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BIG!

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FOREVER!

PAINT
LIKE A PRO

14 COMMON
**PLUMBING
BLUNDERS**

JUNE 2020
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BEFORE YOU CALL A PRO

I've spent almost 30 years interviewing people who make their living fixing stuff. Every single one of them has stressed this: A lot of service calls aren't necessary (my own estimate is 25%). Instead, they're for minor items that a homeowner could handle in 10 minutes or—often—10 seconds. That's unfortunate, since a minimum service charge is usually about \$100. In this issue, we'll show you dozens of those instant fixes you can do yourself.



If you must call

After you've ruled out the instant fixes and you find yourself stumped, there are still a few things you can do to trim the repair bill by making the job faster and easier for the pro:

■ **PROVIDE LOTS OF INFO.** When you're setting up the service call, be ready with the make and model of the item. Also offer to send photos of the unit or the problem. If the HVAC unit or appliance is displaying an error code, tell them about it (see pp. 31 and 38 for more on this). Armed with clues, the service tech knows what to expect. They may even show up with the correct replacement parts and avoid a trip to the supplier.

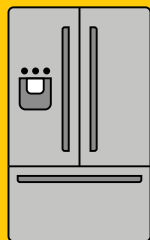
■ **CLEAR THE WORKSPACE.** If you leave dirty dishes in a broken dishwasher or a stack of boxes around a leaky water heater, you're essentially paying the repair tech to move them. But if you provide easy access, you'll save them some time and yourself some money.

■ **AND FINALLY, BE NICE.** Technicians often make judgment calls while doing repairs and tallying the bill. Having done repair work, I guarantee that considerate customers get treated well in return: better service, extra attention and sometimes even a little break on the bill.

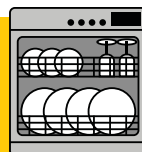
GARY WENTZ
EDITOR-IN-CHIEF

APPLIANCE LIFE SPANS

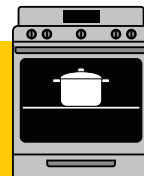
When a major repair is needed, you should always ask yourself whether it's smarter to replace or repair. That decision depends in part on the remaining life of the appliance. Estimates available online vary widely, so I asked a friend who manages hundreds of apartment units. Here are the estimates he uses:



FRIDGE
12 years



DISHWASHER
10 years



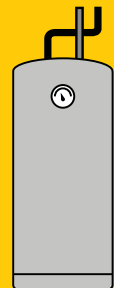
OVEN/RANGE
15 years



WASHER
11 years



DRYER
11 years



WATER HEATER
12 years

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JUNE 2020

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ADVICE**
SINCE 1951

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Here's how to use an angle grinder to get the job done.



Important Facts about IMBRUVICA® (im-BRU-vih-kuh) tablets and capsules

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

What is IMBRUVICA®?

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

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

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

What should I tell my doctor before taking IMBRUVICA®?

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

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

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

What should I avoid while taking IMBRUVICA®?

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

What are the possible side effects of IMBRUVICA®?

IMBRUVICA® may cause serious side effects, including:

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

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

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

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

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

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

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

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

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

What are the ingredients in IMBRUVICA®?

Active ingredient: ibrutinib

Inactive ingredients:

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

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

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

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DEPARTMENTS

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9 Stuff We Love

A safe, quiet mosquito solution; a no-mess mop; and a quick fence post fix.

14 Handy Hints®

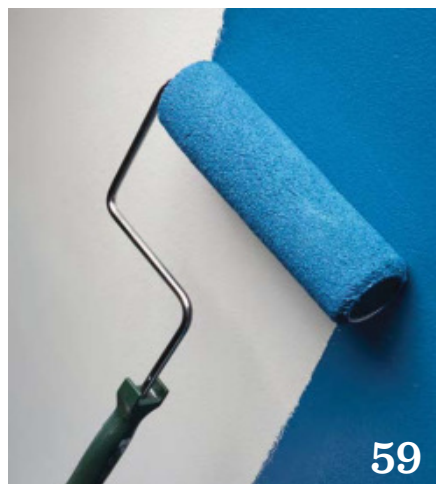
A DIY lazy Susan, a tackle box that's always up for camping, and more.

20 homeLAB

We test stain-blocking primers to find out what covers your messes best.

59 Best Pro Tips

A lifelong painter spills his tool chest and his tips for a flawless paint job.



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66 Home Care

Prepping a deck for new stain, reinforcing a drawer bottom, and refreshing wood floors with less mess.

78 Reader Info

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

80 Great Goofs®

Hornets in high-def, a short-circuit shortcut, and the oil spill to top them all.



66



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to buy lunch!

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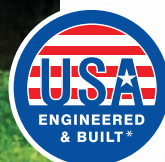
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On our website, you'll find a brand new home for all things related to the Great Outdoors.

BASE CAMP

Whether you're camping in your backyard, traveling the country in your RV or grilling for friends and family on your patio, this digital destination brings you the very best tips, gear and DIY inspiration. You'll also get a sneak peek at behind-the-scenes videos of our renovated 1972 Avion camper, which will be featured in the July/August issue.

HOVER YOUR CAMERA HERE

Scan this code with your smart-phone for more on camping, grilling and enjoying your outdoor spaces.



ULTIMATE BACKYARD

Landscaping and lawn and garden care are only part of the package. We also offer tips and product recommendations on outdoor speakers, lighting, patio furniture and grills, to help create the quintessential backyard.



HOME COOLING

Readers are constantly asking us about new, energy-efficient ways to keep their homes cool during the hot summer months. It's here that everything from new cooling products to air conditioner maintenance tips can be found.



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NICK GRZECZOWIAK
CHIEF CONTENT OFFICER



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COMMUNITY IMPACT

In 2016, when the harmful Zika virus was on everyone's mind, DynaTrap and the city of Miami, Florida, distributed 100 of DynaTrap's 1-acre mosquito traps to "Zika Zones" around the city. The donation reduced the population of Zika-infected mosquitoes without chemicals, keeping beneficial insects like honeybees, and the community, safe.



Replaceable UV bulb

Insect catch basket

Plugs into standard 110-volt outlet

STUFF WE LOVE

NO-MESS MOP

If you think mopping is the worst chore on your list, you're not alone. That's why we love the Bona Microfiber Floor Mop. It comes with two pads that stick on the cleaner's head: a dusting pad to take care of sweeping, and a microfiber cleaning pad.

Instead of toting around a bucket of hot, soapy water and swashing water on the floor with a traditional mop, you can spray on the floor cleaner then wipe the floor clean with the microfiber pad. The mop costs about \$20 at home centers and discount stores.

MIKE BERNER
ASSOCIATE EDITOR



All-access drill

The Milwaukee Installation Drill/Driver is designed for working in tight spots. Its compact design and four attachments let you work where other drivers can't. One thing to get used to: The forward/reverse button is located on top of the drill, not next to the trigger. This kit, which includes a soft case with two batteries and a charger, costs \$230.

JOSH RISBERG, LEAD CARPENTER



QUICK FENCE POST FIX

If you have a wobbly fence or wiggling mailbox that you're not quite ready to replace, pick up a pair of these E-Z Menders by Simpson Strong-Tie. It's a simple solution to reinforce a post at its most vulnerable spot—where the post meets the ground. It works on posts set into gravel, concrete or compacted dirt. By driving a pair of E-Z Menders into the ground to hug the post, you can delay the hassle and expense of replacement. E-Z Menders cost about \$9 each at home centers.

BRAD HOLDEN
SENIOR EDITOR

BOTTOM LEFT: MILWAUKEE TOOL



MARK E INDUSTRIES

GOOF PROOF® SHOWERS



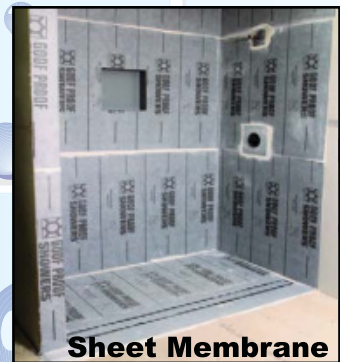
GOOF PROOF LINEAR DRAIN 6 Length Combinations from 27" - 60" designed for use with all waterproofing methods



Roll On



Vinyl Liner



Sheet Membrane

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

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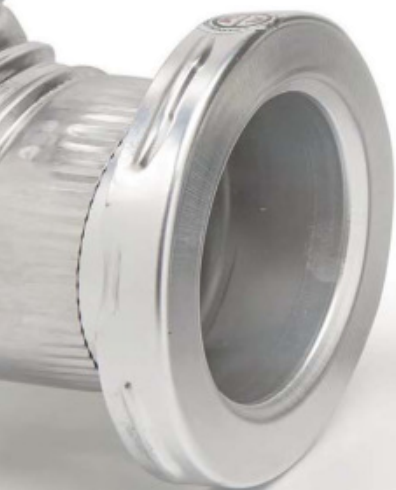
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STUFF WE LOVE



EASY-CLEAN DRYER VENT

Why are we excited about a product for dryer vents? Because the MagVent dryer vent coupling solves a big problem. Dryer vents are often attached to the dryer with tape, or tape and screws, but neither option allows you to easily access the vent to clean out the clothes lint. Very few people clean their dryer vents, which is why there are 15,000 dryer fires a year.

This self-aligning magnetic coupling holds strong and makes it faster and easier to get to your vent. And when you push your dryer back in, you'll hear a satisfying magnetic click that tells you it's perfectly connected. You can find it for about \$42 at magvent-dryervent.com.

MIKE BERNER, ASSOCIATE EDITOR



Versatile visor light

Wearing a headlamp used to mean you had to strap something to your head, which was an issue when you were already wearing a cap or a hard hat. These lamps were heavy and usually not that bright.

That's why I love the Klein Tools visor light. It clips right to your hat and lets you choose from two brightness levels. The light is hinged, so you can point it right where you want it, and unlike strap-style lights, it can be easily removed and used as a flashlight. It's available for less than \$20 at most home centers or online.

JAY CORK
ASSOCIATE EDITOR



TWO BLADES, NO GAS!

The Ego POWER+ 21-in. Select Cut Mower has all the features we expect from top-of-the-line battery-operated mowers: easy height adjustment, LED headlights, stand-up storage, and mulching, bagging and side discharge. What's different is that it cuts with two blades. The upper blade chops grass and sticks extra fine, leaving no clumps under the mower and making bagging easier. The two interchangeable lower blades allow you to choose between longer run-time (over 60 minutes) for weekly lawn maintenance, and heavy-duty mulching. This kit (model LM2135SP) includes a battery and charger and is available at The Home Depot for \$650.

BILL BERGMANN, PRODUCTS EDITOR





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Easy mulch spreading

Mulching around flowers and bushes in tight quarters is easier if the mulch is in a small container. So I place buckets and pails in my wheelbarrow and fill them with mulch. It doesn't matter if the mulch misses the bucket and lands in the wheelbarrow. Once you've emptied the buckets, dump the contents of the wheelbarrow in an open area and spread it out.

ERIC SWARTZ



DRAWER ORGANIZER

Keep measuring cups and spoons from cluttering up a drawer. Just attach a strip of wood to the drawer's side. Install washers behind the wood strip to create a gap for the handles to slide into.

CHRIS GRIMAL



Marbles

MAKE YOUR OWN LAZY SUSAN

I was shopping for a lazy Susan for my spices, but the ones I found were expensive and wouldn't fit in my cabinet anyway. I made my own with two matching pie tins and marbles. You just spread a single layer of marbles in the bottom tin and set the other tin on top. Spins just like the store-bought variety!

CAROL SCHULTZ



Silica gel crystals in a bag

NO-SMELL GYM BAG

A gym bag can get stinky after a while, but here's an easy way to prevent that. Put silica gel cat litter in a small square of fabric and close it with a zip tie. The crystals absorb odor-creating moisture, keeping your bag fresh. Replace the crystals once a month or as needed.

JOHN BURFEIND





PROTECTION FOR BIG BLADES

If you have wide chisels sliding around in your toolbox, here's a good way to protect their cutting edges (and your fingers). Cut a slot in a tennis ball using a utility knife. Stick your chisel in the slot and you'll have no more worries.

NOEL HANSEN



Handy camping kit

My family does a lot of camping, and I always had trouble rounding up all the little items we needed and keeping them organized. First aid supplies, bungee cords, clothesline, bug spray.... Then I loaded it all into a fishing tackle box, and now we're always ready to go.

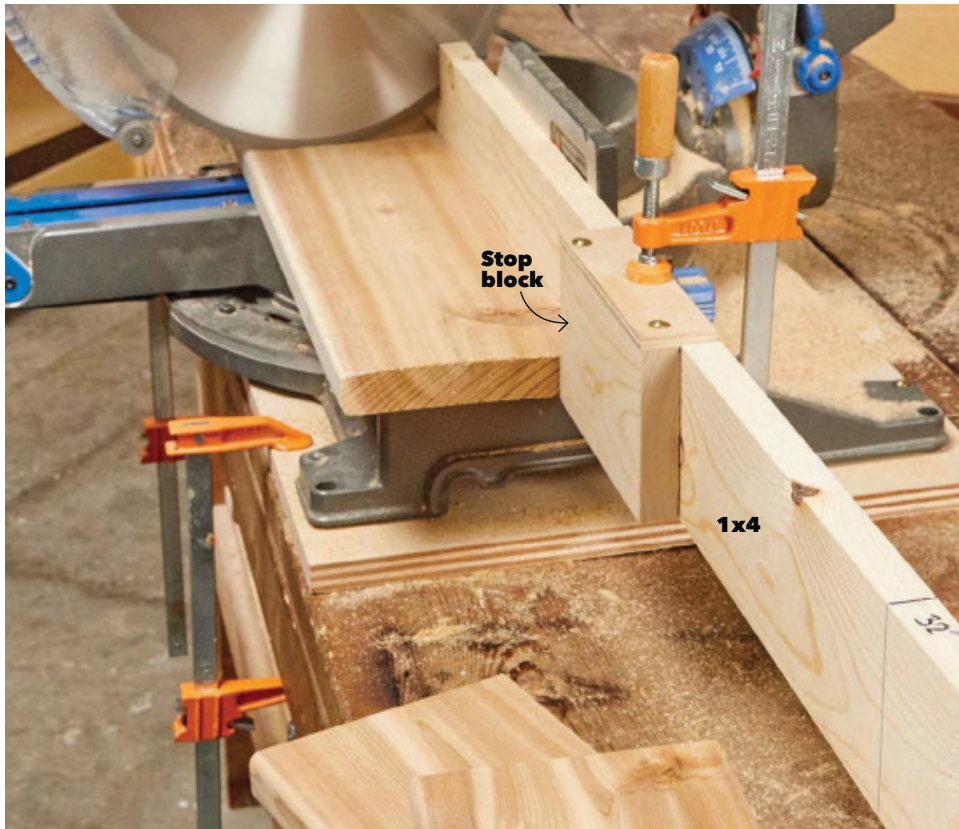
LYNN MAGERS



GET THE GUNK OFF DRILL BITS

The heat produced during drilling causes resin to build up on drill bits. Resin-coated bits cut poorly and heat up and get dull faster. To remove the resin, spray the bit with oven cleaner and let it soak for a couple minutes. Then scrub it with a toothbrush and rinse with water.

VIRGIL PETERSEN



A STOP BLOCK FOR LONG CUTS

Setting up a stop to make repeat cuts is definitely a time-saver. Here's my solution for cuts that extend beyond my saw's fence. I attach a long 1x4 to my saw fence and use a stop block I made from a short piece of 1x4 and a 1/4-in. plywood lip. I just slide the stop block to where I need it and clamp it into place.

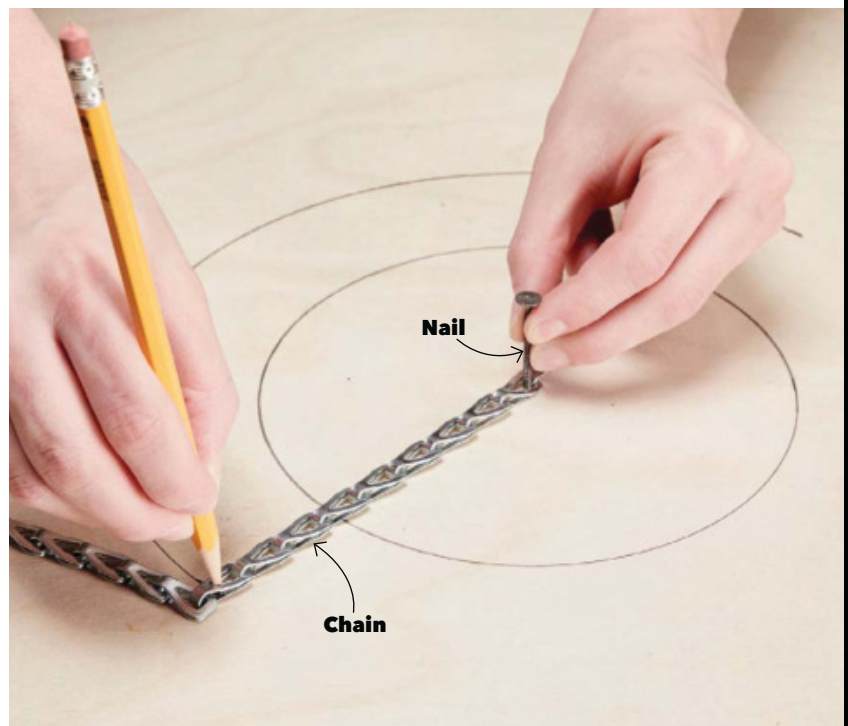
TED KANON



CORD CONTROL

Here's an easy way to keep cords and cables from slipping off a desk. Clamp a binder clip onto the edge of your desk and run the cable through it. For cords with large ends, squeeze the clip's handles to remove them, slip in the cord and reinstall the handles.

CARTER JANACEK



Draw a circle with a chain

To quickly draw a circle or mark a radius, put a nail through one end of a chain and into the workpiece and use the nail as a pivot point. Insert the point of a pencil into a chain link at the desired radius and draw the arc or circle while keeping the chain taut.

MIKE MURPHY

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homeLAB

A TESTING ZONE FOR *INNOVATIONS*

STAIN BLOCKERS: *OIL-BASED VS. WATER*

BY JASON INGOLFSLAND





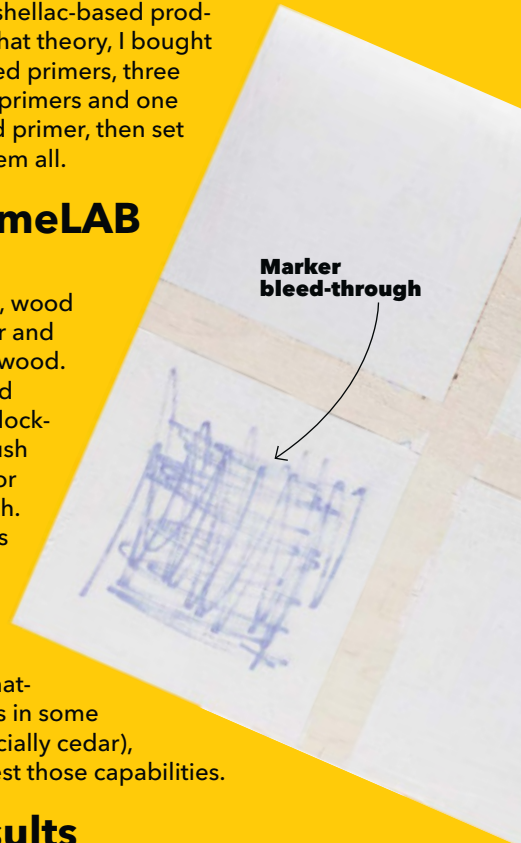
Like standard primers, stain-blocking primers provide good adhesion and help hide existing colors and repairs. But stain blockers promise something more: They seal in stains better than standard primers or paint.

Some types of stains dissolve when a fresh coat of paint is applied and bleed right through to the surface of the new paint. These stains won't completely disappear no matter how many coats you apply—they just keep bleeding through. So you have to seal them before you paint.

The conventional wisdom is that water-based stain blockers don't work as well as oil-based or shellac-based products. To test that theory, I bought three oil-based primers, three water-based primers and one shellac-based primer, then set out to test them all.

The homeLAB test

I applied rust, wood stains, marker and crayon to plywood. Then I applied seven stain blockers with a brush and looked for bleed-through. Stain blockers are also effective at sealing in odors (like smoke) and natural pigments in some woods (especially cedar), but I didn't test those capabilities.



The results

Generally, oil-based primers are better at blocking water-based stains, and water-based primers are better at blocking solvent-based stains. But, in my tests, I found the oil-based primers blocked stains better overall than water-based primers.

HOW DID THE SHELLAC-BASED PRIMER PERFORM?

Shellac-based primer (such as BIN) is a traditional favorite because it dries in minutes and has excellent adhesion. It did a great job of blocking the rust, crayon and wood stains, but it didn't block the marker well.



IS MATTE TILE HARD TO CLEAN?

Matte tile, which has only a slight sheen, is all the rage. The homeLAB bathroom is full of it. We love the look but have wondered if it will be harder to keep clean than glossy tile. Matte paint is harder to clean than high-gloss paint, so we thought it would be reasonable to expect the same with tile. Here's what we found.

THE homeLAB TEST

We picked up samples of matte tile, some textured and some smooth. We exposed the samples, along with our installed bathroom tile, to hard water and soap residue for two months. Then we cleaned all the tile with a sponge and some water. For more stubborn stains, we used a cleaner.

THE RESULTS

The matte tile wasn't noticeably harder to clean than glossy tile. But this applies only to the smooth-surface matte tile. The tile with textured surfaces or reliefs requires more time and elbow grease. Textured matte tile is fine for a kitchen backsplash or bathroom wainscot. But if you choose it for stain-prone areas, like a shower, expect to spend more time cleaning.



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TABLE IN A DAY

Peel-and-stick veneer
makes it stunning
and simple

BY GARY WENTZ

When it comes to woodworking, I'm a cheater. I want masterpiece results, but I love shortcuts. That's why I like to build tables using hollow-core doors and veneer. This method is faster, easier and cheaper than solid wood construction, and the table is lighter and more stable. The first table I built this way is as flat and flawless as it was 20 years ago.

I spent about \$500 on materials because I chose high-grade zebrawood boards and veneer. Built from a species like oak or cherry, a table could cost well under \$300. I completed the construction in a day, then spent a few more hours applying a finish.

WHAT IT TAKES

TIME	COST
1-2 days	\$250-\$600

SKILL LEVEL
Intermediate

TOOLS & MATERIALS
Basic hand tools,
circular saw, clamps
or pneumatic nailer

EASY RECIPE FOR AN ELEGANT TABLE

A HOLLOW-CORE DOOR is flat, strong, lightweight and inexpensive (\$40 to \$60), making it the perfect foundation for a table.

"SKIN" glued to the door provides a tougher tabletop. The faces of a hollow-core door are super thin and easy to puncture. The skin can be plywood, MDF or hardboard.

PEEL-AND-STICK VENEER costs a few bucks more than standard veneer, but it gives you perfect results without special tools or skills.

SOLID WOOD gives the table a durable edge. Veneered edges look just as good, but they aren't nearly as tough. Any thickness will do, but thin stock costs less and is easier to apply. This edging is 3/8 in. thick.

MATERIALS, TOOLS AND TIPS

■ Hollow-core doors are available at home centers, typically in widths of 28, 30, 32 and 36 in. You can cut them down from their standard height (80 in.) for a table of a different length. You can also cut them to width, but that's a bit more work.

■ I bought the 28-in. hairpin legs online for about \$60. There are lots of styles and finishes available. For a dining table, I strongly recommend hairpin legs formed from three columns rather than two.

■ This project requires lots of wood glue, at least 16 oz. To give yourself more working time, consider a slow-setting glue such as Titebond Extend, or add about 10% water to standard glue.

■ My plywood skin had some flaws—tiny lumps that telegraphed through the veneer and became visible only after the veneer was finished.

To avoid this, examine your plywood carefully. Better yet, choose hardboard or MDF for the skin.

■ When you add a skin over the door, don't cut it to fit the door; an exact match is almost impossible. By starting with an oversize skin (**Photo 4**) and then trimming (**Photo 5**), you'll get a perfect fit.

■ When the edging is complete, make sure its top is flush with the skin. If you find any uneven spots, sand them flush. But be careful not to round the outer corner of the edging.

■ Veneer requires only a light sanding before finishing. I always sand by hand only. The veneer is micro-thin and easy to sand through with a random-orbit sander.

■ I finished my table with two coats of polyurethane, followed by two coats of wipe-on poly.

Endless options

Veneer, a super-thin layer of wood, has been used by woodworkers for centuries because it eliminates hours of labor and can overlay a base material that's more stable than solid wood. More than that, it's an opportunity to use gorgeous wood without spending a fortune. I found more than 100 wood species options online, including a dozen I'd never heard of. A 4 x 8-ft. sheet of peel-and-stick veneer costs from \$70 to \$700. My zebrawood veneer came from veneersupplies.com.



MEET THE EXPERT

Gary Wentz is editor-in-chief of *Family Handyman*, where he shows off his successful projects. Failures stay hidden in his garage.



Hollow-core door

Straightedge

1



Webbing

2



Filler strip

Screw

3

1 CUT THE DOOR

To get a straight cut, run your circular saw along a straightedge. I used a scrap of plywood. Your table can be any length you want. Just remember to account for the thickness of the edging when you determine the door length.

2 MAKE SPACE FOR THE FILLER STRIP

Hollow-core doors have cardboard webbing inside. Use a chisel or sharp putty knife to slice through the glue that fastens the webbing to the faces of the door. Then shove the webbing inward.

3 GLUE IN THE FILLER STRIP

Cut a strip of 3/4-in.-thick wood or plywood to fit into the door. The strip has to be perfectly straight, so choose straight stock. Fasten the strip with wood glue and spring clamps.

PRO TIP:

Drive a screw into the strip. That way, you can pull the strip out if you've pushed it in too far.

4 ADD A SECOND SKIN

Cut 1/4-in. material 1/4 in. larger than the door. Coat the door with wood glue and position the plywood, letting it overhang on all four sides. Nail down the perimeter of the plywood and set heavy objects on the interior area.

COOL TOOL:

A notched putty knife, found in the flooring tools aisle at home centers, makes a great glue spreader.



4

5 TRIM THE SKIN

Cut off the overhanging skin with a flush-trim router bit. The bearing guides the bit, leaving the skin perfectly flush with the door.

6 ADD THE EDGING

Wrap the door with solid-wood edging. Start on the short ends, then cover the long sides of the door. I skipped the clamping process and fastened the edging with 23-gauge pins instead.

Note: Use a straightedge to position the edging. It has to be perfectly flush with the skin.



5

Flush-trim bit

EDGE FASTENING OPTIONS:

There are a few ways to fasten the edging. The best approach is clamping, but that's time-consuming and requires a pile of long clamps. So I went with glue and a 23-gauge pin nailer. The tiny nails are easy to hide with a smidgen of filler. An 18-gauge brad nailer would also work, but the larger nail holes are harder to camouflage later.



Straightedge

Edging

6



7 APPLY THE VENEER

Cut the veneer 1 in. larger than the tabletop, using a utility knife with a fresh blade. Peel off the protective paper and set the veneer in place. Don't apply any pressure until the veneer is centered on the tabletop.

8 ROLL THE VENEER

Peel-and-stick veneer uses pressure-sensitive adhesive. For a strong bond, apply lots of force and roll the whole table twice; with the grain and across the grain. Veneer rollers cost \$20 online.

9 TRIM THE VENEER

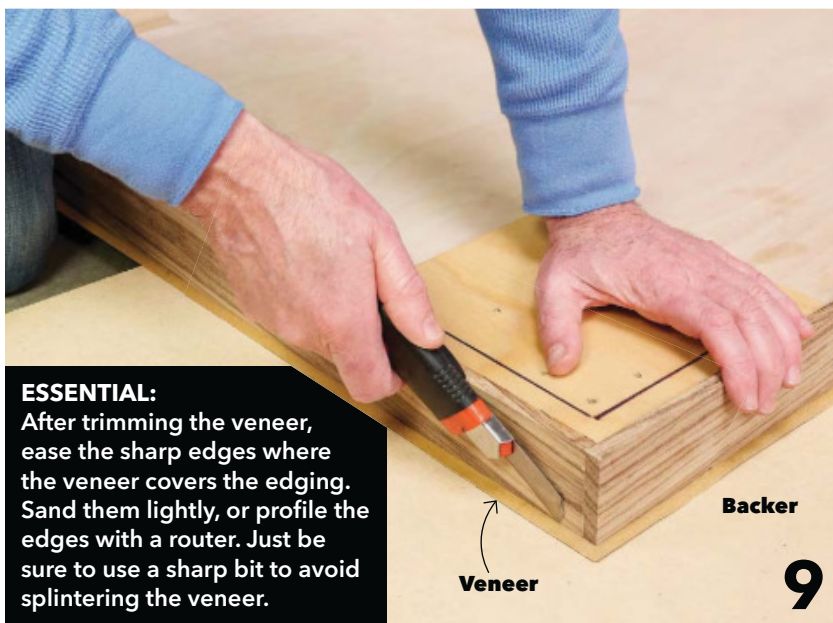
With a helper, set the tabletop on a cutting backer such as hardboard or MDF. Be careful not to damage the overhanging veneer. Trim it with a fresh, sharp blade. To avoid splintering, cut in two or three light passes rather than one deep cut. **Note:** Don't use plywood as a cutting backer. The grain can pull your blade off course.

10 ATTACH THE LEGS

Screws won't hold well in a hollow-core door, so first glue on leg bases cut from 1/2-in. or 3/4-in. plywood. Screw the legs on and you're done!

Materials List

- Hollow-core door
- 1/4" x 4' x 8' plywood, MDF or hardboard
- Solid wood for edging
- 4' x 8' peel-and-stick veneer
- 28" hairpin legs
- Wood glue
- Finishing supplies



ESSENTIAL:

After trimming the veneer, ease the sharp edges where the veneer covers the edging. Sand them lightly, or profile the edges with a router. Just be sure to use a sharp bit to avoid splintering the veneer.



10

Apply poly with a roller—really!

Coating a large table-top with a brush is a high-stress speed test. You have to move fast to coat the whole surface before the poly-urethane become gooey. But haste often leads to missed spots, uneven coverage or ugly brush marks.

So instead, I use a mini roller. Sound crazy? I thought so too until I watched a friend do it. Since then, I've done it a dozen times, and even my worst results were better than I could have achieved with a brush. Here's what I've learned:

■ Slower dry times are better, so heat is bad.

You'll get smoother results at 70 degrees than you will at 80 degrees.

■ Rollers work well with oil-based poly; with water-based poly ... a disaster.

■ I've had the best results with microfiber rollers, though foam rollers are fine too.

■ When the surface is perfectly smooth, finish up with two or three coats of wipe-on poly, which is much less problem-prone than regular poly.

■ Apply at least two coats, more if you want

more protection. Sand lightly between coats.

■ Light coats are best. Heavy coats lead to stubborn bubbles.

■ The poly will look terrible at first. You'll be tempted to roll it again to "fix" it. Don't. Left alone, the bubbles will pop and the tiny bumps will level out.

■ When you've built up the desired thickness, give the finish at least a day to fully harden. Then wet-sand to smooth out any little imperfections. I use 600-grit wet/dry sandpaper and soapy water as a lubricant.



**BEFORE YOU
CALL A PRO**

22 INSTANT HEATING & A/C FIXES

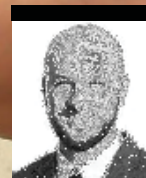
**Even a beginner
can solve common
problems—and
save money!**

BY BRAD HOLDEN

When your heating and cooling system isn't working properly, you might throw up your hands and call for help, thinking that whatever the problem is, solving it must be outside your skill set. Well, you might be surprised: The most common problems have simple solutions. Here are 22 extremely easy fixes that take minutes or less and can save you a wad of cash.

How's your filter?

A dirty filter causes your system to work harder, resulting in premature failure of parts. A dirty filter can also cause a shutdown. How often your filters need changing depends on many factors. Do you live in a high-traffic zone? Do you have pets? Do you leave the windows open? Write the date on your filter to help keep track of when it needs to be changed. Don't forget about furnace filters in the summer. They're also for the A/C.



MEET THE EXPERT

Tim Adams is the service manager at Standard Heating & Air Conditioning in Minneapolis.



Start at the thermostat

Most thermostats have a switch so you can set the system to "heat" or "cool." Make sure yours is set to the proper function.



Run a quick power test

To see if the furnace is getting power, set your thermostat to the "fan" position. If you don't hear the fan turn on, there's a good chance there's no power to the furnace. If there's power to the furnace, it's time to check the furnace itself.

Check inside the furnace

New furnaces have fault codes, like cars. Check for codes or flashing lights, then look in your owner's manual or online to diagnose the problem. If you can't decipher the code or don't want to bother with it, send a video to the repair technician. It's helpful for the tech to know what the problem might be before coming out.



Check the circuit breaker

A breaker can trip without fully moving to the "off" position, so flip it to the "off" position, and then back to "on," to be sure that's not the issue.



Replace thermostat batteries

If your thermostat doesn't seem to be working, try changing the batteries. They typically need to be replaced annually. After you've replaced the batteries, your thermostat might revert to its default settings and need to be reprogrammed.

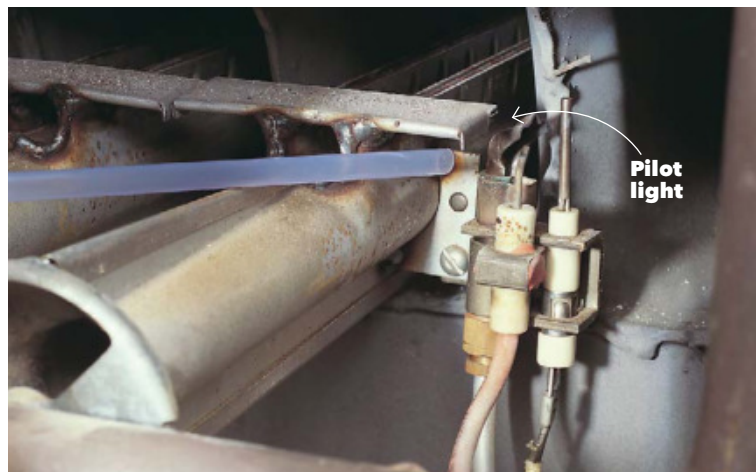
Clean the igniter

Hot surface igniters are the most common ignition system on modern furnaces. They take the place of standing pilot lights and electronic igniters. Clean the dust off the hot surface igniter by leaving the igniter in place and blowing air through a straw. This part breaks very easily; don't even touch it. In fact, when you replace the furnace cover panels, do so gently to avoid breaking the igniter.



Check for power

A furnace has a power switch nearby, often right on its housing. It looks just like a light switch. Check to make sure this switch hasn't inadvertently been switched to the "off" position.



Clean the pilot

A dirty pilot can cause the flame sensor (or thermocouple) to get a false reading indicating the pilot isn't lit. Clean it off with a blast of air. Direct air to the exact spot with a drinking straw. Newer furnaces have hot surface igniters instead of pilots and electronic igniters.



Check the condensate pump

If you have a condensate pump, listen closely to make sure it runs. If not, try resetting the GFCI outlet that powers it. If that doesn't work, you may need a new pump (about \$60).



Check the safety switch

Furnace cover panels often activate a safety switch when the panel is removed or left even slightly ajar. Check to see that the panel is fully closed.



Is the gas valve on?

Find the gas line for your furnace, then find the valve. The valve's handle should be parallel to the gas line. If it's perpendicular, there's no gas going to the furnace.



Check airflow

On the outside of your house, you may have a couple PVC pipes sticking out of the wall. One points downward (furnace air intake) and one points horizontally or upward (furnace exhaust). Drifting snow, ice buildup or nesting animals can block one or both of these pipes, causing a high-efficiency furnace to shut down.



Can your furnace breathe?

Your furnace room is likely supplied with a "makeup air" duct. It's a large, flexible, insulated duct that probably drops into a bucket. This duct supplies your house with fresh air to replace oxygen lost in combustion. Because furnace rooms often double as storage areas, it's easy to inadvertently block that duct. If it's blocked, kinked or squashed, it can cause your furnace to shut down, as there's no oxygen for combustion and it won't ignite. Typically, this isn't a big problem in old, drafty homes, but in new, super-insulated homes, it can be an issue.

A humidifier can cause your furnace filter to clog

If you use a portable humidifier, always use distilled water to fill it. Non-distilled water can cause a calcium buildup on your furnace filter and completely clog it in a matter of days. The buildup is white, so a white filter will still look clean when it's actually clogged.



Make sure water can drain

High-efficiency furnaces collect water as a by-product of combustion. In cooling mode, your A/C collects water from the air. In either case, that water needs to drain away. If not, your furnace will leak water or just shut down. First, make sure water is dripping from the end of the tubing when the system is running. If you don't see drips, clear the line by blowing through it with your mouth. Don't use a compressor; too much pressure can blow connections apart.



Check for blocked registers

Have you noticed large temperature swings in certain rooms or an unusually short furnace cycle time? Make sure there's nothing blocking the air returns. Returns pull air out of the room and back to the furnace, while supply registers blow air into the room. You can check the return airflow by holding a piece of paper against the return register. The paper should stick to the register. If it doesn't, there's an airflow problem.



Adjust the damper

If your heating ducts also serve as air conditioning ducts, they likely have dampers that require adjusting for seasonal changes. The seasonal settings should be marked on the duct. Two-story homes often have separate supply trunks to serve the upstairs and downstairs. To send more warm air downstairs (winter setting) or more cold air upstairs (summer setting), adjust the damper handle on each supply trunk.



Does it seem like the A/C isn't working?

Condensation in your A/C attracts dust. When the condensation flows out the drain line, that dust can plug the line. Check the end of the drain line to see if water is coming out. If not, blow the line clear. Usually lung power is sufficient. Compressed air may cause something unseen to come apart. Also, remove the cap from the evaporator coil and clean out the tube with your finger.

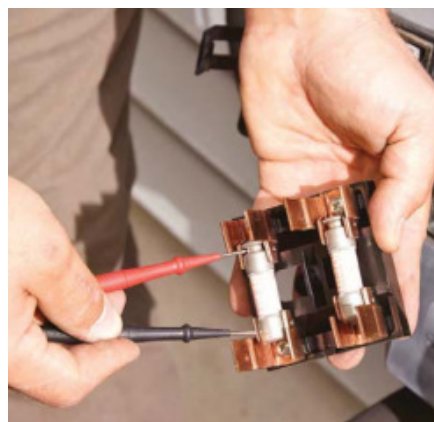
Check for mice and other pests

Your condenser has an access panel behind which you'll find the wiring and connections. Because this is an outdoor unit, it's often an appealing residence for critters. After shutting off power at the breaker, remove the access panel and check for broken or chewed wires. Replace them as needed.



Investigate your A/C's condenser unit

Is your A/C blowing air, but not cold air? Does the condenser seem louder than usual? If it's having to work too hard, it may just shut off. The condenser coil, located inside the outdoor unit, is probably dirty. To clean it, spray off the condenser coil. Don't use high pressure. Put your thumb over the end of the garden hose or use a sprayer nozzle. More pressure than that can bend the fins. The cleaning schedule for condenser coils—like the timing of filter changes—depends on environmental conditions. Cottonwood seeds can blanket your condenser coil in a day. Make a habit of cleaning the coil regularly.



Check fuses in the disconnect block

These fuses are typically located in a box mounted to the house near the condenser. Set your multimeter to the lowest Ohms value and touch the red and black leads to opposite ends of each fuse. If you get a numerical reading, the fuse is good. But a zero, a minus symbol or an infinity symbol (∞) indicates a blown fuse.

Take your old fuses along to the home center to verify that the new ones match. Replacing a fuse can get you up and running again quickly, but if your unit regularly blows fuses, there's something else wrong with your system.

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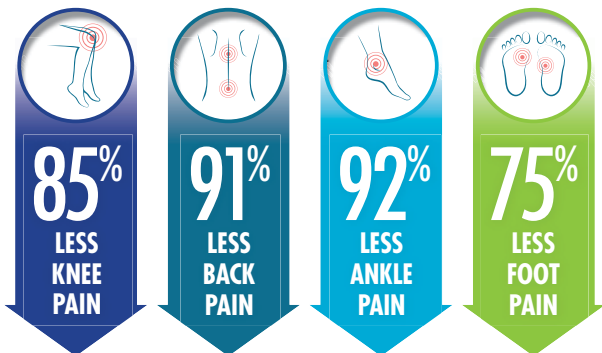
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**BEFORE YOU
CALL A PRO**

20 *QUICK* APPLIANCE TIPS

Little fixes that save big bucks

BY JASON INGOLFSLAND

When an appliance stops working, you might feel the itch to call a repair service right away. Don't. Take a breath and think it through. Sometimes the solution to a broken appliance is so easy you'll regret calling for service. Plus, you'll feel the glow of satisfaction from fixing it yourself. But you don't need to do this alone. We spoke to an expert to get the low-down on appliance repair. Here's how you can fix appliances yourself and save some money.

THE OVEN TEMPERATURE IS INACCURATE

If your food is taking longer to cook in the oven, recalibrate your oven's temperature setting. First, check the instruction manual for how to adjust this. You can find the manual online with your oven's model number with "instruction manual." Then, place an oven thermometer in the oven for an accurate heat reading. Compare the thermometer reading with your oven's digital display when recalibrating the temperature setting.



MEET THE EXPERT
Costas Stavrou has been fixing appliances and coaching homeowners on how to avoid common appliance repairs for more than 30 years.



Check the power

Often, Costas Stavrou will show up at a home and find the appliance isn't broken at all: It's either switched off or unplugged, or else a breaker is tripped. A less obvious cause is a tripped GFCI outlet. To check a GFCI, first press the "test" button, then "reset." GFCI outlets can protect other outlets downstream. If your fridge isn't working, a GFCI above your countertop may be the culprit.

INDUCTION COOKTOP WON'T HEAT

Induction cooktops can only be used with ferromagnetic pots and pans, such as enameled steel, cast iron and stainless steel. So, it might sound silly, but the first thing to check would be the pots and pans you're using; they might be the wrong kind.

Oven won't heat evenly

This problem can often be solved in seconds. People will wrap oven racks in aluminum foil, but that prevents heat from transferring evenly. To fix the problem, just remove the foil.



Electric burners won't heat

Chances are, the burner prongs aren't making good contact inside the receptacle. Pull out the burner, plug it back in and see if it wiggles around. If it feels loose, take it back out and bend the burner prongs slightly outward. Try inserting it to check for a snug fit. This should improve the connection and get the burner hot again. If not, try a new burner, which will cost you less than \$20 online.



GAS BURNER WON'T LIGHT

A quick cleaning will usually remedy this. First, scrub the stove igniter with a toothbrush, making sure to remove all the gunk. Then, clean out the burner holes with a needle.



Washing machine won't drain

If your washer won't drain after a completed cycle, you might need to clean the washer filter. A clogged filter will prevent the washer from fully draining.

A front-loading washer filter is located behind the bottom panel. Tilt the washer back, slide blocks under the front legs, and unscrew the panel. Locate the filter and unscrew it by turning counterclockwise. Clean it and reinstall.

For most top-loading washers, you need to remove the agitator to reach the filter. Remove the fabric softener cap on the agitator. Shine a flashlight down in the middle of the agitator and you'll find a bolt fastener. Use a socket wrench with an extension bar to reach inside and unfasten the bolt. Remove the agitator. At the bottom of the drum, you'll find one large filter or several small filters that need to be cleaned.

Slow-filling washer

The inlet screens inside the washing machine supply connections can become clogged. First, turn off the water to the machine, disconnect the supply hoses and gently remove the inlet screens from the machine with needle-nose pliers. Either clean or replace with new screens. Also check the inlet screens in your supply hoses.

WASHING MACHINE IS LEAKING

There are lots of places a washer can leak, but the most obvious is where the hoses connect. Corroded hoses should be replaced with no-burst hoses. If they look OK, though, first try to tighten them with pliers. If that doesn't stop the leak, turn off the water valves and unscrew the hoses. Remove the old gaskets and install new ones in both hoses.



DRYER WON'T START

When people slam the dryer door, it can bend the plunger. Open the door and inspect the plunger. If it's bent, adjust it until it's straight and the door will close properly.

Laundry dries slowly

If your dryer doesn't dry clothes as fast as it used to, the vent pipe might be clogged with lint. To see how to unplug it, go to familyhandyman.com and search for "dryer vent."

LOOK FOR ERROR CODES

Many new appliances display an error code on their LCD screen to indicate what's wrong. Often, the problem is then easy to fix. Look for a guide to the codes on the appliance—for example, on the doors or behind the kickplate. If you can't find it, search online using the appliance brand and model number.



DISHWASHER WON'T RUN

In colder climates, dishwashers placed near an exterior wall might stop working because the water line is frozen. Costas places a space heater next to the dishwasher to thaw the frozen pipe.

Cover panel removed

DISHWASHER WON'T DRAIN

If your dishwasher is flooded with dirty water, you should check the drain hose. Often, the connection under the sink gets plugged with food. Turn off the power to the dishwasher, take the hose off (it's usually the one with ridges) and clean the end of the hose. You can also blow into the hose if there's junk clogging the other end. If this doesn't produce results, the next fix might be the solution.



Inside of dishwasher filter

Stinky dishwasher

Dishwashers have a filter at the bottom that many ignore or aren't aware of. When you don't clean out the filter regularly, it will clog and make the dishwasher stop draining properly, but mostly it just makes the interior smell bad. It's an easy fix. Take off the bottom rack and remove the spray arm. Some filters can be removed by hand, but others may need a screwdriver. Empty out the filter with a vacuum and clean it.

Bad habits lead to breakdowns

According to Costas, our appliance expert, many appliance repair calls are caused by misuse and abuse. Breaking a few bad habits now will save you some expense and frustration later.

- Don't push the keypad buttons too hard. If you do, the plastic liner can crack, allowing moisture to seep in and damage the circuit board.
- Never put coffee grounds, celery, green beans or anything stringy in the disposal.
- Don't use too much laundry detergent in your washer—use about a tablespoon per load. At the bottom of the tub, there's a hose attached to a water level switch, and sometimes foam travels up the hose and destroys the switch.
- Don't slam appliance doors. This will break switches, which are expensive to replace.
- Set a date on your calendar to clean the front-loading washer filter every six months or so. Pop out the filter and rinse it clean.
- Don't overload your washer or dryer. This can fry drive belts, break couplers and wear out motors, all very expensive repairs.
- Clean the dryer lint filter after each load and wash it with detergent every six months.
- Clean fridge gaskets with warm water and a sponge. Sticky gaskets reduce the seal on the fridge, making it work harder and increasing your electricity bill; plus, you might pull so hard on the door that you tear the gasket.
- Don't drag clothes out of the washer unless you want to pay \$250 to replace the door gasket. Buttons and zippers can get caught on the gasket and tear it.
- Don't spray appliance switches and buttons with a cleaner. The moisture can work its way behind them and short out sensitive electronics. A shorted control panel will cost you \$300. Instead, spray cleaner on a rag to clean these areas.

NO WATER FROM THE FRIDGE DISPENSER

There are a few reasons this might happen, but the least obvious and easiest to fix is the fridge water filter. If you recently replaced the fridge water filter, double-check that it's twisted all the way. Costas says homeowners often don't turn it completely; all he has to do is give it a firm twist and the dispenser works again.



Garbage disposal shoots out garbage

When a disposal splash guard wears down, it allows junk to fly back up into the sink. To replace the guard, disconnect the disposal, place books underneath it and insert a screwdriver into the quick-connect fitting, pushing it away from you. Peel the old guard off and slip the new one on, pushing it down so it seals. When you reattach the disposal, insert shims under the books until the locking ring touches the sink flange. Rotate the lock back into place.



Disposal doesn't start

If the disposal doesn't start, don't fret; it's a common problem that's easy to fix. Look under the disposal for a red reset button. With the switch on the wall turned off, push the reset button. Then try the switch again and see if the disposer runs.

Fridge isn't cold enough

There are three instant fixes for this: First, make sure the temperature isn't set too warm (little kids like to adjust the temperature dial). Second, make sure food containers aren't blocking the air vents at the back of the fridge. Finally, make sure your fridge isn't overstuffed. Airflow is needed to keep food cold. If you overstuff your fridge, it can prevent airflow, overwork the system and damage expensive components.

DISPOSAL MAKES A GRINDING NOISE

Turn off the power to the disposal. Shine a flashlight into the drain to see if there's a hard object jamming the blades. Use a long screwdriver to dislodge the object.

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**BEFORE YOU
CALL A PRO**

13 EASY AUTO REPAIRS

**Simple solutions
to save you
money**

BY JAY CORK

If you've ever had to take your car to a mechanic (and who hasn't?), you know that costs can easily spiral out of control, especially when you're not sure what's causing the problem. Here are solutions to some common (and not so common) issues. The goal is to save you money, or at least allow you to hold a more informed conversation with your mechanic.



MEET THE EXPERT
Jay Cork has been wrenching on cars since before he was old enough to drive.



Lightbulb burnout

Headlamps and lightbulbs are expensive, and it can be very frustrating when they keep blowing! This is often caused by handling the bulbs with bare hands. If we touch a headlight bulb, the oils on our skin will transfer to the glass. This will cause hot spots, resulting in a blown bulb.

A loose ground, a shorted wire or even a small water leak can also cause bulbs to blow. If you find that you're still blowing bulbs even after doing everything right, a faulty voltage regulator may be the culprit. Time for a visit to your mechanic.

Stinky air conditioning

Does it smell a little musty when you turn on the air conditioning? You might simply need a new cabin air filter! Changing this filter is easy; they're often located under the dashboard near the glove box or in the glove box itself. The dealership is always more than happy to do it for you, but you'll pay a lot for the convenience. Expect to pay about \$20 for cabin air filters.



Cabin filter



A/C blows warm air

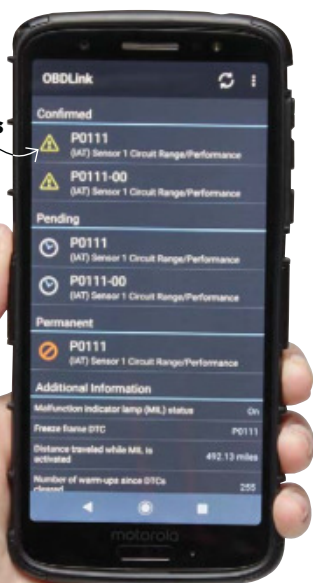
It's no fun to turn on your A/C on that first hot summer day and discover...hot air blowing out! Before you take it to the shop, I suggest trying to recharge the system yourself. Modern cars use R134 refrigerant, which is sold at all auto parts stores. Most brands offer refrigerant with a sealant added to help keep the system healthy. Buying a can with a gauge is absolutely worth the extra cost. It's critical to monitor the pressure in the system while you add refrigerant, and you can keep it for next time. A large can with a gauge costs about \$35. For complete instructions, go to familyhandyman.com and search for "charging AC."

Check tire tread

Tread depth is an important safety concern in wet or winter weather, but proper tread depth also contributes to shorter stopping distance, better gas mileage and a smoother ride. You don't have to take your car in to determine when you need new tires. Just pick up a tire tread gauge (\$6) at an auto store. If your tread measures 4/32 in. or less, it's time for new tires.



Error codes



Scanner



The check engine light just came on

The check engine light, or CEL, can indicate a wide range of problems. Fortunately, all vehicles produced after 1996 can reveal which one when you plug in an OBD-2 diagnostic scanner. I spent about \$80 on a scanner that connects to my phone via Bluetooth, but you can find basic scanners for about \$40. Once it's plugged into your vehicle, it will display the error codes that are causing your CEL. You'll need to do an internet search to find out what they mean, but now you'll know if it's simply a loose gas cap or a more serious problem inside the engine. This tool can also clear the old codes from your vehicle.

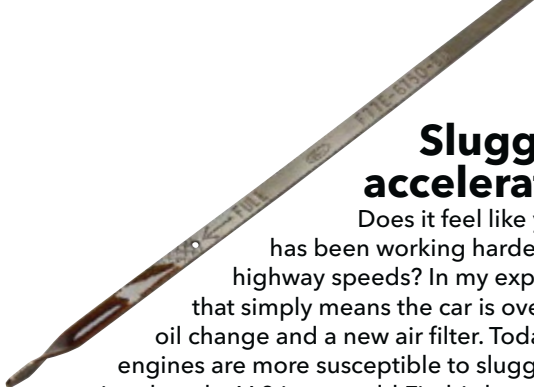


Soft brakes

Soft brakes can mean a couple things. One cause is low brake fluid, and that's an easy fix. If it seems that you're topping off brake fluid regularly, it's time to inspect the master cylinder, calipers and brake lines for fluid leaks. Another common cause of a soft brake pedal is the age of the fluid. It's recommended that you flush your brake fluid every 24,000 miles.

Sluggish acceleration

Does it feel like your vehicle has been working harder to reach highway speeds? In my experience, that simply means the car is overdue for an oil change and a new air filter. Today's smaller engines are more susceptible to sluggish acceleration than the V-8 in your old Firebird, and conventional motor oil will also contribute to this problem as the oil ages. If you haven't already, I suggest switching to synthetic motor oil; it maintains its viscosity over its lifetime and will last longer too.



Wheel vibration at higher speeds

It might not be perceptible at low speed, but if your car starts to shake and vibrate at higher speeds, it's probably because a wheel is out of balance. This can be caused by a little snowpack during winter months or even dried mud in the summer. Use a brush or ice scraper to knock out any snow that might have packed itself in there, or just go to a self-serve car wash and spray out your wheels. It's a simple fix that you'll want to do right away.



Battery won't keep a charge

A car's battery is charged by the alternator, but a few things might interfere with the process. Corroded terminals are the most common cause of poor battery function, and that's an easy fix. Start by pulling off the positive battery terminal. Then remove the negative terminal and clean it thoroughly with a wire brush. If the terminal needs to be replaced, get one at any auto parts store (about \$7).

Also inspect the ground cable that runs from the negative battery terminal to the chassis or frame; it can get loose or corroded over time. If needed, clean that connection too. If the battery still won't take a charge, take the car in to test the battery and the alternator.



Sticking hood latch

A broken hood latch cable is a nightmare. You'll definitely have to take your vehicle in to get it fixed, but the problem can be avoided with a little maintenance. Use an aerosol white lithium grease from B'laster, which you can get at any auto parts store for about \$7.



Assist your power windows

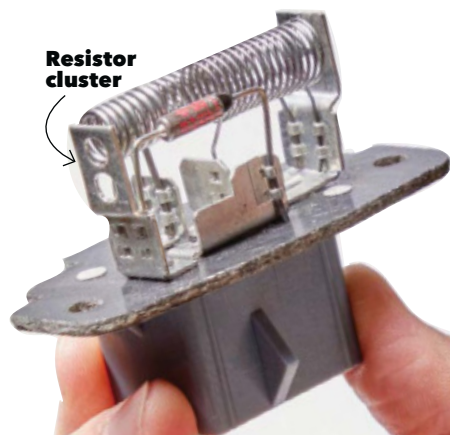
When our windows get dirty, we simply wash them, but we often overlook the channel they slide in. Spraying a little silicone lubricant in the channels will help those windows slide nice and easy. Do this once a year and your windows will slide smoothly.



Dripping a little fluid

There are as many things that can leak in our cars as there are pour-in solutions that claim to fix them. Here's a surprise: Some actually work! I once extended the life of a radiator in my old Jeep with Bar's Leaks, which delayed the cost of replacing it. Lucas makes an additive for your power steering pump to stop minor leaks, and the transmission sealer from Blue Devil can help the transmission shift smoother.

However, I draw the line at using products like these on major leaks from rear main seals or head gaskets. They're great temporary fixes for small leaks, but using them as a panacea without further repair is a bad idea.



Blower fan works only on high

Fan speed is controlled by a resistor cluster, and when it starts to go bad, the fan won't work at lower speeds. The hardest part of this job is actually finding it in your vehicle, but a quick search online will help. Once you locate it, disconnect the electrical harness and remove the two bolts.

Replace the old cluster with the new one and reassemble. Expect to pay \$15 to \$40 for this part.

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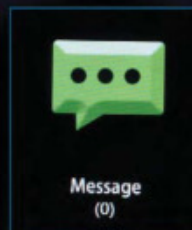
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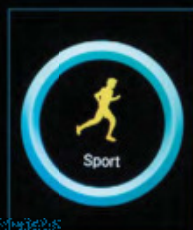
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**BEFORE YOU
CALL A PRO**

33 DIY PEST CONTROL TIPS

Sealing your house
on the outside beats
fighting pests inside

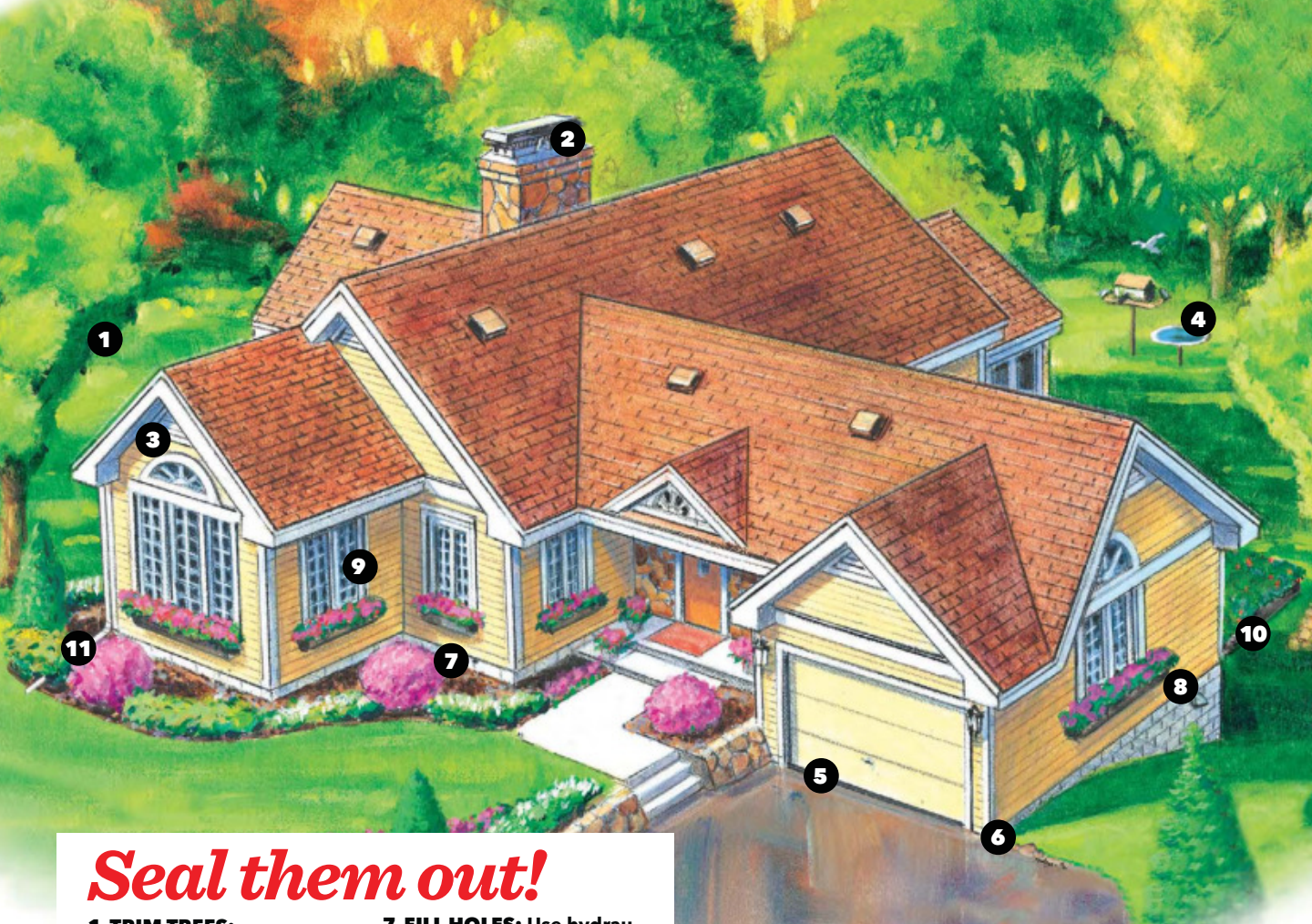
BY MIKE BERNER

Insects, spiders and rodents all have their place. OUTSIDE! It's faster and easier to keep pests out than it is to remove them. The exterior of your house is full of paths for pests to find their way in. So we called on our expert to help us find those paths and give us some tips and tools to lock pests out.



MEET THE EXPERT
Joe Stampey would be the first to say that he'd rather not make a trip to your house. He says prevention is the best pest control advice.





Seal them out!

- 1 TRIM TREES:** Overhanging branches make your roof accessible for tree-scaling pests like squirrels and chipmunks.
- 2 CAP YOUR CHIMNEY:** Any vents on your roof that lead into your home should be covered with a cap and screen.
- 3 SEAL VENTS:** Gable, soffit and crawl space vents need a mesh backing to keep out critters. When it's missing, these are good spots for birds and bats to call home.
- 4 REMOVE STANDING WATER:** The stagnant water in rain barrels, wheelbarrows, pools and birdbaths can become a breeding ground for insects such as mosquitoes.
- 5 SEAL YOUR GARAGE:** A broken garage door seal will allow pests to move into your garage. Replacing it is easy.
- 6 TAKE CARE OF ANTHILLS:** If the ants on your driveway don't bother you, use a perimeter spray to keep them outside. If you want them gone, use granular bait.
- 7 FILL HOLES:** Use hydraulic cement to patch small holes from old conduit or cable entry points, as well as gaps and cracks in your block or concrete foundation. Use caulk for gaps and cracks around trim and siding.
- 8 FLAPPER CHECK:** Make sure the flapper for your dryer vent opens easily and closes all the way.
- 9 INSPECT DOOR AND WINDOW SEALS:** Check that the weather stripping and sweeps are intact, and repair them if they aren't.
- 10 PROTECT YOUR GARDEN PRODUCE:** If you don't want to fence the garden, try a raised bed. If rabbits are eating your garden, sprinkle powdered fox urine around the plants.
- 11 GUTTER DETERRENT:** Keep critters from clogging gutters by using a downspout guard and retractable downspout.
- 12 BAG YOUR BURNERS (NOT SHOWN):** When grilling season is over, wrap the burners and any other openings to keep bugs out.



Take your time inspecting

The first step on your pest prevention patrol should be to walk around your house armed with a mirror, kneepads and a roll of masking tape. Plan to spend about an hour noting and marking spots where pests could find a way in. A good place to begin is the front door, and move your way around the house. Start low and look for cracks and holes in the foundation. Then look for gaps where the siding starts and work your way up to the roof.

ILLUSTRATION: JOHN KEELY



Check vent flappers

Check the flappers on your dryer and range vents. They're designed to open as air gets pushed out of these appliances, but if the vents become clogged, the flappers will get stuck open. This is especially true for dryer vents. Remove any debris or lint buildup and make sure the flapper closes when the appliance isn't exhausting.

Repair screens

If you have insects sneaking into a small tear in a window or door screen, a quick patch will do the trick.



Cut a square hole around the tear with a straightedge and a sharp utility knife. Keep the hole as small as possible and leave at least 1/2 in. of old screen next to the metal frame.



Cut a patch of fiberglass screen that will lap 1/2 in. over each edge. Lay wax paper under the window screen to keep the glue from sticking to the workbench. Apply a bead of glue around the hole, and spread the glue through the patch and window screen with a flat wooden stick.



Cap the chimney and vents

Chimney caps and furnace exhaust vents are easy to seal. Chimney caps have setscrews that snug the cap to the flue pipe. PVC vent caps with mesh come in different sizes and fit right over the end of the exposed pipe.



Quick fix for a roof boot

After years of exposure to weather, roof vent boots can dry and crack, leaving an inviting opening to the warmer air inside. Bees and other insects, as well as rain and snow, can get in and cause havoc. You don't need to replace the boot; just buy no-caulk thermoplastic flashing and slip it over the vent. They cost less than \$5 at home centers.



Replace weather stripping

If your weather stripping is allowing big drafts to get through your windows and doors, chances are bugs can find a way into your house as well. Check that the weather stripping is sound and replace it if necessary. For older doors and windows, an adhesive-backed option is quick and easy. For newer doors, the weather stripping has a built-in barb that fits into a kerf on the doorjamb. Pull the old one out and press a new one in.



How NOT to attract pests

■ REMOVE PEST HOMES

Woodpiles, garbage cans, wheelbarrows full of dirt or water, and children's sand tables can all make nice homes for pests. Move them away from your home, cover them or remove them altogether.

■ ELEVATE YOUR PLANTS

Pests love vegetation, but if the plants are on a stand, they're a lot harder to get at. Potted plants can also collect water, which is a breeding ground for insects.

■ TAMPER-PROOF PET FOOD

Your pet isn't the only one who likes dry kibble. Don't store pet food in the bag you buy it in. When you open the bag, dump it into a sealed, tamper-proof container.

■ UPGRADE PORCH LIGHTS

Ever notice the flock of insects at your front door light? It's not necessarily the light they are attracted to; it can be the heat from the bulb. Swap your incandescent bulb for an LED option that's approved for wet locations.

■ NO-VACANCY A/C

It's smart to protect your A/C unit from snow and ice during the winter. Instead of creating a nice, warm home by wrapping it with a tarp, protect it with a piece of plywood and a few bricks.

■ PEST-PROOF YOUR GRILL

When you store your grill for the winter, make sure it's clean and free of grease and burnt bits of food. If the burners are removable, take them off, wrap them and plug the hose ends to keep bugs out.

■ CLOSE THE GARAGE DOOR

It's obvious, but when you're not going in or out of your garage, make sure it's closed—or you'll find yourself fostering birds, mice and squirrels.

■ CLEAN THRIFTING

If you like the thrill of bargain hunting, make sure you also enjoy cleaning whatever furniture or clothing you find before you bring it in. You never know where it came from or if it sat in a garage for years before someone decided to donate it.

Seal your garage door

If your garage door can't seal tight, it may as well be open. Remove the bad seal from its track, then scrape and brush away the dirt and corrosion with a screwdriver and a stiff brush. Install the new seal, using a little dish soap and water to slide the new garage door seal into the track.

Caulk gaps in siding and trim

There's often a gap where two different types of building materials come together, and pests will come right in. To seal the gap, first fill it with backer rod (sold in many different sizes), then mask off a nice, clean line for caulk, squeeze it in and smooth it out.



Our favorite sealing weapons



COPPER AND EXPANDING FOAM

Stuff a generous amount of copper mesh into the larger gaps around your home. Use a screwdriver to press it in, leaving about 1/2 in. of space to fill with expanding foam. The foam will keep out small pests, and the copper mesh will act as a second layer of defense in case the foam is chewed by pests.



HYDRAULIC CEMENT

To fill holes in your block or concrete foundation, use hydraulic cement. Regular cement shrinks as it cures, making it difficult to get a good patch. Hydraulic cement expands as it cures, so it can fill voids tightly. **Note:** After you mix hydraulic cement with water, it will start to harden after about three minutes, so mix up only what you can apply in that time.



SIDING, WINDOW AND DOOR CAULK

Caulk is the gold standard for filling small gaps and cracks up to about 3/8 in. deep and wide. When you're buying caulk to fill gaps outside, look for the words "paintable" and "flexible" on the tube. If you can't find a matching color, go with clear so it doesn't stand out.



DOWNSPOUT GRATES AND RETRACTABLE DOWNSPOUTS

Mice and squirrels can find a home inside your gutters and downspouts. Prevent this at the top with a downspout grate and at the bottom with a retractable downspout.



FIBERGLASS MESH

This is the go-to screen door patch, but it's also great for attic and crawl space vents, which have larger spaces that birds and bats can get through. Most vents will have it already, but if it's missing, glue or staple a layer of mesh on the back of the vent.

14 COMMON PLUMBING CODE VIOLATIONS

A plumbing inspector helps you keep it legal

BY JAY CORK

It's tempting to think of plumbing code as a collection of irritating rules that make projects more complicated. I'm guilty of this sometimes, but I also know that the code is a guide to good results, developed by thousands of experts over the course of more than a century. Ignoring it can result in leaks, damage, clogs, delays when you sell your home, or even an explosion.

When DIYers violate code, it's usually because they don't know the code. To help with that, we brought in plumbing inspector Eldon Rameaux to help us better understand the Uniform Plumbing Code (UPC) and to identify some common plumbing code violations. Here's what we learned.

WHAT IS CODE ANYWAY?

The UPC, or Uniform Plumbing Code, is basically a rule book for creating safe, reliable plumbing systems. It's updated every three years with input from the public, manufacturers and industry experts. State and local building departments then use it as a guide to write their own plumbing codes. Some simply accept the entire UPC as is, while others pick and choose which rules to adopt. These local codes—not the UPC—determine what you can and can't do on your next project.



Don't cap your TPR valve

The temperature pressure relief (TPR) valve is one of the most important safety devices in your home. It releases excess pressure and prevents the water heater from exploding. But here's what sometimes happens: The valve releases some water because of high pressure, or it just leaks as it ages. To "fix" the drip, a homeowner then plugs or caps the TPR. And BOOM!



MEET THE EXPERT
Eldon Rameaux
is a journeyman
plumber and
plumbing inspector.

TOP PHOTO: SMOKEY BARN NEWS

This wye fitting creates an S-trap—use a sanitary tee fitting instead

Beware the S-Trap

An S-trap is formed when the waste line curves down after the trap. That can create a siphon effect that sucks water out of the trap and allows sewer gas to flow up into the home. S-traps were commonplace in older homes. Today, they're sometimes created by accident, usually by using a wye fitting after the trap.

A SUMP PUMP CANNOT DRAIN TO THE SEWER LINE

Piping your sump pump into a plumbing drain is an easy way to get rid of water. But don't use the sewer line for this. Sending extra water to your local sewage treatment plant can get you in big trouble.

A CLEANOUT CANNOT BE USED AS A DRAIN

Some homeowners will use the cleanout as a drain for a basement toilet. This eliminates the only access to the main sewer line and becomes a major problem should a blockage occur. Keep the sewer cleanout properly capped, and only open it if you need to clear an obstruction.



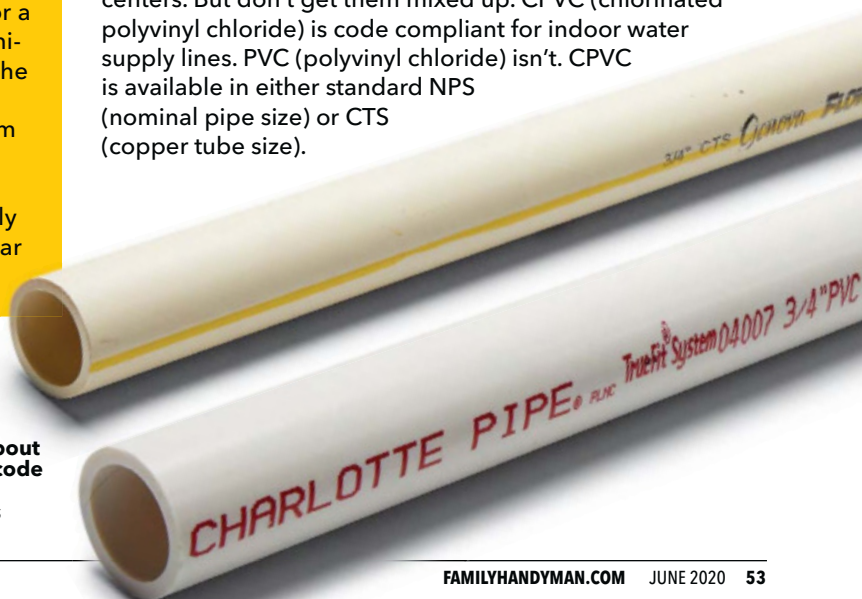
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Increase vent size at the roofline

In the winter, ice can actually form inside the vent that goes through the roof. If the vent is too small, it can easily become blocked. Avoid this in colder climates by using a 3-in.-diameter vent pipe.

PVC vs. CPVC

PVC and CPVC look alike and both are available at home centers. But don't get them mixed up. CPVC (chlorinated polyvinyl chloride) is code compliant for indoor water supply lines. PVC (polyvinyl chloride) isn't. CPVC is available in either standard NPS (nominal pipe size) or CTS (copper tube size).





THE RULES FOR WATER HEATERS

1. GAS SHUTOFF

Code requires a gas valve near the water heater.

2. EARTHQUAKE STRAPS

These straps will prevent a water heater from shifting or tipping over and are required in earthquake-prone regions.

3. OVERFLOW PAN

It may not be required in all regions, but installing an overflow pan is a good idea for any location.

4. BLOW TUBE

The "blow tube" directs the scalding hot water that is released by the TPR valve toward the floor. The required distance between the blow tube and the floor is 18 in. or less.

5. EXPANSION TANK

If your home has a pressure regulator at the water main, a thermal expansion tank is also required. The tank may be installed vertically anywhere between the regulator and the water heater; however, it must have an additional support if it's installed horizontally.

6. ISOLATION VALVE

Code requires a valve on the incoming cold water line. A valve on the hot water line is not required, but installing one makes future water heater replacement much easier.

7. DRIP LEG

Any dust or grit in the gas line falls into this short section of pipe before it can reach the water heater's control valve. The required length of the drip leg varies.

CHECK WITH YOUR LOCAL INSPECTOR

The information in this article is based on the Uniform Plumbing Code, but local codes aren't always uniform; they can differ from one municipality to the next. So always check with your local building department.

Air-gap valve

You might need an air-gap valve

Although the UPC calls for an air-gap valve between a dishwasher and the drain, many plumbers dislike these and some inspectors don't enforce this. Your local code may vary, so double-check with your plumbing inspector to be sure.

VENTING NEEDS TO SLOPE, TOO

The purpose of plumbing vents is to carry air. But rainwater enters the vents on your roof, and condensation occurs in pipes. That's why vents have to slope down and drain into pipes below.

Standard elbow

Changes in direction

When changing direction of drainage flow, the fittings allowed by code depend on the type of transition being made. Standard elbows are allowed only on horizontal to vertical transitions. Horizontal to horizontal or vertical to horizontal require a "long-turn" elbow.



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Choose the right rubber couplers

You've likely seen these black rubber couplers with a band clamp on each end. They seem great for odd plumbing situations, but they're also against code. Only fully sleeved fittings are approved and only for certain situations (see "Don't Glue PVC to ABS" below).

DON'T GLUE PVC TO ABS

Yes, a special glue is sold in the plumbing section of your hardware store for this purpose, but it's a code violation to join black ABS and white PVC plastics by solvent-welding. A fully sleeved transition coupling is the best way to get this done and remain code compliant.



Never use saddle valves!

Saddle valves may seem like a remarkably handy invention, but they're trouble! When (not if) they start to leak, the damage caused can certainly outweigh the cost of installing a proper tee in the first place.

If you're not up to soldering a new tee connection for your new ice maker, use a push-to-connect tee fitting made by SharkBite or Blue Hawk (as shown above).



Proper drain slope is crucial

Drain slope that is less than 1/8 in. per foot, or more than 1/2 in. per foot, is a code violation. Aim for 1/4 in. per foot and you can't go wrong. Slope is easy to check with a spirit level.

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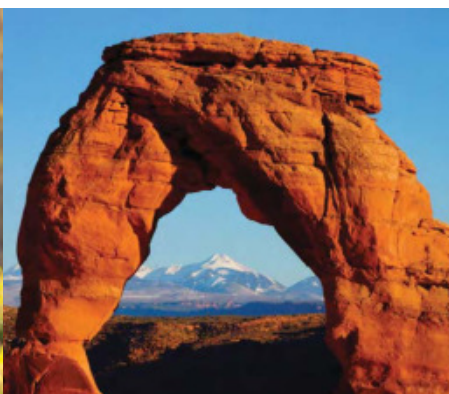


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Best ProTips

A man in a blue and white plaid shirt is painting a wall with a long-handled roller. The wall is partially painted blue, and the floor is covered with a white drop cloth. A green extension pole is visible, and a blue roller is shown in the upper right corner.

Expert advice from the jobsite. By Jay Cork

LEARN TO PAINT LIKE A PRO

Tools and tips for a flawless paint job

Bryan Alft is a lifelong painter. It's in his blood; the Alft family has been in the business since 1948. Bryan learned the tricks of the trade working side by side with his grandfather, his father and his uncles. Collectively, they've seen all the trends, innovations and silly ideas come and go. Now a business owner himself, Bryan sat down with me and shared some of his best tips.

ALWAYS ROLL WITH AN EXTENSION HANDLE

Even when you don't need the extra reach, using an extension on your roller will give you greater leverage and more control. Bryan prefers poles that are extendable; they can be easily adjusted for any situation.

MEET THE EXPERT

Bryan Alft, a pro painter since 1995, is the owner of Shipshape Interior Painting.

Bryan's tool kit

Bryan paints every day—he needs tools he can rely on. Here's what he brings to every jobsite:

SMALL LED FLASHLIGHT
It will help you find those little imperfections on the wall.

WIRE BRUSH
Great for cleaning dried paint off paintbrushes.

SCRAPER
This scraper will clean roller covers, open paint cans, spread spackling paste, remove old paint and more!

ROLLER SCREEN
Hang it in a 5-gallon bucket of paint for an instant roller tray.

ROLLER COVER CANISTER
Attach a hose to this canister and clean the roller cover the easy way.

**MINI
ROLLER
PAIL**

This dual-purpose pail can be used as a handheld bucket for brushing.

**BRUSH AND
ROLLER SPINNER**

This tool dries your roller covers and brushes without damaging them.

**SHERWIN-
WILLIAMS
MINI
ROLLER**

The mini roller is great for spot touch-ups, getting into tight spaces and painting cabinets.

PAIL HOOK

Be hands-free on the ladder! Clip this to the handle of a paint bucket, then hang it from a ladder rung.

**REPAIR
PATCHES**

Self-adhesive wall patches simplify and speed up repairs to damaged walls.

**SHERWIN-WILLIAMS
CAULK GUN**

This caulk gun is both ergonomic and rugged.

PRESS'N SEAL

Wrap this around your roller covers or brushes to keep the paint fresh for later.

**SANDER/
MOP
ATTACHMENT**

A must-have tool! First use it to sand, then put the mophead on to clean the surface.

PAINT REMOVER

Drips happen. If not caught right away, a little paint remover can save the day.

BEST PRO TIPS



Bryan's tips for a perfect finish



PAINT ALL THE TRIM FIRST

Bryan paints the trim first in most situations. This allows him to do it faster, but also makes it easier to sand the first coat without being concerned about hitting the walls. It also allows him to caulk the trim to the wall (see the next tip) to get a perfect line.



BETTER TAPE FOR BETTER PAINT LINES

Tapes like FrogTape and 3M Edge-Lock are formulated to seal the edge when it's exposed to the moisture in the paint. But occasionally a little paint still seeps in. After masking natural wood, Bryan pre-seals the tape with a clear water-based urethane. Even if the poly bleeds in a little, it will be invisible. The same goes for masking an area where two different colors meet: Use the paint color that's underneath the tape to pre-seal the edge, and you'll get a perfect paint line.

MASK AND CAULK TO HIDE GAPS

Often there are gaps between the top of the base molding and the wall. Bryan has a great trick for this situation. Tape the base molding, and then run a small bead of caulk along the top of the base and the wall. Using your finger, remove as much caulk as possible, leaving only what fills the gaps. Paint the wall and remove the masking tape as you normally would. No more gaps!



COVER TOUGH STAINS

There are many stain blockers on the shelf, so I asked Bryan which he uses. He always has a quart of Zinsser BIN on the job, which in his experience does a great job and dries fast. He said that oil-based stain blockers do a better job of covering stains than water-based products, but they can also be harder to work with because of the fumes. Always work in a well-ventilated area when you use oil-based stain blockers.

PREP WITH SANDPAPER, NOT LIQUID

Liquid surface conditioners and deglossing products claim to "etch" the surface to improve bonding. They seem like a quick fix, but sandpaper does the job without nasty chemicals. For some hard-to-sand profiles or shapes, a liquid surface conditioner may be the best option, but use it with care; always do a small test to see how it affects the surface you're preparing.



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MAKE TOUCH-UPS DISAPPEAR

Even if you use paint from the same can, touch-ups sometimes stand out from the surrounding paint. But for walls, here's a technique to help blend them in: Dab paint in the center of the patch and move it outward in a circular motion, feathering the paint into the surrounding color. Wait until the paint dries to see if you need to go over it again. You shouldn't expect an absolute perfect match, but it's easier than repainting the entire wall! To help blend the color, thin the paint with a little water before you paint the repair.

SPOT FLAWS WITH A LITTLE LIGHT

Raking light across any surface highlights little flaws, so in addition to his movable light stand, Bryan uses a small hand-held LED light. It can reveal small surface imperfections that a central light source might miss or even hide.



■ DO I HAVE TO USE PRIMER?

At times Bryan uses a full coat of primer, such as when he's working on new drywall or large repairs. For smaller areas, he'll use a trick called self-priming—that is, spot-priming with the top-coat paint instead of a dedicated primer. I also asked Bryan about the primer/paint-in-one formulations, and he said since they always apply at least two coats of paint, there is no need.

■ THINK TWICE BEFORE SPRAYING

Sprayers are an essential tool for Bryan. But unless you're painting a completely empty room in a remodel or new construction, spraying is often more work than painting by hand. You have to mask absolutely everything and wear protective gear. It's also likely you'll need to back-roll (run a roller over the sprayed finish) to achieve an even texture, eliminate runs and improve adhesion. After all that, you've still got to clean the equipment.

■ WATER VS. TSP

While trisodium phosphate (TSP) is a popular choice for cleaning walls before painting, it can leave a residue if not rinsed well. This can mess up your paint job. Bryan finds that a damp rag cleans well. For some situations, like behind a stovetop where there's a buildup of grease, you'll need to break out a degreaser, but water is a pretty amazing cleaner all by itself!



■ DRY PAINT FASTER WITH A FAN

Getting the air moving will help paint dry faster so you can apply the next coat sooner. Bryan has tried many different fans over the years, but Vornado fans are his favorite. They're quiet, and they move air very effectively. You can get one for about \$130 online.

LED WORKLIGHT
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WIDE PAINT BUCKET
Wider rollers need wider buckets. Bryan installed some wheels on his bucket.

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— J. Fitzgerald, VA



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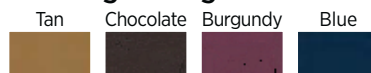
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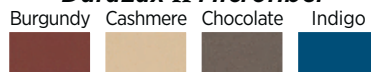
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Home Care

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Stiff
brush

Wet finish
remover

1 GET THE OLD STAIN OFF
Give the finish remover 15 to 30 minutes to soften the old stain, then scrub it off using a stiff brush.

If the stain on your deck is weathered and peeling, you can renew it with a few simple steps, starting with removing all the stain. Solid-color stains protect wood decks and look great when new, but even the best begin to flake and wear away eventually. At that point they need to be completely removed before the deck can be recoated.

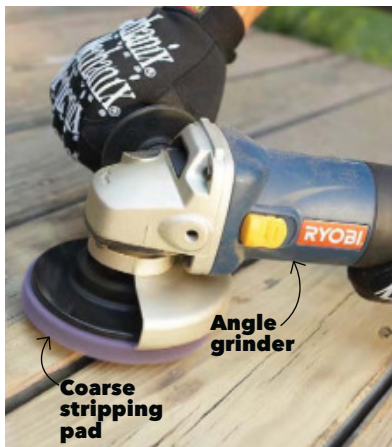
First, scrape off as much of the old finish as you can with a paint scraper. As you scrape the wood, reset any nails or screws that stick out from the wood surface.

Next, strip the deck with deck stain remover (\$20 per gallon; 1 gallon covers 100 sq. ft.). Tape plastic over nearby siding, cover or wet down bushes and grass around the deck, then spread a heavy coat of stain remover over the stained boards. Coat 20 to 30 sq. ft. at a time, keeping the wood wet until the finish is soft enough to be scrubbed off with a stiff brush (**Photo 1**). Rinse the residue off with a hose and allow the deck to dry. Use a stripping disc on areas that are heavily discolored or covered with traces of residual stain (**Photo 2**).

The rough discs work much faster than belt or orbital sanders. They're available for both angle grinders (the fastest option) and drills (much slower).

Finally, apply a deck brightener/conditioner (**Photo 3**) to neutralize the stain remover and clean and restore the wood to something close to its original color. One gallon (\$15) covers roughly 200 sq. ft.

After the wood dries, restain or apply a clear penetrating finish. Clear finishes show more of the wood's natural color but must be reapplied every year. Solid stains protect the wood longer but can be a pain to scrape off. Penetrating stains also need to be reapplied more frequently, but unlike solid stains, they don't need to be stripped off before renewal.



2 GRIND THE TOUGH SPOTS
Sand off rough spots or small areas with a coarse stripping pad on a grinder or drill.



3 CONDITION THE DECK
Brush on a brightener/conditioner diluted with water. Scrub the deck and rinse thoroughly to restore the original wood color.



What is that thing?

Recently, a friend sent me a photo of an antique, thinking I might be able to identify it. I didn't have a clue, so I sent it to the other editors. One of them has Google Lens on his phone, so he just took a photo of the item and identified it in seconds: It's a toy washing machine! Google Lens is one of many tools available for on-demand object recognition, and you can download it from your app store if your phone doesn't have the Google suite of apps.



Do sonic pest repellers actually work?

Several manufacturers offer sonic pest repellers that plug into a standard electrical outlet and emit short-wavelength, high-frequency sound. Too high-pitched for human ears, the sound is said to drive out bugs, mice and other pests.

Because the ultrasound can't pass through walls, covering multiple rooms requires many devices. Most devices come in multipacks, averaging \$4 to \$7 per device. Some devices emit electromagnetic waves and negative ions as well as sound. Others use several speakers and vary the

sound waves to prevent rodents from getting used to them.

Sonic spikes are available for the yard to combat moles, gophers and snakes. Other solar-powered spikes disturb and discourage above-ground pests, including deer, raccoons, squirrels, rabbits, skunks and rodents. These solar-powered spikes cost \$15 to \$21 each.

But do they work? Many get high ratings on shopping sites, but there's scant to no proof that they control pests. Most professional exterminators don't use them, and academic studies don't support them. Also, the Federal Trade Commission sent warning letters to 60 manufacturers and retailers regarding their claims of efficacy. Buyer beware.

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HAS THIS EVER HAPPENED?

A screw starts to spin and you know it's going to be impossible to drive it in all the way and a pain to get it back out.



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HOME CARE

Reinforce a sagging drawer bottom

You don't have to replace a sagging drawer bottom. A typical drawer has a cavity beneath it that's just deep enough to allow you to strengthen the bottom with a piece of plywood. First make sure the drawer box is square by using a large framing square or taking diagonal corner-to-corner measurements (equal diagonal measurements means the box is square). If the box isn't square, square it up, clamp it and drive brad nails through the bottom (**Photo 1**). Two brads placed near the middle of each side usually provide enough strength to hold the box square.

The back of the drawer shown here was bulging, so we used the clamps to draw it in while we drove in the brads. Stiffen the old drawer bottom with any 1/4-in. plywood. A full 4 x 8-ft. sheet costs about \$20. Many home centers also sell half or quarter sheets. Measure between the drawer sides, front and back, and cut the plywood 1/4 in. smaller than the opening (1/8 in. less on each side).

Glue the plywood panel to the underside of the drawer bottom and place weights, such as a stack of books, on it until the glue sets (**Photo 2**). If the underside is unfinished, use wood glue. If it has a finish, you can sand it or use construction adhesive. Wood glue forms a strong bond in about 15 minutes. If you use construction adhesive, leave the weights in place overnight.



1 Square the drawer box and drive 5/8-in. brad nails at an angle through the drawer bottom and into the drawer sides.



2 Glue a plywood panel to the underside of the drawer bottom and place weights on it until the glue sets.



REFRESH WOOD FLOORS WITHOUT ALL THE MESS

When wood floors look worn, most people think the solution is complete refinishing. That means aggressive sanding that removes the finish and a layer of wood, followed by coats of new finish. It's a big, messy, expensive project. But often, a wood floor just needs a fresh coat of finish. To ensure good adhesion of the new finish, you first need to rough up the old finish with a floor buffer, which you can rent. To see the whole process, go to familyhandyman.com and search for "how to refinish hardwood floors."



For cleaner clothes, check the water temp

Water from the cold water tap can be pretty chilly during the winter (or year-round if you have a well). According to washing machine manufacturers, if the water is colder than 65 degrees F, laundry detergent won't work as well—and powder detergents won't fully dissolve. Cold water for washing should be in the 65- to 85-degree range to get clothes clean.

If your clothes aren't getting a good wash, check the water temperature with a cooking thermometer (one that registers low temperatures) when you do a cold, a warm and a hot wash. If the temperature is below 65 degrees for cold water washes, boost it by selecting warm water for part of the initial fill cycle. If the warm water wash is below 85 degrees (a common problem in winter and in houses where the washer and water heater are at opposite ends of the house), try the hot water setting instead for all or part of the wash cycle. Or run the hot water tap into the laundry tub until it gets hot, then turn on the washer. Always use the cold rinse setting no matter what washing temperature you choose. Cold rinses are just as effective as warm ones, and you'll save a lot of energy.

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TOUGH TILE CUTS MADE EASY

An angle grinder
does what other
tools can't

BY JEFF GORTON

Some tile jobs require only straight, simple cuts. But most require some tricky ones: curves, holes for plumbing, or cutouts for electrical boxes. That's when an angle grinder comes in handy. This article shows you how to use an inexpensive angle grinder with a diamond blade to cut perfect circles and squares in even the toughest tile, like granite or porcelain. You can buy a 4-in. or a 4-1/2-in. grinder for less than \$60 and a dry-cut diamond blade to fit it starting at \$15. In general, more expensive blades last longer.

When you're choosing a diamond blade, look for one with a continuous, rather than segmented, rim for the smoothest cut. Be aware, though, that cutting with a dry-cut diamond blade creates a lot of dust and noise. So make sure you cut in a well-ventilated area (or better yet, outside!) and wear hearing protection, a good-quality two-strap dust mask and safety glasses.





TILT THE BLADE FOR CIRCLES

Many tile jobs require you to cut one or more large round holes for floor drains or shower valves. **Photos 1 - 3** show how to cut a hole for a shower valve. We're showing how to cut a hole that's entirely within a single tile, one of the most difficult cuts. In the next section, we'll show you an easier method for cutting curves in the edge of a tile. Even with this method, try to avoid a tile layout that places the edge of the circular cutout less than 1/2 in. from the edge of the tile. It's better to shift the entire layout instead. Otherwise, chances are good that you'll break the tile at the narrow point while cutting.

The method shown for cutting a circle with a grinder and diamond blade requires you to cut around the circle several times, making a deeper cut with each revolution. The key is to maintain the same angle and shave off progressive layers, moving the cut closer to the center of the circle (**Photo 2**).



1 SCORE THE FACE
Make a shallow cut on the front of the tile along the circle guideline. Tilt the grinder about 30 degrees and cut about 1/16 in. deep.



2 GRIND DEEPER
Move the blade 1/8 in. to the inside of the line and make a deeper cut. Continue moving the blade away from the line and cutting deeper until you cut completely through.



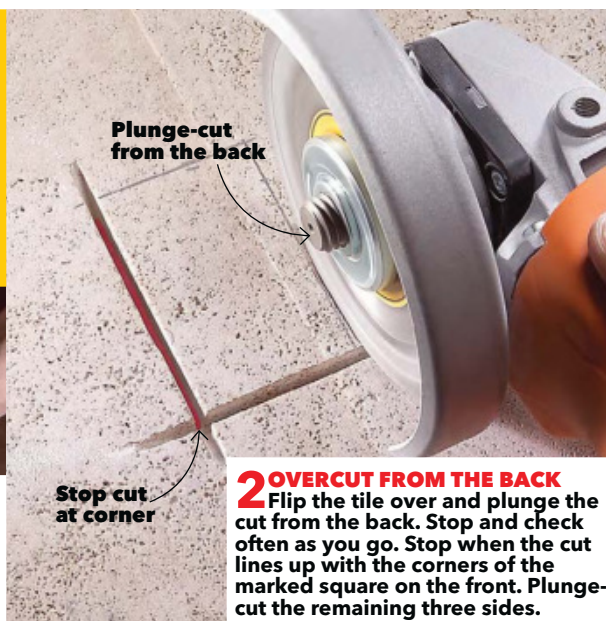
3 SMOOTH THE CUT
Grind off rough edges and trim back to the line for a perfect curve.

PLUNGE-CUT FROM THE BACK TO MAKE RECTANGULAR CUTOUTS

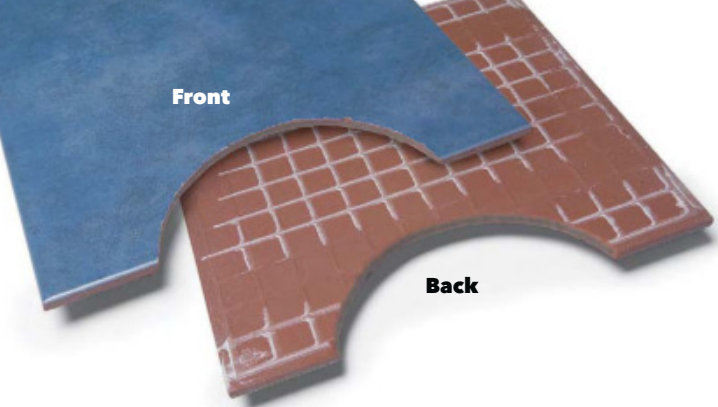
Cutting rectangular or square holes for electrical outlets is simple with this method. The key is to avoid cutting beyond the corners of the square where the cut might be visible. Plunge-cut slowly from the back and check often to avoid going too far.



1 START ON THE FRONT
Mark the cutout on the front and back of the tile precisely. Then score the front of the tile about 1/16 in. deep along the line.



2 OVERCUT FROM THE BACK
Flip the tile over and plunge the cut from the back. Stop and check often as you go. Stop when the cut lines up with the corners of the marked square on the front. Plunge-cut the remaining three sides.



ROUGH OUT SEMICIRCULAR CUTS BEFORE TRIMMING TO THE LINE

The process for cutting semicircles from the edge of tiles is similar to the technique shown on p. 71 for full circles. You start by marking the cut and scoring the face of the tile on the line. Then, rather than deepen the scoring cut, simply remove the excess tile with straight cuts (**Photo 1**).

Before you remove the excess tile (**Photo 1**), be sure to make short cuts on both sides of the semicircle (1 and 2). Then connect the cuts as shown (3). Rather than make this connecting cut in one pass, make a series of progressively deeper shallow cuts until you're through the tile.

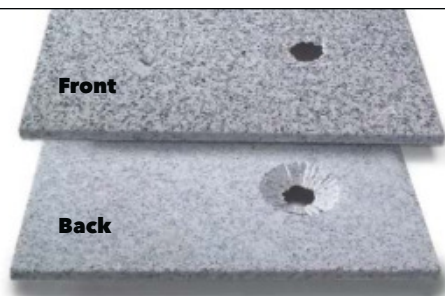
Now complete the semicircle with a series of radial cuts—like the spokes of a wheel (**Photo 2**). Finish by cleaning up the rough edges with the diamond blade. Or remove the “tabs” with a tile nipper (a pliers-like biting tool). Then grind the edges smooth.



1 SCORE, THEN ROUGH-CUT
Score the profile with the blade, then cut in from the edge of the tile to remove as much waste as possible.



2 SLICE AND SNAP
Make a series of closely spaced cuts up to the scored line. Snap off the waste. Then grind the edges smooth.



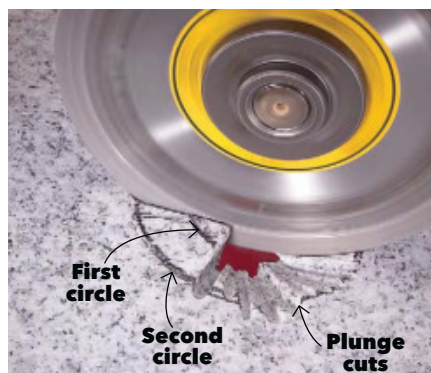
MAKE A DISH-SHAPED CUTOUT FOR SMALL, ROUGH HOLES

Most plumbing pipe holes are covered by a decorative escutcheon or hidden by a fixture base, so a precise round hole isn't necessary. Use the technique shown here to make rough, round holes.

Start by marking the circular cutout on the back of the tile. Then plunge the diamond blade down through the tile, keeping it centered on the hole so the slot made by the blade extends equally on both sides of the circle marks (**Photo 1**). Check often to see when the slot through the front of the tile reaches the edges of the desired cutout. Then use the length of that plunge cut to gauge the diameter of a second, larger circle. Draw that larger circle on the back of the tile (**Photo 2**) and use it as a guide to make the rest of the plunge cuts. Rotate the grinder about a blade's width and make another plunge cut, stopping at the outer circle. Continue this process until you finish the hole.



1 CUT A CENTERED SLOT
Center the cut on the hole and plunge slowly from the back. Stop when the slot through the face of the tile lines up with the edges of the desired cutout.



2 CUT AGAIN AND AGAIN
Draw another larger circle to guide the depth of the remaining cuts. Make repeated plunge cuts until the circle is complete.

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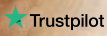


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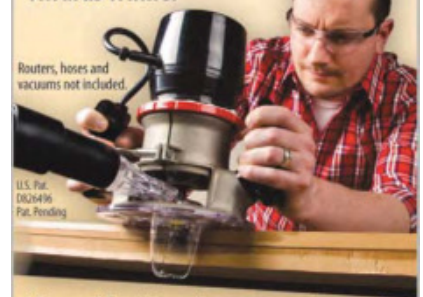
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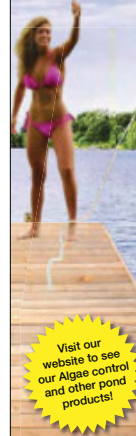
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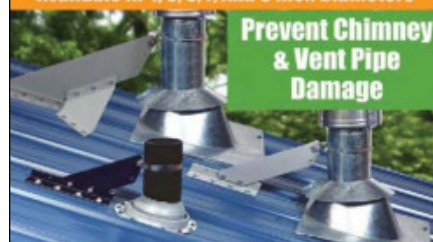
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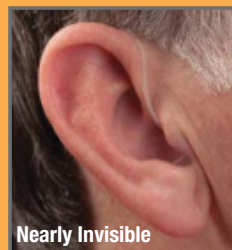
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LAST LAUGH

My son asked me to help him install a new high-definition roof antenna. I followed him up the extension ladder, carrying everything I needed for the job. Halfway up, I realized that my son had disturbed a hornets' nest behind the gutter, and they were coming out in force to see what the rumble was. Since it was too late to avoid them, I plowed right past, with only a couple of stings. But now we were stuck on the roof.

I could see the hornets swarming all around the ladder. We sat on the roof for about an hour, waiting for them to settle down, then I braved the swarm once again (two more stings) on the world's fastest ladder descent. I moved the ladder so my son could get down without getting stung. But that night, I had the last laugh—me and that spray can of hornet killer.

JASON ABBEY



DIY OIL CHANGE DIDN'T PAN OUT

I'd been feeling like a sucker for paying those quick-change oil joints 25 bucks or more when I was so capable of changing the oil myself. It was time I got my hands dirty. Ten minutes to save \$15?

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I rounded up everything I needed and went to work. I pulled the plug and watched the black gold start to flow. While the oil drained, I headed to the kitchen for a cup of joe.

When I came back out, my garage floor looked like the Exxon Valdez oil spill. I didn't know it, but my old oil pan had a crack in the bottom. Have you ever tried cleaning 5 qts. of dirty oil off a concrete floor? Well, it takes longer than 10 minutes!

LOU BELANGER

SHORT-CIRCUIT SHORTCUT

Mike, a carpenter buddy of mine, shared one of his cool remodeling tricks with me. When he encounters a hump in a wall caused by a badly bowed stud, he cuts right through the drywall and into the stud with a long reciprocating saw blade. The cut relieves the stress and the stud straightens itself. Just a little patching to fix the saw kerf and you're done. Brilliant! I had that exact problem in my downstairs bedroom—a hump that had always driven me nuts.

I stuck the saw blade into the drywall and started cutting. All of a sudden, the room went black and the saw went dead. The bad stud happened to be the one with electrical cable stapled to the side to feed the overhead light. I had cut through the cable and blown the circuit breaker. Needless to say, there was a lot of electrical work, drywall patching and painting ahead of me. But at least the wall was flat—mission accomplished!

MILO AMUNDSEN





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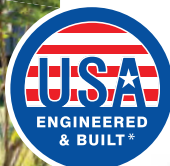
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