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The Family

October 2007

Handyman

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A READER'S DIGEST PUBLICATION



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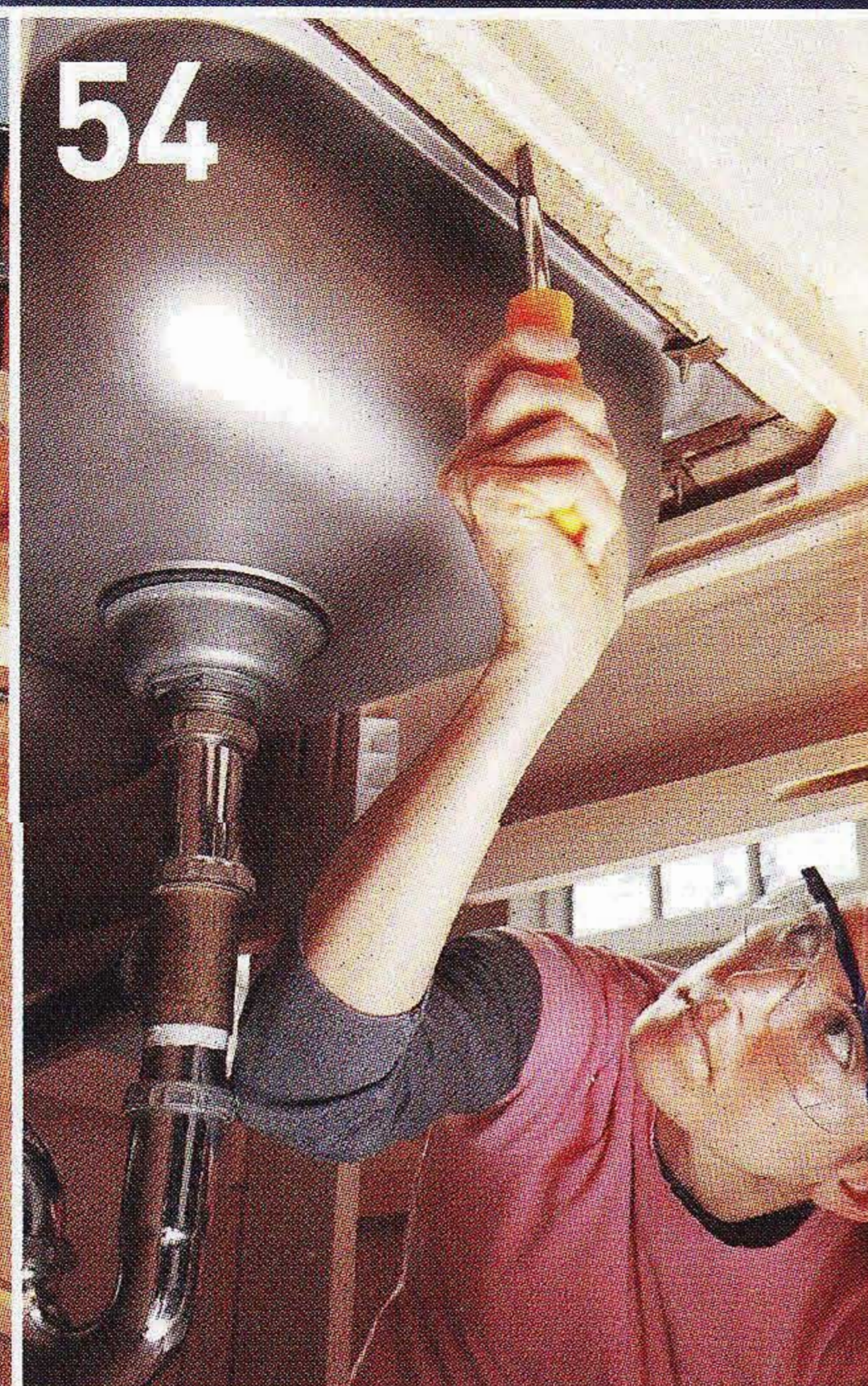
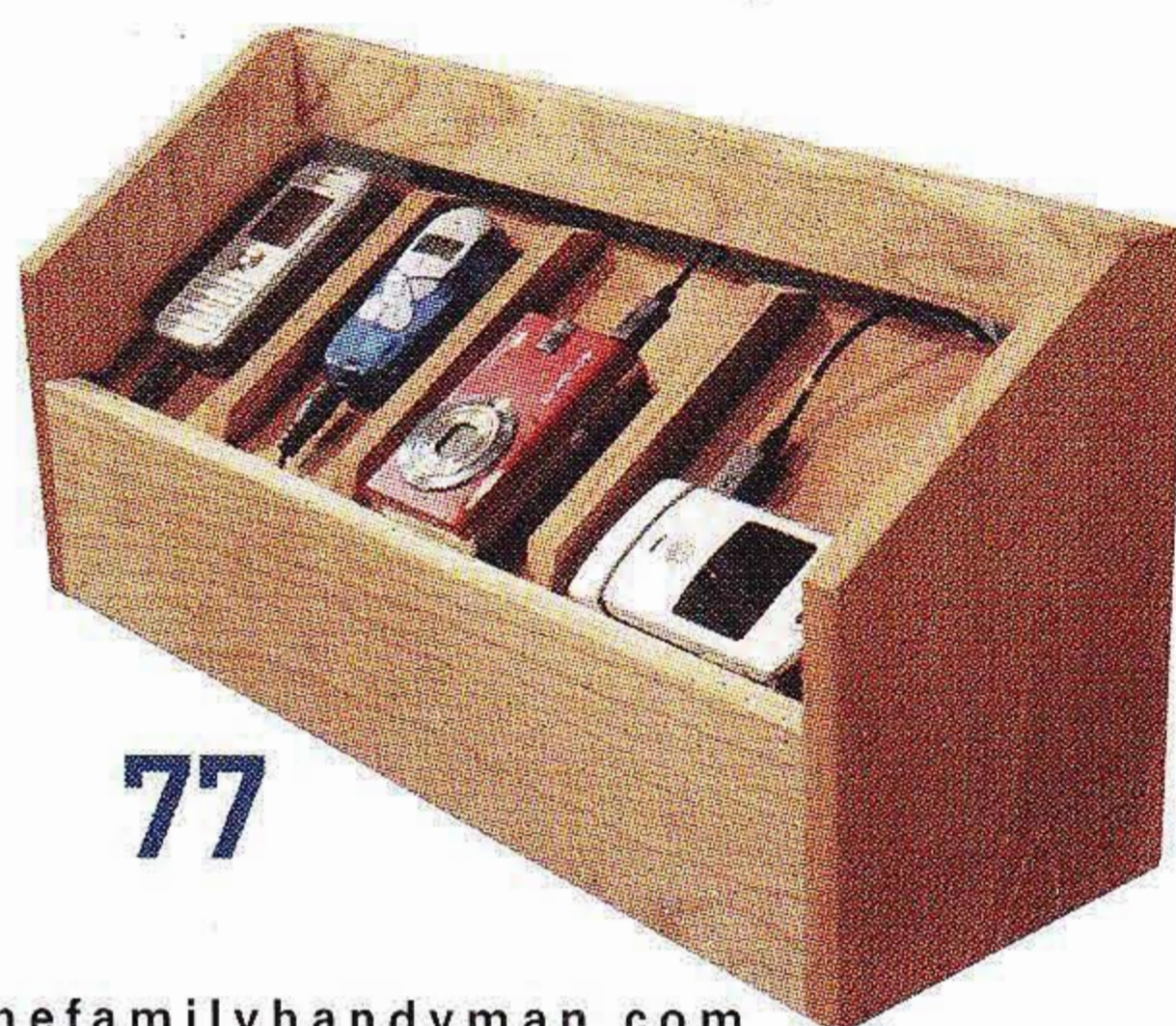
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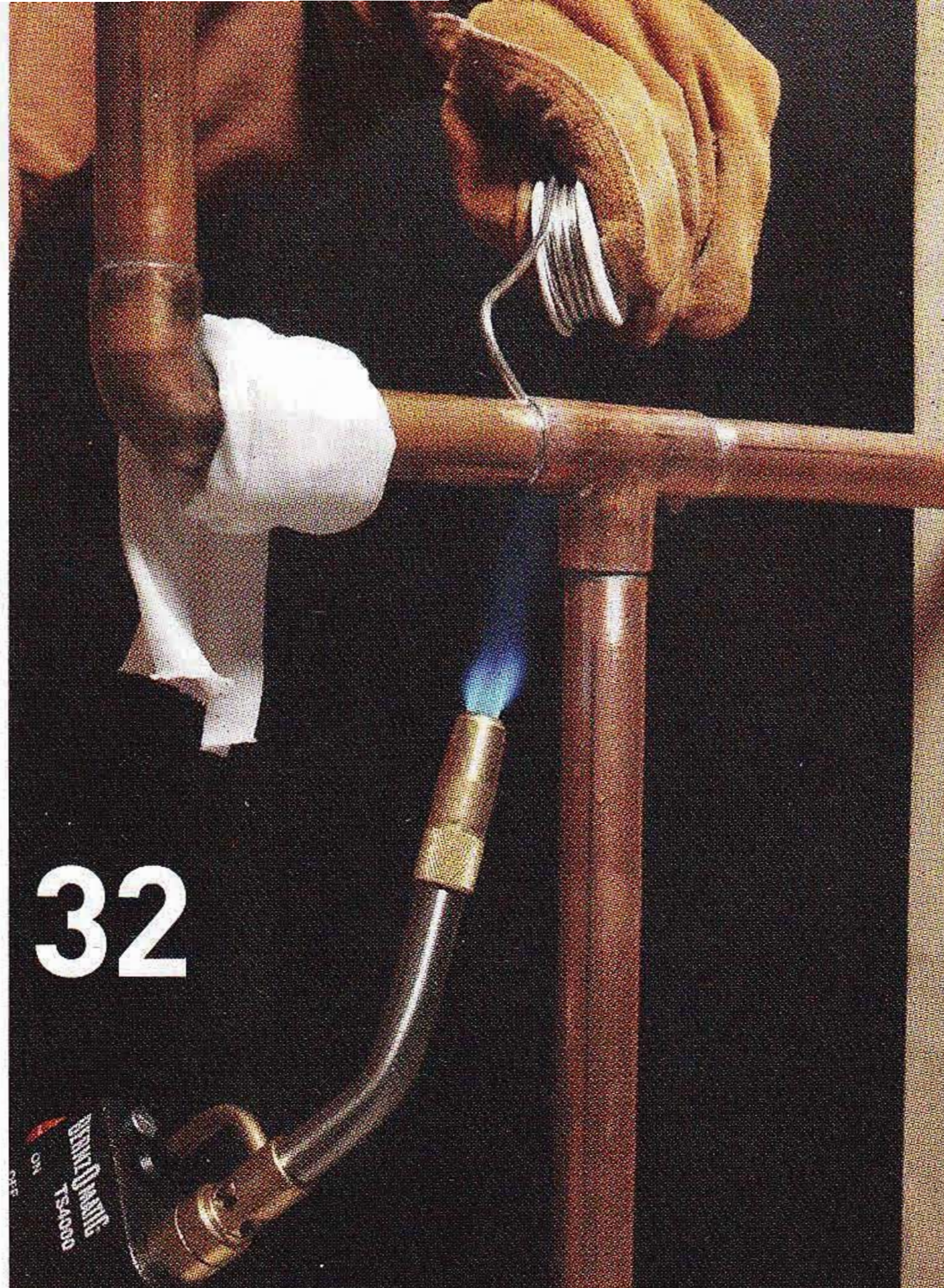
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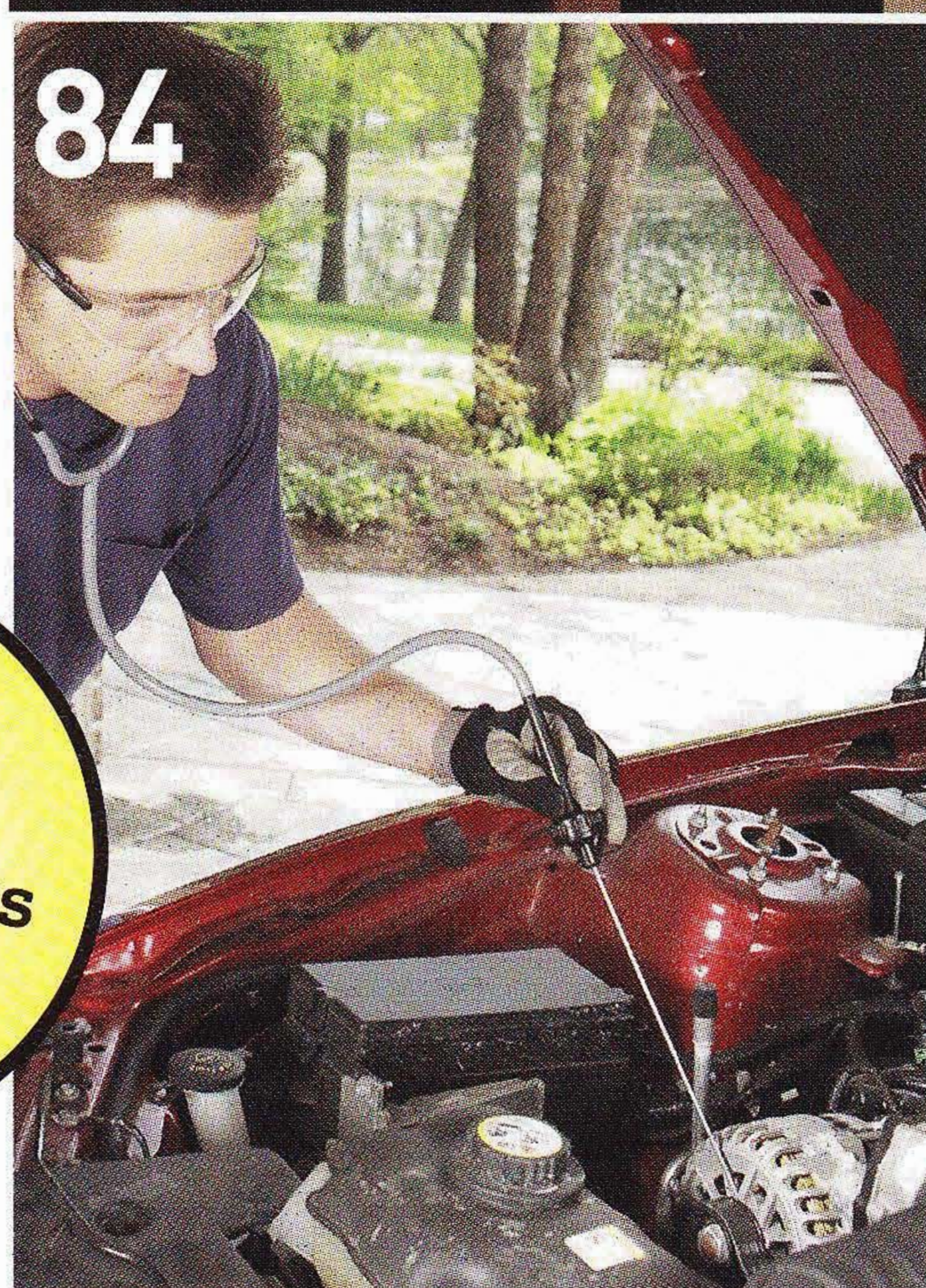
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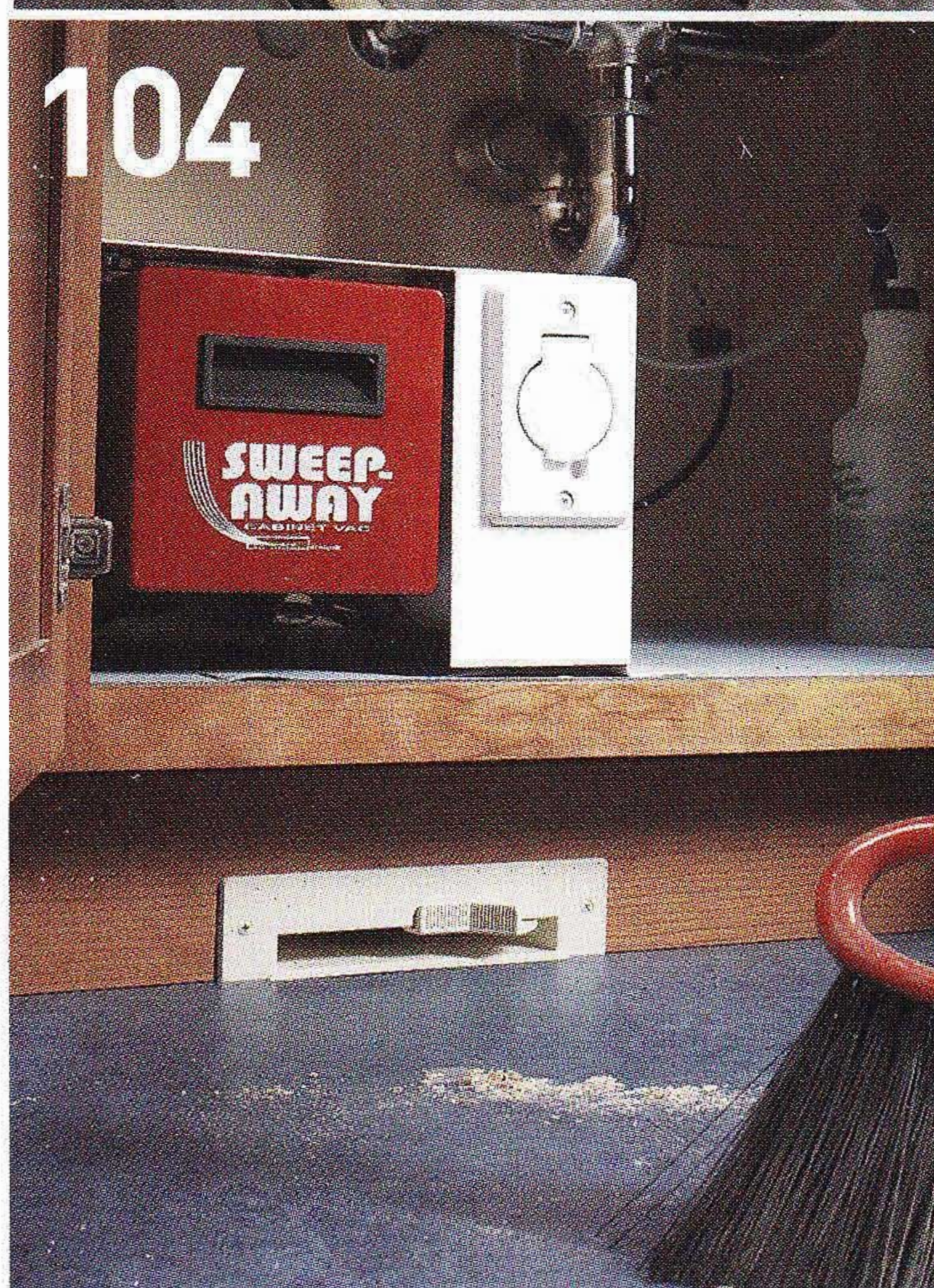
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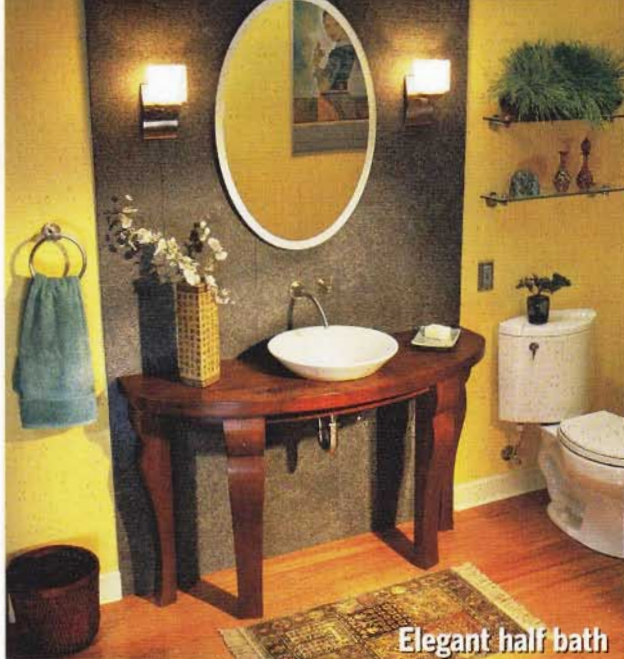
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Elegant half bath

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Install your own cabinets



Replace countertops

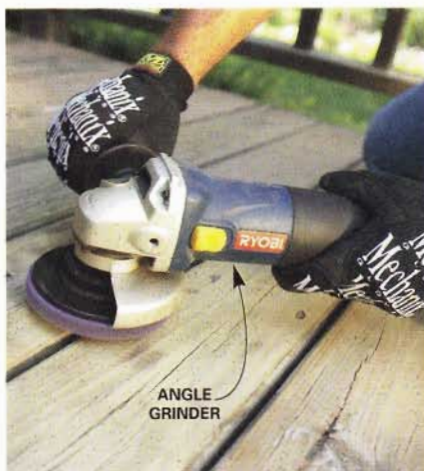
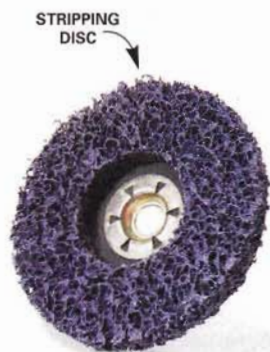
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HomeCare &

TIPS, FIXES & GEAR FOR A TROUBLE-FREE HOME



1 Scrub off old stain using a stiff brush and deck finish remover. Give the remover 15 to 30 minutes to soften the stain before you scrub.



2 Sand off tough spots or small areas with a coarse stripping pad on a grinder or drill.



3 Brush on a brightener/conditioner diluted in water. Scrub the decking and rinse thoroughly to restore the original wood color.

Repair

by Eric Smith

If the stain on your deck is weathered and peeling, the first step in renewing your deck is to remove 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 scraped and stripped off 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 a special deck stain remover (\$15 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. Cover 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 where the stain doesn't come off (**Photo 2**). The rough discs work much faster than belt or orbital sanders. They're available for either angle grinders (the fastest option) or 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 original 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.

Keep raccoons out

Raccoons will eat almost anything and are always on the lookout for a good nesting site, so our houses, with all their nooks and crannies and overflowing garbage cans and backyard vegetable gardens, are very appealing. Light, water, noise and chemical repellents may work in the short term, but raccoons eventually learn to ignore them. The best way to discourage these pests is to make your house and garden inaccessible.

- Cut back overhanging tree branches and brush so raccoons can't get onto the roof.
- Add chimney caps, or replace them if they're damaged. Fire-place chimneys make great dens for pregnant raccoons. If you hear raccoons in the firebox in the spring or summer, you may need to wait until the fall for the raccoons to leave before capping the chimney, or else call an animal control specialist.
- Block crawl spaces and other possible entry spots with securely nailed 1/4-in.-mesh hardware cloth. Wait until the fall after the babies are out but before hibernation, or until you're sure the raccoons are gone.
- Raccoons eat garbage, pet food, fruits and vegetables, and fish from garden ponds. Make trash cans inaccessible. Cover fish ponds with netting. Don't leave pet food outside.
- Protect vegetable gardens, especially if you're planting sweet corn, with wire electric fencing (consult the manufacturer's instructions for spacing and wiring instructions). Fencing is available from farm supply stores and Internet suppliers.
- If raccoons have already made a den in your attic or crawl space, put a radio, flashing lights, ammonia, mothballs or commercially available repellents in it, then give them a few nights to leave. To make sure they're gone, stuff the entry with newspapers. If the paper is still in place after a few days, the raccoons have left.



GETTY IMAGES (RF)

Add years of life to your septic system

One major cause of septic field failure is washing machine lint—mostly from synthetic fibers that never degrade, such as nylon and polyester, but also from natural fibers like cotton that degrade very slowly. Eventually this lint can create impenetrable mats in the soil surrounding the drain lines, preventing liquid from being readily absorbed. Fortunately, preventing this problem can be as simple as putting a high-quality filter on your laundry machine discharge hose.

Inexpensive, sock-type lint filters or drain baskets catch bigger fibers, but most of the lint washes right through—and you can't even use them unless your washer discharges into a laundry tub. A better choice is an enclosed, very fine mesh filter that captures more than 90 percent of the lint. It's not cheap (\$140),

but it'll add years of service to your drain field.

Installation is simple. Mount the filter holder on the wall near the laundry tub or discharge pipe. Slip in the filter (**Photo 1**), lock the top down and attach the discharge hoses to the filter container (**Photo 2**). Remove the reusable filter bag and empty it when it's half full (usually after about 8 to 15 loads). If you forget to change the filter, the water just drains around it, so there's no danger of overflow. Replacement filters cost \$20, but filters rarely need replacing.

Septic protector filters are available from the manufacturer (Septic Protector Filtrol 160; septicprotector.com or 888-873-6505), local septic supply companies, and online at laundry-alternative.com and septicsolutions.net.



1 Set the mesh filter into the filter container and lock the top down with the locking clips.



2 Screw adapters to the top and bottom of the filter. Push the discharge hoses onto the barbed fittings and tighten the hose clamps.

Use bleach to sanitize kitchen

It's not new or revolutionary, but one of the best and cheapest ways to kill bacteria and germs in the kitchen is with ordinary household bleach.

Wood cutting boards. Wipe with a solution of 3 tbsp. bleach to 1 gallon water. Let stand two minutes, then rinse with a solution of 1 tbsp. bleach to 1 gallon of water and air dry.

Plastic cutting boards. Soak for two minutes in 1 tbsp. of bleach per gallon of water. Air dry.

Sponges and dishcloths. Soak for five minutes in 3/4 cup bleach to 1 gallon of water, then rinse and dry.

Drains and disposers. Pour in 1 cup of bleach, then flush with hot water for a minute.

Remember, when using bleach, always wear gloves and old clothes or an apron.



Replace plumbing vent flashing

Plumbing vent flashings are notorious spots for roof leaks. If you have a leak in the general area of a plumbing vent, check the condition of the vent flashing. Look for rust holes or gaps around metal vents (required for cast iron waste lines). If you have rubber vents (which are used for plastic pipe), check to see if they have become brittle and cracked.

Both types extend under at least two courses of shingles, so you'll usually need to remove a few shingles above the flashing to get the old one out without ripping any shingles. If you don't have any shingles left from the last roofing, be extra careful not to rip any. (Even if you can find new shingles in the same style, the color won't match perfectly.)

Loosen the tabs on the shingles above the vent first. Those shingles won't be removed, but you'll need to get under those tabs to get at the nails on the shingles directly below. Work from the top down, removing any shingles covering the vent flashing. Getting the tabs free without ripping them is the only tricky part. Work a putty knife slowly under the bottom lip of each tab and slip it through the adhesive to break the seal from one side to the other. Don't try to pry up the whole tab at once or it will rip. Once the tabs are free, slip the flat bar under the shingle and tap it up under the nail head. Pop the shingle and nail up, then pull the flat bar out from under the shingle and pop the nail head up from above the shingle. Don't worry if you accidentally tear the nail head through the shingle. When you replace the shingle, just put the nail in slightly above the hole and fill the old hole with caulk.

Slip a flat bar under the edge of the vent flashing and pop the nails up (**Photo 1**). Pull the old flashing up over the vent pipe and scrape any old caulk and debris off the roof. Slide the new flashing over the vent pipe and under the shingles above the pipe. Center the pipe in the flashing and push the flexible front corners up or down so that the flashing pipe is parallel to the vent pipe. (Rubber vent flashing automatically adjusts to any pitch.) Lift the vent enough to spread caulk under the sides (but not the bottom edge), then nail with three 1-1/4-in. roofing nails per side (**Photo 2**). Put one nail in the bottom edge with a dab of caulk under it to seal the hole.

Set the top part of the vent on the pipe. Make sure the inside of the lead collar fits inside the pipe, then tighten the pipe clamp. Finally, replace the shingles (**Photo 3**).

Art Direction • DAVID SIMPSON
Photography • BILL ZUEHLKE and RAMON MORENO
Roofing Consultant • ROB ANDERSON



1 Remove one or two shingles above the vent flashing, then pry out the vent, being careful not to damage the shingles.



2 Spread caulk under the sides (but not the bottom) of the flashing and then nail it in place. Caulk the nail heads.

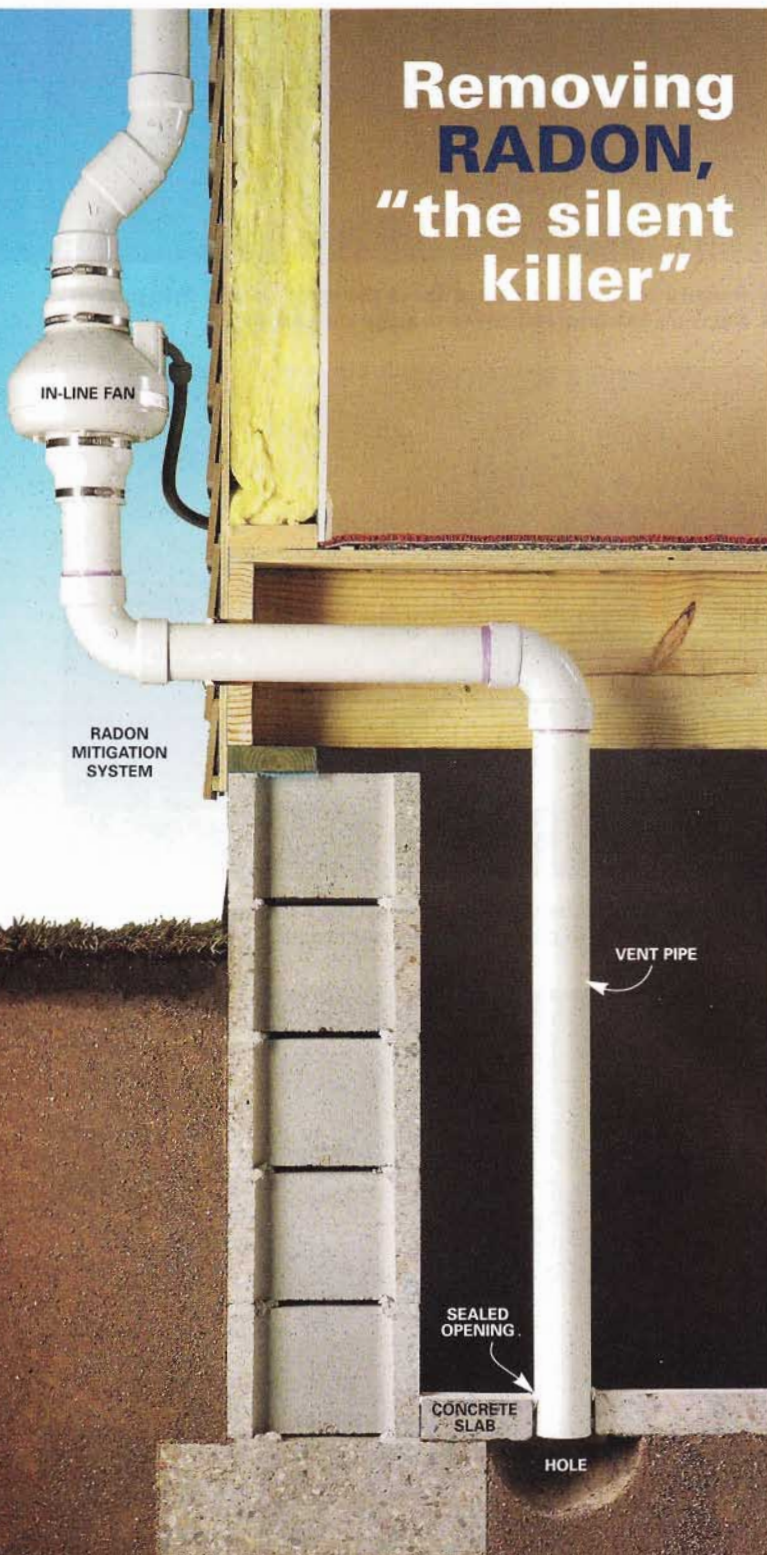


3 Slide the shingles that were removed back into place and re nail.

AskTFH™

The Family Handyman by Brett Martin

Removing RADON, "the silent killer"



Q My neighbors have radon in their home, which has me concerned about my own house. What's the best way to test for radon, and what can I do if I have it?

Jan Sutton, Pierre, SD

A Radon is a radioactive gas that moves through spaces in the soil and can enter a house through any opening, such as cracks in the foundation or the concrete slab. At elevated levels over long periods of time, radon can cause lung cancer.

Even if your neighbor's house has a high level of radon, that doesn't mean yours does. Each house is different, and age doesn't matter. Radon is even found in new homes.

The second leading cause of lung cancer behind smoking (and the leading cause for nonsmokers), radon is estimated to cause 21,000 deaths annually in the United States. Since radon is colorless, odorless and tasteless, it's often called "the silent killer."

You can test for it yourself. Radon test kits are available at home centers and hardware stores for about \$10. They usually involve setting a collector in your home for a week or so and then sending it to a lab for analysis. You'll get results in about a week. (One manufacturer is Pro-Lab, 800-427-0550; prolabinc.com. Its lab fee is \$20; a postage-paid envelope addressed to the lab is included in the kit.) Conduct the test in the lowest livable area in the house.

If two tests give a high reading, consult a radon mitigation contractor (from a list provided by your state health department). These contractors can professionally test the house and if necessary, install a mitigation system for reducing the radon to a harmless level. The most effective system is a vent pipe placed in the sump pit or a hole made under your concrete floor slab. The vent runs up through the house and out the roof, or out the side of the house and up to the eaves, as shown. A special in-line fan for radon is placed in the attic or outside the house to suck air through the vent. Any openings in the slab or foundation are sealed to keep out radon. Pros usually charge \$1,200 to \$1,500 to install these systems (it costs about \$400 to add the system when building a home).

For more information, contact your state health department, the EPA radon hotline (800-767-7236) or the radon fix-it program (800-644-6999). Or visit epa.gov/radon or radon.com.

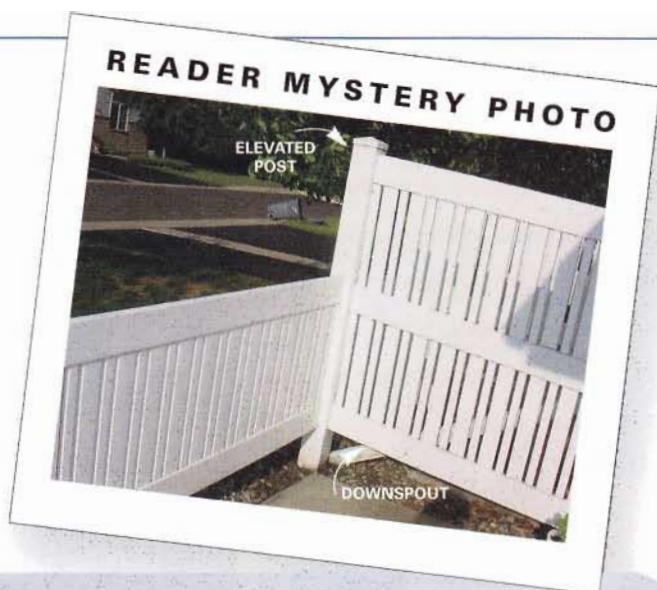
An in-line fan draws air through the vent pipe, sucking radon from the ground under the basement floor.

Moving fence posts

Q My vinyl fence posts are moving out of the ground. What's going on?
Bill Fitzgerald, via e-mail

A It's not uncommon for vinyl fence posts to move slightly, especially in saturated soil. (You have a downspout leading directly to the footing!) However, it appears that your fence is moving because of frost heave from that wet soil around the post. The soil is expanding and contracting with the freezing and thawing of the soil, a process that is pushing the post out of the ground.

To fix the problem, first move the downspout to direct water away from the fence. Next, dig a hole next to the fence post, remove the soil underneath until the post is level with adjacent posts, then tamp in new soil around the post to stabilize it and hold it in place.



Do you have a mystery that you can photograph?

Please send it via e-mail to askhandyman@readersdigest.com or mail it to Ask The Family Handyman, 2915 Commers Drive, Suite 700, Eagan, MN 55121. Include your name, address and phone number.

Floodlight CFLs for recessed fixtures

Q My finished basement has recessed lighting. The bulbs burn out constantly. Can I use the large flood-type lights that contain CFL bulbs instead of filaments, or will that create an electrical hazard?
Joseph Cutone, Astoria, NY

A When incandescent bulbs burn out early, the cause is usually either vibrations from overhead foot traffic or excessive line voltage. Since compact fluorescent lights (CFLs) don't have filaments, they should solve either problem.

You can use CFLs instead of incandescent bulbs as long as the fixtures are not controlled by a dimmer switch and the bulb fits inside the trim. The trim on your fixture determines the bulb size. Use CFLs that are rated for indoor use.

The trim will usually have a label that specifies the sizes that can be used. If there's no label, buy some bulbs from a home center, see if they fit, and return the ones that don't. If the bulb fits the opening, then it's OK to use. Since CFLs don't get as hot as incandescent lights, you don't have to worry about heat issues.

If a CFL won't work for your particular fixture because of the trim size, use a regular flood bulb, but choose one with



As long as the CFL bulb fits into the recessed lighting trim, it's OK to use.

a higher voltage, such as 130 volts (you can increase voltage without increasing wattage). Even if your fixture is rated for 120 volts, it's possible that your electrical service delivers a few extra volts, especially if you're near the electrical line transformer. The higher voltage can cause your lights to burn out faster. Five extra volts may not seem like much, but it can cut a lightbulb's life span by about one-third.

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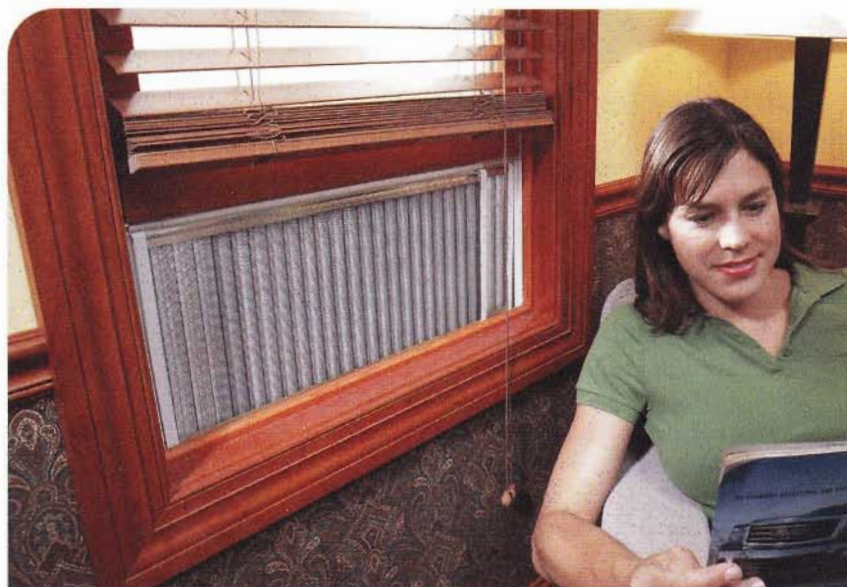
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Filtering out pollen

Q My husband must sleep with the window open. My allergies are debilitating. Do they make a screen or filter to keep out the pollen?

Jill Gallery, via e-mail

A We found a window screen by a company called R.E.P. Industries (215-368-0154; repindustries.com) that can be used with double-hung windows. The company says the Safeguard Window Filter keeps out 92 percent of ragweed pollen. The drawback is that unlike a conventional insect screen, this one won't let breezes blow through the open window.

To install the screen, just open the window and put it in the opening as shown. Screen heights are limited to either 7 or 11 in. You can buy the screens, starting at \$17, on the company's Web site. The filters are replaceable.

You can leave the screen in year round, but you'll only need it when pollen is aggravating your allergies. Pollinating grasses, such as orchard and Bermuda, grow in the late spring and early summer. Ragweed, which causes most "hay fever," is prevalent in the late summer and fall.

If pollen is still a problem, put an air cleaner (also called an air purifier) in your bedroom. The units work by circulating air and filtering out airborne particles such as pollens. Prices start at \$100. Choose a unit that's made to clean a bedroom of your size or a larger room. Be aware that while some air cleaners have tested well at filtering out pollens, others have not. Research air cleaners before buying one ("Consumer Reports" is one source).

Other strategies for reducing pollen:

- Upgrade your furnace filter to a high-quality disposable filter made of pleated fabric or paper (\$10). Or have a professional install an electrostatic filter that's connected to your ductwork (\$700 to \$1,500).
- Change your bedding weekly.
- Replace carpet with wood, laminate, tile or vinyl. Carpet is the biggest reservoir of dust. Also vacuum area rugs weekly.
- Take couch cushions outside and beat out the dust with a tennis racket. Or better yet, when it comes time for furniture replacement, choose leather or vinyl upholstery rather than fabric.

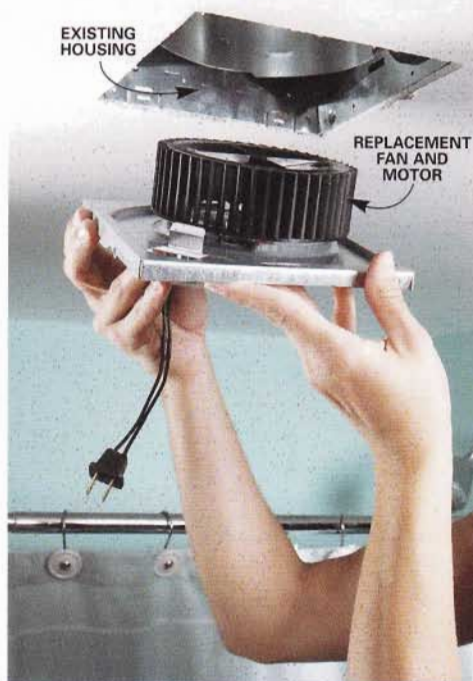


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Install the new, quieter fan and motor assembly inside the existing fan housing.

Quieting a noisy fan

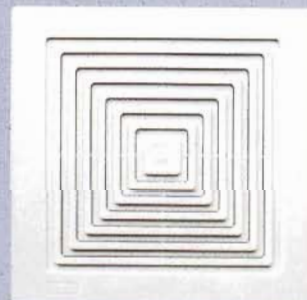
Q Is there an easy way to quiet my bathroom fan, or do I have to replace it? The noise is so annoying that I've stopped turning it on.

Andrea Foster, via e-mail

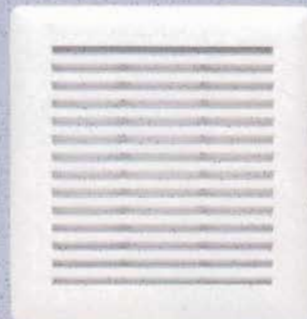
A A new kit from Broan and NuTone lets you cut fan noise almost in half (meaning the fan is barely audible). Installing the new fan and motor only takes about 10 minutes, with no rewiring or duct work required. The kit works on most Broan, NuTone and Nautilus fans—most bath fans are one of these brands. The Bath Fan Upgrade Kit is simply a quieter replacement fan that fits in the existing housing, so there's no need to rip up the ceiling, and the new grille gives your fan a new look.

The more powerful motor in this quieter fan means the fan will do a better job of ventilating the room. Buy the kit (No. 690, \$48) on Broan's Web site (broan.com) or at Lowe's. Everything you need is contained in the kit, including the wrench.

If you have a grille other than the two shown here, the upgrade kit won't work on your fan.



Look at your fan's grille to determine the fan type. If it looks like this one, it's probably a Broan or a Nautilus.



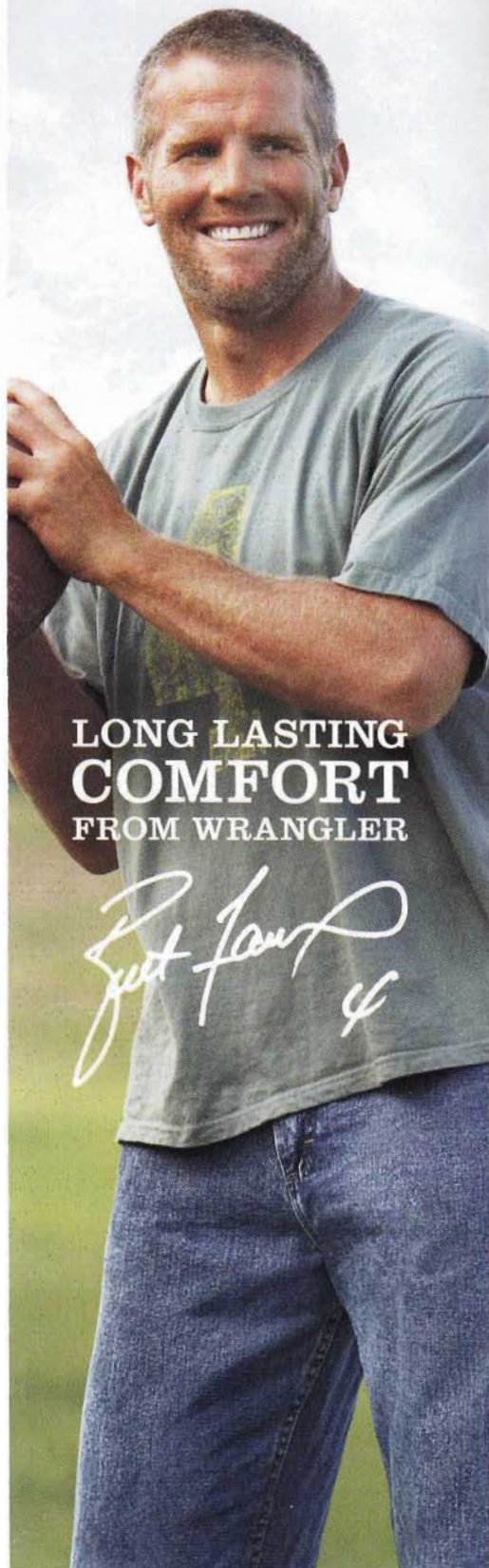
If the grille looks like this one, it's most likely a NuTone.

BROAN (2)

Wrangler



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Wipe the test area in a backward "S" pattern with a moist cloth, picking up dust to use as a sample.

Testing for lead

Q I just moved into a 1960 home and am concerned about lead-based paint. How can I tell if lead is present and if it's a problem?

Alex Matthews, Buffalo, NY

A Conduct a dust wipe test using a lead test kit for paint and dust. Most lead-based paint poisoning in children occurs by exposure to lead dust, and testing dust will determine if you have a lead hazard you have to deal with. The test kits, available at home centers and hardware stores for \$10, include step-by-step instructions for collecting the samples, bags for the samples, plastic gloves and an envelope to send the samples to an EPA-certified lab for analysis (each lab test costs \$10). Results, mailed back in about two weeks, will tell if the samples contained a potentially harmful level of lead dust. If you have a dust hazard, contact your local health department for remediation guidelines.

However, before remodeling or otherwise disturbing painted surfaces, it's best to have a professional lead inspection and risk assessment done (\$500 to \$700). This will tell if your home has lead-based paint, where it's located and if it's hazardous. Keep in mind that lead paint itself is not necessarily hazardous, especially if the surface is in good condition and the paint isn't flaking or being worn down (along sliding windows, for example). Find certified inspection firms through your state health department or the Environmental Protection Agency.

Don't be discouraged if you have lead paint. You can handle it safely. Follow the guidelines online at epa.gov/lead or call your local health department.



Art Direction • BOB UNGAR and EVANGELINE EKBERG
Photography • BILL ZUEHLKE, UNLESS OTHERWISE NOTED
Consultant • AL HILDENBRAND, MASTER ELECTRICIAN

WorkshopTips™

by Bruce Wiebe



Floor lamp for the shop

This lightweight, height-adjustable pole lamp will instantly illuminate every tool or project in your shop. You'll need:

- A 68-in. piece of 1-1/4-in.-diameter wood closet rod (\$8 at a home center)
- Two 16-in.-long pieces of 2x4
- Two 4-in.-long pieces of 2x4
- A clamp light (\$3)

Overlap the two long 2x4s to make an X-shaped base, securing it with 3-in.-long screws. Then screw the 4-in. pieces under the upper piece to level the base. With a spade or Forstner bit, drill a hole in the center of the base for the closet rod. Check the diameter of the rod before drilling. If the diameter is between 1-1/8 and 1-1/4 in., use a 1-1/8-in. drill bit and file and sand the hole for a snug fit.

Thanks to Robert Orr for brightening our shops.

Blades on board

Here's a sharp tip from reader George Sarna. Use tape or twist ties to attach spare blades to the frames of your hacksaw and coping saw. The next time a blade breaks or dulls, you won't scratch your head trying to remember where you put the spares.



Oil-bottle hardware tote

Here's a fun little project to keep your screws, nails, nuts and electrical whatsits handy and neatly organized. To make one, you'll need:

- Six quart-size motor oil bottles (empty!)
- One 9-in. x 7-3/4-in. floor made from 3/8-in. or 1/2-in. plywood
- One 7-3/4-in. x 6-in. plywood handle
- Two 3-1/2-in. x 9-in. plywood sides

With a utility knife or snips, fashion the oil bottles into bins with 15-degree angled sides starting 2-1/2 in. up from one side. (The 12-oz. hash mark on the bottle is great for the low end of the angle if yours has them.)

Saw a handle slot in the vertical piece, and saw 15-degree angles on the sidepieces. Glue and nail the six-pack together. Add solid wood strips along the open sides to keep the bins from falling out and to make it easy to pull one out as needed. Thanks to Dan Tronnes for this idea.



Easy-to-access cordless tool chargers

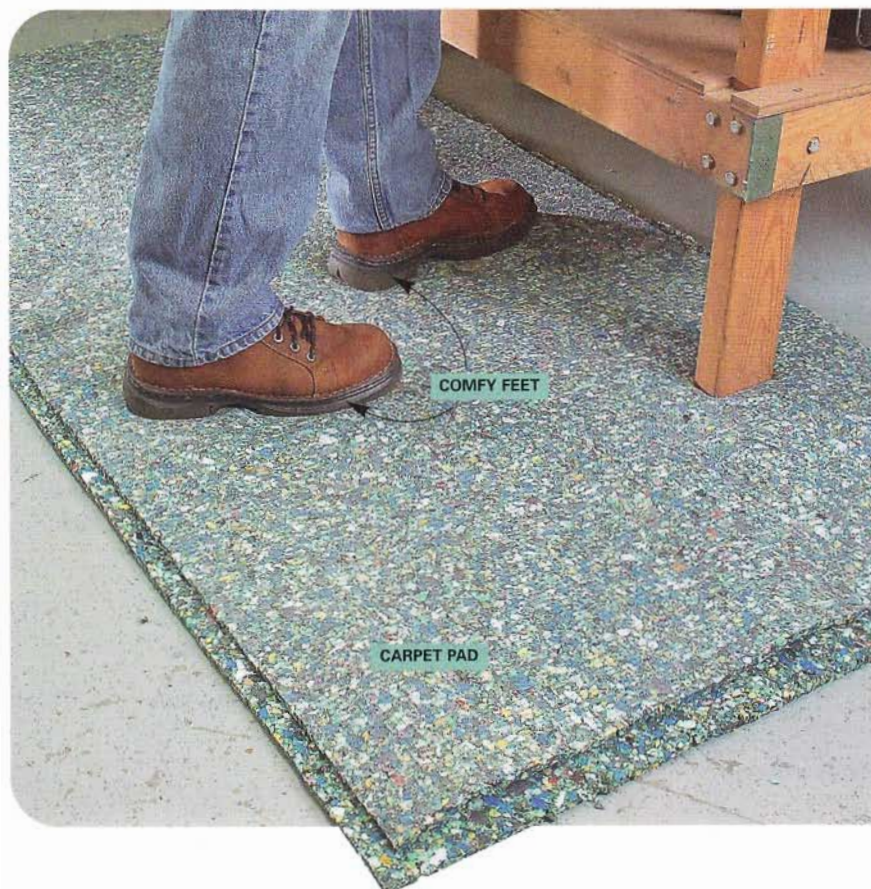
Mount charger stands for your cordless tools on scrap pieces of pegboard and hang them on a pegboard wall so they don't become an octopuslike tangle on a shelf or workbench. Just pull one out for charging, or plug it into a power strip under the pegboard and charge batteries right on the pegboard. Most chargers have mounting holes or key-hole slots on the bottom. For those that don't, use a large hose clamp (\$2 at a hardware store) to mount them. Thanks to George Moyer for ending our charger clutter.





Biscuit-joining workstation

A table saw—with the blade retracted!—is the perfect spot for biscuit joining. The fence keeps the boards from sliding around while you're cutting the slots, and it provides easy access for clamps. The flat metal table aligns board edges with the cutter to ensure that your biscuit cuts line up every time. Thanks to Warren Tryndahl for this slick tip.



Carpet pad for soft footing

A double layer of foam carpet pad makes a luxurious but inexpensive anti-fatigue mat beside workbenches and power tools. Cut the pad to size with a utility knife, scissors or tin snips. To avoid tripping and to keep the edges from curling, tape down the perimeter with packing or duct tape. Thanks to Jack Zavada for this tip.

If you have a shop tip you'd like to share, send it to tfhtips@readersdigest.com or Workshop Tips, The Family Handyman, 2915 Commers Drive, Suite 700, Eagan, MN 55121. We now pay \$200 for tips we print. Original contributions become our property upon acceptance and payment. We're sorry, but tips can't be returned.

Editor • TRAVIS LARSON
Art Direction • EVANGELINE EKBERG
Photography • MIKE KRIVIT



Water-smart

Painless ways to conserve water and save buckets of money!

Because water is cheap (about \$1.50 for 1,000 gallons) and in most places always seems readily available, maybe you haven't worried about conserving it. But as clean water gets harder to come by—36 states will suffer some sort of shortage within the next decade—prices will rise. Add to that the cost of heating and sewer fees, and you can see how thousands of wasted gallons turns into hundreds of wasted dollars all going down your drain.

The good news is that you can turn down the tap without making a major ripple in your living habits. That's because water-wasting fixtures are easy to identify and replace. (Use **Figure A** to help find the major water wasters in your home.) Updating the thirstiest room of your house—your bathroom—with fixtures like the ones shown here will not only save water and money, but also give the room a fresh look.

Figure A

Where's your water going?

Bathrooms use more water than any other room in the house. More than a quarter of all the water used in the whole house is literally flushed down the toilet!



Source: American Water Works Association Research Foundation, "Residential End Uses of Water," 1999

Low-flow toilet

Cost: \$200 to \$300

Water savings: Up to 23,000 gallons per year (for a four-person family)

Now's the time to replace that old commode. Using 3.5 to as much as 7 gallons per flush (gpf), old-style toilets are the biggest water wasters in your home. Admittedly, poor flush performance gave first-generation 1.6-gpf toilets a bad rap, but with reengineered bowls and trapways, the newest models flush more waste with less water. According to recent surveys, most homeowners are as satisfied with their 1.6-gpf toilets as they were with their older 3.5-gallon flushers.

To save even more water, check out high-efficiency toilets. These models use 20 percent less water than the 1.6-gpf competition. Dual-flush toilets, such as Sterling's Dual Force, are designed to let you choose either the half (0.8 gallon) or the full (1.6 gallon) flush option, saving you 6,000 gallons per year. Alternatively, pressure-assist toilets, such as Kohler's Pressure Lite (**photo, left**), employ an air cartridge that's charged by the water pressure from the supply line to push water from the tank using just 1.1 gallons of water.

Using a compressed-air boost, Kohler's Pressure Lite toilets offer no-plug performance using as little as 1.1 gallons per flush. This can save 5,000 gallons per year.



EDUARDO BARCELLOS / THE IMAGE BANK / GETTY IMAGES (RM)

bathroom

by Joe Hurst-Wajszczuk

Low-flow showerheads

Cost: \$20 to \$100

Water savings: 7,800 gallons per year

Hot water savings: \$90 per year (electric), \$38 per year (gas)

Showerheads are not only the second heaviest water user but also a major energy eater. That's because 70 percent of the water flowing through the head comes from your water heater. By reducing water consumption and water heating needs, a low-flow head saves money in two ways.

Saving water with an efficient showerhead no longer means settling for a drizzle instead of a down-pour. Once, "low-flow" used to mean "not enough oomph to rinse out the shampoo." That's because the showerheads were simply choked with flow restrictors to meet

the government's 2.5 gallons per minute (gpm) mandate. Removing the restrictor was an easy way to boost shower power, but doing so negated any water savings. (To check the flow of your existing showerhead, see how long it takes to fill a 1-gallon container. If you fill the jug in less than 24 seconds, your 2.5-gpm fixture is using more water than it should.) If you're using an older single or a newer multihead spa shower, an 8- to 10-minute shower can use more water than a 60-gallon whirlpool tub.

DELTA FAUCET



At 1.6 gpm, Delta's water-efficient showerhead uses 36 percent less water, but the high-tech head still delivers what feels like a standard 2.5-gpm flow.

To provide a satisfying shower with less water, today's high-efficiency fixtures have gone high-tech. Delta's water-efficient showerheads (photo above) change the shape and velocity of the water stream—even the size of the drops—to provide the high-flow feel using just 1.6 gpm.

If your house was built before 1994 and you're still using the original plumbing fixtures, you're using 30 to 40 percent more water than a comparable new home.

Low-flow faucet aerators

Cost: \$2 to \$5

Water savings: Up to 1,400 gallons per year (per faucet)

How much water do you really need to wet your toothbrush or rinse a razor? If the aerator attached to the end of your bathroom faucet reads 2.2 gpm, you're wasting water every time you turn on that tap. Installing a 1.5-gpm aerator on the end of the spout is a quick and inexpensive way to cut lavatory water use by 30 percent.



KOHLER

Want a five-buck, five-minute water-saving solution? Twist on a 1.5-gpm aerator and save money every time you turn on the tap.

Want help choosing water-efficient fixtures?

Look for the logo below.

Like the Energy Star label, the WaterSense tag is an easy way to identify efficient products.

To earn this label, products must use at least 20 percent less water and still perform as well as or better than other products in that category. For more info, go to epa.gov/watersense.



Art Direction • BECKY PFLUGER

Do's & Don'ts

by Jeff Gorton

Soldering copper



Do keep nearby soldered joints from melting by wrapping a wet rag around them. Wet and wring out a 2-in.-wide strip of cloth and wrap it around the fitting you want to protect. The wet rag absorbs the heat and prevents the solder in the existing joint from melting.

Do use MAPP gas to speed up the job.

Lead-free solder melts at a higher temperature than the now-banned lead-based solder. MAPP gas torches burn hotter than propane, making them a better choice for modern solder. Five to 10 seconds of heating with a MAPP gas torch is all that's required before you can feed solder into most 1/2- to 3/4-in. pipes and fittings. Be careful, though. It's easier to overheat a joint with MAPP gas. If the flux turns black and the solder won't flow into the fitting, the joint is overheated.



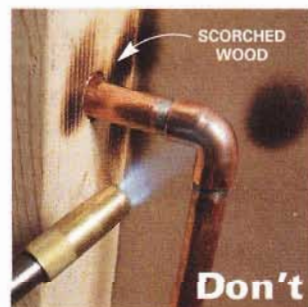
Don't

solder close to wood or other flammable material without protecting it from the flame.

Do

use a flame protector. These small flame-retardant blankets are available for \$15 each at hardware stores and home centers. You hang one behind the joint you're working on to insulate the flammable material and help prevent fires. In a pinch you could use a piece of sheet metal instead.

Wetting the area around the soldering job with a spray bottle of water also helps prevent fires. Keep a fire extinguisher handy as a precaution.



Don't

reuse old fittings. Recycle them instead. It's time consuming and difficult to take apart and clean old fittings. And there's a good chance they'll leak.

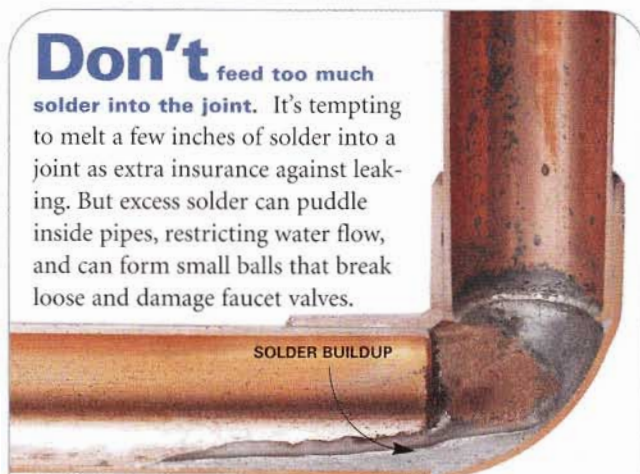
Do

buy new fittings instead. You'll get better results in less time.



Don't feed too much

solder into the joint. It's tempting to melt a few inches of solder into a joint as extra insurance against leaking. But excess solder can puddle inside pipes, restricting water flow, and can form small balls that break loose and damage faucet valves.



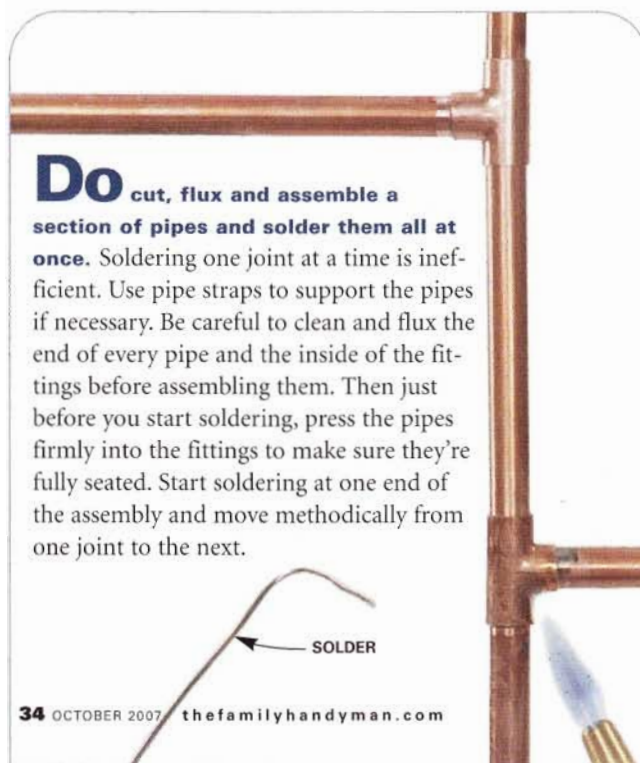
Do use about 1/2 in. of solder for 1/2-in. pipe and 3/4 in. for 3/4-in. pipe. Here's a tip. Bend the end of the solder at a right angle, leaving a few inches below the bend. The bend makes it easier to gauge how much solder you've used.

Do use tinning flux.

Tinning flux works just like standard flux but contains a bit of silver solder powder that melts when heat is applied. The resulting thin layer of solder helps ensure a leak-proof joint. Tinning flux is available at most hardware stores and home centers and only costs a little more than standard flux.

**Do** cut, flux and assemble a

section of pipes and solder them all at once. Soldering one joint at a time is inefficient. Use pipe straps to support the pipes if necessary. Be careful to clean and flux the end of every pipe and the inside of the fittings before assembling them. Then just before you start soldering, press the pipes firmly into the fittings to make sure they're fully seated. Start soldering at one end of the assembly and move methodically from one joint to the next.

**Don't** get solder on threaded

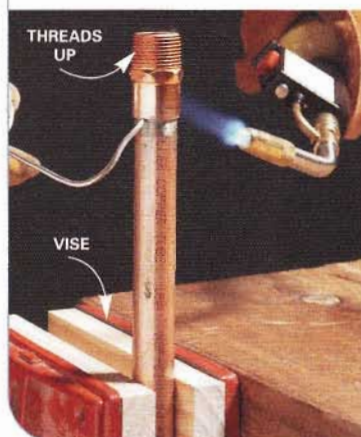
fittings. It can clog the threads, making it difficult to get a good seal when you screw on the matching part.

Do follow these steps to

avoid the problem. If the threaded fitting is positioned so that solder will run down onto the threads, solder the pipe and fitting at a workbench instead so you can keep



the fitting pointed up. If you have to solder a threaded fitting where the solder will flow onto the threads, make sure to wipe excess flux from around the joint after you assemble the pipe and fitting. Extra flux can run down onto the threads, causing the solder to follow it.

**Don't** try to solder pipes with water in

them. When you're repairing or tying in to existing copper pipes, it's common to find a small amount of water in them even after you close the valve and drain the pipes. Soldering a joint in pipes that contain even tiny amounts of water is nearly impossible. Most of the heat from the torch goes into turning the water to steam, so the copper won't get hot enough to melt the solder.

Do stop the trickle of water with a pipe plug.

Push the plug into the pipe with the applicator tube provided. When you're done soldering, dissolve the plug by holding the torch under the spot where the plug is. A pack of plugs for 1/2-in. or 3/4-in. pipe costs from \$8 to \$10. You'll find the plugs at home centers and hardware stores.

An old trick was to stuff a wad of soft white bread into the pipe to stop the trickle of water temporarily. This works but you run the risk of clogging aerators and valves with the partially dissolved bread.



Art Direction • MARCIA ROEPKE
Photography • BILL ZUEHLKE

Kitchen



rollouts

Add cabinet convenience with these simple rollout bins

by Travis Larson

If you're tired of digging through cans and boxes to find a jar of tomato sauce hidden at the back of the cabinet, these rollout bins might be just the ticket. You can size them to fit inside any lower cabinet and customize them to suit the items you want to store.

This article will show you how to build them. The bins are simply plywood boxes with adjustable shelves—very easy to build. Sizing the boxes and mounting them on drawer slides can be tricky, but we've worked out techniques that make those steps nearly foolproof.

Money, time and tools

All the materials for these three rollouts cost us just under \$100. You could buy and install a manufactured system, but expect to spend about \$80 per rollout.

You don't need advanced cabinet building skills or tools to make your own rollouts—the joinery and assembly are simple. But a table saw is almost mandatory for fast, accurate, good-looking results. And we recommend a pneumatic brad nailer, although you can certainly hand-nail or screw the parts together. Ordinarily, the side-mount drawer slides are tricky to install, but we make even that step foolproof, so don't let that part intimidate you. You'll be surprised how fast you can build yourself a few rollouts. Put in a full day and you'll be loading them with groceries that evening.



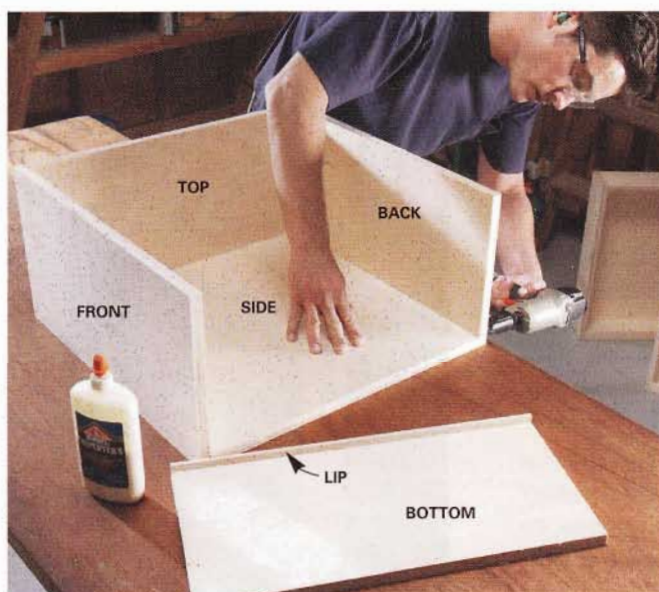
Get more storage space—without remodeling

Lower cabinets offer the biggest storage spaces in most kitchens. But according to kitchen designers, the back half of this space is usually wasted—it's packed with long-forgotten junk or left unused because stored items are out of view and hard to reach. Rollout bins let you see and use the whole space.

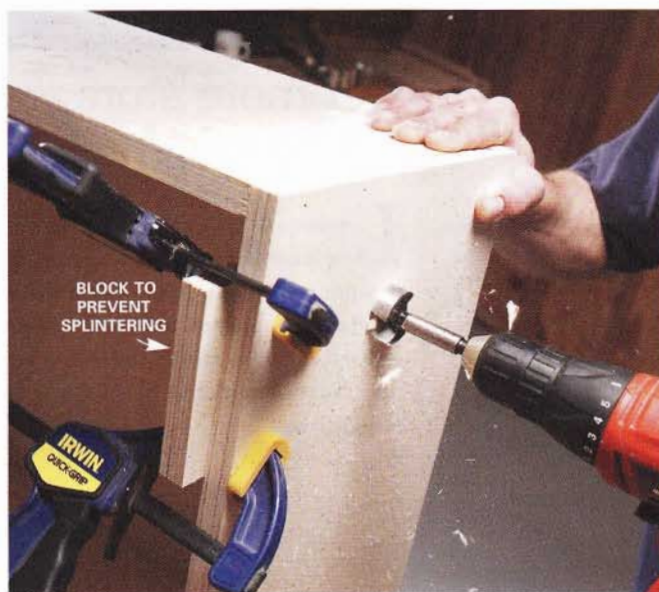
1 Plan rollout widths by laying out the cleats along with the items you want to store. Space the end cleats with 3/4-in. blocks.



2 Assemble the boxes by gluing and nailing all four sides to the back panel and to each other. Nail the lip to the bottom shelf before assembling.



3 Drill 1-1/4-in.-diameter finger pull holes. Clamp a block against the back side to prevent splintering inside.



Sizing your rollouts

Everything you need for this project is available at home centers (see the Materials List, p. 40). You'll have to guess at the quantity of rollouts at this point so you can buy the proper number of drawer slides. One sheet of plywood will provide enough material for at least four rollouts. You can roughly figure one rollout for every foot of open base cabinet space you have. You can always return any uncut lumber or hardware you don't use.

To determine the width of your rollouts, gather the items you want to store. Cut the 1x3 cleats to length and space them from each side of the cabinet with 3/4-in. blocks (**Photo 1**). That space allows the rollouts to clear the doors and hinges later. Then start arranging your dry goods, separating them with the cleats. Leave at least 2-1/2 in. between the dry goods and the cleats. This allows for the clearance of wood thicknesses and drawer slides and 1/2 in. extra to make it easy to load the items and take them out. It takes a bit of rearranging and thought to arrive at the best sizes. If your base cabinets have vertical dividers between the doors, give each opening its own rollouts.

You'll probably have some rollouts facing one way and some the other. That's because rollout access may be blocked by neighboring cabinets at inside corners or because some cabinet doors don't swing all the way open. Determine the access direction while you assemble your rollouts. That's as simple as drilling the finger pull hole at the proper end. After the boxes are assembled, they'll work for either orientation.

Choosing the materials

Choose any 3/4-in. veneered interior plywood for your rollouts. Avoid construction plywood; it won't be as flat and may warp later. If you'd like your rollouts to match your cabinets, choose whatever type does the job. We just sanded the plywood end grain of our rollouts, but if you'd like a more polished look, buy iron-on edge banding to match the wood type.

Buy nice, straight, knot-free 1x3s for the cleats—the wood type doesn't matter. Select 22-in. European side-mount drawer slides rated to support 90 lbs. They'll come with their own screws and

Continued on p. 42

Materials List

- One 1x3 the width of the cabinet (hold-down rail)
- 2 ft. of 1x3 (drawer slide cleats)
- 8 ft. of 1/4-in. x 1-1/8-in. mullion (base and shelf front lips)
- Four 2-ft. shelf standards with clips
- One pair of 90-lb.-rated full-extension side-mount drawer slides
- 1-1/2-in. pneumatic air nailer brads
- Woodworking glue
- Small box of 3-in. screws
- 1-1/4-in. Forstner drill (for drilling finger pulls)

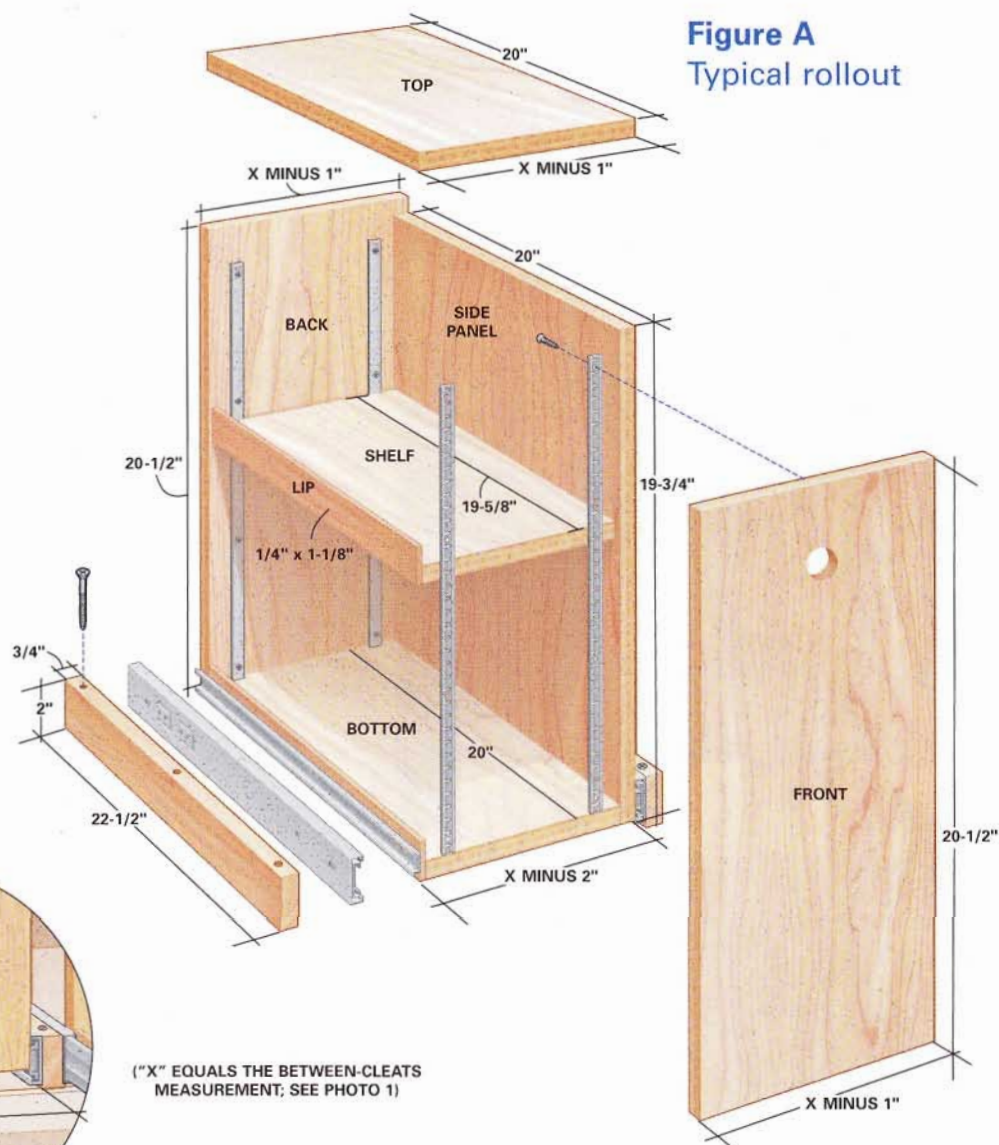


Figure A
Typical rollout

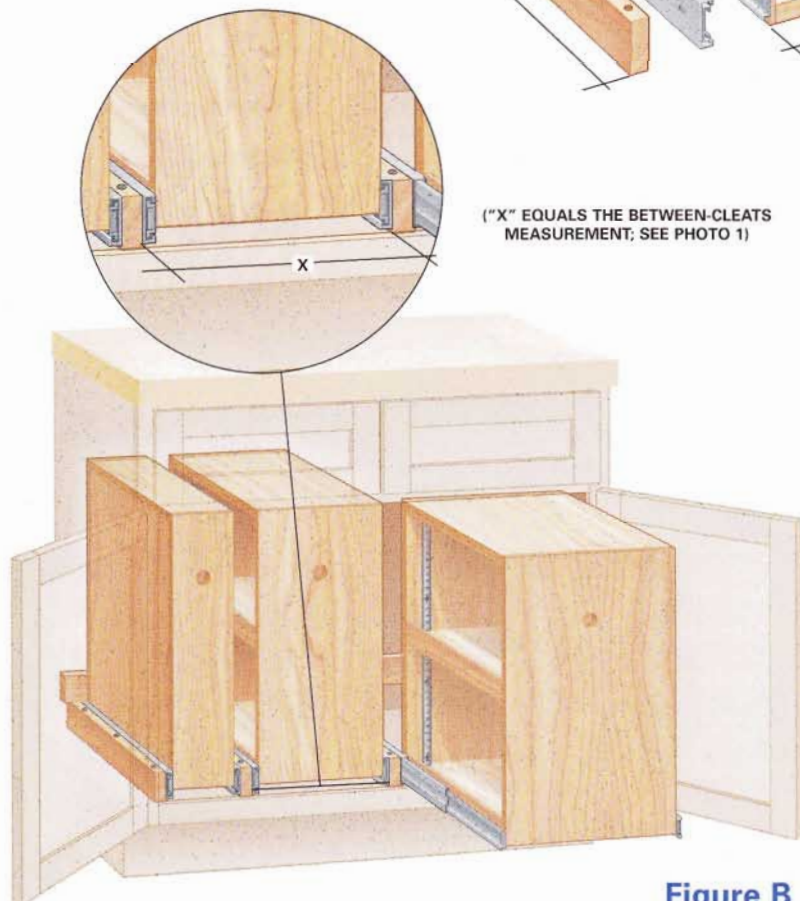
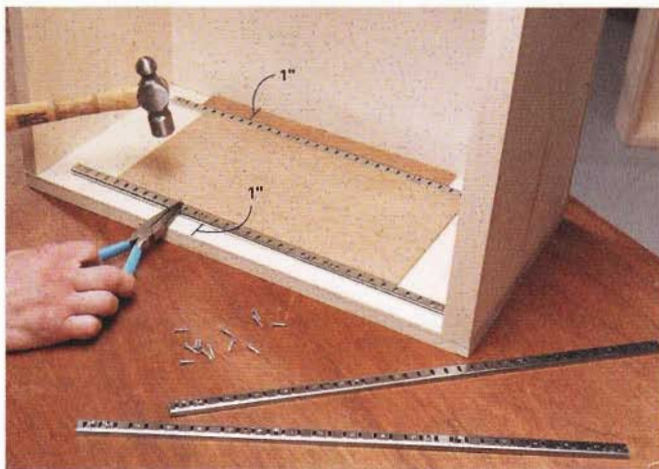


Figure B Typical rollout grouping

For more storage projects, search for "kitchen storage" at thefamilyhandyman.com

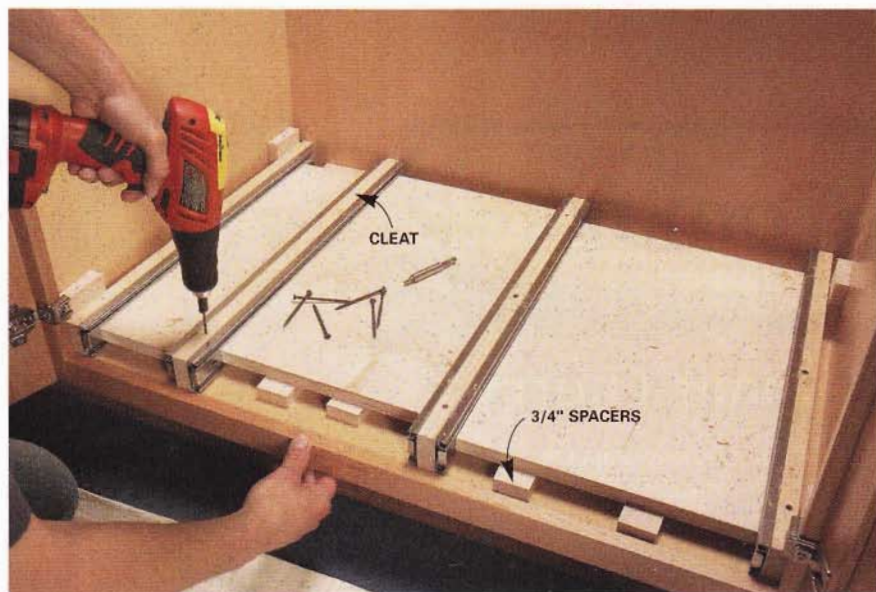
4 Tack shelf standards to the inside of the front and back of each box. Use spacers to position them.



5 Screw the drawer slides to the cleats. Position each slide flush with the front and top of the cleat.



6 Predrill and screw the cleats to the cabinet. Use plywood scraps the same width as the boxes for perfect spacing.



installation directions that show you how they work.

Cutting the parts

Most base cabinets are 22-1/2 in. deep and have a 21-in.-high opening (measured inside the face frame, not the cabinet interior). If your cabinets match these measurements, use the height and width dimensions shown in **Figure A** for all of the side panels. Also use **Figure A** for the lengths of each top, bottom, front and back panel and shelves. If your cabinets have shorter openings or are shallower, subtract those differences from our **Figure A** measurements to cut your parts. Calculate the rollout widths based on your layout work inside the cabinet (**Photo 1**). Subtract 1 in. from the distances between the cleats to get the width for each rollout's top, front and back panel. That'll leave the 1-in. clearance needed for the drawer slides. Subtract 2 in. to establish the width for each bottom panel and the adjustable shelves. That'll leave an additional 1-in. clearance for the thickness of the 3/4-in. side panel and the 1/4-in.-thick lip in the front.

Be especially careful when you lay out the cleats, measure openings and cut the rollout parts. European side-mount drawer slides leave very little room for error. It's best to use a table saw for all of the cuts and to double-check widths and lengths so the boxes will fit together perfectly and engage and operate smoothly in the slides.

Assemble the rollout boxes

Glue and nail the lip on each bottom panel (and shelves) before assembling the rollouts. A thin bead of wood glue on each edge is all you need. Then hold the edges of each panel flush while you pin them together with 1-1/2-in. brads spaced about every 4 in. (**Photo 2**). Next, drill the 1-1/4-in.-diameter finger pull hole. A Forstner bit will make the neatest hole, but a sharp spade bit will work, provided you use a block on the back side to prevent splintering (**Photo 3**). The hole defines each rollout's open side.

Cut the 24-in.-long shelf standards down to 18 in. with a hacksaw. Look at the embossed shelf numbers to determine which end is the top and cut from that

Kitchen rollouts

end. Nail the standards in place with the brads provided (**Photo 4**).

This is the best time to apply the finish of your choice to the rollouts. Lightly sand everything with 220-grit sandpaper and add the finish. We chose two coats of water-based polyurethane to protect the wood against dirty fingers and marks from cans.

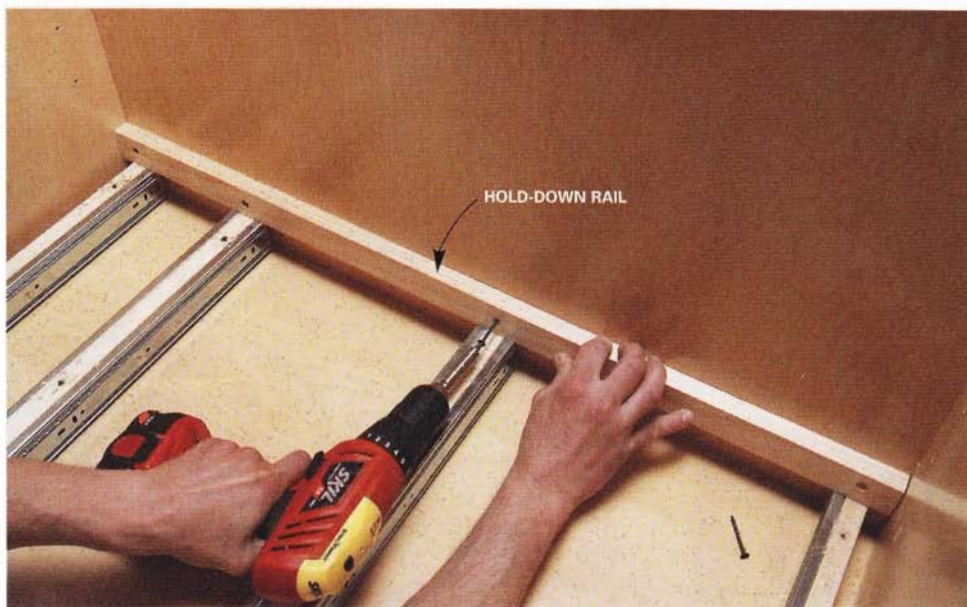
Install the drawer slides and cleats

Rip the 1x3s down to 2 in. and then screw on the drawer slides (**Photo 5**). It's easiest to remove the drawer part of the slide to access the anchor holes. Hold the slides flush with the top and front of each cleat while you punch little starter holes with a scratch awl, and then send in the screws. Just do one screw at a time so you can adjust the placement as you add screws. You'll need right and left sides for the end cleats. Then replace the drawer side slides and lay the cleats in the cabinet.

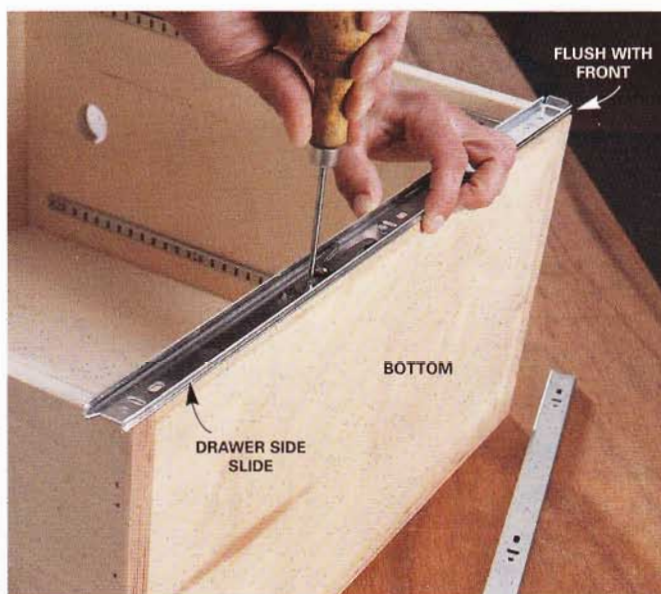
Begin with one of the end cleats and press it against the temporary 3/4-in. blocks while you drill three 1/8-in. pilot holes. A combination drill/countersink bit works great for this. Then screw the cleat to the cabinet floor with 3-in. screws (**Photo 6**). Space the next cleat with a left-over scrap from the first rollout top, front or back. That way the spacing between the drawer slides will be perfectly sized for smoothly operating rollouts. Hold the spacer up from the cabinet floor with 3/4-in. blocks so it'll be centered on the drawer slides. Hold the cleat snug, but not tight, against the spacer while you drill and then screw it to the cabinet floor. Repeat that step with the rest of the cleats. Skip the 3/4-in. blocks on the last cleat and just use the rollout spacer. Screw a 1x3 "hold-down" rail to the back side of the cabinet (**Photo 7**). It'll help hold the rollout cleats in place when you pull out heavily loaded rollouts.

Finally, disengage the drawer side slides and screw them to the bottom of each rollout flush with the bottom and front (**Photo 8**). Finish up by inserting each rollout, then load them up!

Art Direction • BOB UNGAR
Photography • BILL ZUEHLKE
Technical Art • FRANK ROHRBACH III



7 Screw the hold-down rail to the cabinet back directly above the cleats with 1-5/8-in. screws.



8 Release the drawer slides from the cleat slides and screw them to the side of each box flush with the bottom and the front.



9 Slip the box-mounted slides into the cleat slides and push the box all the way in to fully engage the slides.



DIY GRANITE COUNTERTOP

Get the beauty and durability of granite for half the cost

by Joe Hurst-Wajszczuk

Gorgeous and tough, granite makes a great countertop material. Unfortunately, greatness has its price: Granite slab countertops start at about \$100 per sq. ft. But you can have granite countertops for half that cost (or even less) by using granite tile instead of professionally installed granite slabs. Budget-conscious builders and homeowners have done this for decades—and now there are granite tiles designed especially for countertops.

This article will show you how to install these special tiles. Since a countertop sits just a couple of feet below eye level, minor mistakes are easy to see. So we'll show you how to set your tiles flat, even and perfectly aligned.

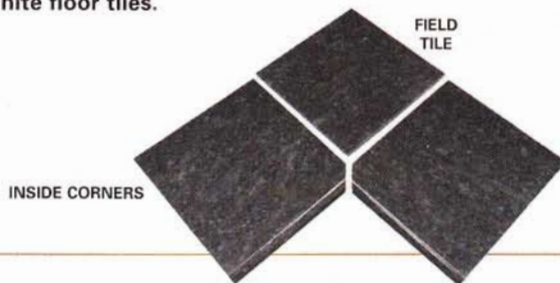
Money, time and tools

The materials bill for our countertop and backsplash was less than \$50 per sq. ft., including everything from screws and backer board to the tiles themselves. The number of inside and outside corners has a big impact on the total cost: Corners cost us about \$40 each. Standard bullnose tiles cost \$20 and field tiles just \$10 each.

This is a two-weekend project for a typical kitchen. You'll spend about half that time tearing out your old countertop and creating a solid base for the tile. A countertop requires a bit more skill and precision than a wall or floor, so we don't recommend this as a first-time tile project. In addition to standard tile tools, you'll need to

Granite tile made just for countertops

The tile we used has a thick, rounded "bullnose." That gives the front edge of the countertop a more elegant look than standard tile can and eliminates the slow, fussy task of cutting and installing thin strips of tile to cover the edge. There are outside corners, premitered inside corners and standard bullnose tiles. Special backsplash pieces are available too (see p. 48). The field tiles are just like standard granite floor tiles.



DIY granite countertop

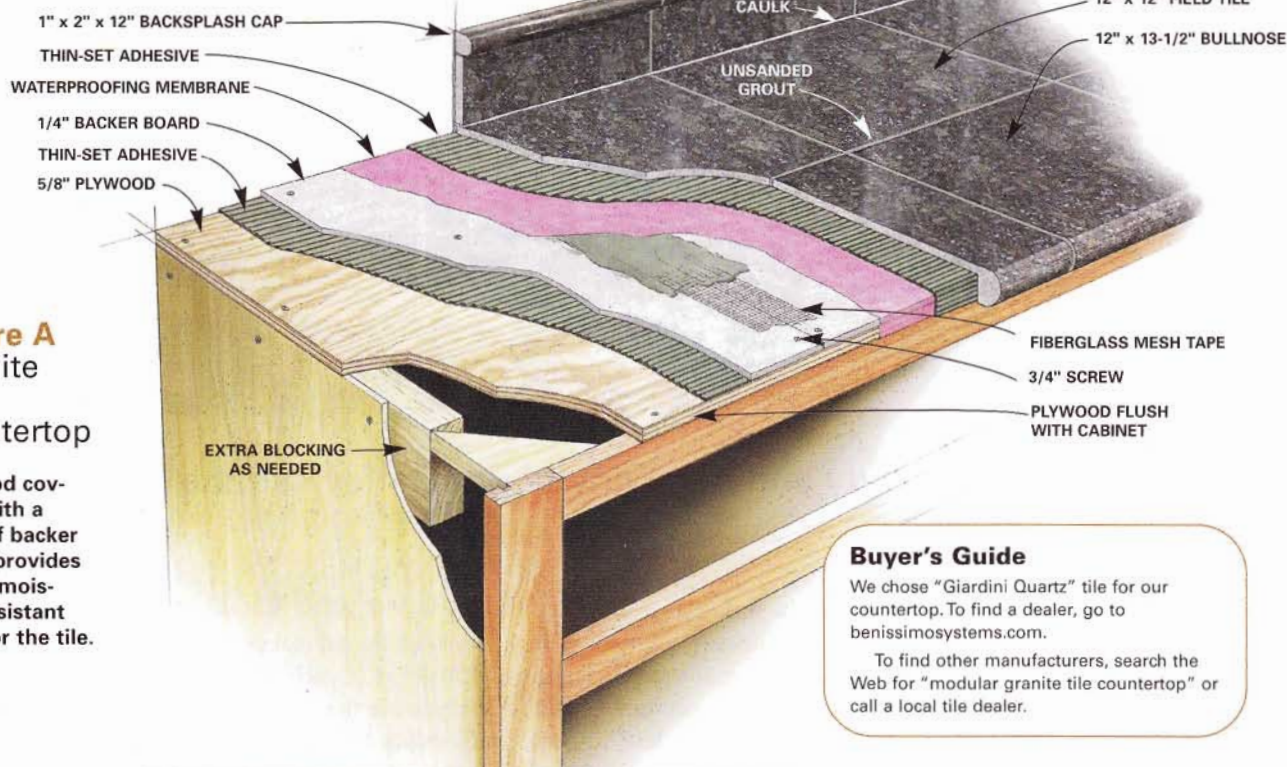


Figure A
Granite
tile
countertop

Plywood covered with a layer of backer board provides a stiff, moisture-resistant base for the tile.

Buyer's Guide

We chose "Giardini Quartz" tile for our countertop. To find a dealer, go to benissimosystems.com.

To find other manufacturers, search the Web for "modular granite tile countertop" or call a local tile dealer.

1 Protect the tile base against water damage with a coat of waterproofing membrane.



2 Set bullnose tiles on scraps of plywood to cut them. Granite is difficult to mark clearly, so stick on some masking tape and mark the tape.



rent a tile saw for a day (about \$50). You can't cut the tiles with a manual cutter. Aside from the tile, all the tools and materials you'll need are at home centers.

Order the tile

A few weeks before you tear off your old countertops, pull out a pencil and pad and calculate the number and types of tiles needed. Measure, then sketch your countertop on graph paper, including the sink. Label the tiles (bullnose, field, corners) to assess what's needed where. To see some sample layouts, go to benissimosystems.com and click on "counter examples."

When you arrive at a final count, you're almost ready to place your order. Because the tiles are color-matched before shipping, order a few extra to allow for cutting mistakes. Three extra field tiles and two extra bullnose tiles is a safe allowance for a simple job, but for a complex project, you might want extra insurance.

Build a solid base

According to the manufacturer of our tiles, they can be installed directly onto an existing laminate countertop *if the laminate is attached to a 3/4-in.-thick plywood substrate*. Since the vast majority of countertops have a particleboard core, chances are you'll have to tear out your countertop

and start from scratch. For step-by-step instructions on how to remove your old countertop and build a base for the tile, go to our Web site (see below). For construction details, see **Figure A**. Seal the backer board with a waterproofing membrane (**Photo 1**) for extra insurance. This coating prevents moisture from passing through the backer board and causing the plywood to swell or delaminate.

Make a dry run first

Once the base is in place, you're set to start laying tile. But first do a dry run. Dry-fitting gives you time to experiment with the arrangement of the tiles so that the natural color and grain variations flow from one tile to the next. A dry run also lets you cut the tiles all at once and minimizes the total rental fee for the tile saw.

The manufacturer recommends setting tiles tightly together and filling the shallow V-shaped bevels between them with grout. But we left 1/8-in. gaps between tiles using tile spacers. That gave us a little room for error in cutting and placing tiles and allowed the tiles to conform to our L-shaped countertop, which wasn't perfectly square.

Start the dry run from an inside corner and work outward so that the two mitered inside corner tiles fit together perfectly. Continue working out from the corner, laying a few bullnose tiles and filling in the back with field tiles.

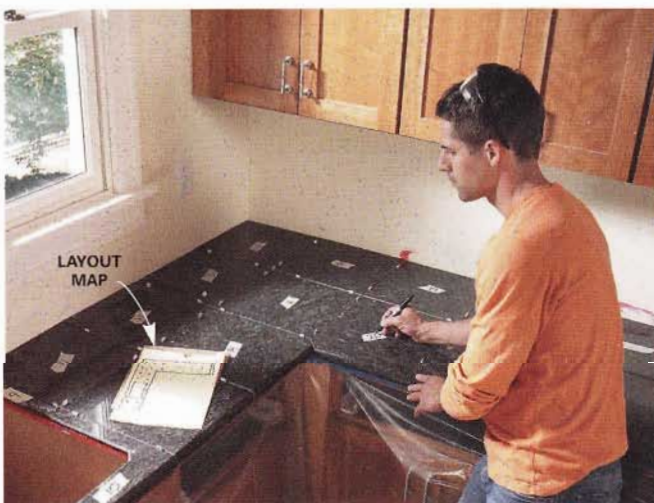
Cutting bullnose tiles with a wet saw isn't any more difficult than cutting regular tiles, except that you'll need to stack a few plywood scraps under the tile so that you can cut the bullnose edge first (**Photo 2**). To avoid chipping or cracking the tile, guide it slowly and steadily past the blade. It's OK if a wall-facing cut is a little rough, but for visible cuts, smooth the sawn edge and create a slight bevel along the top edge with a honing stone (**Photo 3**).

More help online. For help building a base for tile over your cabinets, plus more on granite tile installation, search for "granite tile countertop." For tips on cutting tile, search for "tile saw."

thefamilyhandyman.com



3 Rub cut edges with a honing stone to bevel the edge slightly. Rub in a circular motion to avoid wearing a groove in the stone.



4 Number the tiles and sketch a layout map after the dry run. Remove the tiles and use the map to put each tile back in the correct order later.



5 Draw a baseline from the inside corner tiles to the end tiles. Use this line as a guide as you set the front row of tiles.

6 Work in small sections, spreading just enough thin-set to set eight tiles. That gives you plenty of time to set and adjust tiles before the thin-set becomes too stiff.



After laying out all the tiles, label them and make a simple layout map (**Photo 4**) so you can set each tile right where it belongs later. Finally, remove the middle tiles and use the remaining end and corner pieces to draw guidelines (**Photo 5**).

Set the tiles

It's time to mix the thin-set. To prevent the tiles from sinking, aim for a peanut-butter-thick mix. When combed out with a 3/8-in. notched trowel, the thin-set should hold sharp ridges without slumping.

Lay the tiles from the inside corner out (**Photo 6**), just as you did during the dry run. Instead of fussing over each tile, lay two or three tiles at once, then treat them as a unit. Once you've positioned the tiles, use a straightedge to make sure they're set flat (**Photo 7**). At the beginning, you'll need to place a dry-laid tester tile on top of a 1/8-in.-thick spacer (such as a layer or



7 Lay tiles perfectly flat using a straightedge. Set a "tester" tile on a spacer to account for the thickness of the thin-set. Run the straightedge from the tester to the tile you're setting to check for flatness.

8 Plow out thin-set that oozes up between tiles before it hardens. An old credit card fits into the narrow gaps and won't scratch the tile.



A tile setter's lifesaver

A suction cup tool (\$12) is typically used for handling glass. But it's also great for tricky tile situations. On this project, you set the front tiles first and then insert field tiles between them and the wall. The suction cup lets you set these tiles perfectly. Without it, you'd have to drop the tiles into place, risking chipped edges.

Better yet, a suction cup saves the day when you notice a sunken tile that's already surrounded by other tiles. The ability to lift a tile straight up saves you the hassle of removing and resetting several neighboring tiles just to get at one sinker.



two of cardboard). As you proceed, rest the level on the first tiles you've laid to help gauge the rest. After checking the height, nudge the straightedge against the bullnose edges to be sure the front edge stays straight and lines up with your guideline.

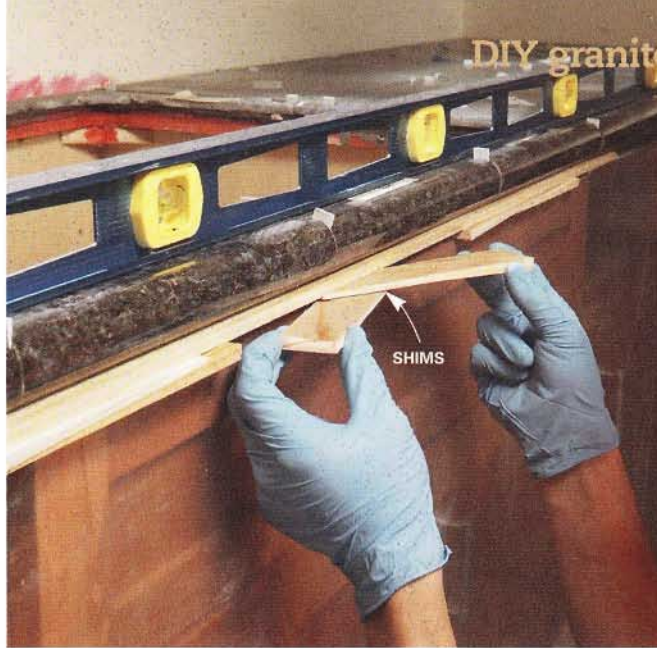
Be careful when adjusting tiles. Granite is tough stuff, but it's surprisingly easy to crack. To slide freshly set tiles, use your utility knife. Stab the point of the blade into the backer board, then lever the side of the blade against the bottom edge of the tile. If a tile sinks lower than its neighbors, lift it straight up with a suction cup (see p. 50), scrape off the old thin-set, trowel on a fresh layer, then reset. Trying to tap down a high tile almost always causes a crack. Instead, try gently pressing and wiggling so the excess thin-set can squeeze out an open end. If that doesn't work, lift the tile and scrape away the excess thin-set. Clean out any thin-set that oozes out between the tiles as you go, before it has a chance to harden (**Photo 8**).

Thin-set sets quickly, but to be safe, give the counter a few hours (preferably overnight) to harden before starting the backsplash (**Photo 10**). Make sure your new backsplash isn't higher than your outlets before mixing any mortar. To prevent sliders, give your freshly tiled backsplash a day to cure before removing the spacers and packing the grout.

Grout, seal and caulk

Once the granite's in place, this job is like any other tiling project. Use a float to pack grout into most of the lines, but you'll probably need to use your finger to work grout into the curves, such as the bullnose front edge and the backsplash cap. Sponge off the excess when the grout begins to harden. Wait until the grout is fully dry before buffing off the remaining haze with a clean cotton towel. You can now reinstall the sink, stove and other appliances.

Some foods and cleaners can stain or even etch granite and grout, so apply a stone sealer (**Photo 11**). Finally, lay a thin bead of caulk along the joint where the counter meets the backsplash.



9 Shim the narrow tiles in front of the sink to keep them from tipping forward. Align the tops and fronts of these tiles using a straightedge.



10 "Back butter" the backsplash and cap pieces to minimize the mess on the wall. Support backsplash tiles with spacers to leave a 1/8-in. gap for caulk.



11 Seal the tiles with a penetrating stone sealer after the grout has dried. A foam paint roller applies the sealer quickly and evenly.

Art Direction • BOB UNGAR
Photography • BILL ZUEHLKE
Illustration • DON MANNES
Consultant • DEAN SOREM





Replacing a sink and faucet is a quick, easy way to spruce up your kitchen. In most cases, the whole job takes less than a day. But there are problems that can sneak up if you haven't planned ahead and aren't sure what to watch out for.

In this article, we'll show you the most common problems that could turn your project into a nightmare—and tell you how to avoid them.

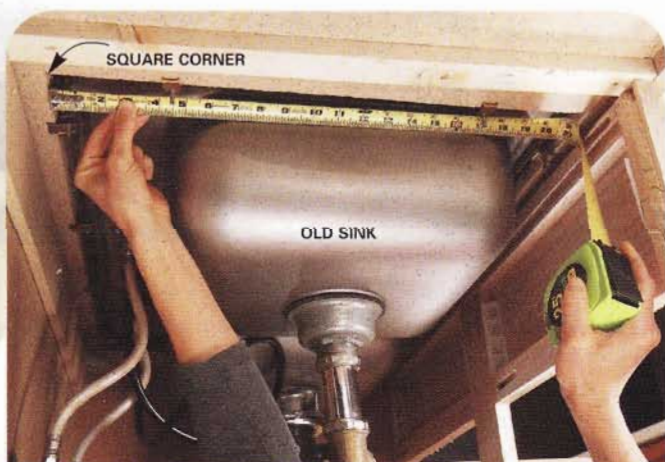
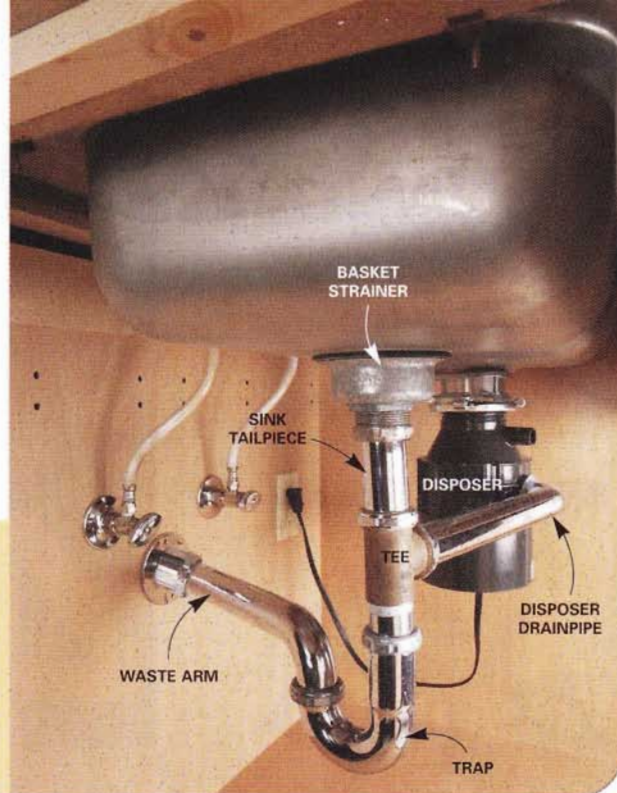
10 pitfalls of sink replacement

by Brett Martin

Got your eye on a deeper sink? Measure the tailpiece first!

You can choose a new sink with a deeper basin than the existing sink has, but if it hangs down too low, it won't drain properly and you'll have to lower the sanitary tee connection in the drain line inside the wall. You'll definitely want to avoid this task if the connection is metal and ends up being behind base cabinets. Plastic pipe is easier—if you can get to it easily. The actual tee connection may be several studs over from where the waste arm enters the wall.

Measure the sink tailpiece between the basket strainer and the tee. That measurement is the extra depth that can be added to the sink bowl without lowering the drainpipe going into the wall. Also be aware that a new disposer may have a lower drainpipe than your existing one—but it can't be lower than the tee. If the disposer drainpipe will be too low, consider a sink with different depth bowls. You'll have a deep bowl for dishes and a shallow one for the disposer.



Make sure the new sink will cover the old hole

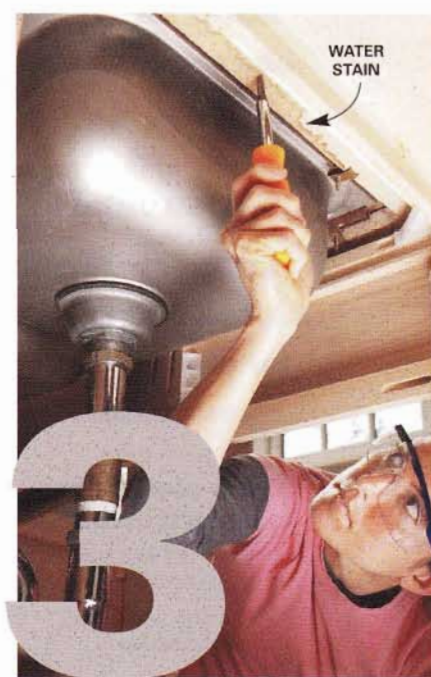
A sink that's too small for the countertop opening will leave ugly gaps along the sides (or even fall right through the hole!). Before removing the existing sink, measure the opening from underneath. Measure all four sides because the cutout may not be square. Pay special attention to the corners. Contractors often cut them at 90-degree angles (instead of rounding them off) because it's faster.

Take the measurements with you when buying the new sink and make sure it'll cover the opening, including any square corners. If you can't find a sink that'll fit, buy a larger one and enlarge the opening.

Swollen countertops spell trouble

Leaks around a sink rim can soak the particleboard under a plastic laminate countertop. A little water damage is normal and won't interfere with your new sink. But severe swelling will prevent the new sink from sitting flat on the countertop. And crumbling particleboard won't provide a solid base for the clips that fasten the sink to the countertop.

Look at the countertop surface around the sink. Check for bulges or areas where the laminate has loosened from the particleboard. Then look at the countertop from under the sink for areas that are too spongy to support sink clips or support the sink itself. If you find any of these problems, replace the countertop.



For help replacing a countertop, visit
thefamilyhandyman.com and search for "countertop."

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10 pitfalls of sink replacement



Seal with caulk, not putty

Plumber's putty has long been the standard sealant for sink baskets and sometimes even sink rims. The problem with putty is that it eventually dries out, cracks and causes leaks. Worse, it

can damage some plastics, including some of the plastics used to make sinks. Avoid drips and disasters by using a silicone caulk instead.

Use a kitchen-and-bath 100 percent silicone that requires solvent cleanup. A tube costs \$4 at home centers. Apply a bead around the sink opening when you set in the sink and around the drain opening when you set the disposer drain and basket strainer. Wipe away excess caulk.



Remove ALL the old caulk

The caulk around your new sink is all that'll stand between your countertop and water damage. For a lasting, watertight bond with the countertop, you have to completely remove the old caulk.

Remove the old sink, then scrape off the caulk (or plumber's putty) with a putty knife. Apply a caulk remover (\$10 at home centers) to stubborn caulk. Let the caulk remover sit for a couple of hours, then scrape off the softened caulk. Finally, use rubbing alcohol or nail polish remover to wipe off residue, and then clean the surface with a sponge and water.



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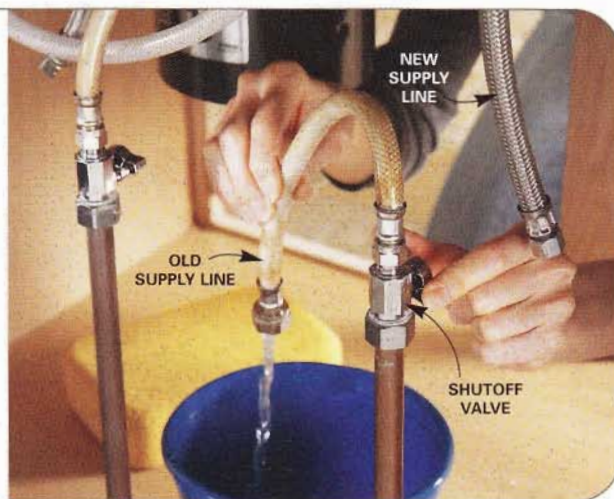
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Get the gunk out

Working on the water lines always shakes sediment loose. The last thing you want is for these deposits to clog your new faucet. Avoid this problem by purging the lines before hooking up the new supply lines.

Once the entire project is complete and the new supply lines are attached to the faucet, fasten the old supply lines to the shutoff valves. Next, turn the water all the way on for a full minute to wash away any debris in the lines. Then attach the new lines to the shutoff valves. After three days, take the aerator off the faucet and rinse away any sediment that has seeped through.



For help replacing the drain assembly, visit thefamilyhandyman.com and search for "sink trap."



Make sure ya got enough holes

Most sinks have three holes for the faucet and a fourth for an accessory, such as a sprayer or a soap dispenser. But some faucets require only one or two holes, and you may not want enough accessories to use the rest. You can buy plugs for unused holes, but they usually don't match the sink. If the sink doesn't have enough holes, cutting an extra hole in stainless steel or cast iron is often difficult or impossible.

To avoid these hassles, choose the faucet and accessories first, then buy a sink with a matching number of holes. Some sinks have "knockouts" that you can drill to provide extra holes. You can also special-order a sink with the number of holes you need.

Trash all the old parts

Resist the temptation to save a few bucks by reusing the old drainpipes. The threads are probably corroded and won't form a tight connection. A new drain assembly is easier to install and less likely to leak.

Instead of shopping for each individual part for the drain, buy a kit at a home center that has everything you need. A sink kit (\$30) includes drainpipes, fittings, shutoff valves, supply lines and new basket strainers.



Read the Patient Information that comes with VESicare before you start taking it and each time you get a refill. There may be new information. This leaflet does not take the place of talking with your doctor or other healthcare professional about your condition or treatment. Only your doctor or healthcare professional can determine if treatment with VESicare is right for you.

What is VESicare?

VESicare is a prescription medicine used in adults to treat the following symptoms due to a condition called overactive bladder:

- Having to go to the bathroom too often, also called "urinary frequency,"
- Having a strong need to go to the bathroom right away, also called "urgency,"
- Leaking or wetting accidents, also called "urinary incontinence."

VESicare has not been studied in children.

What is overactive bladder?

Overactive bladder occurs when you cannot control your bladder contractions. When these muscle contractions happen too often or cannot be controlled, you can get symptoms of overactive bladder, which are urinary frequency, urinary urgency, and urinary incontinence (leakage).

Who should NOT take VESicare?

Do not take VESicare if you:

- are not able to empty your bladder (also called "urinary retention"),
- have delayed or slow emptying of your stomach (also called "gastric retention"),
- have an eye problem called "uncontrolled narrow-angle glaucoma",
- are allergic to VESicare or any of its ingredients. See the end of this leaflet for a complete list of ingredients.

What should I tell my doctor before starting VESicare?

Before starting VESicare tell your doctor or healthcare professional about all of your medical conditions including if you:

- have any stomach or intestinal problems or problems with constipation,
- have trouble emptying your bladder or you have a weak urine stream,
- have an eye problem called narrow-angle glaucoma,
- have liver problems,
- have kidney problems,
- are pregnant or trying to become pregnant (It is not known if VESicare can harm your unborn baby),
- are breastfeeding (It is not known if VESicare passes into breast milk and if it can harm your baby. You should decide whether to breastfeed or take VESicare, but not both).

Before starting on VESicare, tell your doctor about all the medicines you take including prescription and nonprescription medicines, vitamins, and herbal supplements. While taking VESicare, tell your doctor or healthcare professional about all changes in the medicines you are taking including prescription and nonprescription medicines, vitamins and herbal supplements. VESicare and other medicines may affect each other.

How should I take VESicare?

Take VESicare exactly as prescribed. Your doctor will prescribe the dose that is right for you. Your doctor may prescribe the lowest dose if you have certain medical conditions such as liver or kidney problems.

- You should take one VESicare tablet once a day.
- You should take VESicare with liquid and swallow the tablet whole.
- You can take VESicare with or without food.
- If you miss a dose of VESicare, begin taking VESicare again the next day. Do not take 2 doses of VESicare in the same day.
- If you take too much VESicare or overdose, call your local Poison Control Center or emergency room right away.

What are the possible side effects with VESicare?

The most common side effects with VESicare are:

- blurred vision. Use caution while driving or doing dangerous activities until you know how VESicare affects you.
- dry mouth.
- constipation. Call your doctor if you get severe stomach area (abdominal) pain or become constipated for 3 or more days.
- heat prostration. Heat prostration (due to decreased sweating) can occur when drugs such as VESicare are used in a hot environment.

Tell your doctor if you have any side effects that bother you or that do not go away.

These are not all the side effects with VESicare. For more information, ask your doctor, healthcare professional or pharmacist.

How should I store VESicare?

- Keep VESicare and all other medications out of the reach of children.
- Store VESicare at room temperature, 59° to 86°F (15° to 30°C). Keep the bottle closed.
- Safely dispose of VESicare that is out of date or that you no longer need.

General information about VESicare

Medicines are sometimes prescribed for conditions that are not mentioned in patient information leaflets. Do not use VESicare for a condition for which it was not prescribed. Do not give VESicare to other people, even if they have the same symptoms you have. It may harm them.

This leaflet summarizes the most important information about VESicare. If you would like more information, talk with your doctor. You can ask your doctor or pharmacist for information about VESicare that is written for health professionals. You can also call (866) 972-4636 toll free, or visit www.VESICARE.com.

What are the ingredients in VESicare?

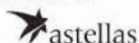
Active ingredient: solifenacin succinate

Inactive ingredients: lactose monohydrate, corn starch, hypromellose 2910, magnesium stearate, talc, polyethylene glycol 8000 and titanium dioxide with yellow ferric oxide (5 mg VESicare tablet) or red ferric oxide (10 mg VESicare tablet)

Manufactured by:
Astellas Pharma Technologies Inc.
Norman, Oklahoma 73072

Marketed by:
Astellas Pharma US, Inc.
Deerfield, IL 60015-2548

Marketed and Distributed by:
GlaxoSmithKline
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North Carolina 27709



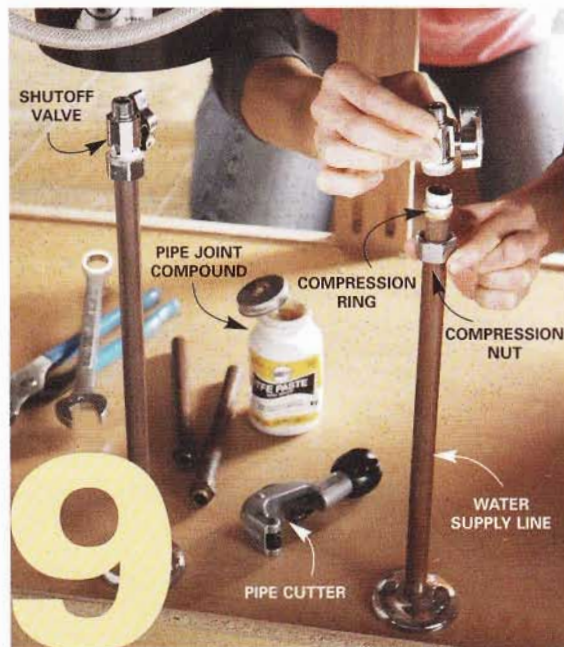
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10 pitfalls of sink replacement

Test the shutoff valves first

If the shutoff valves under your sink don't work or you don't have any, you'll have to turn off the water supply to the entire house while replacing the sink. This could cause domestic strife, especially if the job turns into a half day or longer project, so make sure the valves work before going to the home center.

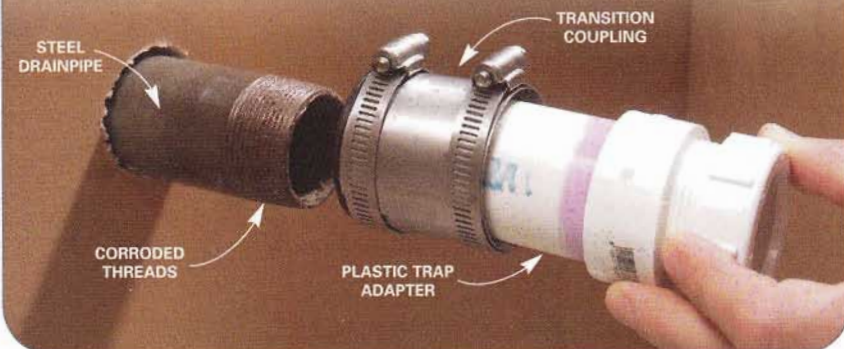
To test the valves, close them and turn on the faucet. The faucet may drip for a minute or two, but if the drip continues, the shutoff valves are leaking. Repair or replace old valves. If you're buying new ones, use quarter-turn ball-type shutoff valves. They're more reliable and less likely to leak at the packing nut.



Rusty old pipe? Cheat!

Corroded steel drainpipes are a bear to work with, since the slip nuts are almost impossible to loosen or retighten. You can easily bypass those rusty old threads by adding a section of plastic pipe.

If the slip nut attached to the drainpipe in the wall won't come off, spray on WD-40 and try a bigger wrench. If that doesn't work, cut off the drainpipe with a hacksaw (save as much of the threaded area as possible). Then buy a plastic trap adapter, a transition coupling and a piece of plastic pipe (PVC or ABS) and cement (\$10 altogether at home centers). Cement the adapter to a 4-in. section of pipe, then place the coupler over the other end of the pipe and over the steel drainpipe.



Art Direction • BECKY PFLUGER
Photography • BILL ZUEHLKE
Consultants • CHARLES AVOLES and LES ZELL, MASTER PLUMBERS



bench

Build an alcove,
bench & shelf into
your shower with
these advanced
tiling techniques

by Travis Larson

Tile a shower with *panache!*



shelf

Showers used to be simple boxes for fear that any special architectural features could lead to a leak—and expensive repairs. But modern tiling materials, especially spreadable waterproof membranes, can put these fears to rest. Now you can build in a bench or other structure with confidence and make showering more convenient and pleasant.

In this article, we'll show you how to build in three features: a bench, a shelf and an alcove. We'll include the key planning steps and the waterproofing and special tiling techniques. This project isn't for a tiling rookie. You should have some hands-on tiling experience before tackling a complex project like this one. But if you have rudimentary framing skills, and have successfully tiled floors, backsplashes or simple shower surrounds, the advanced techniques we show here will enable you to move on to a project like this.

Framing, sheathing and tiling a shower like we show here will take you about four full days. The tiling alone will take two days. Tile and tiling supplies will cost about \$600 if you choose standard tile. If you want fancy glass tile accents like the ones we show, brace yourself. Glass tile starts at \$30 per sq. ft. and can cost upward of \$100 per sq. ft., so it's wise to think of it as an accent only. It pays to rent or buy a "score and snap" tile cutter if you're using 4 x 4-in. tiles like we show. But if you're using natural stone or larger tiles and your tile layout requires lots of cuts, especially notching, rent a tile saw for a day. You can score and snap glass tile (small mosaic tiles only), but you'll break about every 10th tile—not a big deal if you plan the tile layout well and only have to cut a few.



alcove



Plan the layout

First make sure you have enough space in your shower to add a bench. You'll need to leave at least 3 ft. of shower area so you can still move around. This bathroom originally had a 5-ft. tub, which we tore out and replaced with a 4-ft. shower base. (See "How to Plumb a New Shower Base," Oct. '06, p. 74.) This left a 1-ft. space for the bench and the over-head shelf at the end of the shower.

The key to an exceptional tile job is to plan the shower with the actual tile you intend to use. Use the tile to decide on exact dimensions and positions of benches, alcoves and even wall thicknesses so you can use whole tiles as much as possible and minimize cutting.

A foolproof method is to draw a full-scale template of each wall on rosin paper (**Figure A** and **Photo 1**). Be sure to draw the walls including the thickness of backer board and any plywood that's needed, like on the bench seat. Then mark existing studs that outline alcove positions. Next, lay the tile on the template to decide on the heights, widths and depths of shower features like benches, alcoves and shelves.

Try to wind up with full tiles outlining or covering those features whenever possible. Notice that our alcove is surrounded by full tiles. Those tiles determined the final position and size of the alcove. (It's easier to deal with cutting the tiles that cover the back of the alcove than the ones that border it.) Notice also that the exact height of the bench allowed for full tiles around it—no cutting needed.



1 Plan the framing and tile layout for each wall on rosin paper cut to match the size of each wall.

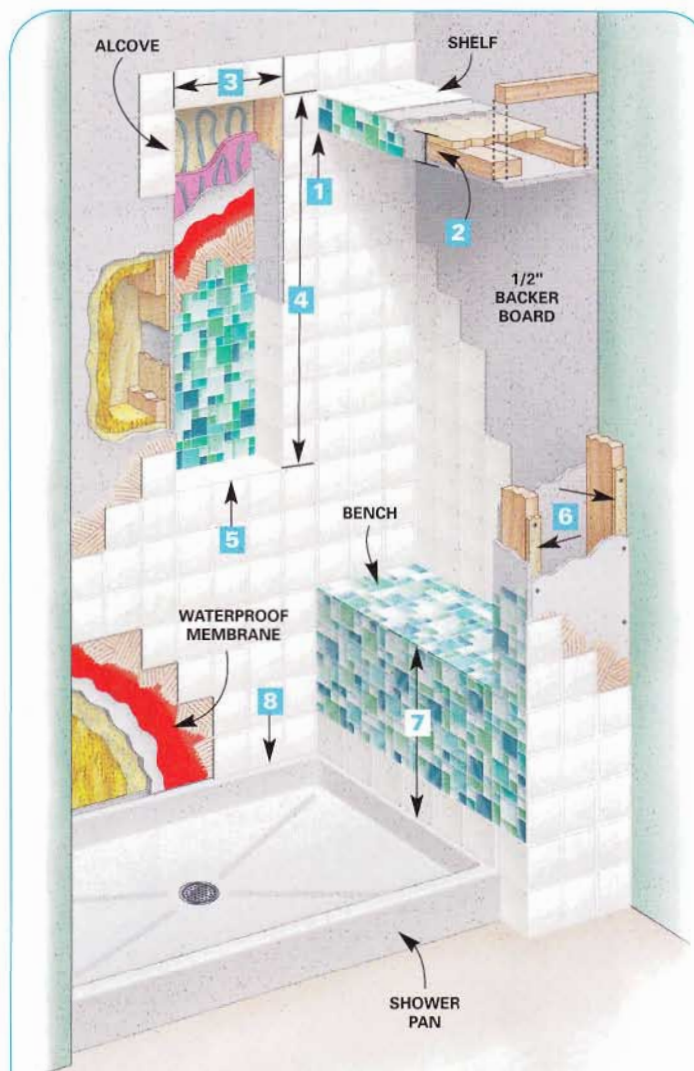


Figure A Layout objectives

- | | |
|---|---|
| 1 Shelf rests on full tile | 5 Start alcove at top of tile row |
| 2 Thickness matches face tile | 6 Fur out as needed to avoid cutting |
| 3 Adjust alcove width for full field tiles | 7 Full tiles define bench height |
| 4 Plan height for full field tiles | 8 Start with full tiles at base |

Also adjust the thicknesses of walls and ledges for full tiles. We furred out the 2x4 wall with strips of 1/2-in. plywood so the glass tile would cap the end without any cutting. We chose framing and sheathing thicknesses to achieve the same aim with the shelf edge. If possible, plan the tile for the large wall expanses so that you'll have columns of similar-width tiles at both ends of each wall. Study **Figure A** to make all of this clear. You won't be able to avoid all tile cutting, of course. The goal is to simplify the tile work as much as possible. The more effort you put into planning the project, the easier it will be to install the tile. And you'll be rewarded with a first-class tile job.

Frame the shower



If you have a space between the shower base and the wall, as we show, start by framing a continuous wall, floor to ceiling, between the base and the wall (**Photo 2**). If there's no framing behind the

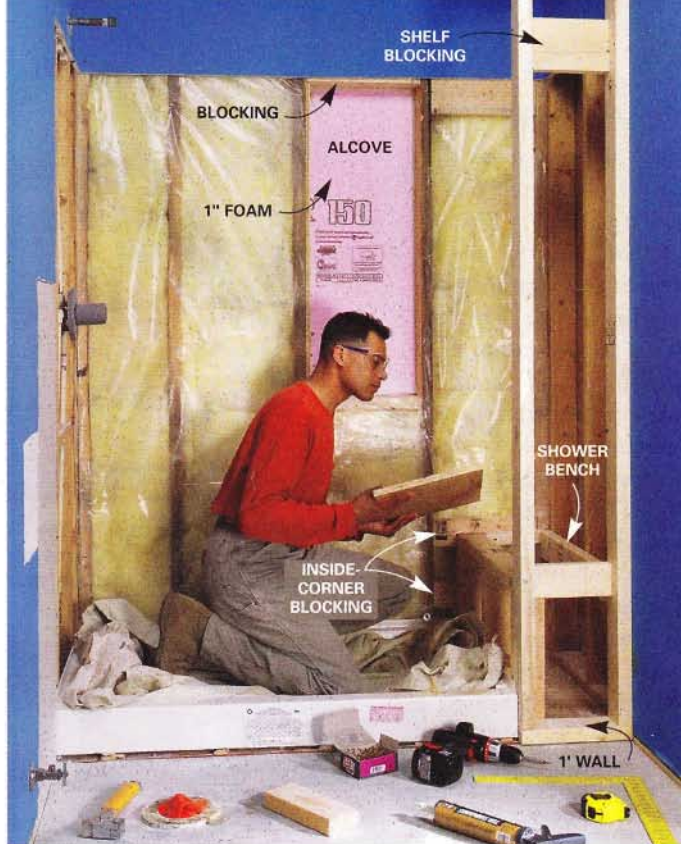
ceiling for anchoring the wall, just screw it to the drywall and then add a bead of construction adhesive around the ceiling plate. Next, frame in the alcove. Use your template to establish the height of the top and bottom and then add blocking there. Fur out the side(s) if needed to accommodate tile sizes within and/or surrounding the opening. If your alcove is on an outside wall, glue 1-in.-thick foam insulation against the outside sheathing using special foam adhesive.

Frame the bench with a 1/4-in. slope so water won't pool. Cap the bench with 3/4-in. plywood, screwing it with 1-5/8-in. screws. Lastly, add 2x6 blocking to anchor any shelves and any missing blocking at any inside corners.

Cement board tile backer is commonly used for shower walls, but we used a dry-wall-type tile backer called DensShield. It's slightly more expensive than cement board but much easier to work with. You score it, snap it and cut it just like drywall.

Whatever material you use, anchor it with 1-1/4-in. cement board screws spaced every 4 in. at seams and every 6 in. everywhere else. If you have a premade shower base, keep the bottom row of backer board just above the lip. The tile will hang down over the lip to direct water into the base.

Next lay a strip of fiberglass mesh tape over all seams and corners. It has adhesive on one side, but many brands don't stick very well or for very long. If you have trouble, use staples to hold it in place. Mix up about a quart of thin-set mortar to the consistency of creamy peanut butter and trowel it over all the seams with a 6-in. putty knife. Try to avoid big buildups, which keep the tile from lying flat.



2 Add blocking to the top and bottom of the alcove, shimming the sides as needed, and fill in the back with foam board. Frame the end wall and then the bench.



3 Cover all seams and corners with fiberglass mesh tape. Embed the tape with a thin layer of thin-set.



4 Coat water-prone areas with two coats of waterproofing membrane.

Apply waterproofing membrane

Any area that will be exposed to lots of water should be coated with two coats of a brush-on waterproofing membrane (\$50 per gallon; available at some home centers and all tile stores). Use disposable brushes and let the first coat dry thoroughly before recoating. The RedGard product we show goes on pink and dries to red when it's ready for a second coat (**Photos 4 and 5**). Focus on areas that

will get the lion's share of shower-head water, especially corners and horizontal bench surfaces and recessed alcoves. For extra protection, also coat all of the screw heads in areas that'll get deluged. As with the thin-set, try to avoid big buildups.



Tile the alcove wall



Use your template as a guide to snap exact tile layout lines. First establish lines for the rows of tiles surrounding the alcove. Then dry-stack and measure tiles to get an exact measurement from the bottom of the alcove to the top of the first row of tile. Draw a level line and screw a 1x2 ledger to the wall (**Photo 7**). The ledger will ensure a perfectly straight bot-

tom course of tiles and keep them from sliding down the wall before the adhesive sets. (You'll remove the ledger and add the bottom row of tiles later, cutting them to height if needed.)

Mix up about a quart of thin-set at a time (follow the directions on the bag). Comb the thin-set onto the back of the alcove with a 1/4-in. notched trowel (**Photo 5**). Then press the mosaic tile sections into the thin-set. Lightly tap the tiles with a grout float to embed each small tile evenly with its neighbors (**Photo 11**). Look carefully for grout that works its way out between the tiles and wipe it off with a damp rag; it's tough to scrape off after it sets.

Begin setting the field (wall) tile following your layout lines. After you set each tile, give it a little rap with your fist to better embed it. Dip tiles in water before sticking them to the wall so they form a better bond with the thin-set (**Photo 8**). Continually check the rows of tile for straightness. When the thin-set is still fresh, you can even out rows just by pushing a level against several tiles at once (**Photo 12**). Finish tiling the wall, cutting the top row to fit as needed. Leave out the row of tiles where the shelf will rest (**Photo 8**).

Tile the alcove sill and then the sides and top. Slightly slope the sill tiles toward the shower for drainage by piling on a little extra thin-set on the back side. Match the slope on the bottom tiles at the side by taping the bottom tile even with the row above it and scribing the angle with a full tile (**Photo 9**).



5 Spread thin-set on the back of the alcove with a 1/4-in. notched trowel and then embed the mosaic tile into the adhesive.



6 Support sagging mosaic tiles with shims and/or nails until the adhesive sets. Tamp all the tiles level as we show in Photo 11.



7 Lay out the critical tile lines with a chalk line. Screw a 1x2 to the studs to support the second row of tiles.



8 Spread thin-set up to the horizontal layout line and around one corner of the alcove. Set those tiles and then continue tiling the wall, leaving out the row of tiles directly behind the shelf.



9 Tile the alcove bottom shelf first, sloping it slightly toward the shower. Scribe the bottom side tiles to get the proper angle, and then finish tiling the sides and top.

Tile the bench



Starting at one end, set the tile on the face of the bench. If you're left with a gap at the other end, cut the mosaic into strips and slightly expand

the grout lines between rows (**Photo 10**). Small variations in the width of the lines won't be noticeable. Lay tile on the seat to gauge the final grout line width between the seat and the face tile. Then add the seat tile, working from front to back and aligning the grout lines with the face tile. Make sure the seat tile edges align perfectly with the face tile surface—they shouldn't be backset or overhanging. Finish tiling the rest of the field tile above the bench, stopping at the shelf (**Photo 13**).

Mount and tile the shelf



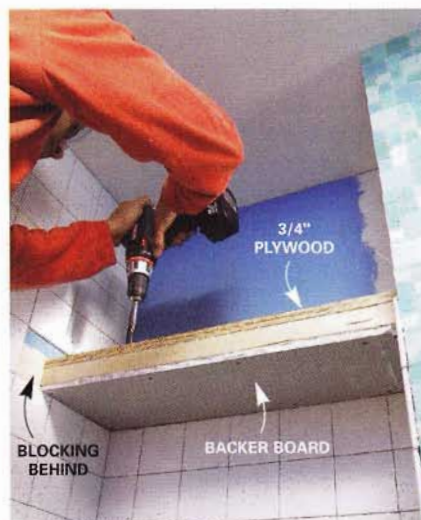
Build the shelf 1/8 in. narrower than the opening so you can tip it into place. Leave off the plywood top but add backer board to the underside.

Rest the shelf on the field tile and screw it to the blocking behind the backer board with two 3-in. screws at each side. Then screw the 3/4-in. plywood top to the framing with 1-5/8-in. screws (**Photo 13**) and add the backer board to the top and the front edge.

Tile the edge first, supporting it with a ledger screwed to the shelf underside (**Photo 14**). Remove the ledger after an hour or so, and then finish tiling the underside and top and the field tile above it. Lastly, remove the 1x2 ledgers and add the bottom row of tiles.



11 Tile the bench and the end of the short wall. Force mosaic tiles evenly into the thin-set with a grout float.



13 Frame the shelf. Sheathe the bottom with backer board, rest it on the tile and screw the sides into the blocking. Add the 3/4-in. plywood and cover the exposed wood with backer board.

For more tips and techniques, visit our Web site and type in the keywords "shower" and "tile."

thefamilyhandyman.com

10 Tile the front of the bench first. Cut the mosaic tiles into strips if you need to adjust the spacing to get a better fit with less cutting.



12 Add the rest of the field tile, stopping at the underside of the shelf. Align tile edges at outside corners with a straightedge.



14 Screw a support ledger to the shelf underside to support the lip tile. Then tile the underside, top and the rest of the wall tile. The following day, grout the whole works and caulk all inside corners.

Art Direction • BECKY PFLUGER
Photography • BILL ZUEHLKE
Illustrations • FRANK ROHRBACH III
Consultant • DEAN SOREM, SOREMTILE



**Turns
wasted
space into
storage
space**

bathroom Cabinet

by Seth Keller

in

many bathrooms, a picture or a small shelf hangs above the toilet. But you can make better use of that space by building an attractive cabinet that offers about three times as much storage as a typical medicine cabinet.

This article will show you how to build it. The simple joinery and store-bought doors make this a great project for

the woodworking novice. Assembling the crown and base is a bit tricky, but we'll help with that process too.

The total materials bill for our cabinet was \$140. You'll need a miter saw to cut the trim. A table saw and a brad nailer will save time, but you can make all the cuts with a circular saw and drive the nails by hand if you prefer.

Store-bought closet doors make it fast and simple

Building cabinet doors is a tricky, time-consuming job. But you can avoid all that fussy work by buying closet doors and cutting them to fit the cabinet. We'll also show you a fast, foolproof way to hang the doors using special hinges.



The height and width of your cabinet may differ slightly from our measurements, depending on the bifold doors available at your home center. So choose your doors first and then alter the lengths of the sides and the top, bottom and middle shelves if necessary.

Bifold closet doors are sold as a pair, usually joined by hinges. Each of our doors measured 11-15/16 in. wide, and we cut them to length as shown in the photo to the left.

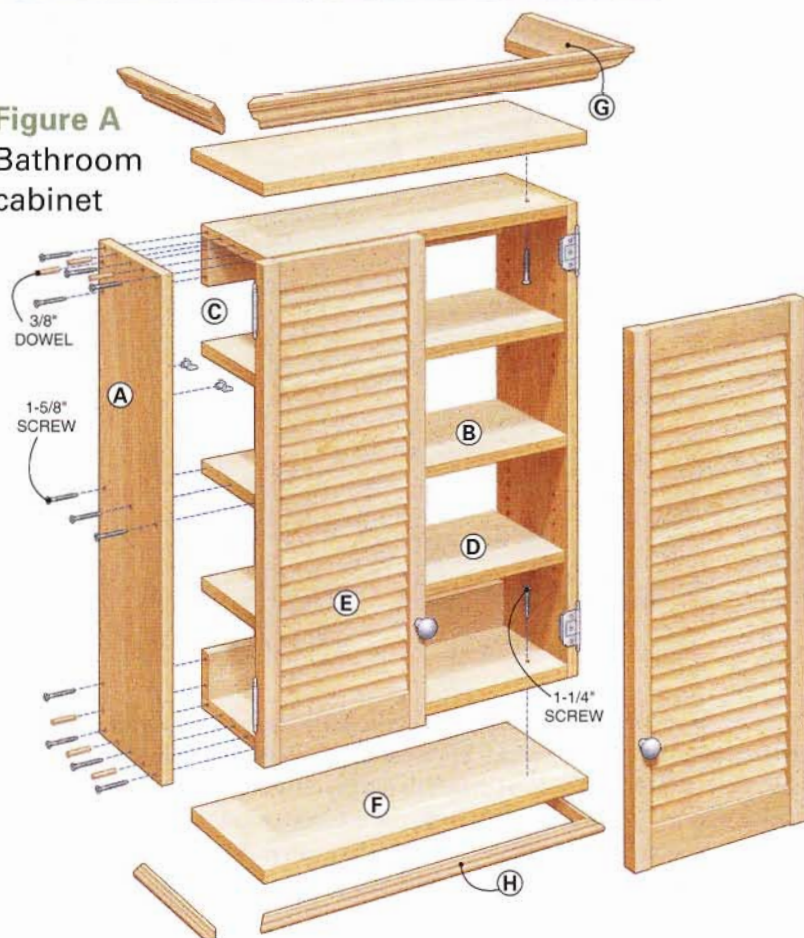
The easy-to-install hinges we used are available online (see the Materials List on p. 74). All the other tools and materials, including the cabinet doors, are available at home centers. You may not find the exact crown and base moldings we used, but most home centers carry a similar profile. Any 2-1/4-in. crown molding is appropriate for this project. We used "base cap" molding for the base. For a more contemporary look, you could skip the crown and base altogether, since they're purely decorative.

Build a basic box

Cut the plywood parts to size. The dimensions we used are given in the Cutting List (below). If you don't have a table saw, go to our Web site to find information about making long, straight cuts with a circular saw (see p. 74). To make the short end cuts, use the homemade guide shown in **Photo 3** and described on p. 74.

Assemble the cabinet box with glue and screws, followed by wood dowels for extra strength (**Photo 1**). You can buy long dowels and cut them into short pieces, but dowels pre-cut and fluted for woodworking are easier to work with. This assembly

Figure A
Bathroom cabinet



Cutting List

KEY	QTY.	SIZE & DESCRIPTION
A	2	8" x 32-5/8" sides
B	3	8" x 22-1/2" top, bottom and middle shelf
C	2	3" x 22-1/2" top and bottom cleats
D	2	8" x 22-1/4" adjustable shelves
E	2	11-15/16" x 32-3/8" doors
F	2	9" x 24" crown and base frames
G	3	2-1/4"-wide crown molding (cut to fit)
H	3	3/4"-tall base molding (cut to fit)

Except for moldings, all parts are 3/4-in. plywood.

method is quick and easy and gives strong results. But because the method requires lots of wood filler to hide the fasteners, it's for painted work only. If you want to use stain and a clear finish, biscuits or pocket screws are a better choice.

Drill 1/8-in. pilot and countersink holes for the screws using a drill bit that does both at once (\$6). Attach the top, bottom and cleats to one side, then add the other side. Mark the middle shelf position on the sides, slip it into place and screw it (there's no need for glue).

Before you drill the dowel holes, make sure the box is

square by taking diagonal measurements; equal measurements means the box is square. If necessary, screw a strip of plywood diagonally across the back of the box to hold it square. For clean, splinter-free holes, drill the dowel holes with a 3/8-in. brad-point bit (\$5), making the holes 1/8 in. deeper than the length of the dowels. That way, you can sink the dowels below the surface of the plywood and fill the holes with wood filler. With the box completed, drill holes for the adjustable shelf supports (**Photo 2**) using a brad-point drill bit. Most shelf supports require a 1/4-in. hole.



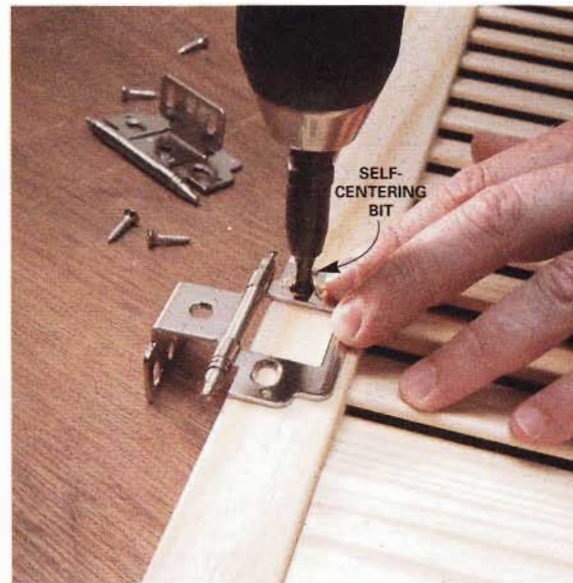
1 Assemble the cabinet box with glue and screws. Then add glued dowels for rock-solid joints. Drill splinter-free dowel holes with a brad-point bit.



2 Drill shelf support holes using a scrap of pegboard to position the holes. Wrap masking tape around the drill bit so you don't drill all the way through.



3 Cut the doors using a homemade saw guide to ensure a straight cut. Lay the door face down so any splintering takes place on the back of the door.



4 Mount the hinges on the doors. A self-centering drill bit positions the screw holes for perfectly placed hinges.



Cut and hang the doors

Cut the doors using a saw guide (**Photo 3**). To make a guide, screw a straight 1x3 to a 14 x 18-in. scrap of 3/4-in. plywood. Then run your saw along the 1x3 to cut off the excess plywood and create a guide that steers your saw perfectly straight and indicates the exact path of the cut. Simply mark the doors, align the guide with the marks, clamp it in place and cut.

More help online. For help making long, straight cuts, search for "circular saw." For more projects, search for "bathroom storage" at thefamilyhandyman.com

Screw the hinges to the doors 3 in. from the ends (**Photo 4**). The fronts and backs of louvered doors look similar, so check twice before you drill. Stand the doors against the cabinet, setting them on spacers to create a 1/8-in. gap at the bottom. The gap between the doors should also be about 1/8 in. Clamp each door into position and screw the hinges into place (**Photo 5**). If the doors don't align perfectly because the box is slightly out of square, don't worry; you can square the box when you hang it. The hinges also adjust up or down 1/16 in.



5 Position the doors carefully and clamp them to the cabinet. Then screw the hinges to the cabinet from inside for a foolproof, exact fit.

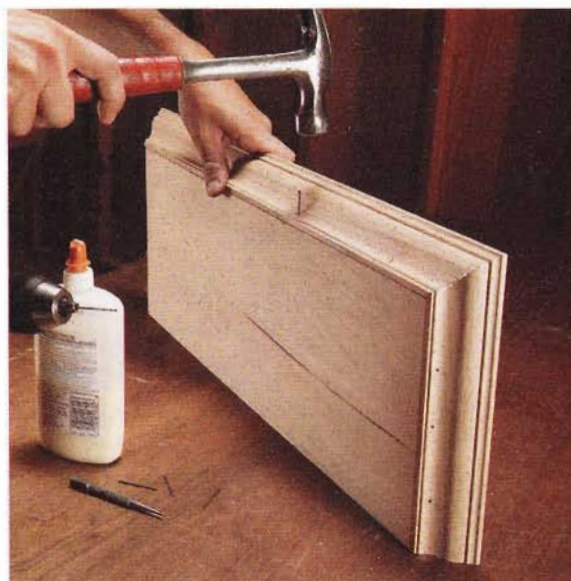


6 Cut the crown molding with it upside down and leaning against the fence. Clamp a block to the fence so you can hold the molding firmly against it.

Materials List

ITEM	QTY.
4' x 8' x 3/4" birch plywood	1
2-1/4"-wide crown molding	5'
3/4"-tall base cap molding	5'
1-1/4" screws	1 box
1-5/8" screws	1 box
3/8" dowels	16
1-1/2" finish nails	1 box
Hinges*	4
Shelf supports	8
Spray primer	1 can
Spray paint	2 cans
Wood glue	
Wood filler	

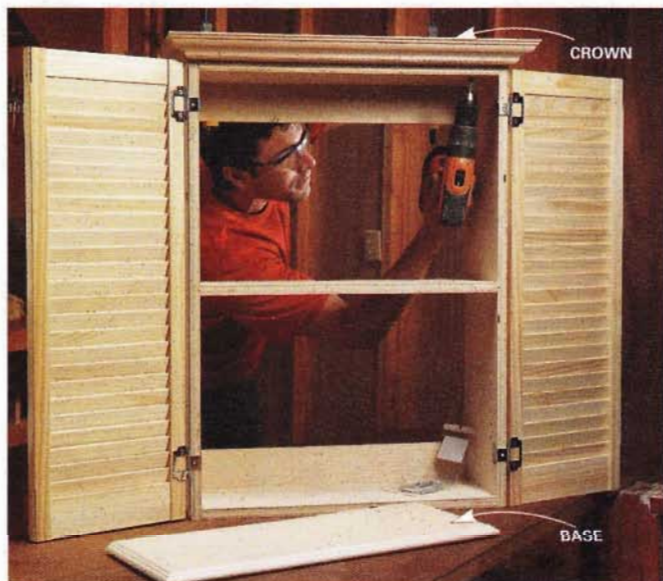
*To order hinges, call (800) 383-0130 or go to www.wwhardware.com. We used No. A03180TB G9 PK. For other styles and finishes, do a search for "A03180."



7 Nail the crown to the frame. Nail the mitered corners only if necessary. If they fit tight and are perfectly aligned, let the glue alone hold them together.

Add the crown and base

Measure the top of the cabinet (including the doors) and cut the plywood crown and base frames to that size. Set your miter saw to 45 degrees and cut the crown molding with it upside down and leaning against the fence (**Photo 6**). Also miter a "tester" section of molding to help you position the sidepieces when you nail them into place. To avoid splitting, predrill nail holes. With the sides in place, add the front piece of crown molding. Cut it slightly long and then "shave" one end with your miter saw until it fits perfectly. Add the molding to the base frame the same way. Screw both the crown and the base to the cabinet (**Photo 8**).



8 Center the crown on the cabinet and fasten it with screws driven from the inside. Then center the cabinet on the base and attach it the same way.

A quick finish

Brushing paint onto louvered doors is slow, fussy work, but you can avoid that hassle by using spray primer and paint. First, remove the doors and hinges. Cover the dowels, nails and screw heads with wood filler and sand the filler smooth. Also fill any voids in the plywood's edges. Sand the cabinet box, crown, base and doors with 120-grit paper. Spray all the parts with a white stain-blocking primer (such as BIN, Cover Stain or KILZ). When the primer dries, sand it lightly with a fine sanding sponge. Finally, spray on at least two coats of spray paint. High-gloss paint will accentuate even tiny surface flaws, so consider using satin or matte.

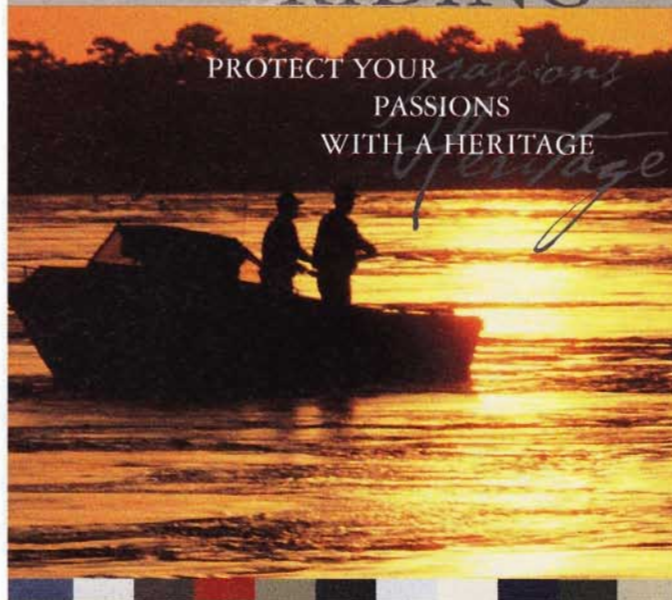
To hang the cabinet, locate studs and drive two 3-in. screws through the top cleat. Then rehang the doors. Close the doors to check their fit. Nudge the bottom of the cabinet left or right to square it and align the doors. Then drive screws through the bottom cleat.

Art Direction • MARCIA ROEPKE
Photography • BILL ZUEHLKE
Illustration • FRANK ROHRBACH III



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by Brett Martin

Charging station

Park, power and organize your rechargeable gadgets

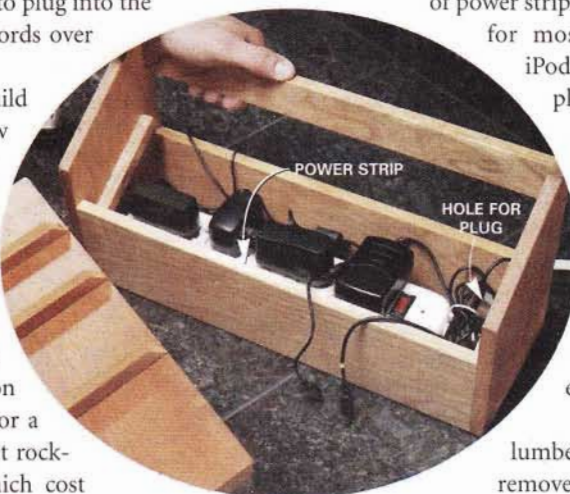
This charging station provides the perfect platform for charging gadgets and taming the tangling cords. A narrow gap along the front of the lid lets the cord ends through to plug into the devices, or you can run the cords over the back side.

We'll show you how to build this charging station in a few easy steps. With a table saw and a miter saw, you can knock this project out in one morning, including the finish. You'll need 8 ft. of 1/2-in.-thick, 5-1/2-in.-wide wood for this project. Most home centers carry common species like oak and maple. For a wider selection, shop online at rockler.com. We used cherry, which cost

\$80. To get the project into the \$20 range, use oak instead.

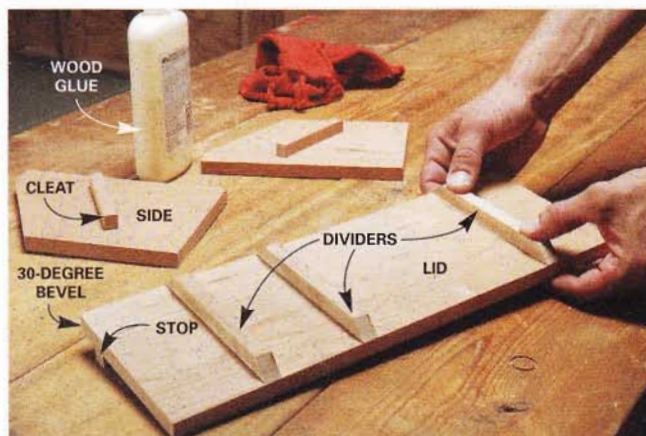
You can make the charging station any length you want, but be sure it works with one of the standard sizes of power strips. The height shown here works for most cell phones, cameras and iPods. If the height of your charger plug and power strip exceeds 3-3/4 in., make the charging station a little taller. (Measure the height of the power strip and transformer, and add any height difference over 3-3/4 in. to the height of the front and side pieces.) Place the dividers on the lid wherever works best for your gadgets.

Get started by sanding the lumber with 100-grit sandpaper to remove any rough spots. Then cut the



The lift-off lid hides a power strip and bulky transformers.

charging station

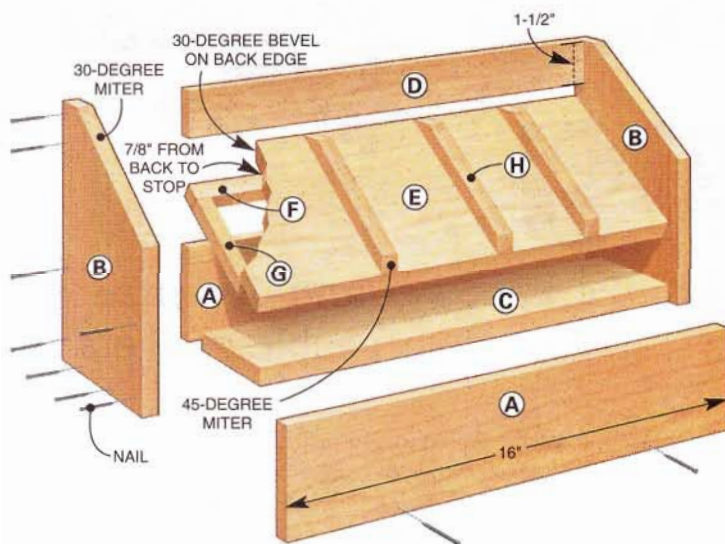


1 Fasten the dividers without nails or clamps. Just spread a little glue on each piece and hold it in place until the glue grabs (about one minute). Wipe away any excess with a damp rag. Use the same technique to attach the stop and the cleats.



2 Gang-cut parts so they're precisely the same length. Clamp the front, back, bottom and rail together, then cut one end. Flip the boards around and cut the other end to size. Gang-cutting eliminates any slight length differences.

Figure A
Charging station

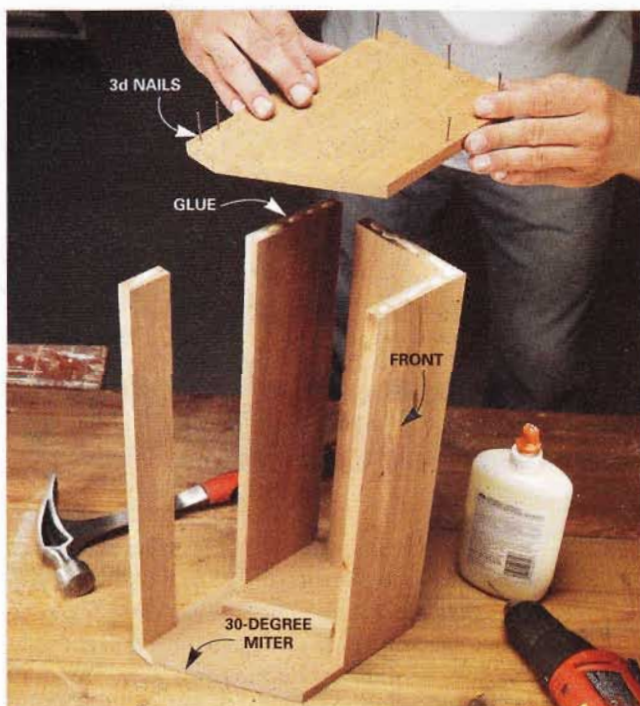


front, back, bottom and rail approximately 17 in. long, and cut the rest of the pieces to size, following the Cutting List. Cut the lid 1/8 in. shorter than the front so it can easily slide in and out. Cut the cleats, dividers and stop from the scrap.

If you're planning to set the charging station on a counter, drill a 1-1/4-in. hole in the back with a spade bit for the power strip plug (keep the hole away from the corners to avoid hitting nails). If you'll wall-mount it by screwing it through the back, just run the cord through the slot in the bottom.

Once the charging station is assembled, lightly sand it with 180-grit sandpaper. Don't brush on a finish! Spray on a coat of lacquer (a can of spray lacquer costs \$6). Or use a wipe-on finish. We wiped on Watco Golden Oak finish (\$13 per qt.).

Art Direction • MARCIA ROEPKE
Photography • BILL ZUEHLKE
Technical Art • FRANK ROHRBACH III



3 Attach the ends to the sides. Hold each joint together and predrill 1/16-in. nail holes. Then start the 3d finish nails and apply glue to the joints. As you drive the nails home, they'll align the joints perfectly.

Cutting List

KEY	QTY.	SIZE & DESCRIPTION
A	2	1/2" x 4" x 16" front and back
B	2	1/2" x 5-1/2" x 8-1/2" sides with 30-degree angle
C	1	1/2" x 4" x 16" bottom
D	1	1/2" x 1-1/2" x 16" rail
E	1	1/2" x 5-1/2" x 15-7/8" lid with 30-degree bevel
F	1	1/2" x 1/2" x 15-7/8" stop
G	2	1/2" x 1/2" x 4" cleats
H	3 or 4	1/2" x 1/2" x 5-1/2" dividers with 45-degree angle at ends

Car & Garage

by Rick Muscoplat



Safely jack and support a car or truck

Follow these steps—it could save your life!

You can save quite a few bucks by jacking up your car or truck and doing your own repairs and maintenance. But if you want to live long enough to spend all the money you save, you owe it to yourself and your loved ones to bone up on jack safety.

Start by parking your car or truck on a flat concrete surface. Trucks and most SUVs have steel frames that support the entire vehicle. Nearly all cars, on the other hand, are of “unibody” construction; that is, they don’t have a frame. So each type of vehicle requires different points of support for jack and jack stand placement.

Consult a repair manual to locate the recommended lift points and support

locations for your vehicle. Repair manuals are available at auto parts stores or online (see sources on p. 84). Before jacking, engage the parking brake and chock the rear wheels to prevent car movement. Start jacking from the front of the vehicle. The front end of four-wheel-drive trucks can be raised by placing the jack under the differential. For two-wheel-drive trucks,

If you plan to remove your tires, loosen the lug nuts slightly while the car is still on the ground. That’ll keep the wheels from spinning while you turn the lug wrench once the car’s raised.

tip

place the jack beneath the jacking pad under the engine.

Place the jack so the cross member or differential lines up with the recessed area of the jack saddle. Slowly pump the jack handle until the front wheels leave the ground. Then stop jacking and double-check the jack placement. Look at the front of the vehicle to make sure it’s not leaning to one side. If it is, lower and recenter the jack. Otherwise, continue pumping until the vehicle reaches the desired height.

Support the front of a truck by placing the jack stands directly under the frame. Support the rear of the truck with a jack stand under each axle. Turn the handle

Continued on p. 84

Jack and support a car

For most cars, the recommended front lift point is the engine cradle cross member (Photo 1). Lift and support the front of the car first. (If you start with the rear, the front end may be tilted so far that you can't roll a jack under it.) Place the jack so the cross member lines up with the recessed area of the jack saddle. The jack stand support locations (pinch welds; Photo 2) for cars are usually located behind the front wheels and in front of the rear wheels.



1 Place the recess of the jack saddle directly under the engine cradle cross member.



2 Place the jack stand under the support point. Raise the saddle and make sure it locks into place.



3 Place the floor jack so it contacts the rear lift point and raises the vehicle.

Jack and support a truck

For two-wheel-drive trucks, place the jack beneath the jacking pad under the engine (Photo 1) at the front and under the differential at the back (Photo 3). On four-wheel-drive trucks, place the jack under the front differential. Always place the front jack stands directly under the frame on any type of truck. Support the rear of the truck with jack stands under each axle.



1 Place the jack directly under the truck's front lift point.



2 Place the jack stand directly under the truck's frame.



3 Position the jack saddle directly under the rear differential.

tip Place jack stands on plywood support plates when you're working on an asphalt surface.



very slowly until the vehicle starts easing down. A quick release will result in a sudden catastrophic drop. Lower the car or truck until it almost touches the saddle of the jack stand. Then make final alignment adjustments before lowering the full weight onto the stand. Remove the floor jack and bring it to the rear of the vehicle.

Locate the recommended rear lift point and repeat the jacking procedure at the rear of the vehicle. Place the two rear jack stands in proper support locations and lower the rear onto those stands.

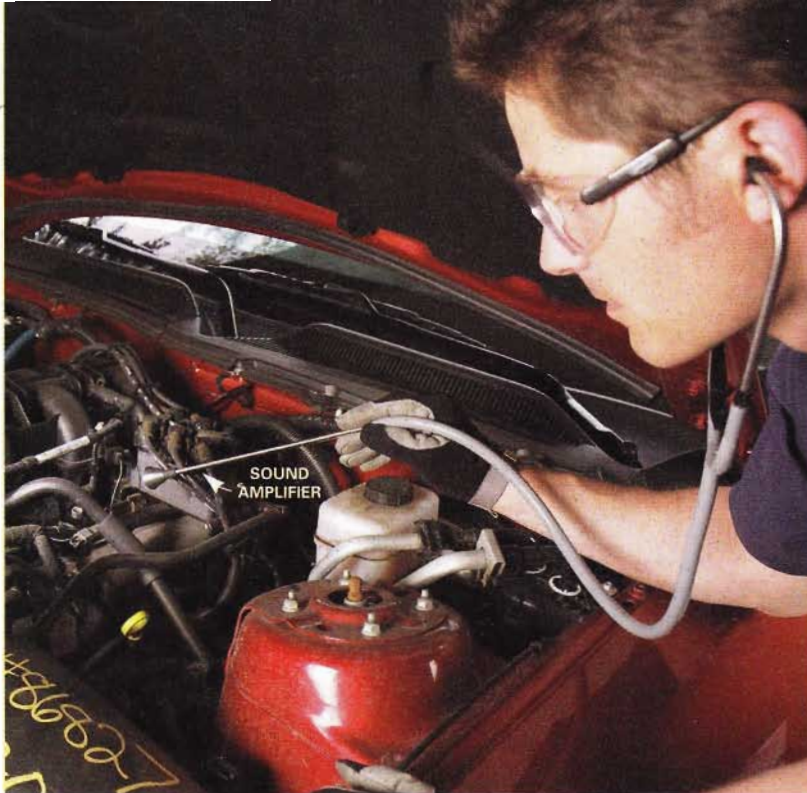
With the vehicle up on all four jack stands, gently shake the vehicle side to side and up and down. This ensures that the vehicle is sitting squarely on the jack stands and that the jack stand saddles have full contact with the support points. If the vehicle wobbles, stop immediately and reposition the problem jack stand before crawling under the vehicle.

Check your lift cradle!

Most front wheel drive cars have heavy steel engine cradle cross members that can be used with a floor jack. However, some late-model cars have one-piece cast aluminum engine cradles. These vehicles require special jacking procedures. Using the incorrect procedure is not only dangerous, but it can cause extensive damage to your vehicle.

Online Sources

Here are two sources of online repair manuals:
Mitchell DIY Online: eautorepair.net
Alldata DIY Online: alldata diy.com

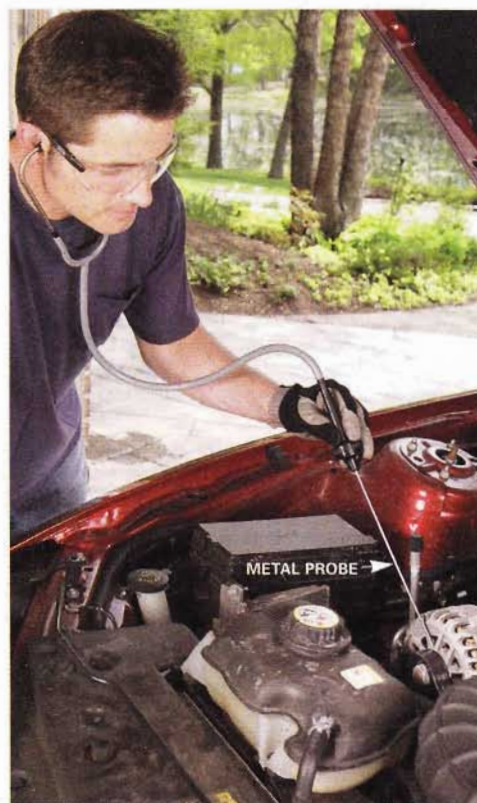


Diagnose chirps and squeals with a stethoscope

If you want to be a real car doctor, you've got to use the right tools. An automotive stethoscope can be the most effective diagnostic tool in your toolbox. It works just like the ones doctors use, allowing you to "hear inside" a mechanical component. The stethoscope we chose comes with two attachments—a metal probe (top photo). Use the amplifier to narrow down the source of the noise. Then switch to the metal probe (right photo) to locate the exact source of the problem.

Connect the amplifier attachment to the hose and move it around the engine compartment. That will narrow your search to a smaller area.

Lisle No. 52750 Automotive Stethoscope, \$15.42.
tooldiscounter.com



Touch the scope's metal probe to the non-rotating part of the suspect component. If it's worn, you'll hear an unmistakable metallic sound.

Starter goes click: First things to check

You turn the key and hear the dreaded “click.” Sure, you may need a new battery, starter or alternator. But before you condemn either the battery or the charging system, follow these steps.

Turn on your dome light and turn the key again. If the dome light dims, focus your attention on the battery and its connections. If the dome light doesn’t dim, the starter motor isn’t drawing power. Have the starter checked by a professional.

Check the battery voltage. Scratch clean contact areas on the battery posts and test the battery voltage with a test meter. A fully charged battery should read 12.7 volts. At 50 percent charge, the voltage drops to 12.1 volts. A low reading can be the result of poor electrical connections, a problem with the charging system, or a battery that is at the end of its life.

You can’t always see corroded battery and ground connections, so clean all of them (**Photos 1 – 3**). Start with the battery terminals. **Note:** Disconnect the negative cable first and reconnect it last. Then clean the connection between the battery negative cable and the engine.

Finally, clean the connection between the battery negative cable and the body. If the car starts, the problem is solved. If it doesn’t, take the car to the shop and explain what tests you’ve done. Then have the battery and the starting and charging systems checked out.



1 Disconnect the battery terminals and use a wire terminal cleaner to clean the posts.



2 Clean the inside of the terminals with the opposite end of the cleaning tool.



3 Apply a light coat of battery terminal protective spray.

Art Direction • BOB UNGAR
Photography • MIKE KRIVIT and BILL ZUEHLKE
Consultant • BOB LACIVITA, ASE/GM CERTIFIED MASTER TECHNICIAN



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HandyHints[®]

FROM OUR READERS

Stepladder work bin

If you'll be working up high and you need to take a lot of tools with you, attach a plastic bin to your stepladder. At the home center, pick up a bin and a pair of shelf brackets—any sturdy ones will do. Clamp the brackets to the legs of your stepladder and rest the bin on top. Bolt it to the brackets to keep it securely in place.

Les Macpherson



Locate sprinkler lines

Before you dig, find your underground sprinkler lines to avoid damaging them. Feed fish tape through an open sprinkler head and locate the line with a metal detector (\$20 to \$45 for rental).

Dan Rios



Service record storage

For easy access to car and tool manuals and service records, screw a closing accordion file onto a board mounted to a garage wall. Keep a pencil with it to quickly track routine maintenance chores.

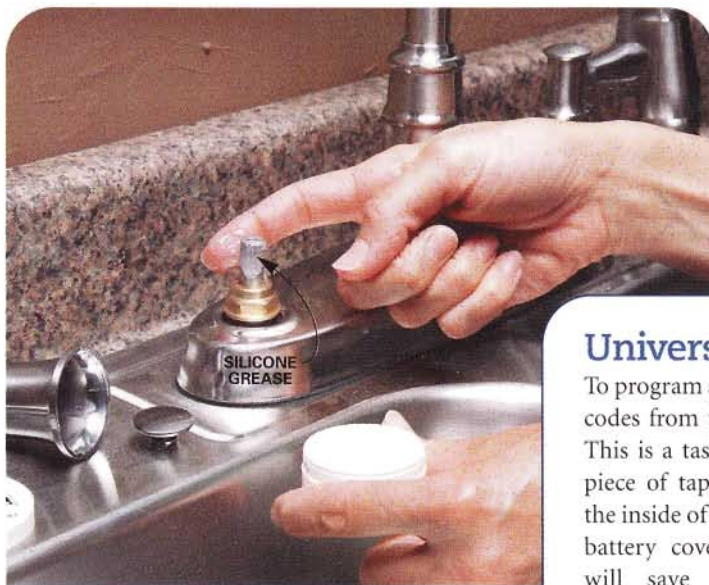
Rick Wiedmann



Lint-free paint roller

The cheapest paint rollers shed all over the paint as you roll it on, but I like them because I can treat them as if they're disposable—no cleanup! Before I use one, I swipe it with a self-adhesive lint roller to remove all the loose fuzz—no more picking it off my wet wall.

Alan Chung



No-seize faucet handles

Corrosion can "weld" faucet handles onto valve stems, making future repairs a headache. A dab of plumber's silicone grease will prevent this.

Jerry Watson

Universal remote control

To program a universal remote control, you have to locate program codes from the owner's manual of each of your A/V accessories. This is a task you'll only want to do once. Write the codes on a piece of tape and stick it to the inside of the remote's battery cover. This will save you a paper hunt in case a dead battery causes the memory to fail and you need to reprogram the remote.

Daniel Mott



Dust-proof eyewear

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Dennis Brown



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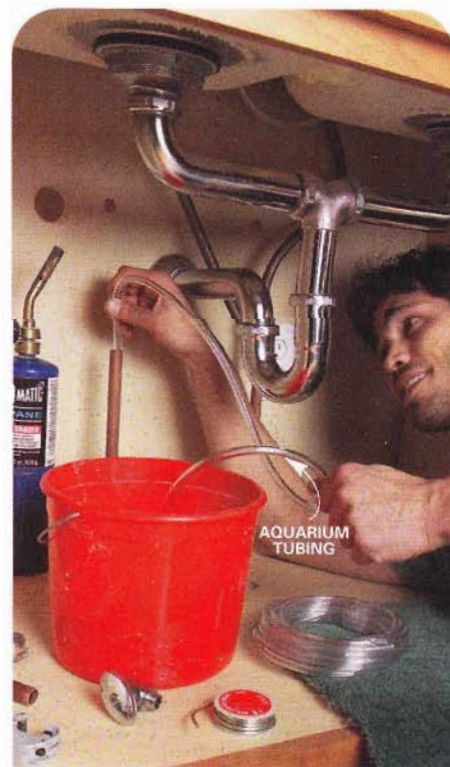


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Siphon before soldering

Before soldering water pipe that you can't drain, use aquarium tubing to siphon the excess water out of a vertical copper pipe between the plumbing shutoff valve and the faucet. Once the water is out, you can solder the joint with ease.

John Tryt

PHOTO SUBMITTED BY SCOTT THOMASON



Restore dented carpet

Old furniture depressions in carpets can be really ugly. Lay a wet, wrung-out towel over the carpet "dent" and iron with a hot clothes iron for about a minute. The steam will release crushed fibers and make them pliable. Lift the towel, hand-fluff and no more mark!

Scott Thomason

WE'LL PAY EXTRA FOR YOUR PHOTOS

Take a digital snapshot of your tip and if we select it to print in the magazine, we'll pay you an extra \$100. To get the best photos, follow these tips:

- Get close so the hint is absolutely clear.
- Set your camera on the highest resolution possible.
- Use your flash, even when you're shooting outside.
- Take three to four pictures from varying angles and distances.
- Include your e-mail address and phone number so we'll be able to reach you.

Take your shot at having your tip and photo published by sending it to handyhints@readersdigest.com or Handy Hints®, The Family Handyman, 2915 Commers Drive, Suite 700, Eagan, MN 55121. Original contributions become our property upon acceptance and payment. We're sorry, but tips and photos can't be returned. Due to the volume of submissions, personal responses are not possible.

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Kitchen & Bath New Products

by Brett Martin

Trendy hammered copper sinks

In search of a new look for your kitchen or bathroom? A hammered copper sink offers a distinctive, handcrafted look that makes the sink the focal point of the room. We saw these sinks everywhere at this year's Kitchen & Bath Show—they really have an eye-catching appeal. Some have a finish, like brushed nickel, over the copper. The antibacterial qualities of copper also help keep the sink clean and sanitary.

As you might expect, hammered copper sinks and other fixtures aren't cheap. We've seen small sinks that start at \$300. Find hammered copper fixtures at kitchen and bath showrooms.

Native Trails, (800) 786-0862.
nativetrails.net



NATIVE TRAILS (2)



STAY DRY SYSTEMS

Stay-closed shower curtain

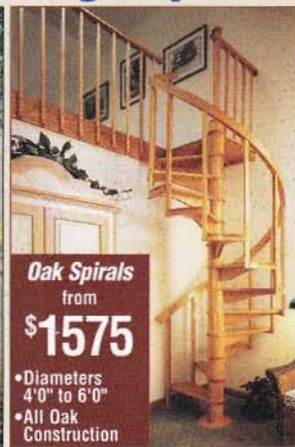
My bathroom floor gets sopping wet every time my kids take a shower (all right, it sometimes happens when I shower too). That's because the shower curtain doesn't hug the wall and lets water spray past. StayDry Systems has a quick, easy and inexpensive solution—the Shower Curtain Sealer. A lightweight tube fits inside a hem (on special shower curtains) or is placed alongside a traditional shower curtain and then inserted into a wall channel to hold the curtain closed and form a watertight seal. The channel sticks to the wall with the double-sided tape on the back. The

tube wedges the edge of the curtain in the channel. After showering, just pull the tube back out of the channel and open the curtain. You can seal both ends of the enclosure or just the one near the showerhead.

Buy a curtain with side hems from the company, or use your existing shower curtain (any will work). A complete shower kit with curtain (white only), channel and two tubes starts at \$60. To use your own curtain, buy the channel and tube for \$20. Find buying information on the company's Web site.

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newproducts

One smart refrigerator

There's a lot to like about GE's Profile Side-by-Side refrigerators. A special drawer with CustomCool technology thaws frozen foods in a warmed compartment, then cools the compartment until you're ready to cook the food (it's much safer than thawing frozen hamburger in your sink). Or use it to quickly cool beverages. Put in a soda and have it instantly chilled at subzero temps until it's perfect for drinking, then the refrigerator will automatically raise the temperature to a standard temp to avoid freezing.

QuickFreeze technology freezes meat nearly twice as fast as a traditional freezer. The deli drawer has a separate temperature control for meats and cheeses. The UltraFlow dispenser can deliver 100 ozs. of filtered water per minute. PreciseFill gives accurate measurements of water for filling pots for cooking.

Up-front electrical controls show the temps inside the refrigerator and are easy to see and program. Basic models start at about \$2,000. Find retailers on the company's Web site.

GE, (800) 626-2005. geappliances.com



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newproducts

Mount-anywhere grab bar anchors

The trouble with installing grab bars is that you have to either find a stud and settle for that location or place blocking behind the wall to mount the anchors. And the latter is hard to do with fiberglass enclosures or tiled surfaces. Moen's SecureMount anchors (\$25 for a two-pack) simplify installing grab bars by letting you place the anchors anywhere.

In places where there's a stud, screw them in like traditional anchors. Where there's no stud, you just drill a 1-1/4-in. hole, insert the glide sleeve and anchor, then pull the anchor against the back of the wall with the pull tab and insert the screw (it takes less than five minutes). The anchors even work on 1/8-in. fiberglass tub surrounds if you want a grab bar in the shower. Available at Lowe's.

Moen, (800) 289-6636. moen.com



Cook fast without burning

General Electric's Advantium wall oven has a new technology called "Speedcook" that bakes, broils, roasts, browns, microwaves and grills food up to four times faster than traditional ovens, and with no preheating. The 240-volt model (\$2,250) cooks faster than the 120-volt model (\$1,550), but if you don't have a 240 outlet, go with the 120-volt model, which can cook a whole chicken in 40 minutes (it takes a conventional oven two hours).

Use one of more than 100 preprogrammed recipes and the oven will use the features needed for fast, thorough cooking, then turn itself off when the food is cooked. So if your kids pop a pizza in the oven and then get caught up in a video game, the pizza won't burn and set off the smoke alarm. Find retailers on the company's Web site.

GE, (800) 626-2005. geappliances.com



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Inside-the-cabinet vacuum

Most dry spills in the house (cereal, coffee grounds, chocolate milk mix) occur in the kitchen. The Sweep Away Cabinet Vacuum (\$300) from Galaxie offers a quick way to clean those messes—without bending over a dustpan. A self-contained vacuum fits inside a kitchen (or bathroom) cabinet and connects by a flexible hose to an automatic dustpan in the toekick. When there's a spill, just turn on the vac and sweep the mess to the dustpan, where it's sucked into the vacuum unit.

The dustpan, available in four colors, mounts flush to the toekick so it's not obtrusive. Choose the model for either the right or the left side of the cabinet, depending on which cabinet side works better for you. A 30-ft. flexible, heavy-duty hose (inset photo) for vacuuming countertops and cabinets costs an extra \$110. You can buy it online, see the list of retailers on the company's Web site, or contact the company for buying information.

Galaxie, (800) 238-2294. galaxie-vac.com



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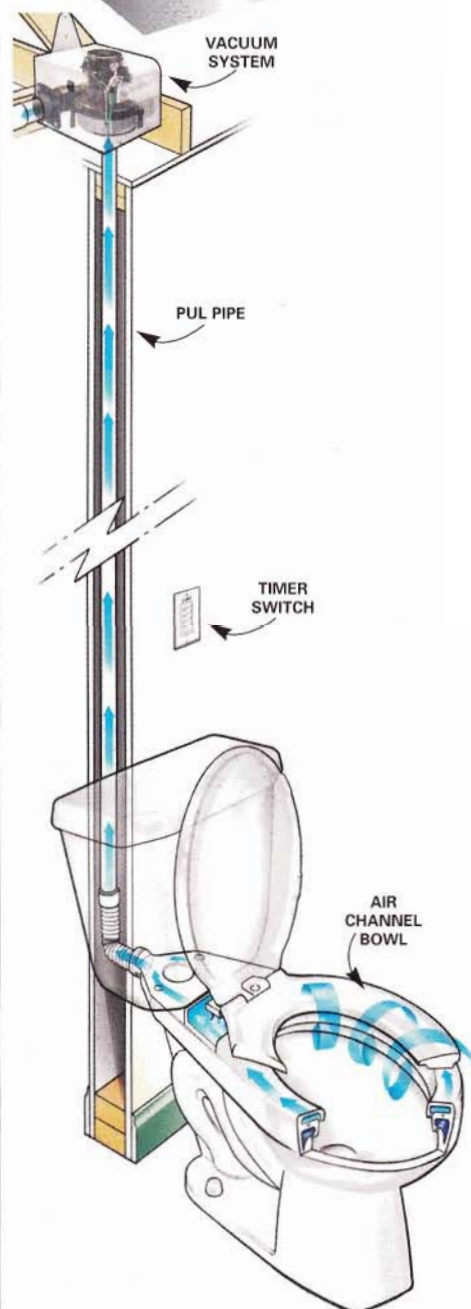
Toilet with built-in exhaust

The Toilet Bowl Exhaust System does what no other toilet can do—remove odors at (OK, near!) the source. The toilet looks like an ordinary two-piece model, but it has an integrated air channel just above the regular water channel. The air channel port at the back of the toilet connects to a vacuum system (fan) with PVC piping, then vents outside. A wall-mounted timer switch activates the vacuum either

by a dedicated switch or through the bathroom light switch.

Installation in a finished bathroom can be tricky since you'll need to run the vent pipes and run electrical lines for the timer switch and fan motor. Buy the system from the company. The toilet bowl and tank cost \$495; the vacuum system an additional \$200.

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Dryer pedestal

by Roy Doty



Our thanks go to Peter Narsavage, Augusta, GA, for this idea.

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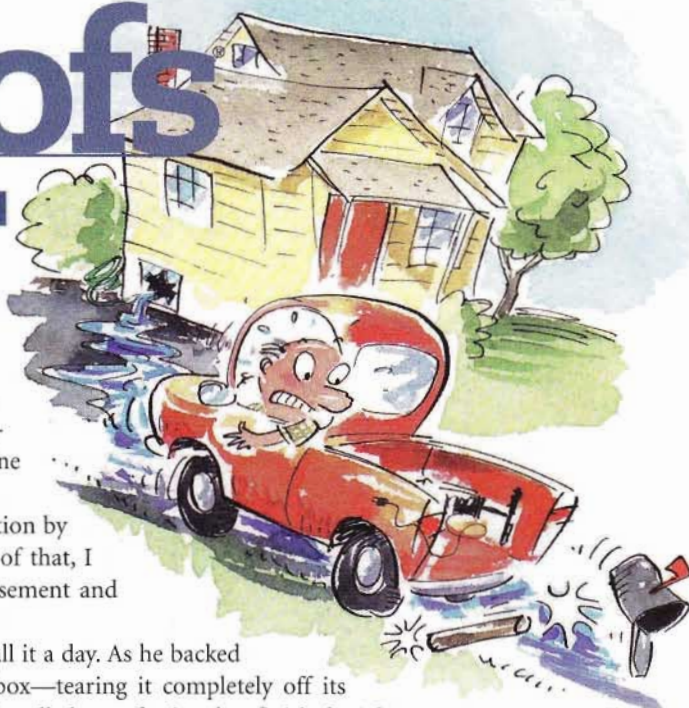
Thanks but no thanks, Dad

My father-in-law is a retired carpenter, so when he volunteered to help us with the leaky basement in our new house, we jumped at his offer. His plan was to mound dirt against the foundation, sloping it away from the house, and then compact the soil so water would run off before it could reach the basement walls. Before long he was busy tamping dirt with a giant engine-powered, jumping-jack-style soil compactor. However, he lost control of the machine and sent it crashing through our basement window.

He apologized and decided to try the water method of compaction by soaking the soil thoroughly with the garden hose. After an hour of that, I went downstairs and saw that his new tactic had flooded the basement and soaked the carpet.

After again expressing his regret, my father-in-law decided to call it a day. As he backed out of our driveway, he plowed his pickup right over the mailbox—tearing it completely off its pedestal. We waved him on, counted our blessings and immediately called a professional to finish the job.

—Eric Sullenstrup



While you were out

All I wanted was a little more storage in our bathroom. But the shelf and hardware I had bought had been gathering dust for over a year while the men in my house procrastinated. So when my husband and sons announced that they were taking off on another hunting trip, I told them I was going to do the job myself.

Their grins and snickers as they headed out the door made me determined to do just that. But as I was driving one of the wall anchors, I bore down too hard on my drill and popped the whole end of the screw gun through the drywall. Remembering those giggles, I ran to the hardware store to buy patching materials and matching paint.

Late into the night I worked on camouflaging that large hole, only to realize in the morning light that the paint wasn't the right color at all! It stood out like a bull's-eye. I spent the whole next day repainting the entire bathroom so everything would match.

A few minutes before the guys were set to roll in, I finally hung the little shelf that had started the marathon bathroom makeover. I told the guys it took about 15 minutes.

—Terina Edington

Got your own do-it-yourself mistake?

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Housewarming gift

My wife and I had just moved into our first house and a few days later decided to celebrate with a night out on the town. When we got home, I slipped into the dimly lit bathroom, lifted the toilet lid and slammed it back down in horror! How much beer had I had?

I turned on the lights, brought in my wife and we confirmed that yes, that indeed was a huge, very dead squirrel floating in the bowl.

I guess when a home inspector suggests you put a critter guard over the end of the plumbing vent on the roof, he means now. We'd planned on getting to that little task soon, but apparently not soon enough.

Even with the critter guard securely in place, we still have a houseful of squirrels, as friends and relatives send us lots of ceramic and stuffed varieties to remind us of our first houseguest.

—Geoff Flegel

