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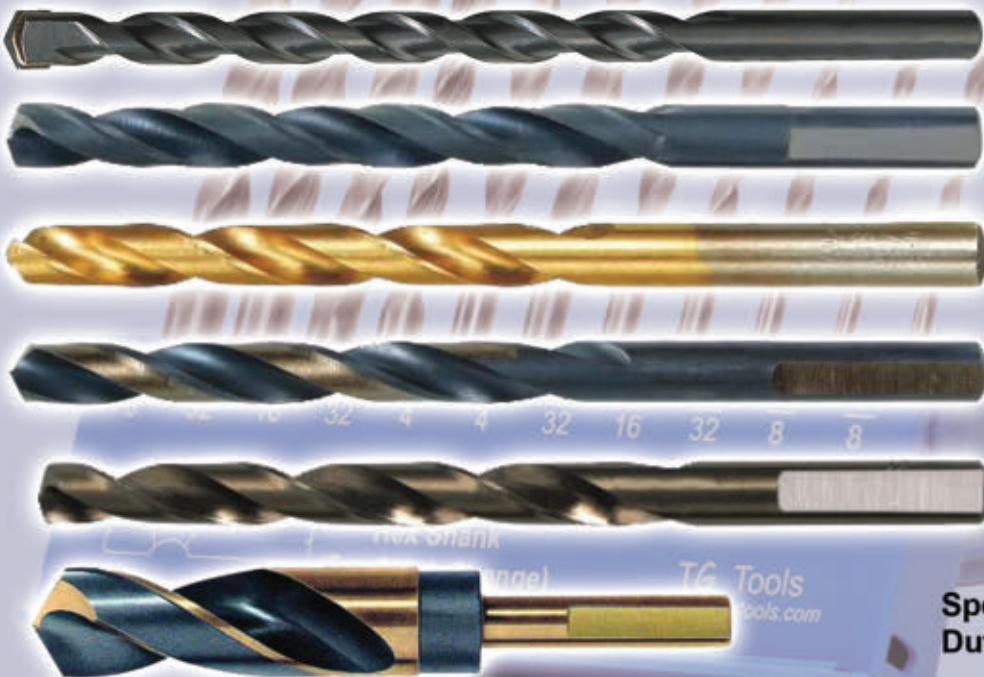
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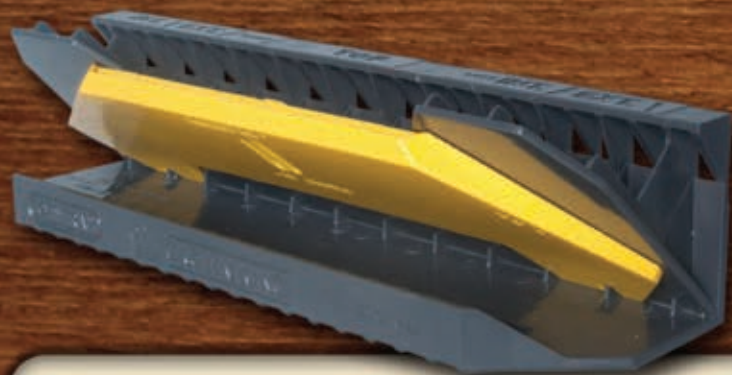
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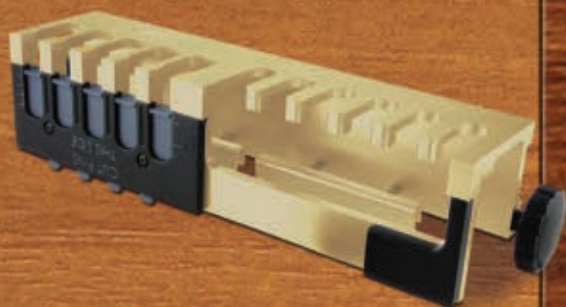
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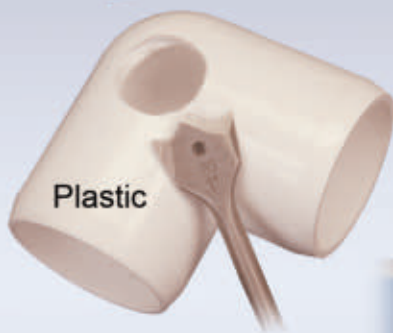
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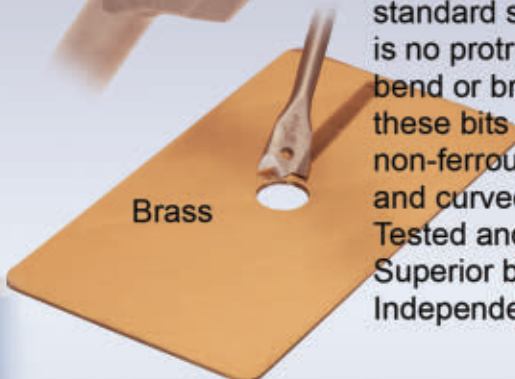
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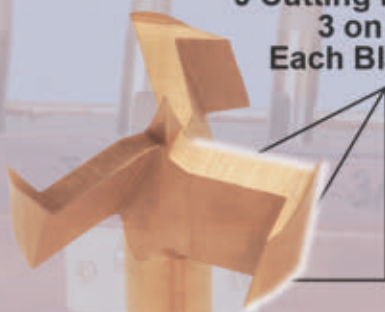
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**B**etter late than never, the Oxford English Dictionary has finally added the word "DIY'er" to its official list of new words. As of March 2014, the wordsmiths in England have publicly recognized that folks like you and me exist.

DIY'er (n.): A person who engages in do-it-yourself activities; an amateur (in construction, repair, etc.).

According to oxforddictionaries.com, that's how we're supposed to spell it: DIY'er with an apostrophe (not DIYer). Leaving out the apostrophe could now cost you the spelling bee.

According to conventional wisdom, it's not until a word is officially entered into a dictionary that the word is deemed acceptable for formal use. Never a big fan of formalities or conventional wisdom, we've been using the term DIY'er in the pages of *Extreme How-To* for more than a decade. I like to think that puts us ahead of the curve, with Oxford just now catching up.

Even as I type this letter, Microsoft Word is highlighting DIY'er with a red squiggly line, indicating that it's misspelled. Come on, Bill Gates, get with the program.

We DIY'ers proudly make our esteemed entrance into the English language with other dignified new terms such as *bathroom break*, *bestie*, *sciency*, *wackadoodle*, and the verb form of *toilet paper*.

So, raise a glass, fellow DIY'ers. Give yourselves a hand and a pat on the back, for we have finally arrived.

In this issue, we give DIY'ers a double dose of door projects: replacing a patio slider with a door/window combo; and repurposing a pair of vintage doors as a pocket-door partition. We also take a close look at replacing old windows with vinyl replacements, and we show how to patch up partially rotted windows in case a replacement isn't in the budget.

Good luck with your next home project, and thanks for reading.



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**Q:** How do I remove melted candle wax from carpet?

**A:** First, scrape away as much dry wax as possible with a dull knife and vacuum up the chunks. Moisten a white cotton towel, fold it in half and lay it flat over the wax on the carpet. Press a hot iron over the towel for 10 seconds. The heat from the iron will draw the wax out of the carpet and into the towel. Repeat this procedure until all wax has been removed, rewetting the towel as needed. Follow up by spraying carpet cleaner on the stain and working it into the rug. Remove excess with a towel and allow it to air dry. Repeat as necessary.

**Q:** Our backyard slope is slowly washing away with every rainfall. What's the best way to stop the erosion?

**A:** One common method to prevent erosion is to use large stones as riprap, which essentially holds the soil in place and sheds water more efficiently than bare soil. If you have somewhere to divert the water, such as a pond, stream or sandy area of the yard, then you can lay a dry creek bed on the slope to handle the water in a more decorative fashion. A dry creek bed is a trough formed of rocks that directs the water flow. To handle heavy water flow, stake landscaping fabric over the slope and mortar the rocks in place. Use a variety of differently sized rocks for a natural appearance.

For very steep slopes, or homes with nowhere to handle heavy water flow, a dry creek bed may not be an option. To combat erosion on steep slopes, consider using large, terraced boulders, interlocking stone retaining walls or carefully secured landscaping timbers to ease the slope and disperse the drainage.

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**Q:** What's the best way to stabilize a rocking toilet?

**A:** Toilets rock due to uneven floors, usually on tiled surfaces. Movement in the toilet will eventually deteriorate the wax ring, which will result in a toilet leak. Sit on the toilet to weigh it down, giving it firm contact with the floor. Use a wrench to snug down the bolts that hold the toilet to the floor. Be careful not to over-tighten, which could crack the porcelain. Slip toilet shims into any gaps between the base and floor and cut off the excess length. Toilet shims are small plastic tabs sold at hardware stores and home centers. If the shims are too tough to slice with a utility knife, then cut with a wood chisel and hammer.

**Q:** How do I fix a hole in a rusty, leaky gutter?

**A:** First, scrub off the rust around the hole with a wire brush. Wash it off with water and an abrasive pad. After the gutter dries, use a putty knife to apply plastic roofing cement to the hole, feathering it out flat to allow water to flow easily inside the gutter. For damage larger than a nail hole, use metal snips to cut a patch of roof flashing. (The metal patch should match the gutter metal to avoid corrosion; i.e., a galvanized gutter needs a galvanized patch.) Use the roofing cement to adhere the patch over the hole, pressing it flat so it conforms to the shape of the gutter and allow water to flow. **EHT**

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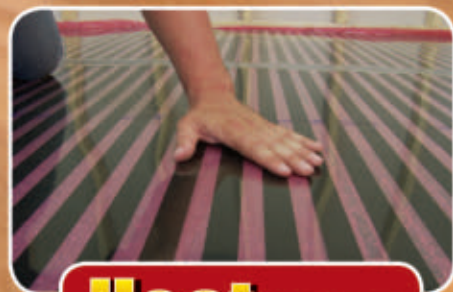
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# Tools to Protect your Tools

Organize your Equipment with a Modular Tool Storage System



By Robert Robillard

In the residential remodeling and construction world job sites are busy, hectic arenas with tools and equipment everywhere. Oftentimes contractors simply overlook the “tools that protect the tools.” They are just too darn busy to consider properly organizing and securing their valuable tools and equipment. But they should!

Jobsite tool storage is just as important as the tools that are used to do the job. The average contractor's tools are valued at thousands if not tens of thousands

of dollars. That's an investment work protecting.

Take the time to analyze your work efforts during the course of a day. Ask yourself a few questions: How many times did you go back to the truck or trailer for a tool? Did you spend time searching for a bit, blade or accessory? Do you store task-specific tools or accessories together? Do you have a system to get multiple tools and accessories into a job in one trip? Where are your “time sinks” when it comes to tool storage, setup and cleanup?

See where I'm going? Contractors need to think about tool storage and organization as an investment, and for DIY'ers it will enhance productivity. A smartly designed tool storage system simplifies the protection, storage and transportation of tools and accessories, so you spend more time working and less time searching.

Creating a tailored, customizable tool storage and transport system will save time and work in the long run.

## TOOL STORAGE RESEARCH

Research has shown that the key to becoming better organized on the job site is through the use of modular organizers. Modular organizers are designed to allow for better and more secure storage, better organization and easier mobility.

We've also learned that organization is the key to being productive at work. Contractors use only 33 percent of their time on the job site working. The rest of that time is spent on tasks such as material runs, unplanned interruptions, searching for tools, searching for parts and running errands.

We can't control all the unplanned “time sinks” but we can choose a system to organize our tools and accessories.

## SECURE CONSTRUCTION

Today's storage systems have several things in common. They are durable, lightweight, stackable, and have a uniform footprint designed to protect your tools. They also incorporate mobile carts for transporting the units in fewer

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trips. The most common individual tool storage and accessory organization systems are:

- Festool Systainer and Systainer-Ports systems
- Bosch L-Boxx, Click and Go System
- Dewalts TSTAK system and ToughSystem

### EQUIPMENT DESIGN

The overall quality of the system depends on extra steps the manufacturer takes when constructing the units. Features like customization options, locking lids, strong handles and hinges are important, as are impact- and weather-resistant properties.

Manufacturers take pains to



*New systems offer modular storage inserts to customize storage of small parts and accessories. Removable trays mean you can grab what you need and go.*

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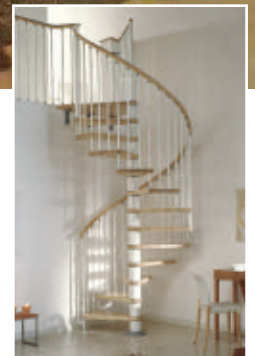
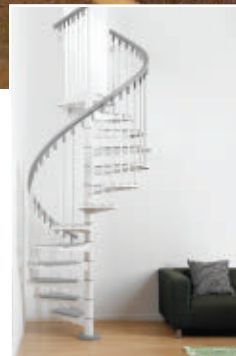
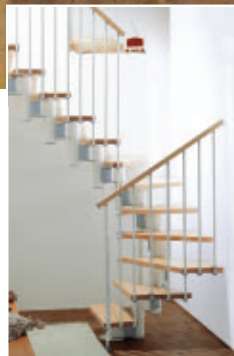
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## ACCESS AND ORGANIZATION

Everyone has unique needs when it comes to jobsite storage. Before purchasing a storage system, you should evaluate the quantity and kinds of tools you need to store and how often you need to access them. Always think about portability.

Consider accessory and parts storage. These are items that get tossed in the truck or trailer or fall behind the seat. They are also the items that we tend to search for most. Everyone can see the bright red drill but finding the thin, slim



*Organized equipment storage results in less wasted time spent looking for items and more productive time on the job. Shown is the Bosch L-Boxx system.*

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drill bit is another story. Check for the ability to label the organizational inserts.

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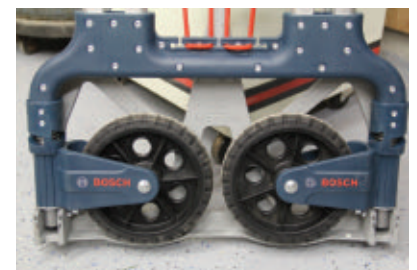


A popular trend among the new systems is the ability for the modular boxes to stack and interlock together, occupying a smaller storage footprint and transporting as a single unit.



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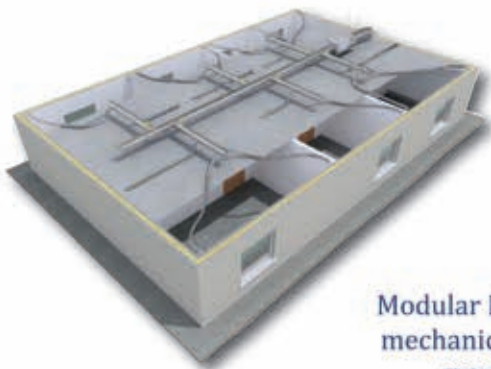
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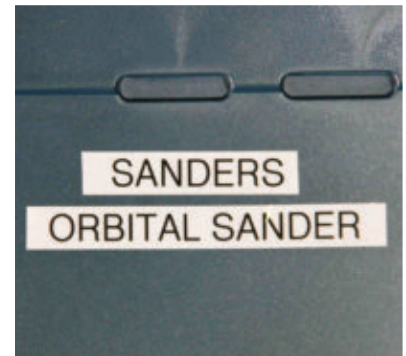
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Having a system that is organized and labeled just plain makes sense to our world of demolition and debris! **EHT**

*Editor's Note: Robert Robillard is a remodeling contractor based in Concord, MA, and editor of a [www.AConcordCarpenter.com](http://www.AConcordCarpenter.com).*

*The DeWalt ToughSystem of extremely durable tool boxes can be transported with the DS Carrier, a metal cart with adjustable, foldable brackets that allows tailored configuration.*



*DeWalt's TSTAK system is a flexible storage platform that allows different combinations. All units can stack on top of the other and connect with durable slide latches.*



*These before and after photos illustrate how modular storage products can replace the clutter and confusion of a messy workshop with an organized system that helps streamline the work process.*

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# Residential Insulation 101

Insulating the Attic for Energy Efficiency



By Clint C. Thomas, Esq Photography by Zoe Thomas

*Heat rises, so the attic is the most critical area to ensure sufficient home insulation.*

windows. Even with the best insulation that is available, a lot of air transmission can occur around windows if they are not sealed properly, deteriorate from old age or because they are not of the double-pane insulated variety.

Insulation comes in many different types. Originally, homes did not contain insulation, which is why our grandparents would often stick old newspapers inside their walls. Paper, in fact, is one of the best insulating materials available, but it comes with two major drawbacks. One is that it is highly flammable. Manufacturers attempted to resolve this issue by adding boric acid to shredded newspaper, both as a fire retardant and also as a poison for roaches. The other drawback to paper is that it breaks down and loses its insulating properties when exposed to moisture.

A modern form of paper insulation is known as cellulose. The

As we balanced on top of ceiling rafters, my son Sterling asked me, "How does insulation help to keep our house warm?" I explained that it was the same as adding a blanket to a bed in the winter or putting on a jacket when it is cold. Insulation is of critical importance to a home by providing a barrier between the climate controlled temperature inside the house and the often brutal outdoor temperatures.

Since heat rises, one of the most critical areas is the attic. Without attic insulation, or sufficient attic

insulation, a great deal of our artificially produced heat escapes by simply rising through the dry-wall ceiling into the attic space. In addition, attic insulation also provides protection from the summer's heat, which helps to reduce our monthly cooling bill.

Exterior wall insulation is the second most important area to insulate. Some homeowners, especially in cold climates, will also insulate in their crawl spaces between the floor joists. When it comes to insulation, another important area to consider is the



*Wrong, wrong, wrong. This photo shows how fiberglass insulation was improperly installed in an attic with the paper facing away from the living space.*

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- ◆ Built in miter gauge for marking 45° degree angles and a built in square for marking 90° degree angles or setting miter blades



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materials that comprise cellulosic insulation include newspaper, cardboard, straw and even sawdust. Cellulose is making a comeback because it is more environmentally friendly than fiberglass insulation. Cellulose insulation is made of loose fibers and is sold in vacuum-sealed packages. It is simply broken up and poured into a machine that blows the insulation through a long hose. The do-it-yourselfer then directs the hose throughout the attic and blows in the desired amount of insulation. Blown-in insulation has the added benefit of allowing the installer to control the

*Insulation should be installed in the bare attic joist bays with the paper facing toward the living space.*



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volume of insulation that is being installed, which means controlling the R factor by applying additional insulation in needed areas.

Currently, fiberglass insulation has replaced paper as the industry

standard. It is fire retardant and comes in either rolls or convenient pre-cut bats. It is available in two different varieties, faced and unfaced. Faced, simply means that the insulation has a paper covering

on one side. However, don't be misled by the word paper. There is paper on the outer layer, but a plastic sheet is bonded to the reverse side of the paper to form a moisture barrier.

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### Tips for Installing Concrete Pier Footings

Here are some useful tips to ensure your footings are installed properly and the integrity of your project is maintained:

- You should always make sure that a qualified engineer has designed your footing forms and that they have been tested by an accredited organization.
- Select a footing form that can carry the weight of your new construction and has met the proper building codes.
- Select a footing form made of environmentally friendly, sturdy materials.
- Ensure you are placing the footing form on solid ground. The more solid the ground the less likely movement will occur.
- Install your footings 4-6 inches below the frost line to avoid potential movement. If you are in an area without frost, then the form should be back filled 2 feet to hold it in place when it is being filled with concrete.
- Should rebar be required pour concrete into the system first. Insert three or four number 4 or 5 rebar rods into the tube. To determine the length of rebar, measure the distance from the top of the tube to the air holes located on the Bigfoot Systems® Footing Form before you place the system in the excavation and backfill.
- Purchase the amount of concrete stated on the form label. You will use all of it.
- Use a Bigfoot Systems® Footing Form as a funnel to pour concrete into the system by placing an inverted Bigfoot on top of the construction tube.
- For a marine application, such as constructing a wharf, pour the concrete into the footing and tube on shore and have an excavator set them in place in the water. The other option will entail using a diver and pumper truck.
- Footing forms should always be used when installing footings as they provide added stability, strength and safety to your new construction.
- Don't risk having to redo the job, do it right the first time!

Visit our web site [www.bigfootsystems.com](http://www.bigfootsystems.com) to view a complete set of our installation instructions.



Set up a work station that facilitates moving materials into the attic.



Faced insulation measuring 6-1/4-in. with an R-value of 19 is sized to fit between attic joists.

Un-faced insulation is fiberglass insulation without the vapor barrier. A vapor barrier is necessary since human beings, who are comprised of mostly water, produce a lot of moisture through normal biological functions. Anyone who has ever slept inside a nylon tent can remember how much condensation collects overnight inside a poorly vented tent. In addition to our lungs expelling moisture every time we breathe, consider all of the other activities that we engage



The paper facing of fiberglass insulation contains a plastic layer that serves as a moisture barrier to the attic space.



Unfaced insulation is used for the succeeding layers that cover the faced insulation.

in that produce moisture, such as bathing and cooking.

In addition to fiberglass, insulation is also available as cellulose, rock-wool, and Spray Polyurethane Foam, commonly called spray foam or SPF.

Spray foam is a spray-applied insulating foam plastic that is installed as a liquid and then expands many times its original size. As home insulation, the concept is similar to living inside a sealed Styrofoam cooler. SPF can provide high levels of R-value, while providing air barriers and moisture control in buildings. For roofing, SPF insulates and eliminates thermal bridging through fasteners or gaps in decking. (However, once foam insulation hardens inside walls or ceiling

joists it encases all of the electrical and plumbing lines inside of the fill-space in a solidified mass of hard foam. This can make future repairs or remodeling work extremely difficult.)

Spray foam is available in two versions; low-density/open-cell SPF and medium-density/closed-cell SPF. The low-density version expands about 100-150 times its original liquid volume to form a

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## MATERIAL MARKET

semi-rigid/flexible, non-structural SPF insulation with an R-value around 3.5 per inch.

Medium-density/closed-cell SPF used in interior applications refers to spray foam that weighs between

1.5 to 2 lbs. per cu. ft. when fully cured. It expands about 35 to 50 times its original volume to form a rigid, structural SPF insulation with an aged R-value up to 6.5 per inch.

The down side to spray foam

insulation is that application generally requires specialized training and equipment. Although a few manufacturers offer DIY kits for small projects, SPF is usually applied by a professional.

### DIY INSULATION

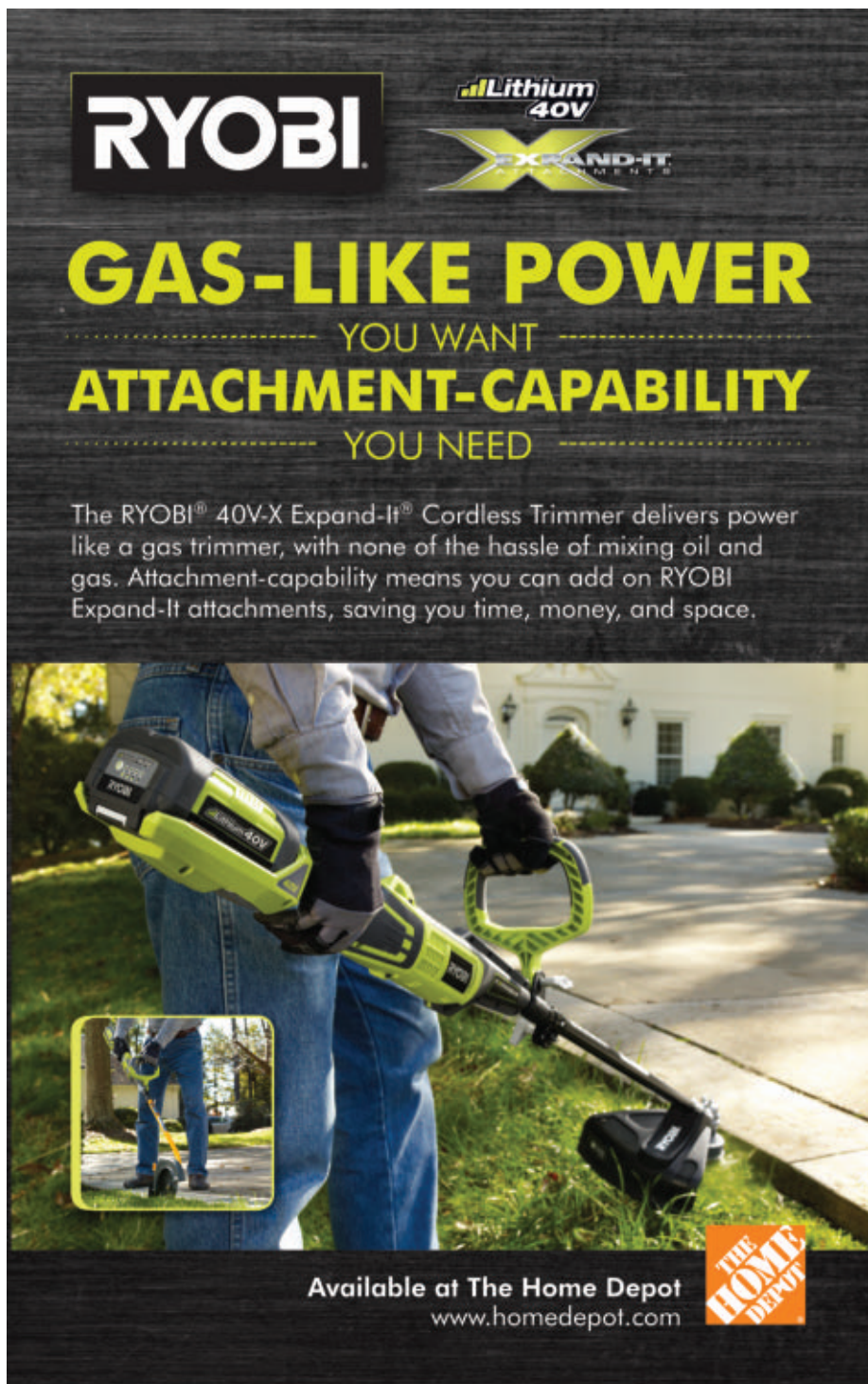
For DIY installation, batts and rolled insulation can be laid by



*When installed perpendicular to the faced fiberglass insulation, the additional layer of unfaced rolled insulation provides extra R value while also insulating the wood framing members, which don't otherwise provide a very effective thermal break.*



*Here's the completed attic with the new fiberglass insulation completely installed for a combined R-value of 49.*




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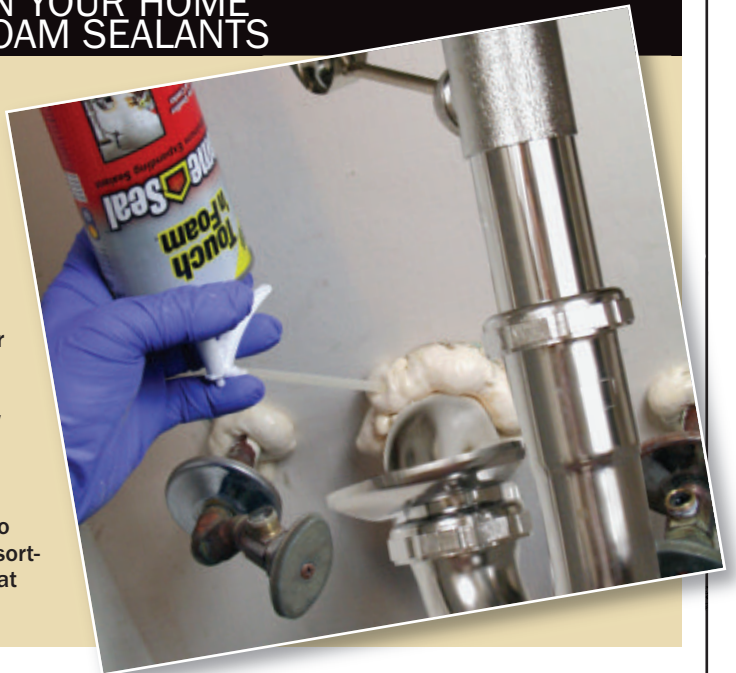


## INCREASE ENERGY EFFICIENCY IN YOUR HOME THIS SUMMER WITH TOUCH 'N FOAM SEALANTS

Air sealing gaps and cracks assists in creating an energy-efficient home and keeps the cool air inside during the summer. Traditional fiberglass insulation alone does not efficiently reduce air movement through gaps and cracks, and that's where Touch 'n Foam's one-component sealants play a key role.

Touch 'n Foam offers a full product line for DIY'ers. MaxFill is maximum expansion foam for air sealing larger holes and gaps commonly found around electrical entries in basements. Home Seal is minimum expansion foam for smaller gaps and cracks in areas such as wire and pipe penetrations. No Warp is a low-pressure formula for areas such as windows and doors. No Warp will not bow window frames or door jams.

After applying these products, simply trim and sand to finish. The foam is paintable to blend in with any environment. Scan this QR code to be directed to our how-to video featuring these products. For information on the broad assortment of Touch 'n Foam products, please visit our website at [www.touchnfoam.com/EHT](http://www.touchnfoam.com/EHT).



hand. Blown-in fiberglass, rock wool and cellulose can be applied by almost any homeowner using a machine that most box-stores provide free of charge.

Insulation is rated by its R factor, which helps to determine the amount to install. The higher the R number, the greater the insulating properties. For example, R-30

fiberglass insulation is approximately 9 inches thick and has higher insulating properties than R-19, which is 6-1/4-in. thick. A 4-in. 2x4 wall cavity can be fitted with traditional R-13 fiberglass insulation, or the same space can be filled within injected foam that will have a value of R-26 (with an R factor of 6.5 per sq. in.).

Insulating a house is much like dressing for the cold weather. A couple of different layers will keep a person warmer than one big single layer, especially in one's attic. Normally, R-13 or R-19 insulation is installed between the ceiling joists in the direction of the joists and then another layer of insulation, usually R-30, is



Some types of insulation can be blown into the attic using a machine that many home centers offer free of charge. (photo courtesy Certainteed)

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applied perpendicular to the initial layer on top of the first. The amount of insulation needed for one's attic will depend upon the area of the country that a person lives in. Obviously, colder climates require more insulation than warmer climates. However, generally speaking, the R value of attic insulation should fall somewhere between R-30 and R-60, at a minimum.

*Spray foam insulation is a popular method of modern installation. Some manufacturers such as Tiger Foam offer kits for small jobs, but whole-house projects generally require specialized training and equipment. (photo courtesy Tiger Foam)*

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As previously mentioned, insulation can be faced or un-faced. The layer of insulation nearest to the interior of the home should contain a vapor barrier and should be installed with the vapor barrier facing the home's living space. In attic spaces, an additional layer of un-faced insulation, usually R-30, can be installed on top of the insulation that is between the ceiling joists for an added layer of protection. In really cold climates, a third layer of insulation, either un-faced R-30 or blown-in cellulose can be installed on top of the first two layers. Some insulation contractors recommend blowing in cellulose insulation directly on top of the first layer of insulation instead of using roll or bat insulation for the second layer. Blown-in cellulose will block out more of the unwanted air

flow that causes so much of our home's temperature loss and also fills in oddly shaped or hard-to-access cavities more easily.

In my home the original R-19 insulation had been improperly installed because the vapor barrier was not facing the living space but was facing the attic space. Therefore, my first step was to turn over all of the insulation in my attic, which had the added benefit of fluffing some of it up, much like shaking a goose-down blanket. My son and I then added additional R-19 in the spaces that did not have any insulation at all. We then added a layer of un-faced R-30 on top of the first layer and perpendicular to it.

Fiberglass insulation is easily cut with either a sharp pair of scissors or by pressing it completely flat against a hard surface and cutting

through it with a utility knife. Rock wool insulation is best cut with a drywall saw, or even an electric carving knife that your father may have used on the Thanksgiving turkey.

Be sure to always wear long pants, long sleeves and gloves when handling insulation because the fiberglass irritates the skin, making most people itch. Some people like to wear a paper dust mask or respirator if they have allergy problems to keep from inhaling so many of the fiberglass particles.

The installation of additional attic insulation is a simple project that any homeowner can do over a single weekend, and will have a very real fiscal impact on their checkbook. In addition to saving money, attic insulation also saves our environment by reducing the amount of fossil fuels that we consume. **EHT**

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Photo courtesy Simonton Windows



# THE VINYL SOLUTION

The Ins and Outs of Vinyl Replacement Windows

By Matt Weber

# THE VINYL SOLUTION

Measure the width of wooden windows from jamb to jamb (not the parting bead or stop molding of double-hung windows). Depending on the make of your window, it may help to remove the interior trim to see the rough opening.



Measure the height of windows from the sill to the top jamb. The sill is usually sloped to shed water away from the house, so it's important to take the measurement from the uppermost point of the sill.

**W**indows take a lot of weather abuse, and their material makes a significant difference in durability and performance.

Wood windows generally require repainting and re-glazing every 2-3 years, which can be drag on a homeowner's time and patience—or their wallet if they hire a painter.

Although painted aluminum windows can pit, they don't generally have the same maintenance problems as wood. However, aluminum windows are notorious for poor thermal performance. Much like radiators they conduct unwanted heat from the outside into the

room. In the winter, aluminum transfers cold in the same way. This heat transfer creates condensation and related problems. Many modern aluminum windows now utilize "thermal breaks" to address the condensation issue and increase energy efficiency. These "breaks" are made of vinyl.

Vinyl replacement windows are a top choice for home remodeling because vinyl is itself a thermal break, minimizing heat transfer from the outside the home to the inside. Vinyl windows look great, are energy efficient and require very little maintenance. There's also no need to repaint or restain

vinyl windows, since they are the same color throughout.

However, before placing an order for a replacement window, the first critical step is to determine the right measurement for the new window.

## HOW TO MEASURE FOR REPLACEMENTS

The simplest method of replacement is to swap the existing window for a new unit of the same size. This is called a pocket replacement and allows the homeowner to keep the trim intact around the windows. Depending on the construction of your windows, it may



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# THE VINYL SOLUTION



*For metal windows in brick walls, measure the width from brick to brick. Measure the height of metal windows from the brick at the bottom to the lintel at the top. Measure the height of metal windows from the brick at the bottom to the lintel at the top.*

help to remove the old interior trim to ensure correct measurements of the rough opening. If the window manufacturer offers specific measuring instructions for their particular windows, defer to those guidelines.

When measuring the existing window for width, place the tape against the jamb and measure to the other jamb (not the stop molding or the parting bead, which are wooden strips attached over the jamb). On double-hung windows, the parting bead that separates the sashes will be removed from the jamb when the new windows

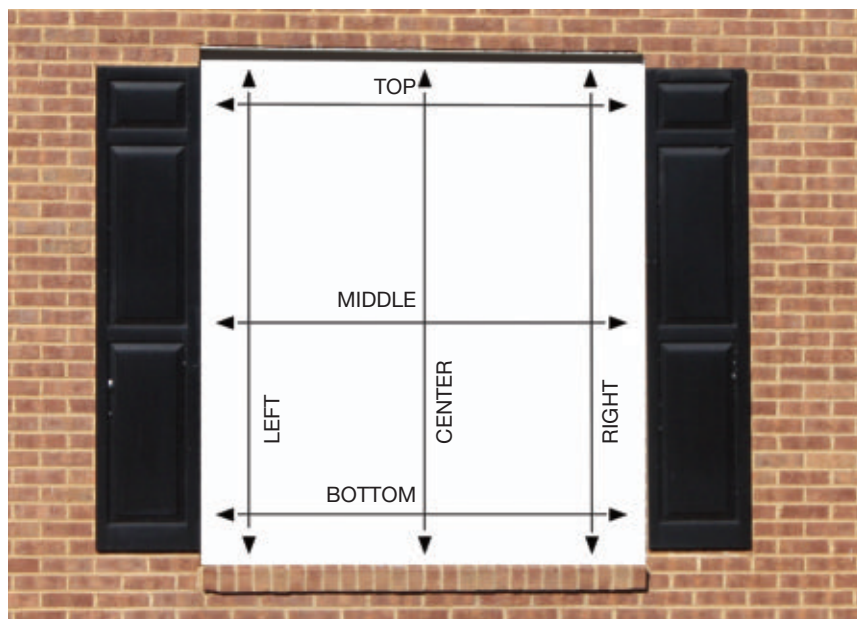
are installed. Replacement windows are sold in a standard thickness to fit inside the 3-1/4-in. pocket that exists between the outside and inside stops after the parting bead is removed.

Measure the window's width in three places—top, middle and

bottom of the window. Use the smallest of the measurements to determine the width that surrounds the window.

Next, measure the height of the window, placing the tape on the very top of the sill. The sill is not to be confused with the window

*As shown in the diagram, take three measurements for the window's height and three measurements for the window's width. Use the smallest measurement for each dimension.*





*Always consult the window manufacturer's installation instructions because product designs vary.*

stool, which is a piece of interior molding at the bottom of the window to give it a finished appearance. On a double-hung window, the sill is the board the sash closes onto. The sill is usually sloped to divert water away from the house, so it is important to



strike the measurement from the uppermost point of the sloped sill. Measure from the sill to the top jamb (not a stop or parting bead).

Measure the window's height in three places—right, center and left of the window. Use the smallest of the measurements to determine the height surrounding the window.

Once you have the measurements of the existing window, consider deducting slightly from your figures so the replacement window will be easier to install. Some professionals suggest deducting 1/4 inch from the width and 1/2 inch from the height. This slightly smaller measurement ensures the installer won't try to force the new window into place, potentially damaging the unit or affecting its operation. The extra space makes it easier to adjust the new window with shims and allows room to insulate around the unit.

Remember, the replacement window must fit into the opening plumb, level and square, even though the opening may not be any of these.

Most manufacturers will offer standard size windows, and the homeowner/contractor should

order a size that most closely matches their measurements, unless they plan to change the size. Keep in mind that if a window is slightly smaller than the window frame, then it can be shimmed to properly fit in the opening. However, if the window is too large, then it won't fit into the rough opening without substantial reconstruction of the wall.

Some manufacturers such as Simonton Windows customize their windows to the exact measurements requested, and standard sizes do not apply.

## REPLACING METAL WINDOWS IN BRICK HOMES

Metal windows are generally fastened with a flange inside the wall behind the brick. To measure for replacement, follow the same three-step measuring guidelines but strike the tape from brick to brick to measure the window's width. To determine height, measure from the brick at the bottom to the lintel at the top of the opening.

**Note:** The brick opening may be larger than the window opening. If this is the case always use the smaller of the two openings to determine the size of the replacement.

## DETERMINE YOUR STYLE

If you're considering a window replacement project for your home or building a new home, it's important to know what window styles

*The window must be installed plumb, level and square even if the rough opening is none of these things. For this reason, most pros deduct slightly from the window measurement before ordering to ensure the window fits easily.*

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Leaving a little space around the window allows room for shims and insulation.

you prefer. When people refer to a “style” of window, they are generally referring to a description of how the window operates. Some of the most popular styles are Double Hung, Casement, Bay, Bow, Slider and Picture windows.

To gain a better understanding of what windows “do” and the benefits they offer, here’s a quick look at window styles provided to EHT from the experts at Simonton Windows.

**Double Hung** – Both sash (top and bottom) operate independently on a Double Hung window. This allows you to keep the bottom sash closed and open the top sash for ventilation in the home. This is a great style choice if you have young children or pets at home because it enhances the ability to get fresh air into a room from the top of a window while keeping the bottom sash closed for safety.

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*Double hung windows allow you to keep the bottom sash closed and open the top sash for ventilation in the home. (Photos courtesy Simonton Windows)*

**Single Hung** – Just the bottom sash opens upwards on this window and the top sash is inoperable.

**Casement** – The sash are hinged on the side, and the window cranks open a full 90 degrees for maximum ventilation. This is a good option for older homeowners who don't wish to strain their backs with the "push and pull" action of a Double Hung window.

**Slider** – You can have multiple window panels that slide open on a track with a Slider window. There's also the option of having a "fixed stationary" panel that doesn't open combined with a window panel that "slides and glides" open. Again, this is a great option for older homeowners since the sliding action of the window is easy on the back and shoulders.

**Picture** – A Picture window does not have the capability of opening

at all. It's a fixed unit usually installed to maximize views.

**Bay** – Bay windows are created by mulling together three windows at either 35 or 45 degree angles. The windows can be a combination of fixed and operable units, or they can all be operable or all be fixed. These focal point windows are oftentimes found in key areas of the home including living rooms, kitchens and master bedrooms.

**Bow** – Bow windows are more "rounded" in appearance than a Bay window. They are generally created by placing windows at 10 degree angles. Whereas a Bay window has three units, a Bow window can have three, five, seven or nine separate windows mulled together as desired.

**Awning** – With a crank-out Awning window, the sash are



*A Garden window extends the space outwards from the window with shelves that allow room for plants or other items.*

hinged on top and the window opens out and upwards.

**Basement (or Hopper)** – Similar to an Awning window, except that the sash are hinged at the bottom and the window opens from the top out for ventilation.

**Geometrics** – These fashionable windows are usually fixed units. They come in geometric shapes, such as an octagon, half-round or rectangle, and are often “paired” on top of operable units to add more light and style to the home. They’re also used in secluded areas of the home, such as bathrooms, hallways and foyers.

**Garden** – The unique Garden window extends the space outwards from the window. Ideal for over a kitchen sink area, this window features functional Casement sidelites and a fixed unit in the



*Bay windows are created by mulling together three windows at either 35 or 45 degree angles.*

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center. Shelves allow room for placing plants or other items.

## INSTALL YOURSELF OR CALL A CONTRACTOR?

A homeowner with the right tools and carpentry experience can install a replacement window. However, *Extreme How-To* strongly advises that first-timers enlist the help of an experienced professional to show them the ropes. If the window is installed improperly and is not plumb, level and square, then a number of problems might occur. The Double Hung and Slider sash may be difficult or impossible to remove. A Casement sash may not operate properly due to excessive drag on the sill. The sash pivot bar on Double Hung windows could bind and cause the sash to

become inoperative, or the weather-stripping may not seal properly—allowing air and water infiltration, even if the sash is locked.

All window installers, both professional and DIY'ers, should always consult the manufacturer's guidelines for installing their specific units, because products vary by design.

## HOW TO FIND A QUALIFIED INSTALLER

If you're thinking about calling a pro to install the windows in your home, make sure to invest as much time in finding a qualified window installer as you do in selecting the right windows for your house. Locating a qualified installer in your area may be easier than you think. Along with the

traditional ways of locating installers, such as the Yellow Pages and searching businesses online, here are some fast and easy recommendations to help find qualified installers in your area:

**Tip #1** – Go to a window manufacturer's website to see if they have a preferred installer program. Many window manufacturers, like Simonton Windows, require contractors to go through classes and training sessions to make sure they understand the specifics of proper window installation. Once they achieve a preferred installer status, these professionals are then promoted on the company's website in a geographic breakdown, so it's easy for you to locate an installer that meets the company's criteria in your area.

**Tip #2** – If you're purchasing your windows through a major home improvement center, such as The Home Depot, they will have an installer program. You can hire your installers through the home center at the same time that you order your windows.

**Tip #3** – Ask your local lumberyards, distribution centers and building product dealerships for recommendations on quality window installers in your area.

**Tip #4** – Visit a website like [1800contractor.com](http://1800contractor.com), Home Advisor or Angie's List. Let them match you up with installers in your specific geographic area to receive installation quotes.

**Tip #5** – Ask family, friends and colleagues for recommendations of installers they've used in the past. Choose those whose services have been stand-out top quality with your friends. **EHT**

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# PERFECT



**By Larry Walton**

---

I'm not a big fan of sliding glass doors. I know they have their place. In fact, they have some distinct advantages such as being constructed like a window, which makes them particularly well-suited for handling direct, wet weather.

Another advantage of the slider is that it's out of the way much like a pocket door, with a built-in place to park the door when it's open. I get that, but I don't like the look, the movement it takes to walk through, the extra effort needed for kids and the elderly to operate, and the extra measures needed to secure them.

So I keep taking them out and replacing them with double French doors or a combination of swinging doors and side-lights.

### **THINKING INSIDE THE BOX**

When replacing these overgrown windows, there are two basic design principles to keep in mind. Number one is to think inside the box. In other words, configure your design to work within the space of the original opening of the sliding glass doors. This can be done by drawing a simple sketch of the opening and putting the combination of doors, windows, panels, pet access openings, glass blocks and art niches where you want them.

Sometimes there is a challenge getting the new door jambs to fit below the header, depending on the design of the sliding glass doors. Remember, if you remove material from the header, it will need to be re-engineered to support the house structure above it. I usually pay my door supplier a little extra to cut down the door and the jamb—an operation that is pretty common for them.

Other than the elevation, it's really just a matter of choosing what you would like to fit in that opening. Often a simple solution is to install a pair of French doors that fill the entire opening, which can be a nice upgrade in looks. It also provides a very wide opening to bring in large fixtures like grand pianos, hot tubs and stuffed grizzly bears.

*Thinking  
Inside the Box  
for a Unique  
Patio Door  
and Window  
Combination*

# OPENING

# PERFECT OPENING

If a grand passage is not required, you can configure the opening in a variety of ways. Another slider in our house got a single door with an active half-lite for screened ventilation. The remaining space was walled in to accommodate an additional armoire in the bedroom.

Don't forget that you have choices in how a door operates in terms of swing. You may want to put the swinging door on the left or the right, and the hinges can be on the outside or toward the middle of the original opening.

The design which we chose for this particular project is a good example. To get the desired traffic flow and accommodate the type of air movement that we needed, plus access for the family dog, we brought several elements together.

We got a good deal on a 2'6" door, which is smaller than most exterior doors but takes up less room when open. This helps with furniture placement. In addition to the door size, rather than hinging it at the outside of the original opening like you would a pair of French doors, the hinges are located in the center of the opening to get the swing and the traffic flow that we desired.

## TRIM AS A UNIT

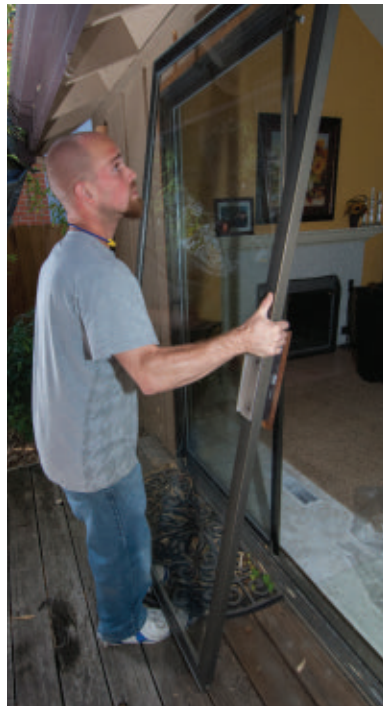
The second basic design principle is to trim the components in your layout as one unit. Tie the components together under one trim header casing that extends the length of the new doors and windows. The far left and far right vertical trim board should extend from the header all the way to the floor with the rest of the trim components filling in as needed.

In our case we wanted a single-light French door with a left-hand swing hinged in the middle of the original opening. The rest of the space was to be filled in with a

single hung window above a wall panel, which would accommodate a dog door.

Of course, in the same space, you could install double doors or a larger swinging door with a glass sidelight on one side with the door in the middle and an active window on the other side. Be creative by thinking inside the box.

Here's how I got rid of the sliders, my wife Robin got her active window, and Sunny got a built-in dog door.

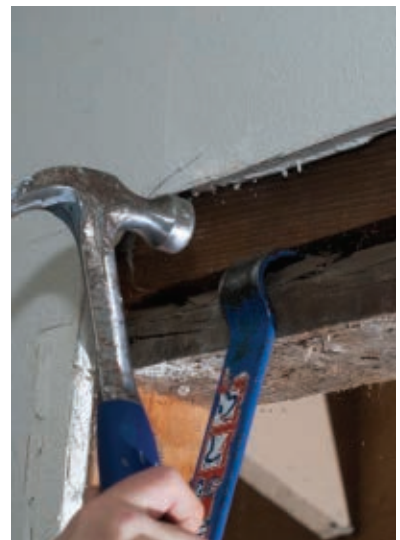


We started the patio door project by pulling off the interior and exterior trim and removing the active side of the patio door

The depth on our circular saw was set to barely go through the siding. We used the outside of the saw base as a guide along the frame of the sliders.

Prying the strip of siding away from the house revealed the flanges of the slider, which was built like a large window.

We removed an extra 2x4 that the framers installed below the



header as a filler. **Note:** This is not the same thing as removing the header, which is an essential support bridging over the door opening.

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# PERFECT OPENING



After removing the extra spacer, we cut the siding flush with the header using our Porter-Cable reciprocating saw.



We laid out the framing in the opening so the hinge side of the new swinging door was supported with a king stud and a trimmer. In this case they were both the same length since we installed them right under the existing header.



We cut 2x4 cripples to support the window sill, which are the horizontal framing pieces just under the window.



The spacing of the cripple closest to the door was determined by the frame of the dog door, which needed to be close to the main door for furniture placement. I can't have the dog running into my chair or spilling my game-time beer.



We used an impact driver and 3-in. drywall screws to attach the horizontal framing pieces above and below the dog door, which was installed at the manufacturer's recommended elevation.



With the door, window and dog-door openings all framed, drywall was installed over the entire opening. We cut out the dog door opening with a small drywall saw.



We began installation of the door by laying down a generous amount of caulking under the threshold.



After lining up the door jamb with drywall on the interior, we nailed through the jamb into the trimmer near the hinges. We removed one of the top hinge-plate screws nearest the door stop and replaced it with a 3-in. drywall screw for extra support.

We always fill the voids between the door jamb and trimmers with shims at each nailing location. This not only helps maintain the proper reveal gap, but it increases sheer strength to keep the jamb from moving in and out as the door hits the stop.



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## PERFECT OPENING

After filling the voids between framing members with insulation, we covered the area below the window with sheet siding.

Caulk was applied to the exterior

framing where the window flange would touch the framing. The window was installed by setting the frame on the sill and tipping it into place.



We used 7d galvanized nails to fasten the window flanges to the framing, being careful not to hit the vinyl frame with the hammer.

We installed Tyvek house wrap tape over the flanges and onto the framing, starting at the bottom horizontal piece first, then both sides, and finishing with the top horizontal. This provides the right overlaps for water runoff.

The trim piece under the door also serves as a support for the threshold drip cap, so make sure it is tight under the threshold and well secured to avoid movement and squeaks.

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After nailing the four window surround pieces into a box, we installed it with shims and finish nails so the reveals (the exposed part of the window frame) are the same all the way around.



We added an extra trim piece where the window frame kept the header trim a little too high for the door frame. The window and door trim lined up in the interior.



We built a hemlock box to serve as the interior window surround. The depth of the surround is the measurement from the window frame to the inside surface of the wall.

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If you install a window surround, make sure to keep it parallel with the door jamb. The vertical trim piece will bridge between the window surround and the door jamb.

It's smart to fill the gap between

window surround and framing at each of the nailing locations.

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bet cuts to mark reference points for trim overlap.

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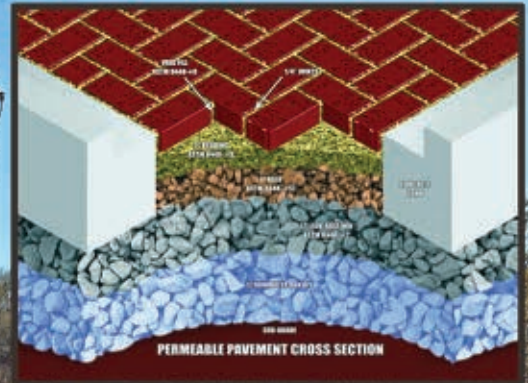


We measured from reveal marks on the door jamb to the reveal marks on the window surround to determine the width of the vertical trim board, which functions as a mullion between the door and window but goes all the way from the floor to the header.

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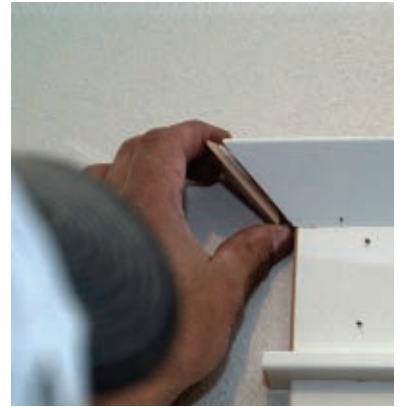
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After installing the three vertical trim boards (strike side of door, between door and window, and right side of window), we capped them with a 1-by-1/2-in. parting bead, a 1x6 header, a simple crown and a top cap. It takes six pieces of trim to complete the header. We often nail all these pieces together on the bench and install them as one piece over the vertical trim boards.

We made our crown molding by beveling a piece of 1x4 at 45 degrees along both edges. The return piece wraps around the header, which sits on top of the parting bead.

The top cap is ripped and cut to length to produce the desired reveal, or overhang, to the crown. (It can be tricky to shoot the right length finish nail at the correct angle to get enough bite without popping through the top cap.)



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A single horizontal board trims the bottom of the window surround between the vertical mullion and the vertical casing leg.

Here's the exterior shot of the completed doorway. **EHT**



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# POCKET DOOR UPCYCLE

paraware, vintage  
Doors and a DIY  
Partition Wall to  
Close an Open  
Floor Plan





By Mark Clement

When our 110-year old American Four Square house was built, it didn't have an open floor plan. Like most Four Square homes it likely had four rooms on the first floor. At some point in the house's history however, someone remodeled it, leaving the living room painfully wide open and without walls.

When it comes to the open floor plan, my wife Theresa and I are closed to the idea. It's not that it's a bad idea. Lots of people like to see into the other room when they're cooking dinner or watching TV. The problem is, at least for us, if I'm watching the NFL on Sunday, so is she. If she's having wine with her friends, so am I. And then there's kid chaos. Kids are charming, but not 100 percent of the time.

# POCKET DOOR UPCYCLE

Even though pocket door hardware is adjustable after the doors are hung, if you're framing the walls yourself, it's best to layout the rough opening carefully and make sure the head jamb is as level as possible. If the floor isn't level, as is often the case in old houses or in basement remodels, lay out from the high spot and make sure to keep at least 3/4" clearance under the door when it's installed.

*For a double door, assemble the tracks using the included mending hardware. Make sure to get them flush and keep them straight. Snap a chalk line if necessary. I lined them up with a floorboard as a guide.*

Plus, the open design is kind of a ruse that builders have convinced us we like, which torques me up another notch. With the span-hungry engineered joists that builders will use anyway, the open floor plan is vastly cheaper and faster to build than laying out, framing, drywalling, trimming and installing the doors required for partition walls.

So if you've got an open floor plan, want it closed, and you're looking for a cool way to add doors that take up zero swing room, here's how to optimize space by closing it in.

## LAYOUT AND FRAMING

A primo pocket door project starts with the walls. Frame them

in the optimum location for the rooms you're dividing. Before snapping the first lines I look carefully at the trim details and paint lines I'll have to deal with later. I make sure there's enough room for trim, plus at least another inch for a paint line where I know the casing will intersect. Check that door heads are as level as possible with each other and that you won't obstruct any HVAC.

Once layout is locked down, buy the straightest framing you can find and install it right away. Make sure you've read the pocket

door hardware manufacturer's instructions (we used a Johnson Hardware kit for double pocket doors). The manufacturer will provide measurements to get the rough-opening correct. Make sure your wall is straight and plumb, and most of all, that the head jamb is as level as possible—even if the floor isn't. In fact, the floor in this project changed over an inch in the span of 60 inches. A key control point is clearance under the door. You want at least 3/4 inch for air to flow beneath the door.

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# POCKET DOOR UPCYCLE

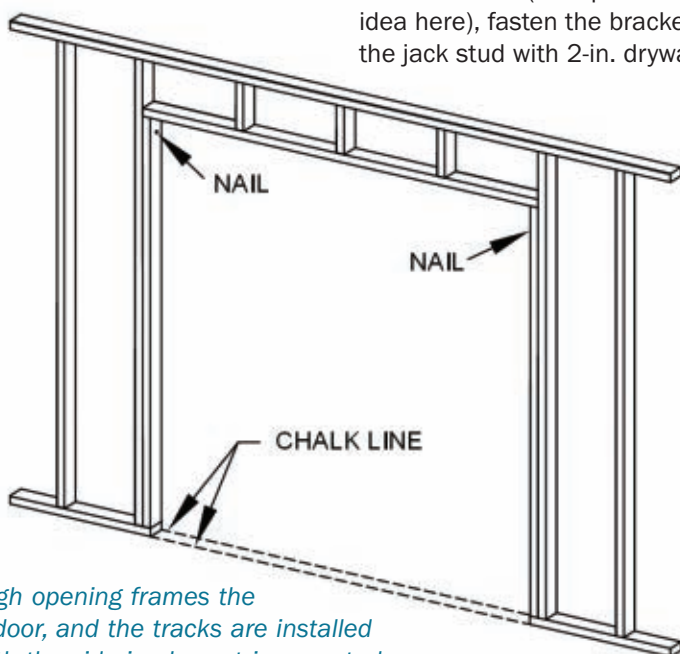


## INSTALLING THE HARDWARE

Starting this project in a neat and organized manner will pay dividends later. Create a space for the tools and hardware that's close enough so you can get them easily—but far enough away that you're not standing on them. A rolling scaffold is a

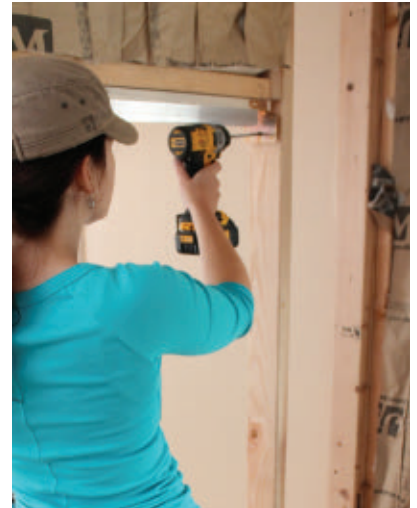
great organizational machine for this type of project.

For a single door, you typically install a single track. For a double slider like ours, you join two tracks together. To guide placement, snap a chalk line on the floor even with the side jambs. Fasten them together on the floor and then set the tracks in place on the header. Once installed (a helper is a good idea here), fasten the brackets to the jack stud with 2-in. drywall



*The rough opening frames the pocket door, and the tracks are installed even with the side jambs or trimmer studs.*

*Installing a pocket door is one of those projects where you need your DIY mojo of knowing how to solve problems. But you also need to read the instructions for the hardware you're installing. We used a kit from Johnson Hardware.*



*Fasten the track brackets to the trimmer stud. Be careful of over-driving the screws and deforming the bracket.*

screws. Don't over-tighten and deform the bracket.

The split-studs, included in the hardware kit, are the dual stud replacements with space in the middle that allow the pocket doors to pass through.

I once got the notion to fabricate my own pocket door studs by making them out of 3/4-in. plywood and some L-brackets, because of a previous bad experience installing a pocket door. The problem was that adding the clips to the bottoms of the studs is a pain. But I found out it was nowhere near as hard as making the studs out of plywood. So, when you're assembling the split-studs, just take a breath and make sure you orient them both the same



*Clips hold the stud assemblies together. Tap them on with a hammer and make sure to orient both studs the same way so the nailing slots face the back of the drywall.*

way, so the holes (bosses) for nailing the trim line up and are easy to find.

Once assembled, hold them to the line and fasten. Everything is loose and wobbly at this point, so getting everything on layout—especially if you’re working alone—can be tricky.

**Two tips:** First, use a scratch awl to dimple the wood where you want the screw to seat, then pilot a hole before driving the screw, especially if you’re going over hardwood floors. Next, drive the awl into one of the bracket holes to pin the brackets on layout. I even put a square up against the stud to determine if it moved off layout. And, for the extra careful, this is the one project outside of metal framing where magnets on your level do something other than pick up screws you don’t want picked up.

One more thing: I’m a huge fan of 6-in. bit drivers as opposed to

those 3-in. magnetic bit holders. It’s much, much easier to start a screw with a longer bit driver in situations like this.

When fastening the studs to the top track, pre-drill and countersink the screws to minimize the risk of splitting the wood.

## TIME FOR THE DOOR

In most houses I’ve worked on, I’d buy a new door that looks like the other doors in the house. Who wouldn’t? But adding doors can be an opportunity to add some super upcycle style to an everyday space. You can check a salvage yard for old, knock-around doors with a vintage feel.

*Be careful to orient the split-studs so the nailing bosses (slots through the steel) are positioned properly. Otherwise, nailing on trim and drywall is going to be a real problem.*



*Installing the stud assemblies on the layout marks is tricky because everything is loose and wobbling around, so I use a few tricks to keep them honest. To help keep them right on the line, I drive my awl into one of the screw holes while I pilot and drive the other screw. And, I hold a layout square on the line so I can tell if the stud moves.*



# POCKET DOOR UPCYCLE



*Note the nailing bosses on the jamb side of the studs. Use a combination square or tape measure to transfer these locations onto the drywall so you can nail in the jamb trim (1-by stock). I used hand nails for this project, although the directions actually call for screws in case the doors ever need to be removed.*

as old homes settled and door frames racked. If they're not square, use a circ saw and guide board to square up the top and bottom. Before installing, apply a coat of finish to the end-grain to protect it.

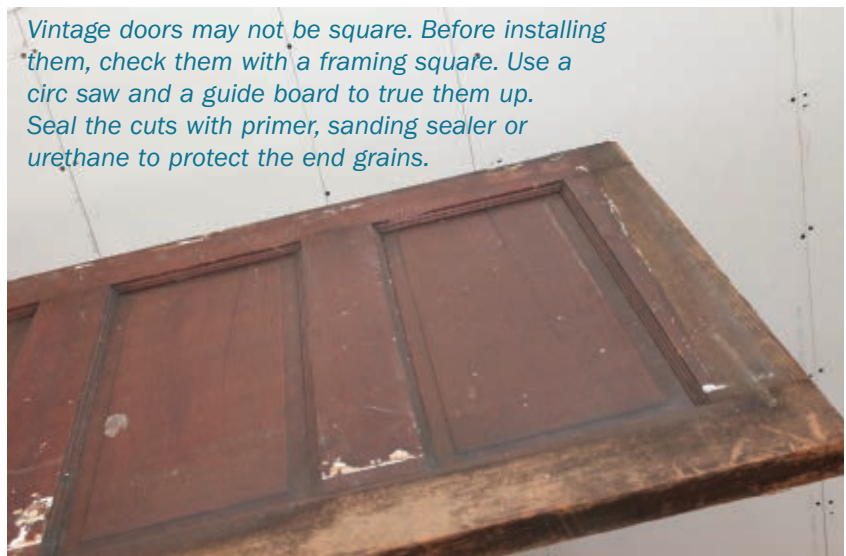
In our case, the end grain on the doors was a mess so we added a header strip that will hold the track hardware to the door. Once installed, it's invisible.

Next, lay out and install the hardware. Again, the scratch awl trick is ideal for setting the screws just where you want them. And the rolling scaffold is a great worktable for a project like this.

Install the door bumpers and hang the door. Install the door stops in the track according to the manufacturer's instructions.

Be careful of lead paint and other finishes, because you may have to strip or refinish the door. But instead of getting something everyone else has, you can unlock the beauty in an old piece and make your house look like an Anthropologie store.

If the door is salvaged, check that it's square. Lots of old doors were sanded down so they'd close



*Vintage doors may not be square. Before installing them, check them with a framing square. Use a circ saw and a guide board to true them up. Seal the cuts with primer, sanding sealer or urethane to protect the end grains.*

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This is a job for the old fashioned screwdriver. Set 'em and snug 'em so the doors kiss but don't bump.

Use the provided wrench to cam the door up or down as needed so that it hangs plumb and closes properly. This will also minimize the door's tendency to roll open or closed. Installing the guide blocks at the base of the door will also keep them from rolling open. Really knocked-around doors may vary in thickness, so you might have to get creative installing the guides.

Install the drywall to the studs and add jamb trim and casing. Before installing the jamb trim, mark the drywall where the slots in the steel stud will let your nails pass. I don't recommend trying to remember where these holes are located, because you'll bend a zillion nails trying to hit the spaces. Also, hand nails are much easier and lower risk than trying to shoot this 3/8-in. wide slot with a brad or finish nailer.

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Add casing and base molding for a finished look. With upcycled doors like ours you can add all kinds of funky knobs to dress up



*The only difference between our installation and a typical installation is that we added a header strip to our vintage door. The end grain had taken a beating over its one hundred years of service (and 30-years or so of sitting in an attic with a roof leak over it).*

this DIY stew with extra awesome sauce.

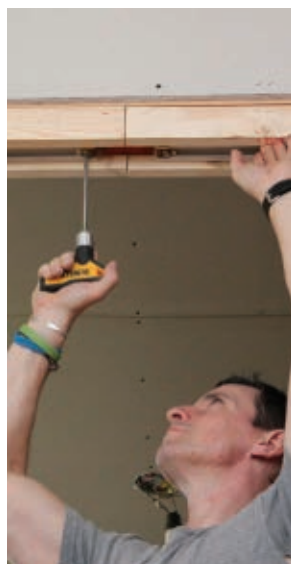
Now, close the door and watch the game, body-count flick or tear-jerker rom-com without inflicting it on everyone else in the house. And from the house-geek standpoint, the room is more comfortable, more intimate, often more

efficient to condition, and just plain nicer. Heck, you might even read that book you've been meaning to jump into. **EHT**

**Editor's Note:** Mark Clement is co-host of the MyFixitUpLife show and general contractor on Food Network's Save My Bakery.



*Install the bumper and, if you have the walls open, stuffing the bays with insulation is a great sound-deadener.*



*Install the stops so the doors kiss when they close. Leave your power tools out of this one, though. Just snug them up with a screwdriver. Use the world's smallest wrench to adjust the doors into plumb.*



# Fixing Rot on Wooden Windows

*When Replacement Windows Aren't in the Budget*



*We cover three basic repairs for partially rotted windows, such as applying Durham's Water Putty.*

By Matt Weber

**W**ood rot is caused by a type of fungus that destroys wood. It is as damaging as termite or other insect infestation, and can wreak havoc on wooden windows. If the windows aren't maintained with paint, caulk and glazing, then wood rot can take hold and completely ruin the casing.

However, in some cases you can catch the rot and make repairs before a complete window replacement is necessary. We'll take a look at three options for making

spot repairs on partially rotted windows. (Note that these fixes are intended for painted windows and not stained wood).

## DURHAM'S WATER PUTTY

Durham's Water Putty is a powder product that is mixed with water on site and can be used to repair damaged wood if applied properly. The putty is also easy to use and easy to clean up. You also get a lot of product for your money.

First, remove all damaged material and wood rot with a screwdriver,

chisel, shop-vac, etc. In a mixing container, add a little water at a time to the powder and stir with a paint stick until you achieve a consistency similar to thick pancake batter. Apply the product in layers up 1/4-in. thick at a time. Allow each application to dry



*Durham's Water Putty requires only water to be mixed with the powder to form the repair product.*



*Mix the Water Putty to the consistency of thick pancake batter.*



*Apply the putty in 1/4" coats, allowing the product to dry between applications.*



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before adding more product. Once the damaged area has been completely filled and dried, sand the area smooth. It is important to finish the repair by sealing it with a waterproofing product such

as exterior primer and paint.

For a belt-and-suspenders approach, apply a thin coat of Gorilla Glue over the repair before painting to help seal out moisture. Visit [www.waterputty.com](http://www.waterputty.com).



*Build up coats of Water Putty until the damaged area is filled just above the surface. Once dry, it can be sanded, primed and painted.*



*The finished repair blends into the painted wood.*

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*The PL FIX 2-part Wood Repair Filler mixes together like a 2-part epoxy.*



*The PL FIX product can be cut and shaped to match existing wood profiles.*

mold it. And unlike some other wood fillers, it doesn't shrink or crack. The down side to the PL FIX is that it's very sticky, which makes it tricky to work with and difficult to clean up. However, the up side is that the material can be molded into a three-dimensional wood replacement that can be cut or routed into shape. If you need to replace a damaged sill corner or chipped molding profile, you can form the repair from PL FIX and cut the final shape once it's dry. Visit [www.loctiteproducts.com](http://www.loctiteproducts.com).

### **SURGICAL REPLACEMENT**

In some cases, the best solution may be to cut out the damaged section of wood, carefully cut a replacement of piece pressure-treated wood to the same shape and dimensions, and glue the piece into the window casing



*An oscillating multi-tool like this Bosch Multi-X is a great gadget for cutting out damaged wood.*

with a high-quality, exterior-grade adhesive that accepts paint. Solid PVC stock is an even more durable material than PT wood, although it can be difficult to find in some areas.

We've found that an oscillating multi-tool equipped with a plunge blade is an excellent device for cutting out the problem area. Remove all loose wood, dust and debris. We also recommend

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coating all sides of the replacement piece—plus the damaged area—with exterior primer before fastening in place, to add an extra measure of moisture protection. After gluing and nailing or screwing in the

replacement piece, fill the seams with exterior-grade wood putty and sand the joints smooth. Apply paintable waterproof sealant, primer and matching paint to complete the repair. Visit [www.extremehowto.com](http://www.extremehowto.com). **EHT**



*For extra moisture protection, coat all sides of the wood replacement piece with exterior primer/paint before installing.*



*I used PL FIX to help harden the casing around the repair and to help fill seams at the joint.*



*Glue and/or nail the replacement carefully into the void. Use an exterior-grade wood glue or construction adhesive.*



*All repairs should be caulked, primed and painted to match the existing casing*

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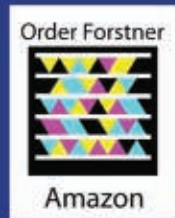
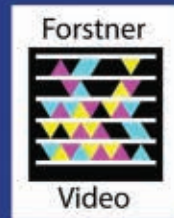
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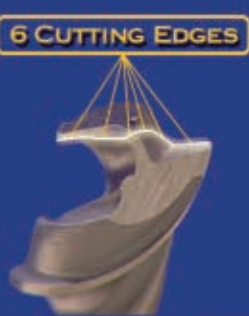
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## smart power tool

from ShopBot Tools

An innovative, portable power tool run from apps on smartphones, tablets or PCs. The Handibot smart tool brings push-button CNC technology to jobsites and DIY projects!



Now, instead of taking material to a stationary CNC machine, you just bring the Handibot to your material:

- Work directly on a table, the floor, the ceiling, the wall, wherever cutting, drilling, carving, or other machining is needed
- Get the precision, repeatability and power of robotics and digital control
- Armed with a simple software app for the job you need to do, it's ready to go to work with a squeeze of the "Start" button

WATCH the Handibot at work:  
[www.handibot.com/  
video\\_scrapbook.html](http://www.handibot.com/video_scrapbook.html)

LEARN MORE and check out  
pricing at [www.handibot.com](http://www.handibot.com)



ShopBot  
**handibot**™

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