

HANDY

HANDYMAN CLUB OF AMERICA MAGAZINE

THE
LATEST
GEAR

SPRUCE UP FOR SPRING

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WORK CART

MUST-HAVE
HAND TOOLS



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AND RECOVERY

MARCH 2013

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COVER PHOTO BY SCOTT JACOBSON

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ANY 4 OR 6 POINT FASTENER
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FROM THE MAKERS OF THE
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MEETS ASME STANDARDS
FOR STRENGTH

CONVENIENCE
RATCHETING ON/OFF SWITCH
ALLOWS WRENCH TO ALSO BE
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ALL-PURPOSE WORK CART

SAVING TIME TOTING TOOLS AND SUPPLIES LEAVES MORE TIME FOR WORK (AND PLAY)

/// The less time you spend hauling supplies to and from a job, the faster you'll get the job done. With that in mind, we designed a multipurpose cart that will help you tote supplies, tools and gear to various projects around your home quickly and easily.

This cart features an open bin that's large enough to hold just about anything you'll need, such as tool bags, paint cans, a mortar-mixing tub or bags of mulch. A small bin between the handles can hold small tools, hardware or gloves and safety glasses. We even created a channel to haul a ladder or long-handle tools. The side rail can be removed when you want to place large objects across the tops of the side panels.

The cart's 20-in.-dia. wheels will easily roll over most backyard terrain. They're positioned so that the weight is balanced to make even heavy loads easy to move.

Because this cart will spend most of its time outdoors, you'll need to use exterior-rated materials that are rot- and corrosion-resistant. All lumber should be pressure-treated pine or a rot-resistant species such as cedar or redwood. Plywood should be 1/2 in. thick and rated "Exterior" or "Exposure 1," or you can choose high-density-overlay (HDO) plywood, which has a smooth resin top layer. (This material might be more difficult to find.) All hardware should be designated for use with the materials that you choose. For example, ACQ-treated lumber requires stainless steel fasteners, hot-dipped galvanized coated fas-

teners or fasteners with an approved proprietary coating.

I used a jigsaw, miter saw and benchtop table saw to cut the lumber and plywood, but you could make all the cuts with a jigsaw. You'll also need a drill/driver to fasten the parts and bore pilot holes. **Safety note:** Wear protective eyewear, gloves and a dust mask when cutting or drilling exterior-rated lumber and metal.

To work with the conduit, you'll need a few specialty tools. I used a hacksaw to cut the pieces and a conduit bender to make smooth, kink-free curves. You can purchase a conduit bender at a home center for about \$40 or rent one for about \$5 to \$10 a day. I also used a right-angle drill guide to bore centered holes through the conduit.

ASSEMBLE THE WOOD PARTS

As you cut the parts and assemble the cart, you may need to make slight adjustments to the dimensions listed on the cutting list because the thickness of pressure-treated lumber is sometimes inconsistent — varying as much as 3/16 in. from piece to piece. You may find it easiest to cut the plywood parts first and then cut the framing components to fit.

I used deck screws to assemble the wood parts. It's easiest to clamp the parts together, drill 1/8-in.-dia. pilot holes and then drive the screws. I chose not to use any adhesive so that I could easily replace worn or damaged parts in the future.

First assemble the base frame and attach the bottom. Next, attach the side panels to the base. Then attach the back corner posts, foot kick and handle posts to the side panels (photo 1, p. 8). Attach the axle blocks, bin sides, bin bottom, back panel and door

◀ The wheel position on this cart gives it great balance, making it easy to move heavy loads. And the side channel and rail make it easy to haul long, awkward tools such as ladders.

guides. Finally, using the drawing on p. 7 as a layout guide, cut the notch and the handle hole in the door (**photo 2**). The wood assembly can be left unfinished, but I chose to apply two coats of barn-red solid-color deck stain to all exposed surfaces.

MAKE THE CONDUIT COMPONENTS

To make the handle, front leg and side rail, I used 3/4-in.-dia. electrical metallic tubing (more commonly known as EMT), rather than wood for several reasons. First, EMT is lightweight. Second, it's inexpensive — a 10-ft. length costs only a few dollars at a home center. Third, it can be bent to create smooth, continuous parts. Finally, it looks cool and gives the cart a more industrial appearance.

The trick to forming the curved conduit components is to use an EMT conduit bender. This tool features alignment marks that you position at the different bending points (see "Bending Conduit," p. 8). Forming basic conduit bends is not difficult (**photos 3 and 4**), but it might take a few tries to create smooth curves, so purchase one or two extra 10-ft. pieces to practice bending before you make the actual components.

Once you've bent and cut all of the parts to size, drill 3/16-in.-dia. pilot holes for the machine screws (**photo 5**). Use a hacksaw to cut the sections of aluminum channel that will cover the tops of the cart sides and the tops of the back and door that are outside the handles.

ATTACH THE WHEELS, RAILS AND HANDLES

I used hot-dipped galvanized bolts to fasten the wheels (**photo 6**, p. 9) and stainless steel deck and machine screws to fasten the handle, leg and EMT straps (**photo 7**). It's not difficult to find fasteners that are compatible with ACQ-treated lumber. Unfortunately, cart wheels and conduit made from stainless steel aren't on the shelves of most home centers, so I did my best to create barriers between the metal and wood surfaces. Two coats of stain don't provide impermeable pro-

SHOPPING LIST

- ▶ 1/2-in. x 4x8-ft. exterior plywood (1)
- ▶ 1x4 x 8-ft. exterior-grade board (1)
- ▶ 2x4 x 8-ft. exterior-grade boards (4)
- ▶ 1-5/8-in. stainless steel deck screws
- ▶ 2-1/2-in. stainless steel deck screws
- ▶ No. 10-24 x 2-in. stainless steel machine screws (6)
- ▶ No. 10-24 x 3/4-in. stainless steel machine screws (4)
- ▶ No. 10-24 locknuts (10)
- ▶ No. 10 stainless steel flat washers (18)
- ▶ 1/2 x 8-in. hot-dipped galvanized bolts (2)
- ▶ 1/2-in. hot-dipped galvanized locknuts (2)
- ▶ 1/2-in. hot-dipped galvanized washers (6)
- ▶ 3/4-in.-dia. x 10-ft. EMT conduit (3)
- ▶ 1-in. EMT pipe straps
- ▶ 1/2-in. x 12-ft. aluminum C-channel (1)
- ▶ 20-in.-dia. cart wheels (2; see SOURCES)

CUTTING LIST

▶ KEY	NO.	DESCRIPTION	SIZE
1/2-IN.-THICK EXTERIOR-GRADE PLYWOOD			
▶ A	1	Bottom	1/2 x 24 x 40 in.
▶ B	1	Long side panel	1/2 x 16 x 43-1/2 in.
▶ C	1	Short side panel	1/2 x 16 x 41-1/2 in.
▶ D	1	Back	1/2 x 12 x 23-7/8 in.
▶ E	1	Door	1/2 x 16-3/4 x 23-5/8 in.
▶ F	4	Door guides	1/2 x 1-1/4 x 11-1/2 in.
EXTERIOR-GRADE LUMBER			
▶ G	2	Base-frame sides	1-1/2 x 3-1/2 x 40 in.
▶ H	3	Base-frame crosspieces	1-1/2 x 3-1/2 x 21 in.
▶ I	1	Long rail	1-1/2 x 3-1/2 x 41-1/2 in.
▶ J	1	Short rail	1-1/2 x 3-1/2 x 40 in.
▶ K	2	Back corner posts	1-1/2 x 3-1/2 x 15-1/2 in.
▶ L	2	Handle posts	1-1/2 x 3-1/2 x 31 in.
▶ M	1	Foot kick	1-1/2 x 3-1/2 x 11-1/4 in.
▶ N	2	Front posts	1-1/2 x 3-1/2 x 12 in.
▶ O	2	Bin sides	3/4 x 3-1/2 x 17-3/4 in.
▶ P	1	Bin bottom	3/4 x 3-1/2 x 14-3/4 in.
▶ Q	2	Axle blocks	1-1/2 x 3-1/2 x 12 in.

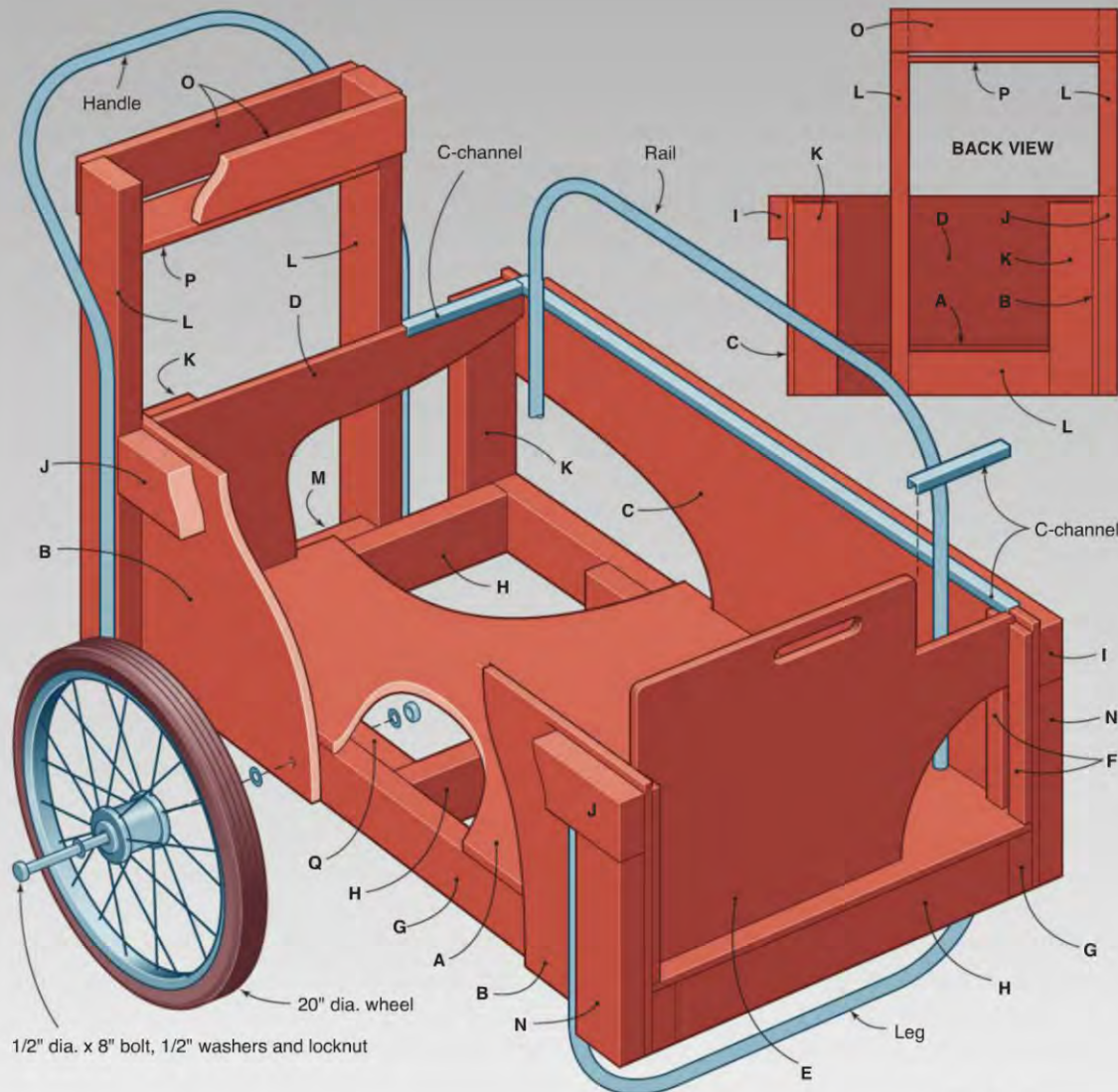
tection, but they limit direct contact between the treated lumber and metal parts. I also isolated the conduit and wheels by using stainless steel washers between each metal part and the wood frame.

The aluminum top rails are most vulnerable to corrosion from contact with the ACQ-treated wood. I considered several options and finally chose to simply attach them with a generous layer of construc-

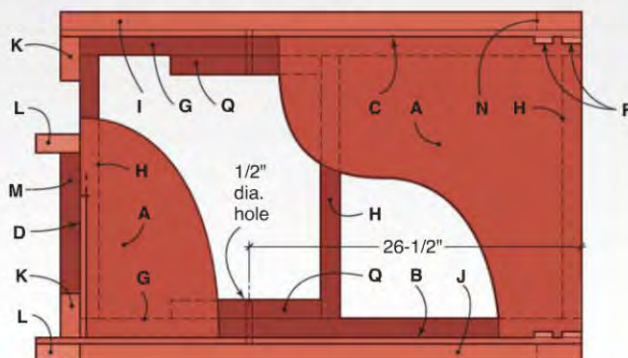
tion adhesive, knowing that I eventually might have to replace them.

Once the metal components have been attached, your cart is ready for years of service. Besides helping with projects around the house, it makes a handy chariot — so with the time you saved hauling supplies, you can reenact your favorite scene from *Ben Hur*.

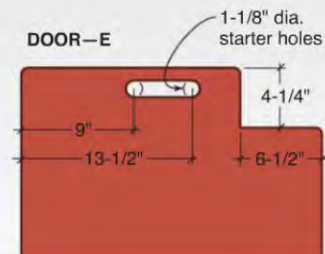
HANDY WORK CART



TOP VIEW — FRAME AND PANELS



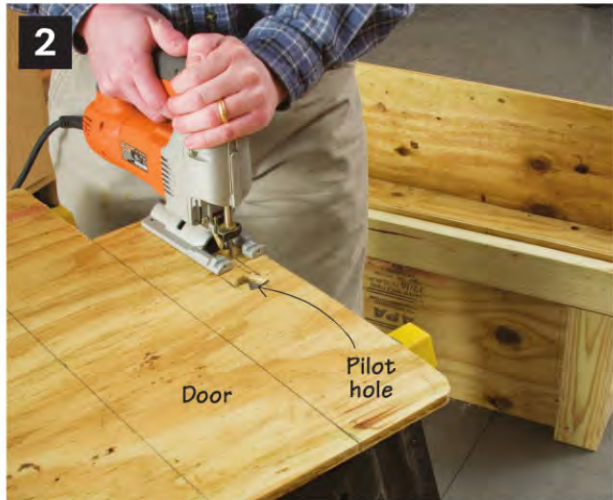
DOOR—E



PHOTOS BY SCOTT JACOBSON AND TRACY WALSH; ILLUSTRATION BY GABRIEL GRAPHICS



▲ Assemble the wood parts. Use 2-1/2-in. deck screws to attach the 2x4 parts and 1-5/8-in. deck screws to attach the plywood to the 2x4 framing.



▲ Refer to the door illustration on p. 7 to lay out the cuts. Drill 1-1/8-in.-dia. pilot holes at each end of the handle hole, and cut between the holes with a jigsaw.

BENDING CONDUIT



▲ Position the bending tool alignment mark (in this case the star marking, see photo at right) on the measurement mark and pull the handle to bend the conduit. Increase the force by pressing your foot down on the tool footrest.



▲ You must make two sets of bends to form the handle. First make a U shape; then bend the straight ends up to a 55-degree angle. Use the bending tool angle guides to match the final bend angles.



▲ Use a right-angle drill guide to bore the fastener pilot holes in the conduit. The drill guide features V-channel supports that center the drill bit over the conduit.

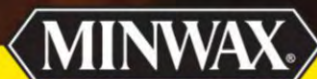


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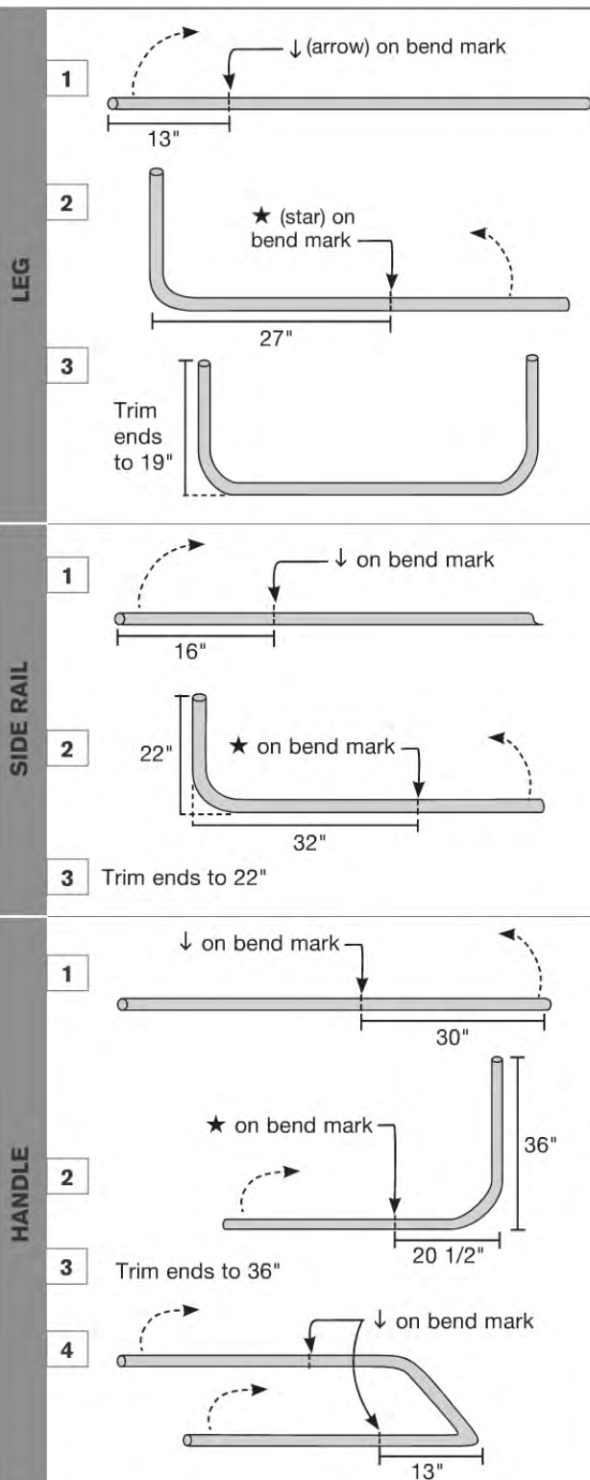


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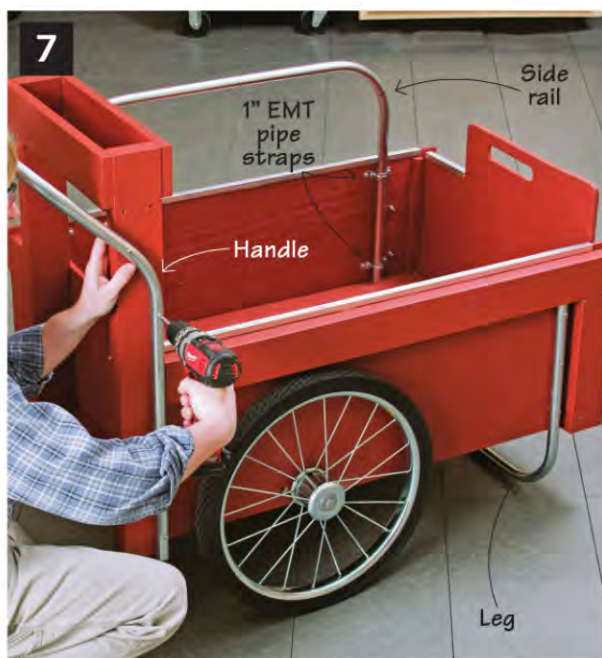


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Creating the complex multiple-conduit raceways often seen in commercial buildings isn't easy, but learning to make the simple bends this project requires is a snap. The bending tool features several alignment marks and degree marks. Follow the illustrated steps below and refer to photos 3 and 4 to make the conduit parts for the cart. The key to avoiding kinks: Don't reposition the bending tool once you've started bending. — DC



▲ Drill 1/2-in.-dia. axle holes through the side panel, base-frame side and axle block. Fasten the wheels to the cart with 1/2-in.-dia. x 8-in. bolts and locknuts. Place flat washers at each end of the bolt and between the wheel and the side panel.



▲ Attach the handle to the handle posts with 2-1/2-in. deck screws. Place stainless steel washers between the conduit and the wood to limit the risk of corrosion caused by the ACQ-treated wood. ■

SOURCES

Northern Tool and Equipment (wheels, No. 145121)
800-221-0516 [LINK](#) ►

ILLUSTRATION BY TRACY WALSH



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A PERFECT UNPLUGGED TEN

HERE'S WHAT TO LOOK FOR WHEN HUMAN-POWERED TOOLS WILL DO THE JOB

To paraphrase a familiar bumper sticker, "I'll give up my power tools when they pry them from my cold, dead fingers." We become attached to these electric workhorses because they make quick work of cutting and driving tasks that might be too difficult to tackle by hand. But when you're stocking your tool chest, power tools are only half of the equation.

For day-to-day chores around the house, garage and shop, simple hand tools can often do the job faster and more efficiently than their high-powered big brothers. No electricity is necessary, so you don't have to worry about finding an outlet or an extension cord. They require little setup time, and they're a lot quieter. And sometimes it just feels good to accomplish a task through pure skill and muscle.

I probably have a few hundred hand tools in my shop, but we wanted to pare down our recommendations to 10 must-haves and a handful of "Bare Essentials" (p. 17). Even though a few of our favorites didn't make the cut, we're confident that this assortment can handle most of your needs.





1

HAMMERS AND MALLETS

Sometimes you've just gotta hit something to get the job done. For general purposes, a basic carpenter's claw hammer will handle a multitude of tasks: driving nails in, pulling nails out, opening boxes and crates, dismantling a deck, even cracking walnuts.

When you need to hit something gently, without leaving a mark, a mallet is the tool of choice. With a head made of soft material such as wood or plastic, it can nudge components into place or tap a chisel with finesse and accuracy.

Tack hammers are specialized tools with magnetic heads that hold tacks. They're definitely single-taskers, but for upholstery and carpeting work, they can't be beat.



2

SAWS

You can't top machines such as table saws for heavy work on large pieces. But for smaller jobs, a handsaw is often the better choice.

Rip saws have played, chisel-like teeth that make cutting with the grain easier and more accurate. Crosscut saws, on the other hand, have sharp, knifelike teeth that sever wood fibers cleanly and work best for cutting against the grain. Although it's preferable to use a saw specific to the type of cut you're making, general-purpose saws, which have teeth that are config-

ured halfway in between those of rip and crosscut saws, can handle both types of cuts when needed.

A specialized crosscut saw called a backsaw excels at cutting angles. Featuring a thin blade strengthened along the top edge with a metal brace, these saws can make very fine cuts perfect for the edges of mitered workpieces. In fact, most miter boxes are designed specifically to accept these blades.

For cutting metal, choose a hacksaw. Because their use on harder materials is damaging, hacksaws allow for easy

blade changing, and you'll need only one because you can buy different types of blades specifically for the cuts you need to make. (Make sure you always have spare blades on hand.)

Finally, for those who want to be on the cutting edge of hand-tool technology, saws based on Japanese handsaws are becoming very popular. These thin-blade models have backward-facing teeth that cut on the pull stroke. Many users say the combination of the thin blade and rear-facing teeth offers better control with less work than traditional saws.



3

FILES AND RASPS

Made for bigger jobs than sandpaper can handle, files and rasps come in versions suited for either wood or metal. Rasps have individual teeth and are mainly for removing large amounts of soft material quickly, making them the choice for wood shaping. Their teeth can be randomly arranged on the surface or set in broad rows. Files consist of closely aligned small rows of raised cutting edges and are best at smoothing or removing small amounts of metal and other harder materials. Though not really a file but rather hard sandpaper, a common nail file can be very handy for use on jewelry, model-making and other fine work.

WRENCHES

When what you need to grasp tightly has flat edges, it's a job for a wrench. The workhorse of this group is the adjustable wrench, with an opening that can be set to any size needed.

Open-end wrenches do the same job as adjustables, but there's no danger that the size will change at the wrong moment, such as when you're working under a car or in a cramped sink cabinet. Some of these wrenches have two types of ends — one open so you can easily slip the wrench into place; the other closed to help keep the wrench on the work securely. The closed end (sometimes called a box wrench) applies pressure evenly around the circumference of a nut or bolt.

A variation on box wrenches, socket wrenches are far more versatile. Sockets with the same grasping geometry as box wrenches come in a range of sizes that snap into place on a single handle. Most socket wrench handles have a ratcheting mechanism that can reverse the direction of the wrench. You can find specialized sockets sized and shaped for specific objects such as sparkplugs.



5

LOW-ANGLE BLOCK PLANE

A block plane isn't a multitasker, but it serves its main purpose better than any other tool. No corded tool can beat its ability to smooth edges, pare sticking doors and trim ends of freshly cut wood. Block planes come in a huge range of prices; do yourself a favor and avoid the cheap ones. A good-quality plane feels great in your hand, is far easier to maintain and to adjust and will likely last forever.



PLIERS

You could probably find more types of pliers than of any other hand tool. Needle-nose pliers are great for grasping or twisting wire ends in tight places, and fine-tip versions can be used for delicate work such as fixing jewelry. Slip-joint pliers with two or more slots can be adjusted to grab and hold larger objects. Heavy lineman's pliers can grasp, have a cutting edge on one side and can bend wire and small-diameter metal rods, and some even have a hammerlike edge on one side. Although they're not the best choice for nuts-and-bolts work (a wrench is better), in a pinch, pliers can get into tight spots to loosen a balky bolt or to hold a nut firmly while a bolt is tightened.

6



7



CHISELS

For cutting hinge mortises in doors, fine-tuning drawers or other components for a good fit, light scraping tasks and advanced woodworking joinery, a good set of chisels is a must. Look for a set that includes several sizes of chisels with high-quality, tempered-steel blades. Also pick up a book on sharpening, and keep your chisels sharp at all times.

Whenever you replace rusty chisels with a new set, hang on to the old ones. If the steel is good-quality, there's still plenty of life in them. Even when you think they're a lost cause, they'll be useful for those dirty or potentially damaging chores you won't want to attempt with your new tools.

LEVELS

The first time you hang a picture without one, you'll know why a level earns its place in any household. Whenever work has to be straight, the bubble vial won't let you down. You'll find a range of sizes from only a few inches to longer than 4 ft.; look for a model that has at least two bubble vials — one for vertical and one for horizontal measuring. Larger levels usually include one or two 45-degree bubble vials as well. A magnetic strip along one edge can make measuring magnetic surfaces such as steel doors a hands-free job, and it lets you store the tool in an easy-to-grab spot on the side of a metal cabinet.

8





9

CLAMPS

Any woodworker will say that you can't have enough clamps. Even if you're not into woodworking, every DIYer needs at least a few.

Spring clamps are quick-on, quick-off tools that work like clothespins. They can secure workpieces in place, hold freshly glued parts in place until they're dry and even function as temporary holders for garden hoses or utility lights.

Bar clamps come in many lengths but are best suited for holding larger assemblies such as chairs, cabinets, drawers or picture frames during gluing and repair tasks. Some bar clamps are reversible and can be used as spreaders to disassemble chairs or cabinet frames. Be sure to place clamp pads on the ends to avoid damage when you use these tools on furniture.

Band clamps use long fabric straps to secure odd-shape objects. The adjustable strap is slipped over the object and then the clamping mechanism is ratcheted to draw the band tight. Smaller versions made of metal can be used as hose clamps for plumbing and automotive work.



10

SQUARES

Whether you're building furniture or installing a door, achieving a true 90-degree angle is mandatory. A good square lets you do that — and then some.

A combination square enables you to lay out both 90- and 45-degree angles

and has an adjustable steel ruler that allows you to position the square in tight quarters. The ruler can also be removed for use as a straightedge. Most include a bubble level to help you make projects square and plumb as well as a small scratch awl for marking.

BARE ESSENTIALS

Just starting to stock your toolbox? You'll probably acquire all the hand tools you need over time as you tackle various projects, but here are the ones to invest in right now:

A SCREWDRIVER SET — You'll need two sizes of Phillips and two sizes of flat screwdrivers. A "multidriver" with interchangeable bits is a good alternative.

AN ADJUSTABLE WRENCH — If you're buying only one, a midsize 8-in. model is the choice. A locking model that holds the adjustment is best.

A CLAW HAMMER — Choose one in the middle of the size/weight range (usually described as a 20-ounce hammer).

SLIP-JOINT PLIERS — Eventually you'll probably want several types, but start with a basic, two-position slip-joint pair. (When you get a second pair, choose needle-nose pliers.)

A UTILITY KNIFE — An all-purpose tool for scoring drywall, opening boxes and cutting cardboard, thin wood, plastic and a host of other materials, a model with storage in the handle for extra blades is best.

DUCT TAPE — No toolbox, no matter how large and well-stocked, is complete without it. It's truly indispensable. — AJH

Steel carpenter's squares are among the most basic yet highly versatile tools. A perfect 90-degree angle and measurements on both arms of the square serve multiple purposes. Carpenter's squares come in sizes small enough to slip into a back pocket and large enough for laying out and cutting drywall, so you may want more than one.

The speed square, a favorite of roofers, has both 90- and 45-degree corners and a range of markings on its face that can be used to line up just about any angle in between. You'll find steel, aluminum and plastic versions, but invest in a good-quality metal one that will last. ■

HOW TO HANDLE A FLOOD

LESSONS LEARNED FROM A MAJOR DISASTER



Hurricane Sandy was a real wake-up call for me. I had always had the good fortune to buy houses with dry basements — until recently. Late in October 2012, Sandy pushed seawater across the 800 yards that separate Long Island Sound from the co-op my wife and I had purchased the previous spring. We evacuated, but a neighbor who stayed behind during the storm said an 18-in.-high surge burst through basement windows and bulkhead doors “like a waterfall.” Many basements filled so fast that a sump pump would have been overwhelmed if there had been electricity — which there was not. In a precautionary move, the city

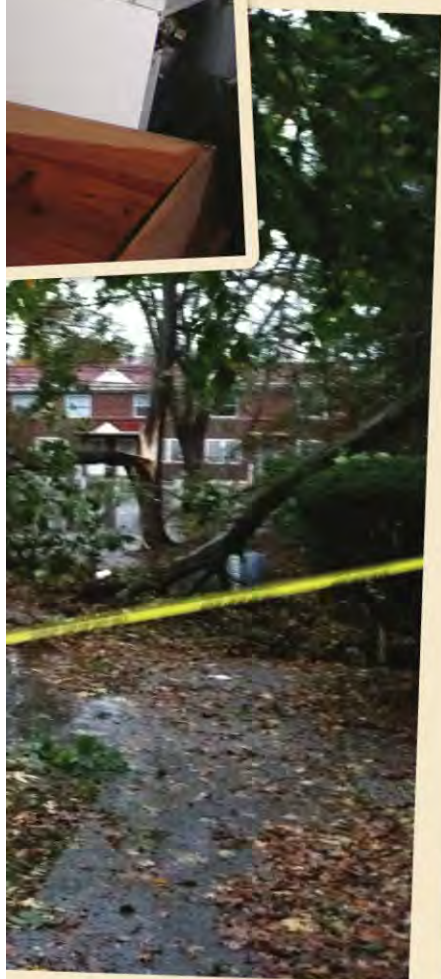
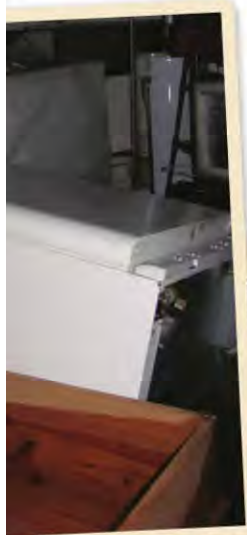


▲ These photos show the flooding at our co-op and our disheveled basement after Hurricane Sandy.

had already cut off electricity to houses in flood zones.

When my wife and I returned the next morning, the streets were still underwater in places, but the sidewalk to our unit was dry. We hoped that our having raised appliances and tools 3 ft. above the basement slab would save them. (The previous year, Hurricane Irene had brought a few inches of water into our basement.) But when we opened the basement door, we found what looked like an indoor swimming pool. A flashlight revealed our refrigerator doing a back float (see photo). The

dryer had somehow ended up on top of the washer. Most of my power tools had slid off my workbench-turned-barge. Paint cans bobbed like apples. The FEMA adjuster



who arrived a few days later measured the high-water mark at 65 in.

This scene replicated itself hundreds of thousands of times up and down the Eastern Seaboard, with much worse damage for many homeowners. We lost our electrical panel, furnace, water heater, washer and dryer, freezer and a slew of power tools, but at least the water didn't reach our first floor.

On the day after the flood, about a dozen workers hired by our co-op association arrived with gasoline-powered pumps to remove water from basements. The pumping droned on for a couple of hours, but the equipment was unable to remove the last 8 or 9 in., according to the crew. That was just as well: I've since learned that FEMA recommends removing water in stages to avoid structural damage. One unfortunate neighbor who had just had her basement waterproofed inside and out saw her slab heave due to groundwater pressure after the water was pumped out of her basement. "It looked like a pyramid," she said.

PLANNING FOR THE NEXT STORM

With ocean levels rising and polar caps continuing to melt, the question is not if there will be another flooding disaster but *when*. Those of us who live in flood-prone areas need to take measures to deal with the next disaster. FEMA offers good recommendations for how to be ready.

First, learn about the flood risk for your neighborhood at hazards.fema.gov or FEMA's Map Service Center (msc.fema.gov). Maps show the flood risk for your community and help determine the flood-insurance coverage you'll need and its cost. (Homeowners' insurance and condo policies will not cover property loss due to flooding.) If you live in an area marked with an A, the government mandates that federally regulated lenders require flood insurance in order to write a loan. If you don't live in a high-risk flood zone or do not have a mortgage, flood insurance may still make sense. Go to the National Flood Insurance Program Web site (floodsmart.gov) to find a provider in your area.

BUILD AN EMERGENCY KIT

Having the basics on hand and keeping them in a place that's easy to find makes dealing with an emergency much easier and less stressful. Store these items in a plastic tub with a tight-fitting lid. For floods and a variety of other disaster situations, FEMA recommends:

- Water: 1 gallon per person per day for at least three days, for drinking and sanitation
- Food: at least a three-day supply of nonperishables
- Battery-powered or hand-crank radio and a NOAA Weather Radio with tone alert and extra batteries
- Flashlight and extra batteries
- First-aid kit
- Whistle to signal for help
- Dust mask to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- Moist towelettes, garbage bags and plastic ties for personal sanitation
- Wrench or pliers to turn off utilities
- Manual can opener for food
- Local maps
- Cell phone with charger, inverter or solar charger

For additional recommendations, especially for families with special needs, go to ready.gov. There are also recommendations for a family communication plan in case you and your

KNOW THESE FLOOD-HAZARD TERMS

FLOOD WATCH: Flooding is possible. Tune in to NOAA Weather Radio, commercial radio or television for information.

FLASH-FLOOD WATCH: Flash flooding is possible. Be prepared to move to higher ground; listen to NOAA Weather Radio, commercial radio or television for information.

FLOOD WARNING: Flooding is occurring or will occur soon; if advised to evacuate, do so immediately.

FLASH-FLOOD WARNING: A flash flood is occurring; seek higher ground on foot immediately. — JP



▲ Sandbags with garden soil

loved ones are separated when a disaster strikes. It includes agreeing in advance about how you will get to a safe place, contact one another and get back together. It will also spell out what everyone in the family will do in different situations.

MINIMIZING FLOOD DAMAGE

I wouldn't trade our seaside location just to avoid two weeks of upheaval once a decade or even once every few years. So I've come up with several ways to minimize damage from flooding next time disaster strikes:

- **Sandbags:** Blocking water has worked pretty well in the Netherlands, where dykes have been used for at least 2,000 years. (In the days before the hurricane, we called city workers to ask if they had sandbags available.

No, they said, but they thought it was a good idea.) Empty sandbags are compact to store, and filling them with garden soil is actually better than sand (see photo, left). Building a wall with sandbags isn't complicated. Just keep the base twice as wide as the height, and stagger the courses as you stack them. Sandbags come in sizes ranging from 10 x 14 in. (15-pound capacity) to 36 x 48 in. (175-pound capacity). The 14 x 26-in. bags seem right for our needs. At a capacity of 50 pounds, they're not too heavy for me to move. The cost is about \$40 for 100 bags, which is more than enough to protect our basement windows and bulkhead basement door.

- **Raising appliances:** Before a plumber arrived to install our new water heater, I purchased enough concrete pavers to raise it 8 in. above the basement slab (photo, below). Doing so meant using a shorter and wider "low-boy" style water heater, which sacrifices some efficiency, but we felt it was a worthwhile trade-off. I also asked the plumber to reconnect the water lines with threaded unions. After unscrewing the two unions, shutting off the gas valve, disconnecting the gas line and draining the tank with a small pump, I can carry my 80-pound unit upstairs with the aid of a friend or a hand truck.

We also raised the furnace on blocks. Our old furnace was at least a couple of feet taller than its replacement, so there was plenty of room for the blocks. Removing the furnace before the next flood will be more difficult than removing the water heater because it involves disassembling some ductwork and disconnecting electrical lines and the flue, but it's doable — and the furnace weighs even less than the water heater.

Several neighbors who have hydronic heating systems have opted to move their boilers up a level. Space is not a

big problem because these units are so compact — about the size of a large microwave. They can heat water for domestic use as well as for space heating. We weren't able to use a compact boiler because the added costs for installing baseboard radiators would have been too high.

- **Installing check valves:** In addition to water damage, flooding will often cause sewers to back up. With sewers filled, sewage may be pushed up drain lines into appliances that reside in the basement, including washing machines and utility sinks. Installing check valves (see photo, p. 21) will help to prevent backups. They are relatively inexpensive and easy to install.

- **Adding a sump pump:** After our basement was pumped during our bout with Hurricane Sandy, several inches of water gradually seeped back in through the walls within a few hours. Though a sump pump can't remove the water from a tidal surge, it can help with the groundwater that slowly seeps into a basement for several days following a flood.

BEFORE YOU EVACUATE

Preparing to evacuate before a flood is a confusing and unsettling experience. Nevertheless, take the time to move as many items as possible out of your basement. My neighbors lost family photo albums, hundreds of books and lots of clothing; I lost many of my power tools, a wine chiller and a dehumidifier — all of which would have been easy to carry upstairs. Don't be lulled into believing water won't get any higher than it did the last time there was a storm. (Sandy's waters were 59 in. higher than Hurricane Irene's, at least in our basement.)

Look around your yard and secure any objects that could become airborne in high winds or that could float away. Sandy's floodwater lifted and scattered the 6x6 timbers we used to make raised beds in our garden. The storm's winds tore down the trellis beside our deck, several sections of fencing and dozens of roof shingles.

Finally, turn off gas and water supplies at the main valves before you head out the door. Turn off the main breaker



▲ Water heater installed on concrete blocks

at the breaker panel. Doing so will help to ensure your safety when you return.

COMING HOME

You'll need to take a lot of precautions when you return. If you didn't disconnect the electricity before the storm, do it only after the floodwater has receded or been pumped out. Do not attempt to do so in standing water. I got a nasty shock from plugging an extension cord into an electric pump while standing on a wet slab.

Many appliances are typically located in basements, including washers, dryers, water heaters, furnaces and dehumidifiers. General Electric warns not to use appliances that have been submerged until they have dried and been inspected by a qualified technician. The company also says to replace electrical and gas components exposed to salt or brackish water because there are no economically feasible methods to recondition them. Dry ocean salt is an electrical conductor and is corrosive, both of which raise the risk of electrocution. (I tried running my washer after drying and cleaning the electronics only to fill the basement with acrid-smelling smoke.) Water can also damage and corrode gas components.

GE recommends changing your refrigerator's water filter if you have been without water or are under a boil alert. In addition, the Centers for Disease Control and Prevention (CDC) recommends throwing out ice, flush-

ing the dispenser for three to five minutes, washing and sanitizing ice bins and discarding the ice produced during the first hour afterward. Check with local health authorities or visit CDC.gov for additional decontamination recommendations. Products that are exposed to polluted floodwaters may have been contaminated and require special cleaning instructions.

Electrical panels should also be inspected. Most electricians will recommend completely replacing the panel and any electrical lines that have been submerged in salt or brackish water. Be sure to get more than one quote: Our electrician charged \$350 for parts and labor; a different electrician charged a neighbor \$700 for the same job.

Cleaning the basement and its contents after the water was gone took three full days. We scrubbed the walls, floors and shelving with a solution of water and detergent and rinsed them with a hose. We used trisodium phosphate (TSP) for the first scrubbing and then a solution of bleach and water (3/4 cup bleach for each gallon of water) for the second. Bleach is an effective biocide but needs to be handled carefully. (Never mix ammonia with bleach.) To improve its effectiveness, leave it on the surface you're cleaning for at least two minutes before drying. (Since our ordeal, we've learned that the CDC recommends using dishwashing liquid or laundry detergent mixed with water as a cleaning solution.)

Whatever cleaning products you use, read all of the cautionary information on the label and be sure to wear protective clothing, splash-protective eyewear, rubber gloves and a hat. Open all windows and doors, or use a fan to ensure adequate ventilation. We used a wet/dry vacuum to remove the excess rinse water. Dry the cleaned basement as quickly as possible with fans, plenty of ventilation and a dehumidifier. ■

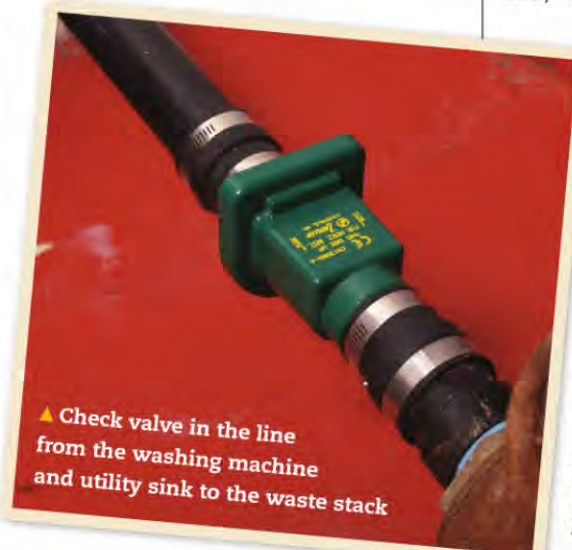
Joe Provey is a frequent contributor to *HANDY* who writes from Bridgeport, Connecticut.

AVOID HOME-REPAIR SCAMS

After a disaster, con artists often knock on a homeowner's door and offer an array of services, demanding a down payment up front. They might claim to give you a great deal by using leftover materials from a neighbor's job, but beware. Fly-by-night operators frequently drive vehicles with out-of-state license plates or set up temporary offices from which they can move quickly once authorities start looking for them.

To help you avoid scams, the National Association of the Remodeling Industry (NARI) offers tips for those impacted by disasters. First, make sure a contractor is legally able to work in your area. Before writing a check or allowing an unknown individual into your home:

- Get the name and address of the company that the person allegedly represents. If he or she comes to the door unsolicited and gives a post office box without a street address or phone number, find another contractor.
- Get all details of the offer in writing and carefully review it. Be sure you understand everything in the contract and that any promises made in conversation are included in the contract.
- Determine how long the company has been in business, and call organizations with which the contractor is affiliated to determine the firm's legitimacy.
- Ask for references, and contact them.
- Remember that any legitimate company that wants your business will be willing to let you to do your homework. Don't fall prey to high-pressure tactics such as "This is the only chance you have" or "By tomorrow the extra materials will be gone." Never agree to make full payment before the work is completed.
- Ask all contractors, including plumbers, electricians and HVAC companies, to pull required permits. This will facilitate insurance payments and separate legitimate companies from the fly-by-nighters. — JP



▲ Check valve in the line from the washing machine and utility sink to the waste stack

NEW TOOLS AND DIY PRODUCTS TO MAKE SEASONAL SPRUCE-UPS A BREEZE



▲ ACCUTRAX PENCIL BLADE

It looks like a cutting tool, but the Accutrax Pencil Blade is a razor-thin marking edge that fits in any standard utility knife and produces a .025-in. line for marking projects with extra precision. It works on wood, drywall, tile and other building materials. The blade even comes in a variety of hues so you can simplify complex projects with color-coded marks. We've never seen anything like the Accutrax, which is why we've added it to our list of 2013 **HANDY** Innovation Award nominees. 800-262-0211. **LINK** ►

★ **2013 HANDY**
Innovation Award Nominee

▼ MAKITA 18V LXT LITHIUM-ION FM/AM JOBSITE RADIO

This tough jobsite radio from Makita features an iPod docking station that charges and plays music with side-firing speakers that provide powerful stereo sound. Airtight, water-resistant construction helps it to withstand the harsh conditions of dusty, wet job sites, and protective bumpers help to prevent breakage if the radio is dropped or knocked off of a workbench or a truck bed. The radio can run for 16 hours with a fully charged Makita 18V LXT Li-Ion battery. **LINK** ►



▲ ROCKLER ROUTER TABLES

To boost precision, ease of use and safety, Rockler Woodworking and Hardware has redesigned its router tables to include a bright, white surface, additional accessory tracks, a dust port and a translucent bit guard. The new tables are available in high-pressure laminate, phenolic and cast-iron models that include a tabletop, a router table fence and a router plate. The tables also feature built-in dual T-track/miter tracks for setups involving additional jigs or a miter bar and adjustable fences, and the CNC-machined aluminum plate can be drilled to fit any router and a dust port. **LINK** ►

PHOTOS COURTESY MANUFACTURERS



▲ RAINDRIP WEATHERSMARTPRO

Promoting the use of about 30 percent less water than a traditional timer, the WeatherSmartPro from Raindrip is a high-tech wireless weather sensor designed specifically for homeowners. It works with both sprinkler- and drip-style irrigation systems and uses real-time, on-site temperature and rainfall information to automatically adjust or suspend watering throughout the year. Unlike similar products, the WeatherSmartPro does not require access to the Internet, a computer to enter program information or a monthly subscription to a weather service. On its large, backlit screen, the device displays the date, time, current temperature, year-to-date water savings, amount of rainfall and time remaining for a rain shutdown. [LINK ▶](#)



▲ RUST-OLEUM EPOXYSHIELD STAIN ADDITIVE

Create a durable — and now even more beautiful — garage floor with just one coat of Rust-Oleum EpoxyShield Premium Clear Floor Coating with EpoxyShield Stain Additive. The tried-and-true floor coating provides protection against daily wear and tear, and the new stain additive imparts rich color to worn, dull floors for a decorative touch. The additive is available in three colors (Black Walnut, Rustic Brown and Charcoal) for use in residential garages and workshops.

[LINK ▶](#)

▼ AMERICAN STANDARD SAFE AND ACCESSIBLE WEB SITE

Dedicated to providing safe and accessible solutions for updating homes, American Standard's new Web site offers design guidance from resources such as the National Association of Home Builders and the Certified Aging-in-Place Specialist program as well as product suggestions such as walk-in bathtubs, zero-threshold showers, etc. Homeowners can also use the Web site to manage and track product selections and costs for projects. [LINK ▶](#)



▶ MILWAUKEE DRYWALL ACCESS SAWZALL BLADE

This specialty drywall blade was designed to reduce the frustrations associated with fixing plumbing and electrical problems behind installed drywall. At only 2-1/2 in. long, the blade can cut cleanly through 5/8-in. drywall without puncturing pipes or wires inside the wall — a risk when using longer blades. The multidirectional-tooth design allows users to cut in all directions and easily create small openings for plumbing and electrical repairs as well as other drywall projects. [LINK ▶](#)



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SIX TRICKS FOR EXTERIOR PAINTING

USE THESE POINTERS TO WORK MAGIC ON YOUR HOME'S CURB APPEAL AND LONGEVITY



1 CHOOSING COLOR

Color selection is important, so don't trust a 2-in. paint chip. Instead, view the biggest paint sample you can find — like an entire house. Designer and HGTV host Lisa LaPorta recommends visiting the best neighborhoods, where colors were likely chosen by architects or designers. Look for house styles similar to yours and note colors that will enhance the architecture of your house.

► **Trick:** To envision a color transformation on your house, try out an online painting tool (such as the one from Behr; see SOURCES). Once you've chosen a main color, Lisa says, buy a single gallon and apply it to your house to see if you really like it before you paint the whole thing.



▼ A mustard trim color is perfect for this Mediterranean-style house, but it would be garish on a Cape Cod.

PHOTOS BY BOB FLEXNER, LIZ ANDERSON AND MICHAEL ANDERSON



2 ASSESSING CONDITION

Inspect for paint failures that reveal deeper problems; then make them vanish for good. Blisters and rust or mold stains can indicate moisture problems; cracking layers of paint may be caused by poor surface prep or bad application practices such as painting in direct sunlight (see No. 6: “Proper Timing,” p. 28). For a lasting finish, eliminate the cause of the paint failure, not just the symptoms.

► **Trick:** Paint that’s lifting from a previous layer indicates a problem with adhesion, but if paint has peeled down to the substrate, the cause may be moisture migrating from beneath the surface. Visit The Rohm and Haas Paint Quality Institute Web site (see SOURCES) to see photos that can help you analyze your paint problems.

3 PREPPING AND PRIMING

To produce a durable coating, your opening acts must include banishing dust, loose paint, mold, rust and grease and then scuff-sanding glossy surfaces. However, do not use detergent to clean surfaces that will be painted, as it leaves a film that can keep paint from bonding. Once the surface is clean and dry, you’ll want to apply a primer/sealer such as Kilz (see SOURCES) to seal bare wood, mask dark colors and block bleeding stains.

► **Trick:** A pressure washer is an excellent tool for removing dirt and cobwebs from the exterior of your home, but these machines can be too harsh when used for stripping old coatings. Follow the manufacturer’s recommended settings — spraying too hard will damage wood fibers. If you are cleaning lap siding, spray at a downward angle. To learn how to revive old wood siding, see “More on Wood Prep,” p. 28.



4 STAYING SAFE

Don’t do an unintentional disappearing act; levitate wisely by correctly using a sturdy ladder. You may need to consider renting scaffolding or a mechanical lift. For added security, use fall-arresting gear.

► **Trick:** To sustain your own sturdiness, be sure to take plenty of rest breaks and stay hydrated (with water, of course). Wear eye protection during all phases of the project to block UV rays, debris (from scraping and pressure washing), spatters and drips.



MORE ON WOOD PREP

When you're painting or staining wood that has been exposed to sunlight and rain, nothing is more important than good preparation. Cutting corners here will lead to short-lived results no matter how well you do everything else.

- For paint or stain to bond well, the surface should be clean and loose paint should be removed.
- The best methods for eliminating debris are pressure washing and scrubbing with a broom and hose.
- Loose paint can be removed by pressure washing, scraping or sanding. Although pressure washing is easiest, it's less effective at removing paint that still partially adheres to the surface.

- Areas that have turned gray are evidence that the wood's surface fibers have deteriorated. Pressure washing or scraping can partially remove these fibers, but for optimal results you should sand the area (by hand or with a power sander) to expose the fresh wood underneath.

- Sanding also feathers the edges of any remaining paint that's stuck to the wood, making your paint job look better. It's a lot of work, and most people don't do it. But the extra effort is worthwhile for achieving long-lasting results.

- If you're simply reapplying stain (on a deck, for example), cleaning is usually all that's necessary, even if the wood has turned gray. Let the wood dry after cleaning; then apply a fresh coat of stain.

- Painted surfaces need more prep. After cleaning and removing all of the loose paint, apply primer followed by one or more coats of paint. Oil-base primer is best for gray areas because it penetrates the deterioration better than latex (water-base) and bonds better to the fresh wood underneath. You can apply acrylic latex paint over the primer. — *Bob Flexner*



5 USING SUPER TOOLS

Look beyond the basic brush for tools that can simplify the task. An adjustable extension pole (1) will expand your range and reduce ladder time. A bucket grid (2) is more efficient than a roller tray when applying lots of paint. A Handy Paint Pail (3) helps to prevent hand fatigue during trim work, and its magnet holds the brush right where you need it. Voila!

► **Trick:** Keep a Hyde 6-in-1 painter's tool up your sleeve (or in your pocket); it's handy from start to finish. Once you use its curved edge to clean a paint roller, you'll never want to work without it.

6 PROPER TIMING

Work in the shadows. A cloudy day is ideal (as long as rain isn't in the forecast for 24 hours). Painting in direct sunlight is unhealthy for you and for the finish coat. The heat causes paint to dry too quickly, leading to lap marks and future blistering.

► **Trick:** To escape direct sunlight, use the clock to your advantage: Paint the west side in the very early morning, the north side anytime, the east side during the afternoon, and the south side in the late afternoon/early evening. And don't cheat on the manufacturer's instructions regarding the appropriate temperature range (during application as well as the curing phase). ■



SOURCES

Behr (ColorSmart digital painting tool) [LINK](#) ►

Bercom International (Handy Paint Pail) [LINK](#) ►

Hyde Tools Inc. [LINK](#) ►

Masterchem Industries LLC (Kilz) [LINK](#) ►

National Lead Information Center [LINK](#) ►

PPG Industries (Olympic paint and stains) [LINK](#) ►

Shur-Line (extension pole) [LINK](#) ►

The Rohm and Haas Paint Quality Institute [LINK](#) ►

The Wooster Brush Co. (extension pole and bucket grid) [LINK](#) ►

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