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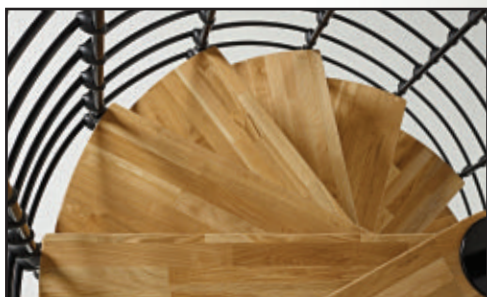
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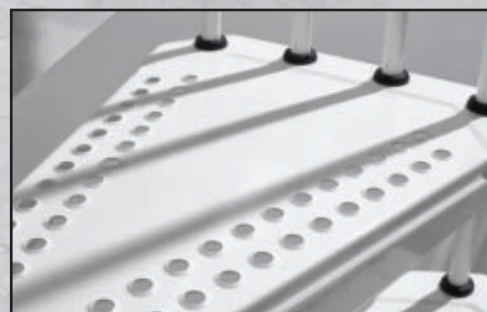


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The SKY030 stair treads are made of solid steel, ventilated to provide a slip-resistant surface even when wet.

Additional riser kits can be purchased separately.

The stair be used in square or mezzanine applications.

Matching Balcony Rail Kit is available.

Each kit is shipped complete with detailed assembly instructions to assist in your installation.

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Cover photo courtesy Lonza



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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: I saw a "denim" wall at an open house that I'd like to recreate in my home. At first I thought it was wallpaper, but it turned out to be a painting technique. How is this done?

A: The denim faux painting technique is also called "chambray." A 12-in. wallpaper brush is used to give the wall surface the crisscross look of soft, worn, woven cloth. First, paint your base color on the wall and allow it to dry overnight. Use an eggshell or stain finish for the base. Then mix up a glaze, which is usually the same hue as the base coat but a different shade. Working in a 4x8-ft. area at a time, roll on the glaze over the base. Comb the wallpaper brush straight though the glaze from top to bottom. Experiment with different angles and pressures to find the pattern you like. Comb quickly to limit irregularities in the pattern. Make three or four passes to soften the effect. Then, comb horizontally in the same manner to create the crisscross effect of fabric.

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Q: Why is the brick on my home turning white?

A: If you're seeing a white, powdery discoloration on the brick, then it's called efflorescence. This is the common result of mineral salts leaching out of the brick. The good news is that it's not harmful to the brick. To remove the efflorescence, mix a heavily diluted solution of water and muriatic acid. While wearing goggles and rubber gloves, mop the solution onto the wall with a stiff-bristled brush and scrub thoroughly. Rinse with water.

Q: How do I calculate the amount of roofing shingles needed for a roof?

A: Roofing material is calculated by taking measurements of each roof section (length x width) and adding them all together to calculate the area of the entire roof in square feet. Triangular sections of a roof, as with hip roofs, can be computed by multiplying the ridge length by the height of the side, then dividing by half. Add together the area of all the sides of the roof, and then add 10 to 15 percent to account for waste. Roofing shingles are sold by the "square" (100 sq. feet), so determine the number of squares of shingles needed by dividing the total area by 100. **EHT**

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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.

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.

By Matt Weber

Wood 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,

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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.

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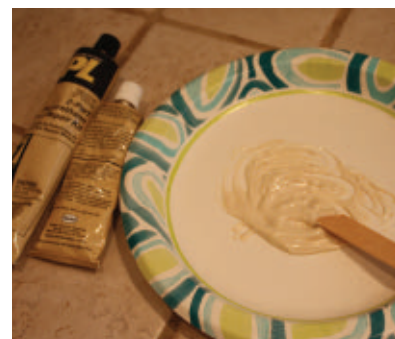
Build up coats of Water Putty until the damaged area is filled just above the surface. Once dry, it can be sanded, primed and painted.



The finished repair blends into the painted wood.

PL FIX 2-PART WOOD REPAIR

PL FIX is a two-part polyurethane-based wood repair filler from Henkel Consumer Adhesives Inc. The resin and hardener are mixed together to create a light tan epoxy. The filler is thin enough to fit into small gaps and cracks, but thick enough that you can



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

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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



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

form the repair from PL FIX and cut the final shape once it's dry. Visit 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 piece of pressure-treated wood to the same shape and dimensions, and glue the piece into the window casing 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



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

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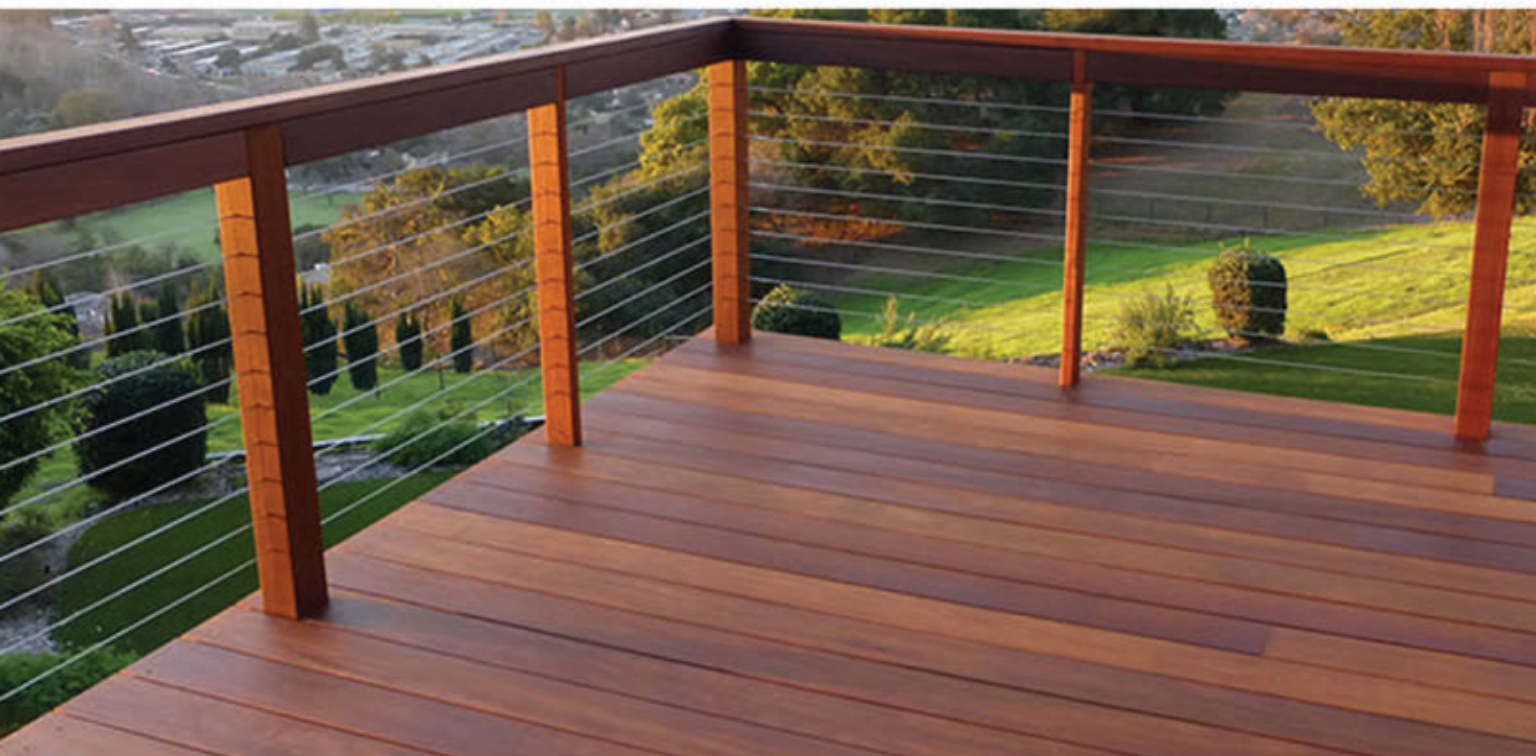
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coating all sides of the replacement piece—plus the damaged area—with exterior primer before fastening in place, to add an extra measure of moisture protection. After gluing and nailing or screwing in the

replacement piece, fill the seams with exterior-grade wood putty and sand the joints smooth. Apply paint-able waterproof sealant, primer and matching paint to complete the repair. **EHT**

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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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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.

Windows 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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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.

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

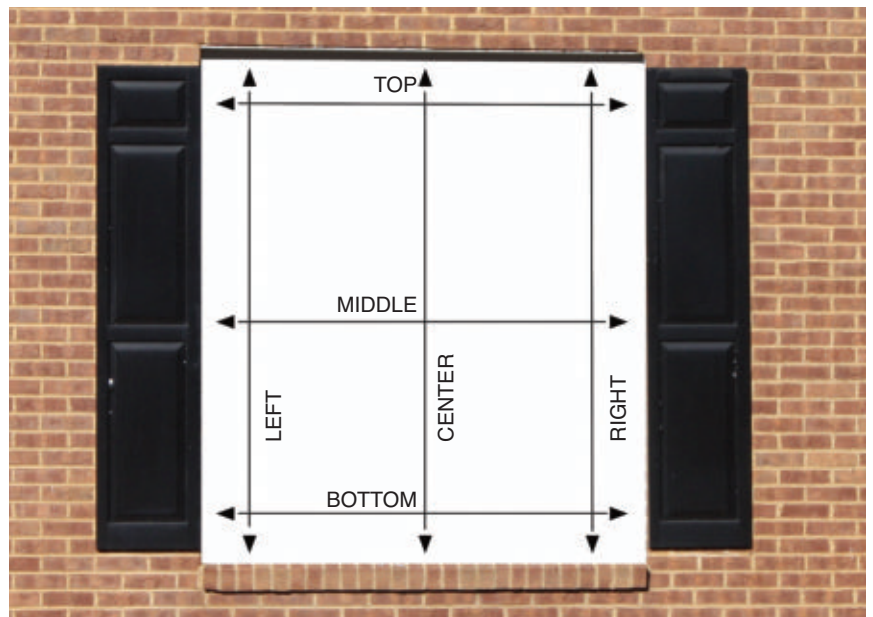
are installed. Replacement windows are sold in a standard thickness to fit inside the 3-1/4-in. pocket that exists between the outside and inside stops after the parting bead is removed.

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.





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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.



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)

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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.

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

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



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



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, such as 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, 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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INSTALL A PET DOOR

Give man's best friend a way to make a grand entrance.

By Rob Robillard

In a perfect world my two Labrador pups would let themselves in and out of the house as needed—and make their own dinner!

Although we don't live in a perfect world that doesn't mean we don't strive for greater efficiency and better solutions. My search for this led me to install a pet door. In this article I offer you my thoughts and tips on how to choose, measure for and install a quality pet door.

THE VALUE OF A PET DOOR

A pet door, also known as a cat door and dog door, is a small portal in a wall, window or door to allow pets to enter and exit a house on their own. These doors are great for allowing your pet free access to the outdoors. It provides emergency egress in case of a fire or other emergency, assists when potty training and also allows guard dogs access to the property.

It's a great feature for pet owners who work long hours and want their pets to have free access to a fenced yard. A pet door eliminates the need to rely on neighbors or friends to let your pet out.

TYPES OF PET DOORS

Today's pet doors have spring-loaded, flexible flap doors with strong magnets to close and seal the door flap from the weather. Some pet doors are electronically controlled by a RFID (radio-frequency identification) chip on the animal's collar. The RFID chip unlocks the pet door as the animal approaches and locks it after they pass through.

The most common pet door is the flap door which is also the most cost effective and easiest to install.

Most folks don't opt for the more complicated electronic door unless they have security issues or are concerned with stray animals



INSTALL A PET DOOR



entering the home. Other issues with electronic doors include battery failure in the animal's collar or, if the collar should be removed or lost, failure of the pet door to open.

LOCATION: WALL VS. DOOR

Pet doors can be installed in walls, in a door and as a special panel to allow placement in a sliding door unit.

Wall units have several advantages over door units. First, a wall unit allows for a double flap pet door to be installed. A double flap pet door creates an air space between flaps and provides a superior weather seal and less air leakage. Double door flaps are far superior in energy efficiency than single door flaps.

A pet door cut through a door typically ruins the door, and that door will need to be replaced if the owner decides to remove the pet

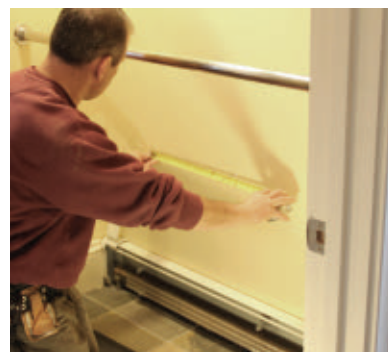
door. A flap door cut into an existing door is typically more costly than a wall unit, which only requires repairing wallboard and some siding.

A pet door in a wall also gives the owner more options for placement. A wall entrance placed in low traffic areas (an alcove, closet or rarely used hallway) keeps it away from entrance doors that are usually highly visible.

MEASURE DOG & DOOR

To determine the proper width of the pet door for your animal, open a door just wide enough for your animal to comfortably walk through. That measurement is your pet door's flap width.

The top of the door flap should be mounted an inch above the top of the pet's shoulder. This way the pet does not have to crouch to use the door. (Note: For double-flap pet doors, install the door 2 inches above the pet's shoulders.)



Carefully lay out the pet door location square to the floor.



Insulation support rods chucked into a drill are long enough to penetrate the full thickness of the wall and can be seen from both sides. We used the rods to pinpoint the four corners of the tunnel.

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INSTALL A PET DOOR

One common mistake is to measure the pet's head height: All pets duck their heads and pick up their paws when passing through a pet door.

The lower the pet door's bottom, the better. Try to avoid installing the door too high, which can be awkward for your pet. A good rule of thumb is to avoid exceeding

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Photo courtesy Miles Minno Photography



*Cut away the wallboard with a
jab saw or jigsaw.*



*On the outside of the wall,
use a level to connect the four
corners of the door tunnel.*

1/3 the height of the animal's shoulders. Make adjustments if your dog has a deep chest or is low slung.

Sometimes the installation location dictates height as well. A baseboard radiator dictated our minimum height (real world conditions). Always follow the manufacturer's recommendations, but you may have to think outside the box when dealing with the environment where the door will be located.

SPECIAL CONSIDERATIONS

In our situation we had two things working to our disadvantage. The mudroom closet where we wanted to place our pet door also had an 8-in. high hot water baseboard radiator along the wall

at the floor level. This meant the door had to be installed over the radiator.

The pet door exited onto a covered porch that was 7 inches lower than the floor of the closet. The good thing about the covered location is that the door is protected, eliminating the worry of rainwater getting into the wall. However, this meant the door was 13 inches off the exterior porch deck, which was much too high for my dogs.

Because this was the only location for the pet door, we decided to install it and construct a 2-ft. square stoop for the dogs

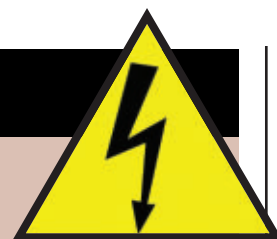


The design of the house required locating the bottom of the door 13" from the deck of the porch. Since this was too tall for the dogs, it required us to build a stoop as a landing for the dogs.



Carefully cut through the exterior siding.

HIDDEN DANGERS INSIDE THE WALL



Prior to installing a pet door in the wall, pay close attention to what is behind the wallboard. Pipes and wires can cause problems, and you don't want to have to relocate your door and then patch an area you didn't use.

Some tips for locating hidden obstructions is to do the following:

- Look for electrical outlets or switches in the vicinity of the pet door. If an outlet is within 12 to 14 inches from your location, you may not have enough room to fit the door between the wall studs.
- Look below, above and beside the wall being used for the pet door for radiators, adjacent bathrooms or kitchen plumbing.
- Poke a quarter-size hole if needed and look inside the wall cavity with a flashlight.
- Use wire or a straight coat hanger to probe the cavity for obstructions.
- If you're lucky enough to own a flexible inspection camera, this is the perfect place to use it.



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INSTALL A PET DOOR

to stand on as they entered or exited. This worked very well.

INSTALLATION

The easiest installation involves locating the pet door between two existing wall studs. Electronic stud finders work well, but I always confirm the stud finder's readings by using a small finish nail and poking a few holes. One trick is to look closely at the top edge of the baseboard trim at the pet door location. Try to locate the finish nail locations. Many times the upper nail locations will indicate a wall stud location.

Wall studs typically run 16 inches on-center, leaving approximately 14-1/2 inches of space between them. Other common wall spacing is 12-in. and 24-in. O.C.

Note: If you need to cut a stud, special framing is required to

prevent structural degradation.

Depending on the pet door's size, electrical wires can usually be left undisturbed in a stud bay with the pet door tunnel.

DOOR TEMPLATE

The Endura pet door we chose comes with a template, which you tape to the wall (between the studs) where the door will be installed. Double check for hidden wall obstructions, wires, pipes, etc.

Install the template square to the floor to ensure a proper look after installation. I located the top of my door, leveled a line and then installed the template to that line.

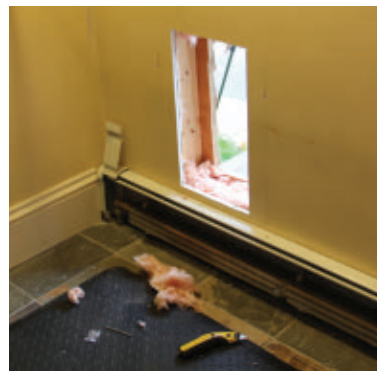
CUTTING WALL & SIDING

Use a long drill bit or feeler wire to mark the four corners of the door. This means drilling all the way through the wall to the outside.

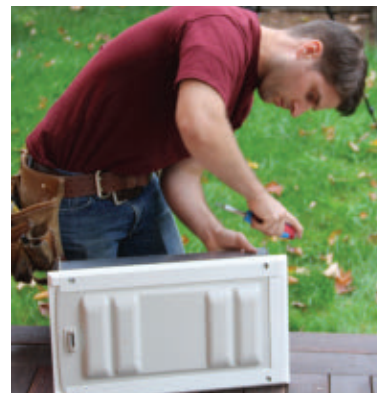


Remove the siding and plywood sheathing from the tunnel.

Remove insulation from the wall tunnel and reuse it around the perimeter of the pet door during installation.



This photo shows the baseboard radiator that we had to work around.



Assemble the door tunnel according to the manufacturer's instructions.

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INSTALL A PET DOOR



Manufacturers typically offer instructions on applying the pet door's weather-stripping and constricting the wall channel.



Our Endura dog door had four threaded rods that clamp the two door flap units tight to the house sheathing and to the wall cavity tunnel.

I used insulation support rods, which measure 16-in. long and can easily be installed in a drill. The rods penetrate all of the wall materials and are long enough to

be seen on both sides of the wall.

Connect the four corner holes on both sides of the wall using a level or straight edge.

Use a drywall jab-saw or jigsaw

to cut out the wallboard along your marked lines. Use a jigsaw to cut out the siding and plywood sheathing. I like using a jigsaw because the blade doesn't penetrate as deeply as a reciprocating saw, thus eliminating the chance of hitting a hidden wall pipe or wire.

While cutting, I suggest collecting the dust with a shop vacuum. This will dramatically reduce the airborne drywall dust in the house as well as the cleanup after installation.

With the insulation exposed, carefully remove only the material that will be in the way of the pet door. Later, while installing the pet door, re-use some of this insulation. Tuck it into the sides, bottom and top of the cut hole and pet door channel.

ASSEMBLING THE PET DOOR

Follow the manufacturer's instructions for applying the pet door's weather-stripping and constricting the wall channel. The wall channel is an aluminum tunnel between the two door flaps. It protects the inside cavity of the wall and seals it off as well.

Our Endura Flap pet door had four threaded rods that clamp the two door flap units tight to the

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house sheathing and to the wall cavity tunnel. This creates a tight seal and secure installation.

RECESSING THE EXTERIOR DOOR

I have cedar clapboard siding on my house. Once the wall holes were cut I used the door flap frame as a guide and carefully cut away the clapboard siding to recess the frame within the siding. This provided a professional looking installation and avoided unsightly and leaky gaps along

the side of the frame and clapboards.

The best tool to make the cut is an oscillating multi-tool. We used the FEIN Multi-Master FMM 250Q to make these cuts. Any multi-tool will work, as would repetitive scoring with a straight edge and utility knife (but that takes a lot of time).

SEALING THE SIDING

Caulk the siding to the door-frame when complete. Also apply a bead of silicone to the inside of

PET DOOR FEATURES

Our research told us that the Endura Flap Dog Door for Walls was the best choice for our needs. We used several criteria when deciding on a pet door manufacturer. They were:

FLEXIBLE FLAP DESIGN: A flexible flap door allows the pet to enter, exit or back out without the danger of pinching the animal.

MAGNETS: Embedded magnets in the flap and frame of the pet door ensure a tight seal.

DOUBLE FLAP FEATURE: A double flap pet door creates an air space that helps insulate and keep the conditioned air in the house. We felt that the double flap doors in our 2x6 framed walls would be beneficial for New England winters as well as when the AC is on in July.

FLAP PIVOT POINT: The flaps swing on a rod, not a hinge, to avoid stressing or cracking the flap, which can happen on hinged doors. Endura tested their pet doors over 3 million times with no failures. To put that in layman's terms, that equals 100 opens and closes each day for 80 years. (We'd love to see their testing jig!)

WIND RESISTANCE: A strong wind or Nor'easter can easily blow open an unsecured pet door. Endura Flap magnets are rated to 50 mph winds, and more magnets can be added if desired.

TEMPERATURE RESISTANCE AND UV RETARDANT: The flap door is made of a polyolethin-based polymer and is rated to flex to minus 40 degrees. Vinyl doors will crack at temperatures that low. Direct sunlight can also cause fading and cracking, but the Endura door is treated with a UV retardant.

CLEAR SEE-THROUGH DOOR: The pet door flaps are clear, allowing light to pass and the pet to see through as well.

SECURITY PANEL: Most pet doors have a security panel to close off and lock the pet door. We liked how the Endura door slides and locks between a full-length groove on three sides of the frame. The security panel then locks in place. We do this at night for added security as well as to reduce heat loss.

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INSTALL A PET DOOR

the flap frame and the tunnel to keep water from getting into the wall cavity.

TRAINING THE DOG TO USE THE DOOR

With patience you can train your pets to use this door. The one rule when training is never to shove your pets through the door.

Open the flap and let them see the outside and use food treats to coax them to go through it while open. After a few repetitions, hold the door open less and less until the animal gets comfortable touching and pushing on the flap.

Avoid scolding or punishing them.

For our installation I used treats to lure them outside, then I'd go inside and repeat the process.

After doing this a few times over a few days we started using the pet door only to allow the pets access to the outdoors. We kept treats near the door, and when our two dogs whimpered to go outside we simply took our treats outside and coaxed the dogs through the pet door.

If the animal is having difficulty you can reduce or eliminate the magnets until they get the hang of pushing the door.

Within two to three days our two dogs were using the pet door with no issues. **EHT**



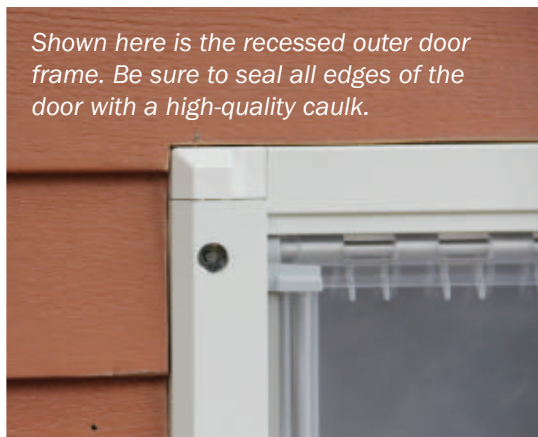
Shown is the wall tunnel with the interior unit in place.



We used an oscillating multi-tool to carefully cut the siding to recess the door into the wall, giving it a more finished appearance and eliminating air gaps.



Shown here is the recessed outer door frame. Be sure to seal all edges of the door with a high-quality caulk.



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INSTALLING A CUPOLA

Top Off Your Roof

I love the look of cupolas, and this article will show you how to install a decorative cupola on your roof. I first had the opportunity to rebuild an 80- to 100-year old cupola in historic Concord, Massachusetts, and have since repaired several other cupolas of varying styles.

WHAT IS A CUPOLA?

A cupola can be a decorative or functional architectural structure mounted on top of a home or barn and usually centered along the roof ridge line. In my neck of the woods, all barns worthy of their salt have a functional cupola. When functional, a cupola is used to ventilate a building or roof area. They are often made from wood, copper or composite materials. They can come as a single piece or, if larger, two or three pieces.



Cupolas of various styles were integrated into English domestic architecture during the late 17th century and became part of the U.S. architectural design during the post-Revolutionary Federalist era. Many new homes use decorative cupolas as architectural details to enhance the exterior design.

A decorative cupola differs from a functional cupola in that the roofing material and roof sheathing does not need to be cut away to create a vent hole. These types of cupolas should be installed with step flashing to prevent leaks.

The decorative cupola in this installation was built by a company called Walpole Woodworkers.

Cupolas generally have three major components: the base; the louver vents or windows; and the finial or weather vane.

By Rob Robillard



First step is to determine the cupola location. If the roof is longer than your tape measure, pull two tape measures from opposite ends and determine where the centers of the two tapes meet.

Remove only the roof ridge shingles where the cupola will be located.



HOW TO INSTALL A DECORATIVE CUPOLA

First step is to determine the cupola location. Measure and mark the center of where the cupola will be installed. If the roof is longer than your tape measure, pull two tape measures from opposite ends and determine where the centers of the two opposing tapes meet.

Measure left and right along the ridge line to determine the outer sides of the cupola.

Remove only the roof ridge shingles. I cut the center shingle out and then used a nail puller (cat's

paw) or a flat bar to remove the roofing nails and ridge cap shingles. The goal is to remove them in one piece so you can use them later for patching, if needed.

Cut and remove only the ridge shingles and/or ridge vent up to the outer edge of where the cupola will sit.

You may need to use the utility knife to trim the shingles back. Use care not to expose the roof sheathing. If you do, you will need to patch this spot with rubber flashing tape or flashing and shingles to prevent water intrusion.

DETERMINE THE ROOF PITCH

On the ground, insert one screw into the ends of two 24-in. pieces of wood to make a hinge tool to copy the roof pitch. Bring this angle finder up to the roof and lay it over the area where you removed the ridge shingles.

Press the angle finder tightly to the shingles and then insert a second screw to hold it tight, locking the angle in place.

Once this is complete, use a level to mark a plumb line from the center of the ridge onto your angle finder. This plumb line will

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INSTALLING A CUPOLA



Use two pieces of wood to make a hinged angle finder. Use the angle finder on the roof ridge to determine the pitch.

The cupola is made from composite material and arrived as a single piece.



Determine how the cupola will be oriented on the roof. Cut the correct sides to match the pitch.

be your top reference line when tracing the cupola. Bring your angle finder off the roof to the cupola to be installed.

MARK THE CUPOLA BASE

Determine which sides will be the front and back of your cupola.

Measure and draw a center-line on the two opposing base walls on your cupola. These are the two sides that will straddle the roof ridge.

Using your angle finder, line up your plumb line on the center line and ensure that the bottom legs of your angle finder line up at the lower corners of the cupola. Doing this will ensure an accurate and symmetrical cutout.

Mark both sides of the cupola the same way and use a saw to cut out the angle along your marked lines.

If you have a steep roof, greater than 9-12 pitch, you may need to install an extended base.

MOUNTING BOARDS

Mount four sections of 2x4 blocks on the roof to fit flush inside the edges of your cupola. Predrill your holes in the block and apply silicone to the bottom of each block prior to attaching it to your roofing.



Mark the centerline on the cupola and align the angle finder.



Scribe the roof pitch onto the cupola. Cut the angle with a jigsaw.



Shown is the cut base. If you have a steep roof, greater than 9-12 pitch, you may need to install an extended base. Cut the opposite side of the base to match.

Mount all four blocks to the roof sheathing and drive the top fasteners into the ridge board.

POSITION THE CUPOLA ON THE ROOF

Once you are satisfied with the fit on the roof, attach the cupola with two to three stainless steel screws driven into each mounting block. Plug or patch the screw holes. On PVC cupolas, I use the Cortex screw and plug system.

Apply silicone only to the seams that straddle the ridge and are fastened to the mounting



Bring the cupola to the roof and test the fit.



Use the ridge shingles that you removed, if in good condition, to make any necessary patches or to cover any roofing you removed.



Predrill holes in the 2x4 mounting blocks and apply silicone to the bottom prior to attaching them to your roofing.



Mount four sections of 2x4 blocks to fit flush inside the edges of your cupola. Drive the top fasteners into the ridge board.



When mounting the cupola, apply silicone only to the seams that straddle the ridge and are fastened to the mounting blocks.

INSTALLING A CUPOLA

blocks. This will keep angled rain-fall from getting under your cupola and affecting the 2x4 wood.

Leave the lower pitches' roof edges open to drain any wind driven snow or moisture that may make its way under the louvers.

Use the ridge shingles that you removed, if in good condition, to make any additional patches or to cover any roofing you removed. **EHT**

Attach the cupola with two to three stainless steel screws driven into each block.



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A photograph of a wooden deck with a stone fireplace and a window looking out onto a lake. The deck is made of light-colored wood and has a dark brown railing. The fireplace is made of rough-hewn stone and has a wooden door. The window is framed in dark wood and looks out onto a lake with trees in the background. The text "Last-Deck" is overlaid on the image in a large, white, italicized font.

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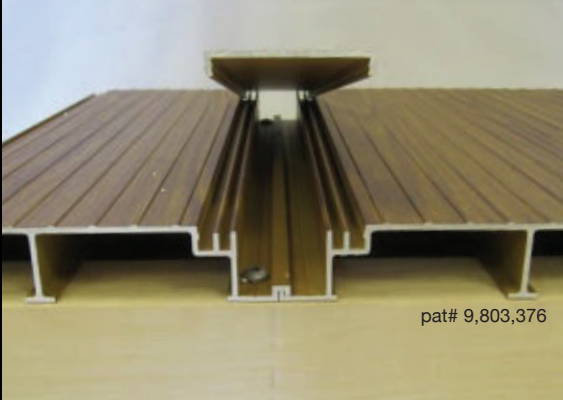
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Concrete Slab Basics



By Matt Weber

A concrete slab is one of the basic components of modern construction throughout the world. Whether used as a building foundation, sidewalk, patio or a mounting pad for your AC condenser, the method of construction is largely the same.

Building codes generally require that exterior stairways have a concrete footing or foundation. Without the foundation the steps will sink, heave or tilt to one side. This article shows how to build a 4-in. thick slab that will serve as a foundation for a set of deck steps.

Be prepared for a workout if

you're constructing a concrete slab. It can be tough work, requiring a lot of digging, mixing and other sorts of manual labor.

STEP BY STEP

First, mark the perimeter of the slab location with stakes and string. Make sure the slab area is large enough to completely support the bottom of your stair stringers—or whatever else you plan to use it for.

Calculate the depth of the finished slab, including the concrete and the gravel base. Concrete is typically applied at a minimum of two inches, but I recommend a

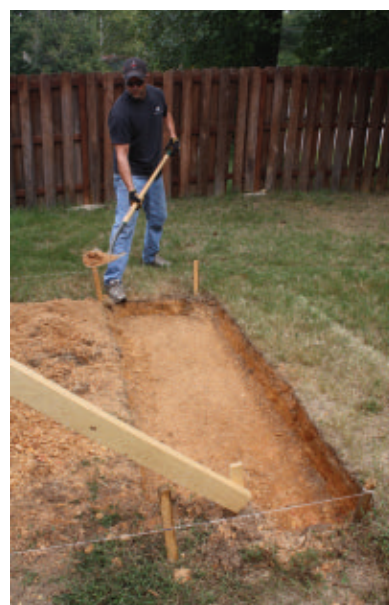
minimum thickness of 4 inches for a durable stair footing. With this type of application, both a fine and coarse aggregate are required. (I used ready-mix bags of Sakrete.)

Next, dig a level excavation to the dimensions of your slab, plus room for forming boards.

The first layer of my slab consisted of 5 inches of gravel. I shoveled in the stone and compacted this gravel bed down to 4 inches with a hand tamper.

Next, I built a rectangular concrete form using 2-by-4s fastened with some heavy-duty R4 screws from GRK Fasteners. Pros often use duplex nails to build the form, which are easy to pry out after the slab cures, but for a low-profile form like this I find using screws to be even faster. The forms frame the perimeter you marked with the stake and strings.

I leveled the form on the gravel bed and anchored it in place every 18 inches by screwing in stakes driven in the ground outside the



First step is to excavate the slab location.



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Add a gravel base for the slab.

frame. The stakes hold the forms securely so they don't bow or blow out when filled with the heavy concrete. Once the stakes were in place, I cut them flush with the top of the form so I could use a screed board once the concrete was added.

There was a slight grade in the soil I had to overcome to ensure that my stair landing was built level. To accommodate the slope I partially buried one end of the form below grade, leaving the top inch of the form above ground to shed water. The opposite end of the slab was set above grade, with the edge of the form exposed. Removing the soil allowed me to level the form from left to right and front to back, and stake it securely. Be sure the form is flat enough to provide an even landing for the stair stringers but slightly sloped



Dig deep enough to account for the gravel base (4" after compaction) and concrete pour (4").



The concrete form was made from treated 2x4s.



Tamp down and level the gravel bed.

to shed water away from the home.

I then laid a grid of rebar on wire brackets that float the rebar about midway deep in the concrete forms. I tied the rebar intersections with wire.

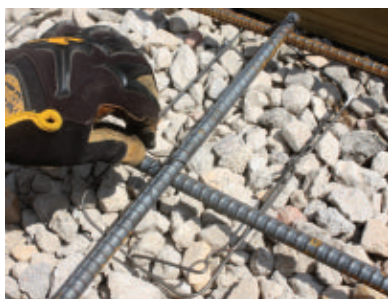
CURING

Concrete doesn't achieve its strength from drying, but from curing, which is a chemical reaction. According to the experts at Sakrete, "Curing is the action taken to maintain moisture and temperature conditions in freshly placed cement mixes, allowing the cement to thoroughly hydrate." This can be done by misting the concrete, placing wet covers such as burlap on the concrete, or by coating with a product such as Sakrete's Cure n Seal.

Curing is necessary for the concrete to achieve all of the desired properties. Additionally, rapid loss of water from the surface of the concrete will cause the slab to cure at an uneven rate. This can happen during periods of high temperature or wind. If the top portion of the slab dries before the lower portion, the concrete will cure at different rates, causing the slab to develop cracks. Learn more at www.sakrete.com.



I used a cutoff saw to trim the rebar to size for the reinforcement grid.



Secure the rebar grid with wire ties.



Stake down the form every 12 to 18".

I mixed up some quick-drying concrete, one bucket at a time, and filled my form. It took longer than expected, and next time I'll rent a concrete mixer.

You should spray down the form and the gravel with water when adding the concrete. Keep the entire work area damp throughout the installation of the concrete so the surroundings won't leach moisture out of the concrete before it has properly cured.

When the mix reached the top of the forms, I struck off the excess concrete even with the top of the forms by screeding it with a very straight 2-by-4. It helps to move the edge of the screed board in a side-to-side motion over the upper edge of the form to create an even slab.

I then used a wood float in a circular motion to work the heavy aggregate below the concrete surface and bring the "cream" to the top. If you prefer, you can roughen the surface with a broom as the concrete cures to give more traction to the top of the slab.

Allow the concrete to cure for a few days before walking or building on top of it. Because I was building during the heat of summer, I kept the slab covered in plastic to retain moisture for a slow, solid cure. **EHT**



Apply the concrete. I mixed it one bag at a time but should've rented a mixer.



Screed the concrete even with the form.



Float the surface of the slab to bring the cream to the top.



After the concrete fully cures, it's ready for use as a walkway or footing.

Install a Clay Paver Patio



By Walt Steele

The warm weather is here, and it's time to get outside. A good summertime project for DIY'ers is to build a patio of genuine clay pavers. To get started, figure out how you plan to use the space.

Gather everything that you will regularly want on your patio—the grill, the children's toys, patio furniture—and place everything where you will want it to go. Use a garden hose or spray paint on the grass to outline the size of the patio.

Visualize beforehand how you want the patio to look. Think about what the overall shape will be and what pattern you'll use. A curved

patio, for example, is less formal than a rectangular or square one. In terms of patterns, a basket weave pattern is ideal because full pavers can be used throughout in a square or rectangular shaped installation. Using a running bond or 90-degree herringbone in rectangular areas will only require half-cuts, while a 45-degree herringbone requires cuts around the entire perimeter. That would mean renting a wet saw for at least a day, which would add an additional expense to your project.

And before you start digging, always make sure the underground utilities have been located and marked.

Installing a clay paver patio is great DIY summertime project that enhances the look of the home's outdoor environment.

Conventional installations require pavers, crusher run gravel and sand, edge restraints, a compacting machine or hand-held tamper, and a broom.

As a general rule, conventional pavers require about 4 inches of compacted crushed stone as a base for pedestrian use; or deeper, to up to 8 inches for more harsh climates where ice heaving is a problem. For vehicular uses, a base of between 8 and 12 inches is recommended. Another good rule of thumb is to find out the generally accepted practices in your area and use them.

Dig down deep enough to include the depth of the crusher run gravel, one inch of sand on top of that, and the paver itself. When you're done, the paver should be flush with the top of the ground. Dig six inches out beyond the area you will pave. Slope the soil about 1/4 inch per foot to allow for proper drainage away from the home. Next, tamp the soil down with the tamper or plate compactor.

Put down the crusher run gravel and compact it well. Then, lay down two lengths of 1-in. PVC pipe, parallel to each other and several feet apart. Cover the pipes with concrete sand (course, jagged sand) and use a board across the top of the pipe to screed the sand level.

Remove the pipes and use a trowel to fill and smooth the voids. Lay the pavers in place, using string lines to ensure a straight pattern.

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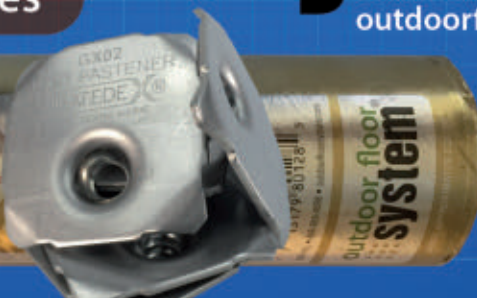
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Next, install edge restraints, which can be metal or plastic, or even a row of finished pavers stood on end and buried to finished height. Troweled concrete that's later backfilled can also be used as the edge restraint.

Tamp or compact the pavers into the sand bed using a piece of scrap plywood, a square of old carpet or a plastic pad on top of the pavers to avoid chippage. After that, sweep sand into the joints. In a week or two, you'll want to see if more sand is needed in the joints after it has settled.

EXISTING CONCRETE

To install pavers over an existing concrete patio or walkway, begin with thinner pavers that are 1-3/8 inches thick and made for this purpose.

Lay a "soldier course," which means laying a line of bricks perpendicular to the edge of the concrete to form the outside frame of your project. Use four dots of masonry adhesive on each brick, each about the size of a penny, which allows rainwater to pass underneath.

On the inside of the soldier course, cut pieces of roofing felt to put a single layer inside the frame covering the concrete. Don't overlap the felt edges. Then, lay a second layer of felt perpendicular to the first, over the top of the first layer. The felt keeps the pavers from rocking against the concrete when you walk on it.

Starting at one corner, begin laying the pavers in place, leaving a 1/8-inch gap between the pavers. Finish by sweeping sand between the joints until they are full.



As a general rule, conventional pavers require about 4 inches of compacted crushed stone as a base for pedestrian use.



Cover the gravel bed with concrete sand (course, jagged sand) and use a board across the top of the pipe to screed the sand level.

A #2 stone is used as a sub-base, followed by a finer grade of #57 stone. The bedding layer, just beneath the pavers, is made up of #8 or #89 aggregate, which is also swept into the joints. Every 4 inches of depth, the aggregate is rolled or compacted into place. Once the surface is prepared, the pavers are put into place. **EHT**

***Editor's Note:** Walt Steele, is a recognized expert on clay pavers. He is paver business manager for Pine Hall Brick Company. Steele can be reached at (800) 334-8689 and at waltsteele@pinehallbrick.com. For more information, visit www.PineHallBrick.com.*

PERMEABLE PAVERS

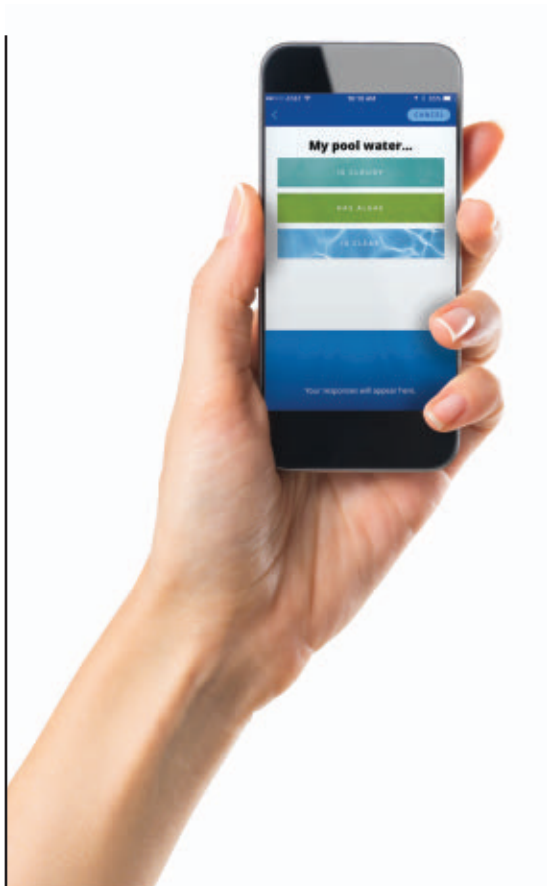
Permeable pavers are somewhat similar, except that special open-graded aggregates without fine particles are used instead of crusher run and sand. Additionally, the permeable pavers themselves have larger nibs—spacers that keep the pavers apart—and allow water to seep in-between them.

Figuring the depth of the under-layment is also different. The standard method is to dig down a minimum of 12 inches. Some installations, such as streets, will require a deeper excavation. Since the idea is to trap stormwater and then release it slowly into the ground underneath, the depth depends on how much water needs to be handled, and that's a question for an engineer.



After placing the paver stones over the sand bed in your preferred pattern, sweep sand over the installation to fill the joints between pavers.

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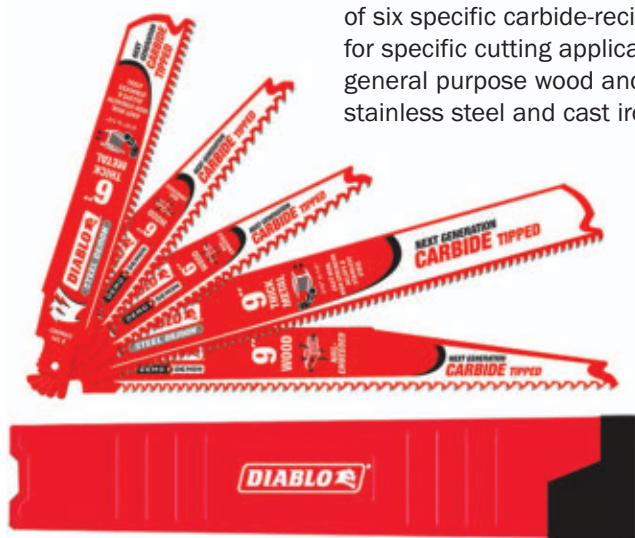
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of six specific carbide-reciprocating blades individually designed and engineered for specific cutting applications, ranging from clean or nail-embedded wood, general purpose wood and metal, to all thicknesses of metals such as rebar, stainless steel and cast iron. By providing greater durability and cutting performance than standard bi-metal reciprocating blades, the new Diablo blades make the pro more productive on the jobsite. The blades feature enhanced carbide tip-to-blade connection for extreme impact resistance in some of the toughest cutting situations. The one-inch oversized blade body creates straighter cuts with less vibration to protect the carbide teeth, while Diablo's proprietary Perma-SHIELD non-stick coating for less gumming and friction allows the blades to cut extreme materials with ease. Diablo offers the blades in a variety of sizes, 6, 9 and 12 inches. Visit www.diablotools.com/ recip.



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