95**



75101437

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CENTRALPNEUMATIC SUPER COUPON

18 GAUGE 2-IN-1 NAILER/STAPLER

ITEM 63156
68019 shown

Customer Rating
★★★★★

SUPER COUPON
\$15.99

~~\$22.99~~
comp at **\$99.99**



75119475

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CENTECH SUPER COUPON

2.4" COLOR LCD DIGITAL INSPECTION CAMERA

ITEM 61839
62350 shown

Customer Rating
★★★★★

SUPER COUPON
\$69.99

~~\$79.99~~
comp at **\$205.75**



75126057

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HaulMaster SUPER COUPON

STEP STOOL/WORKING PLATFORM

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69265/62344

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ITEM 46751

Customer Rating
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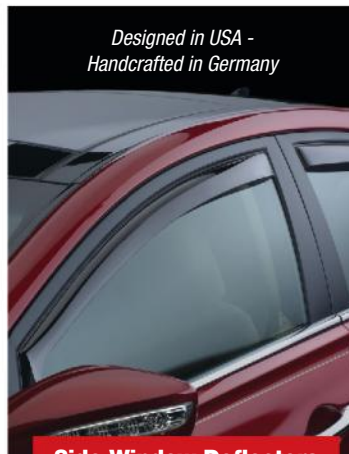


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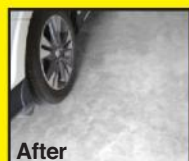


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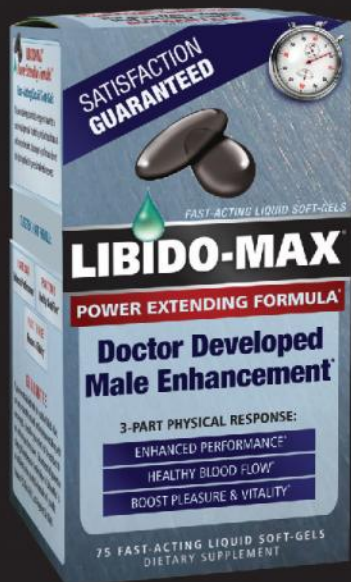
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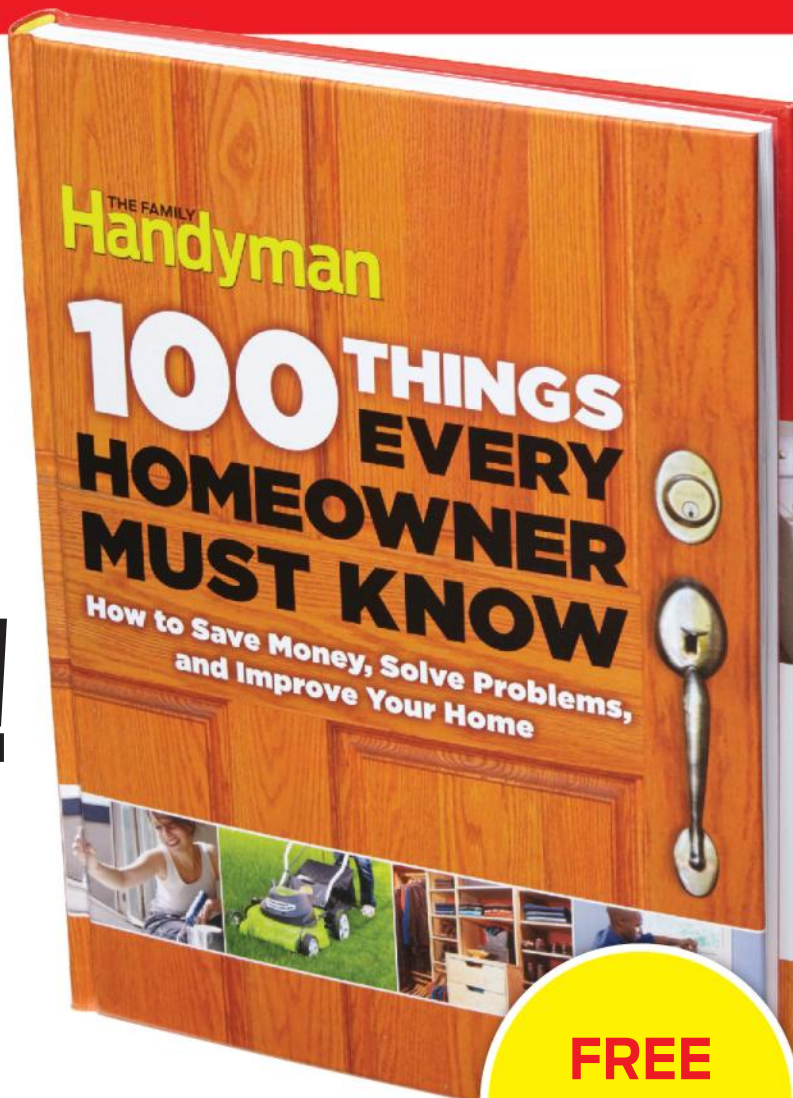
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Jungle print floor

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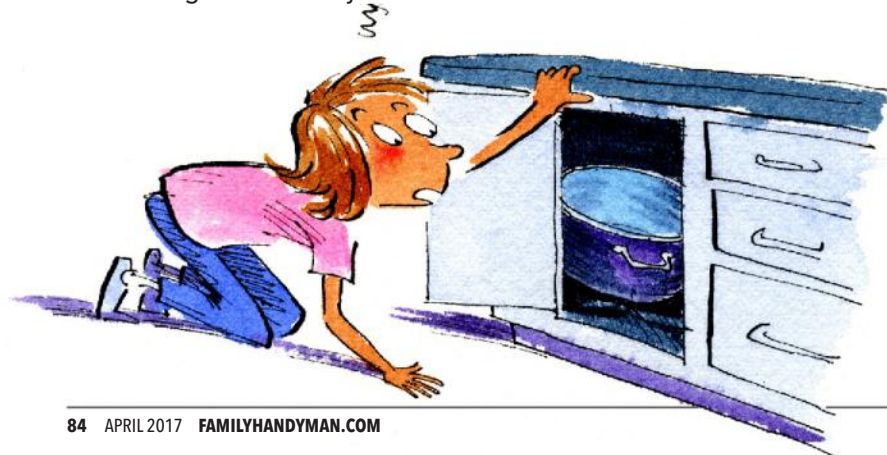
The next morning I peeked into the garage and my eyes grew to the size of silver dollars! We didn't keep the cat out of the garage. We kept her in—all night! (She must have been hiding up in the rafters.)

It's a goof we're unlikely to forget; hundreds of little paw prints across the floor's mirror finish remind us every day.

— LISA MARIE RABY

No spaghetti for you!

During a kitchen remodel, we decided to buy new pots and pans the day before our countertops arrived. We couldn't wait to put them away in our new cabinets, and since the countertops weren't on yet, we set the cookware in through the tops of the lower cabinets. A couple of days later after the countertops were installed, we went to grab the big spaghetti pot, but it wouldn't fit through the door opening. Maybe the next homeowners will be able to get it out if they remodel the kitchen. — SEAN DONLEY



LONG-TERM SAVINGS PLAN

When I bought my first car, I planned to change the oil myself to save money. Halfway through my first oil change, the phone rang: They needed me at work right away. So I quickly screwed in the drain plug and hustled to my job.

Well, you guessed it: I wrecked the engine by driving without any oil in the crankcase.

Twenty years later, I still change my own oil, and I figure that I have finally broken even on my do-it-yourself oil changes.

— DON PFEIFFER

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emergency.” Now you can turn your phone into a personal safety device when you select a Health & Safety Package. With 5Star® Service, in any uncertain or unsafe situation, simply press the 5Star button to speak immediately with a highly-trained Urgent Response Agent who will confirm your location, evaluate your situation and get you the help you need, 24/7.



Available in
Red and Graphite.

Monthly Plan	\$14.99/mo*	\$19.99/mo*
Monthly Minutes	200	600
Operator Assistance	24/7	24/7
Long Distance Calls	No add'l charge	No add'l charge
Voice Dial	FREE	FREE
Nationwide Coverage	YES	YES
Friendly Return Policy ¹	30 days	30 days

Health & Safety Packages available as low as \$19.99/month*.

More minute plans available. Ask your Jitterbug expert for details.

**“My cell phone company wants to lock me in a
two-year contract!”**

Not with the Jitterbug Flip. There are no contracts to sign and no cancellation fees.

**“Many phones have features that are rarely
needed and hard to use!”**

The Jitterbug Flip contains easy-to-use features that are meaningful to you. A built-in camera makes it easy and fun for you to capture and share your favorite memories. And a flashlight with a built-in magnifier helps you see in dimly lit areas, the Jitterbug Flip has all the features you need.

Enough talk. Isn’t it time you found out more about the cell phone that’s changing all the rules? Call now, Jitterbug product experts are standing by.

Order now and receive a
FREE Car Charger – a \$25 value
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We proudly accept the following credit cards:



IMPORTANT CONSUMER INFORMATION: Jitterbug is owned by GreatCall, Inc. Your invoices will come from GreatCall. Plans and Services require purchase of a Jitterbug phone and a one-time setup fee of \$35. *Monthly fees do not include government taxes or assessment surcharges and are subject to change. Coverage is not available everywhere. 5Star or 9-1-1 calls can only be made when cellular service is available. 5Star Service will be able to track an approximate location when your device is turned on, but we cannot guarantee an exact location. ¹We will refund the full price of the Jitterbug phone and the activation fee (or setup fee) if it is returned within 30 days of purchase in like-new condition. We will also refund your first monthly service charge if you have less than 30 minutes of usage. If you have more than 30 minutes of usage, a per minute charge of 35 cents will be deducted from your refund for each minute over 30 minutes. You will be charged a \$10 restocking fee. The shipping charges are not refundable. There are no additional fees to call GreatCall's U.S.-based customer service. However, for calls to a GreatCall Operator in which a service is completed, you will be charged 99 cents per call, and minutes will be deducted from your monthly rate plan balance equal to the length of the call and any call connected by the Operator. Jitterbug, GreatCall, and 5Star are registered trademarks of GreatCall, Inc. ©2017 GreatCall, Inc. ©2017 firstSTREET for Boomers and Beyond, Inc.

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